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Greek and Indo-European Syllabification:

A Study from the Materiality of Writing to Phonological Analysis

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Indo-European Studies

by

Paolo Sabattini

2026

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2026

ABSTRACT OF THE DISSERTATION

Greek and Indo-European Syllabification:
A Study from the Materiality of Writing to Phonological Analysis

by

Paolo Sabattini

Doctor of Philosophy in Indo-European Studies

University of California, Los Angeles, 2026

Professor Anthony D. Yates, Co-Chair

Professor Brent H. Vine, Co-Chair

This dissertation investigates the historical development of Greek syllabification from Mycenaean through the Archaic 1st-millennium dialects, with particular attention to its implications for the reconstruction of Proto-Indo-European (PIE) syllable structure. It develops a unified account of Greek syllabification by integrating linguistic, orthographic, metrical, and philological evidence within an Optimality-Theoretic (OT) framework.

The study draws primarily on Mycenaean and Homeric Greek, the earliest attested stages of the language, while also incorporating comparative Indo-European evidence where relevant. Four complementary sources of evidence are examined: sound changes and synchronic phonological processes sensitive to syllable structure; Linear B orthography and inscriptional practices; metrical evidence from Homeric poetry; and observations preserved in the ancient grammatical tradition.

Philological analysis and phonological modeling are employed jointly to reassess longstanding problems concerning Greek and PIE syllable structure.

The dissertation reaches four main conclusions. First, a comprehensive reexamination of the evidence shows that Liquid Metathesis was not a productive feature of Mycenaean phonology. Second, the directionality of sonorant vocalization in Mycenaean is demonstrated to be governed by syllable well-formedness rather than occurring in free variation, supporting an analysis in terms of vowel epenthesis conditioned by syllabification. Third, Linear B orthography is shown to be compatible with an independently established account of Greek syllable structure based on cluster heterosyllabicity, allowing both regular spelling conventions and apparent exceptions to be derived within an OT model. Fourth, the comparison between Mycenaean and Homeric Greek indicates that the Greek linking vowel *-o-* originated as a phonologically conditioned repair strategy before being reanalyzed as a stem-level morphological process. A Stratal OT analysis accounts for this development and relates it to other changes in Greek syllable structure between the second and first millennia BCE.

Taken together, these findings reconcile linguistic and orthographic evidence that has traditionally been regarded as contradictory and support a reconstruction of Greek syllable structure based on cluster heterosyllabicity. They further indicate that Mycenaean preserves several properties of PIE syllable structure that predate innovations attested in the first millennium BCE, demonstrating that linguistic, orthographic, metrical, and philological evidence can be integrated within a single account of the early history of Greek phonology.

The dissertation of Paolo Sabattini is approved.

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University of California, Los Angeles

2026

πεπαιδευμένου γάρ ἐστὶν ἐπὶ τοσοῦτον τὰκριβὲς ἐπιζητεῖν καθ' ἕκαστον γένος,
ἐφ' ὅσον ἡ τοῦ πράγματος φύσις ἐπιδέχεται.

It is a mark of the trained mind never to expect more precision in the treatment of any subject
than the nature of that subject permits.

Aristotle, *Nicomachean Ethics* 1.3, 1094b23–25

(tr. J. A. K. Thomson)

Magistris meis omnibus

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VITA

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- 2025 with Michele Bianconi and Marta Capano. "A new assessment of Messapic vocalism: sound change, script adaptation, and synchronic phonology." *Indo-European Linguistics* 13.1–40. DOI: <https://doi.org/10.1163/22125892-bja10039>
- 2023 "Syllabification-driven changes in Mycenaean: The case of liquid vocalization." In David M. Goldstein, Stephanie W. Jamison, and Anthony D. Yates (eds.), *Proceedings of the 33rd Annual UCLA Indo-European Conference*, 135–55. Hamburg: Buske.

- 2021 “La vocalización de las sonantes silábicas indoeuropeas en micénico.” In Laura Camino Plaza et al. (eds.), *Scripta manent. Nuevas miradas sobre los estudios clásicos y su tradición*, 103–14. Santiago de Compostela: Universidade de Santiago de Compostela.
- 2021 “Were Mycenaean tables three-footed? Etymological, iconographical, archaeological, and contextual remarks.” In Rachele Pierini, Alberto Bernabé, and Marco Ercoles (eds.), *THRONOS. Historical Grammar of Furniture in Mycenaean and Beyond*, 65–74. Bologna: Pàtron.

Presentations

- 2026 with Giulia Paglione. “Shaking earth, shaking sea: The Theran eruption and the making of a tsunami god.” AIA/SCS Annual Meeting, San Francisco, January 7–10, 2026.
- 2025 “Constraint-based orthography: Modeling Mycenaean spelling rules with Optimality Theory.” 16th Colloquium on Mycenaean Studies, Madrid, September 3–6, 2025.
- 2025 “Ancient Greek linking vowels in diachrony: A constraint-based account from Mycenaean to Homeric Greek.” 11th International Colloquium on Ancient Greek Linguistics, Nice, June 25–27, 2025.
- 2024 “The phonology of linking *-o-*: **-went-*stems between Mycenaean and Homeric Greek.” 35th Annual UCLA Indo-European Conference, Los Angeles, October 25–26, 2024.
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- 2022 “Mycenaean *or/ro* story: Directionality of PIE liquid vocalization in Mycenaean Greek.” 33rd Annual UCLA Indo-European Conference, Los Angeles, November 12–13, 2022.
- 2022 “Mycenaean slips: A psycholinguistic analysis of scribal errors on the Linear B tablets.” 10th International Colloquium on Ancient Greek Linguistics, Madrid, June 16–18, 2022.
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GENERAL INTRODUCTION

Topic and Scope

This dissertation engages with problems in Greek and Indo-European syllabification, examining data from Mycenaean and 1st-millennium Greek dialects through the Archaic period. This selection in terms of chronology responds to the reconstructive aspirations of the study, as these earlier stages of the Greek language are expected to provide greater insight for our understanding of Proto-Indo-European (PIE). Different types of evidence are examined in the dissertation, namely: 1) sound changes and synchronic processes that may be understood as triggered and/or driven by syllable well-formedness; 2) Linear B inscriptional material, in order to evaluate epigraphic and orthographic practices alongside the purely linguistic evidence; 3) metrical texts, traditionally taken as a diagnostic for syllable weight and division; 4) when relevant, information found in the ancient grammatical tradition. The examination of these four types of evidence in a unitary work has large methodological significance, because the tendencies observed in Greek orthography and inscriptional practices, and also outlined in the descriptions of ancient grammarians, are famously in contrast with the generalizations based on metrical and linguistic evidence. Such a contrast has not yet been resolved in a unitary account but, rather, different studies have deemed different types of evidence the most reliable and insightful.

From a methodological standpoint, the last twenty years of studies on the topic of PIE syllabification have greatly expanded the theoretical apparatus to model the synchronic phonology of both PIE and its daughter languages. Moreover, appealing to syllabification has considerably improved our understanding of sound changes and synchronic rules by uncovering conspiracies and connecting

phonological processes previously thought unrelated. Such progress has coincided with the ever more widespread adoption of Optimality Theory (OT; see Prince and Smolensky 1993/2004) to model PIE phonology, culminating in two recent monographs devoted to PIE syllabification in particular, namely Cooper 2014 and Byrd 2015. My dissertation is in continuity with these studies in theoretical terms — as it adopts an OT framework and uses the models devised by Cooper and Byrd as starting points and/or comparanda — but crucially brings Greek evidence to bear on the problem. These works, as a matter of fact, mostly draw on either Vedic evidence (Cooper 2014) or PIE synchronic rules and the behavior of laryngeals (Byrd 2015).

Data from Greek were in fact pivotal for the development of the now traditional theories and crucially influenced our understanding of the synchronic phonology of PIE. Yet the Greek evidence has not been re-evaluated in recent years — as has instead been the case for Vedic in Cooper 2014 — but generalizations formulated in past studies are still taken at face value and input into the various analyses. Moreover, old problems rooted in traditional descriptions of Greek syllabification still inform the most recent debate and have yet to be fully resolved — for example, the question of onset maximization, a principle backed by cross-linguistic parallels and applied in some accounts of PIE syllabification (chiefly Steriade 1982), vis-à-vis the traditional model of cluster heterosyllabicity first devised by Hermann (1923); or the notorious exceptions to Schindler's (1977) rule for nucleus selection in PIE. This dissertation therefore offers a new study of the Greek evidence, which takes stock of both theoretical advances on the topic of syllabification and of the most recent progress in descriptions of Greek phonology. It also fills a partial gap in the literature surrounding Greek syllabification, as no extensive studies have been produced on this topic in an OT framework. Besides the theoretical

component, the dissertation is grounded in philological work on the Greek evidence. Such work aims both to re-examine the traditional sources of evidence but also to expand this evidential basis by uncovering syllabification-driven phenomena previously neglected.

Greek and Indo-European Syllabification in the Twentieth Century

The heterosyllabicity of biconsonantal clusters

Any study of Indo-European and, especially, Greek syllabification is bound to begin with Hermann's (1923) century-old monograph, the first comprehensive treatment of this topic. His work features a detailed survey of synchronic evidence for syllable structure from all major Indo-European branches except Anatolian — including Albanian, Armenian, Balto-Slavic, Celtic, Greek, Indo-Iranian, Italic, Germanic, and Tocharian. His investigation into PIE syllabification, particularly focused on the issue of syllable division, demonstrates that every sequence of the shape */VCCV/ in PIE was syllabified as *[VC.CV], even when *CCV could form a licit syllable onset. For example, PIE */putlos/ 'son' would be syllabified as *[put.los], not *[pu.tlos], */h₁esti/ 3SG.PRS.IND 'be' as *[h₁es.ti], not *[h₁e.sti], and so on (examples from Byrd 2015: 70). Hermann supports his hypothesis with substantial evidence from Greek, Italic, Celtic, Germanic, and Indo-Iranian, highlighting a tendency for closed syllables to become open over the history of most Indo-European languages. In Greek, this tendency is instantiated by the so-called *correptio Attica* 'Attic shortening', whereby in 5th-century Attic sequences of stop + liquid and voiceless/aspirated stop + nasal (traditionally referred to as *muta cum liquida*) were often parsed tautosyllabically as onsets, and hence did not close the preceding syllable.

Within Greek, Hermann's (1923) view is based on two types of evidence, namely the metrical conventions found in Homeric poetry (which match those found in Vedic) as well as sound changes and synchronic rules that are sensitive to syllable structure. As for Homeric meter, the strongest piece of evidence is the behavior of sequences / $\check{V}CCV$ /, where the first syllable counts as heavy, which points to a syllabification [$\check{V}C.CV$] instead of $\times[\check{V}.CCV]$. As for the linguistic evidence, this metrical behavior is confirmed by the historical treatments of biconsonantal clusters from PIE to Greek. Hermann (1923: 14–88) finds that the Greek outcomes of these PIE sequences either preserve their original heterosyllabicity even when they undergo segmental change (e.g., $*/h_2elyos/$ 'other' $\rightarrow *[h_2el.yos] > Gk. \alpha\lambda\lambda\omicron\varsigma$) or at least maintain the same metrical weight of the preceding syllable (as is the case in the compensatory lengthenings). Moreover, the $o \sim \omega$ allomorphy in comparative and superlative adjectives and Wheeler's Law both treat sequences / $\check{V}CCV$ / as equivalent to / $\check{V}CV$ /, which again implies a syllabification [$\check{V}C.CV$].¹ The comparative and superlative markers, $-\tau\epsilon\rho\omicron\varsigma$ and $-\tau\alpha\tau\omicron\varsigma$ respectively, trigger the lengthening of the thematic vowel of o -stem adjectives if the preceding syllable is light, but no lengthening occurs if the preceding syllable is heavy (e.g., $\sigma\omicron\phi\acute{o}\varsigma$ 'wise' $\rightarrow \sigma\omicron\phi\acute{\omega}\tau\epsilon\rho\omicron\varsigma$, $\sigma\omicron\phi\acute{\omega}\tau\alpha\tau\omicron\varsigma$ vis-à-vis $\delta\epsilon\iota\nu\acute{o}\varsigma$ 'fearful' $\rightarrow \delta\epsilon\iota\nu\acute{\omega}\tau\epsilon\rho\omicron\varsigma$, $\delta\epsilon\iota\nu\acute{\omega}\tau\alpha\tau\omicron\varsigma$). Consequently, the absence of lengthening in forms such as $\lambda\epsilon\pi\tau\acute{\omicron}\tau\epsilon\rho\omicron\varsigma/\lambda\epsilon\pi\tau\acute{\omicron}\tau\alpha\tau\omicron\varsigma$ ($\leftarrow \lambda\epsilon\pi\tau\acute{o}\varsigma$ 'peeled, thin') and $\pi\upsilon\kappa\nu\acute{\omicron}\tau\epsilon\rho\omicron\varsigma/\pi\upsilon\kappa\nu\acute{\omicron}\tau\alpha\tau\omicron\varsigma$ ($\leftarrow \pi\upsilon\kappa\nu\acute{o}\varsigma$ 'close, compact') implies that the first syllable in the sequence / $VCCV$ / is syllabified as [$VC.CV$]. Wheeler's Law states that original oxytones retract the

¹ To this list one may now also add Vendryes' Law (which illustrates the Attic treatment of *muta-cum-liquida* sequences), the accentuation of trisyllabic $-\iota\omicron\nu$ neuters, and the morphology of reduplication in the Greek perfect. See, among others, Steriade 1982: 195–208, 1988, 2018; Devine and Stephens 1994: 32–43; Woodard 1997: 20–2; Cooper 2014: 108–9.

accent to the penultimate syllable if the word has dactylic shape or ends in a dactyl — e.g., ποικίλος ‘variegated’ vis-à-vis Ved. *peśalá-* ‘id’ (see Wheeler 1885: 60–91 and, most recently, Dieu 2021). Therefore, forms such as πατροκτόνος ‘parricidal’ (vis-à-vis, e.g., αἰγοβοσκός ‘goatherd’) suggest, once more, the heterosyllabicity of medial clusters, as the accent retraction implies that the antepenultimate syllable counts as heavy.

Hermann’s (1923: 123–84) account, however, is admittedly at odds with two other types of evidence on Greek syllable structure, namely the descriptions provided by ancient grammarians and the syllable-division practices attested on inscriptions. The basic syllabification principle that emerges from ancient grammatical treatises, especially from Herodian’s *Περὶ συντάξεως τῶν στοιχείων* ‘On the arrangement of letters’ (2nd c. CE), is that so long as a consonant cluster appears word-initially it is parsed as a complex onset word-internally. For example, a word like ἔτικτον 1SG.IPF.IND.ACT ‘beget’ would be syllabified as [ἔ.τι.κτον] since a cluster κτ is attested word-initially in words such as κτήμα ‘possession’ (see *GG* III/2 393.33) — which clearly defies Hermann’s principle. Moreover, inscriptional practices seem to align by and large with the principles found in the grammatical tradition, as evidenced by the division of consonant clusters at line end. This tendency is particularly evident in Hellenistic Attic inscriptions, where syllable divisions such as ε|κτει (*IG* II² 949.2–3), ε|βδομης (*IG* II² 1012.2–3), δο|γμα (*IG* II² 1343.38–9) are the norm, while data from earlier records and/or other dialectal areas are less decisive (cf. Threatte 1980: 64–73; Devine and Stephens 1994: 36–7).

The contribution of Linear B and Cypriot to the question of onset maximization

One more discrepancy with Hermann's (1923) account is potentially found in the spelling rules of both the Linear B and Cypriot syllabic scripts. Since both writing systems only include syllabograms having structure <V>, <CV>, or <CCV>,² sequences of multiple adjacent consonants are notated according to similar spelling principles. In Linear B, the elements of consonant clusters are sometimes included entirely in the notation by means of a “dummy vowel” (e.g. *e-na-ri-po-to* /enaliptos/ ‘anointed’), but sometimes they are not represented at all (OMISSION, e.g. *te-u-ke-pi*, /t^heuk^hesp^hi/ INS.PL ‘implement (of bridles)’). When a “dummy vowel” is used in Linear B, in the vast majority of cases it copies the vocalic element of the following sign (PROGRESSIVE NOTATION, as in *e-na-ri-po-to* just above), but sometimes the preceding vocalic element is copied instead (REGRESSIVE NOTATION, e.g. *ke-se-ne-wi-ja* /ksenwia/ NOM.PL.N ‘of the guests’). In Cypriot, on the other hand, clusters are always notated in their entirety, but we find a more even distribution of REGRESSIVE and PROGRESSIVE NOTATION — e.g., *ka-si-ke-ne-to-se* /kassignētos/ ‘sibling’ vis-à-vis *a-ra-te-mi-ti* /Artemidi/ DAT.SG ‘Artemis’. The debate concerning the spelling rules in the two writing systems, therefore, has sought to model two slightly different phenomena, namely:

- i. The variation between OMISSION and (PROGRESSIVE) NOTATION in Linear B.
- ii. The variation between PROGRESSIVE and REGRESSIVE NOTATION in Cypriot.

² The shape <CCV> is limited to innovative signs both in Linear B (which has six of them, namely <dwe>, <dwo>, <twe>, <two>, <nwa>, <pte>) and in the Cypriot syllabary (whose complex signs are <xa> /ksa/ and <xe> /kse/). See Egetmeyer 2010: I 46 and Del Frego 2019: 134.

The various contributions to this problem have converged on two separate approaches. Some have identified syllable structure as the guiding principle of Linear B and Cypriot spelling rules. This type of account argues that, in Linear B, syllable onsets are notated, codas are omitted; in Cypriot, PROGRESSIVE NOTATION would be used for tautosyllabic clusters in onset position, REGRESSIVE NOTATION for heterosyllabic clusters.³ Others have claimed that the sonority hierarchy is in fact such a guiding principle, whereby in Linear B clusters of increasing sonority are notated, clusters of decreasing sonority omitted; in Cypriot, PROGRESSIVE NOTATION would be used for sequences of increasing sonority, REGRESSIVE NOTATION for those of decreasing sonority.⁴

Among those who believe that Linear B and Cypriot spelling rules reflect syllable structure, some have taken their claim a step further and argued that such evidence falsifies Hermann's (1923) model of medial cluster heterosyllabicity for Greek and PIE. The first to formalize this alternative approach is Steriade (1982), who in her dissertation proposes that both Vedic and Greek show a tendency for onset maximization. According to this view, clusters of rising sonority are parsed as tautosyllabic complex onsets ($/VCCV/ \rightarrow [V.CCV]$), whereas only clusters of falling sonority are parsed heterosyllabically ($/VCCV/ \rightarrow [VC.CV]$). As for Greek, Steriade (1982: §3–4) founds her argument on Attic — examining meter, perfect reduplication patterns, compensatory lengthenings, and other types of

³ For Linear B, see Householder 1964; Beekes 1971; Sampson 1985: 64–76; Steriade 1982: 333–9; Ruijgh 1985: 119–24; Morpurgo Davies 1987; Consani 2003: 112–4. For Cypriot, see Deecke 1884: 10–1; Meister 1894: 177; Thumb and Scherer 1922: 288; Masson 1983: 74–5; Guion 1996; Consani 2003: 114–6.

⁴ For both Linear B and Cypriot, see Tronsky 1962; Viredaz 1983; Miller 1994: 27–37; Woodard 1994, 1997: 112–32.

cluster simplification — and, crucially, Linear B spelling rules. The rest of the evidence brought to bear by Hermann (1923), particularly the $\sigma \sim \omega$ allomorphy in comparative and superlative adjectives and Wheeler’s Law, is considered unreliable in this framework.⁵ Steriade’s (1982) model implies a different trajectory of changes in syllabification principles from PIE to the attested Greek dialects. Hermann (1923) devised an ancestral stage in which all clusters were syllabified heterosyllabically, later altered by an innovative tendency to onset maximization instantiated by Attic. Steriade (1982), on the other hand, considers onset maximization to be the original state of affairs, which would be preserved in Mycenaean and restricted in Attic, where heterosyllabicity outside of *muta-cum-liquida* sequences would be the innovation. This position has been reaffirmed by Guion (1996), who finds additional support for Steriade’s (1982) model in Cypriot spelling rules, and by Consani (2003: 39–50), who re-examines the Linear B and Cypriot evidence altogether. Under the onset maximization model, Cypriot is therefore considered as conservative as Mycenaean in terms of syllabification principles.

Consani also questions more seriously the methodological practice of equating the syllable division presupposed by metrical texts with the underlying syllabification of Greek. In doing so, he builds on Pulgram’s (1981) notion of *productio metrica* ‘metrical lengthening’ (a provocative reversal of *correptio Attica*), whereby the cluster heterosyllabicity observed in Homeric and archaic poetry is nothing but a metrical convention and has no bearing on the phonological structure of Greek. Pulgram’s

⁵ In a more recent paper, Steriade (2018) discusses the $\sigma \sim \omega$ allomorphy in comparative and superlative adjectives as an instantiation of a broader tendency in Greek to avoid tribrach sequences (traditionally referred to as Saussure’s Tribrach Law). On this occasion, she obliquely reconfirms Hermann’s (1923) findings in that she treats biconsonantal clusters as heterosyllabic for the purposes of Tribrach Law effects.

(1981) model of Greek syllabification corresponds by and large to the one found in the ancient grammatical tradition, whereby *any* consonant cluster admissible word-initially was parsed tautosyllabically as a complex onset word-medially — e.g. [ᾗ.κτη], [πα.τρός], [τέ.κνον], and so on. This process would produce a considerably high number of light syllables for the purposes of hexametric composition, which in turn created the need for a purely artificial convention to make syllables heavy “by position.” Pulgram’s (1981) model implies yet another more extreme trajectory of change, or rather lack thereof, as Greek would appear to be onset-maximizing throughout its history and across dialects.

Nucleus selection and sonorant syllabification in PIE

A separate domain of PIE syllabification that has been investigated besides syllable division is nucleus selection, with particular reference to sonorant syllabification. It is in fact well known that stops and fricatives were not allowed as syllable nuclei in PIE (with the sole exception of laryngeal vocalization), while low vowels and sonorants (including glides, liquids, and nasals) were (see, e.g., Byrd 2015: 72). The first to discuss nucleus selection in strings of multiple adjacent sonorants was Meillet (1937: 134–6), who formulated the following rules (translation and examples after Byrd 2015: 73):

- i. If a sequence of two sonorants follows a vowel or is in the first syllable of a word, the first is consonantal, the second syllabic — e.g., PIE **/kwn-bʰys/* INS.PL ‘dog’
→ **[kwn̥.bʰis]* > Ved. *śvábhis*.
- ii. If a sequence of two sonorants follows a single consonant and precedes a vowel, the first is syllabic, the second consonantal — e.g., PIE **/kwnés/* GEN.SG ‘dog’ → **[ku.nés]*
> Ved. *śúnaḥ*, Gk. *κυνός*.

- iii. If a sequence of two sonorants follows a vowel and precedes either a consonant or the end of the word, the first is consonantal, the second syllabic — e.g., PIE $^{*}/(h_1)néwn/$ ‘nine’ → $^{*}[(h_1)né.w̃]$ > Ved. *náva*, Lat. *novem*, Myc. *e-ne-wo-*, alph. Gk. *ἐννέα*.
- iv. If a sequence of two sonorants stands between two vowels, the first forms the second half of a diphthong, the second is consonantal — PIE $^{*}/oywos/$ ‘one’ → $^{*}[\text{oi}wos]$ > Av. *aiva-*, Cyp. *o-i-wo-* ‘only’.

Meillet’s observations were later unified by Schindler (1977) into a single rule, given in (1), which captures the generalization that the rightmost of two adjacent sonorants was selected as nucleus in PIE if it was not also adjacent to a non-high vowel ($^{*}\check{e}$, $^{*}\check{a}$, $^{*}\check{o}$).

- (1) Schindler’s (1977: 56–7) rule of PIE sonorant syllabification

$$\left[\begin{array}{c} + \text{sonorant} \\ - \text{syllabic} \end{array} \right] \rightarrow [+ \text{syllabic}] / \left\{ \begin{array}{c} [- \text{syllabic}] \\ \# \end{array} \right\} \text{-----} \left\{ \begin{array}{c} [- \text{syllabic}] \\ \# \end{array} \right\}$$

Iterative, right-to-left

Schindler’s model marked a significant advance in the understanding of sonorant syllabification and has provided a useful starting point for all later treatments. His rule, however, admittedly fails to generate the attested syllabification in five contexts, summarized in (2).

- (2) Exceptions to (1), as per Schindler (1977: 56–7)
 - a. Roots having shape $^{*}/\#RR-/$ are never syllabified as $^{*}[\#RR-]$ but both sonorants remain consonantal — e.g., $^{*}wreg-$ ($^{*}ureg-$) > Ved. *vrájant-* ‘going’.

- b. Word-medial post-consonantal */mn/ is often simplified to either *[C.m] or *[C.n] by the so-called *Asno Gesetz* — e.g., Ved. *ásman-* ‘stone’, GEN.SG *ásnas* < */h₂eḱmnés/.
- c. In the accusative of *i-*, *u-* and *r-*stems, /m/ remains consonantal, as in PIE **-im*, **-um*, **-rm*, not **-ym*, **-wm*, **-rm* — e.g., PIE **/méntim/* ACC.SG ‘mind’ → *[mén.tim].
- d. In the weak forms of nasal-infix presents, /n/ remains consonantal — e.g., PIE **yungénti* (**iwnǵénti*) >> Lat. *iungunt* 3PL.PRS.IND.ACT ‘yoke’.
- e. The syllabification of PIE **triōm* (**tṛyōm*) GEN.PL ‘three’ > Gk. τριῶν, analogical after **trib^his* DAT.PL, and that of Ved. GEN.SG of feminines from *u-*adjectives *-v(i)yās* (**-uyās*), analogical after NOM.SG *-vī*.

Modeling these exceptions, particularly (2a–d), has been a common endeavor in more recent studies on PIE syllabification, presented at the end of the next section.

Methodological Note

Optimality Theory between synchrony and diachrony

As noted above, this dissertation employs OT to model a range of syllabification-sensitive processes in the history of Greek. Since many of the analyses developed in the chapters that follow are diachronic, the present section briefly introduces the basic architecture of OT and clarifies how the framework is used here to represent grammatical change over time.

OT models grammar as the interaction of ranked and violable constraints. For any given input, i.e. a lexical form stored in the LEXICON (essentially equivalent to the Underlying Representation in rule-based models), a GENERATOR (GEN) generates a set of possible output candidates, which are evaluated

by an EVALUATOR (EVAL) against a hierarchy of CONSTRAINTS available to the grammar. The candidate that best satisfies the hierarchy is selected as optimal and corresponds to the output generated by the grammar. Crucially, constraints are by definition violable: a candidate may violate one or more constraints and nevertheless emerge as optimal if its competitors incur violations of higher-ranked constraints (see Kager 1999: 18–25).

Constraints are conventionally divided into two broad classes, markedness and faithfulness. Markedness constraints penalize particular structures in the output. Thus, a constraint such as NOCODA assigns a violation to every syllable containing a coda. Faithfulness constraints, by contrast, penalize discrepancies between input and output representations. A constraint such as IDENTITY-(voice), for example, militates against changes in the specification of [$\pm$ voice] between corresponding input and output segments. Phonological patterns arise from conflicts between such preferences and dispreferences. If a markedness constraint outranks the relevant faithfulness constraint, modification of the input is tolerated in order to avoid the marked structure; under the opposite ranking, preservation of the input takes precedence. In this sense, an OT grammar encodes not a set of inviolable well-formedness conditions, but language-specific rankings of constraints. Different rankings of the same constraints thus give rise to cross-linguistic variation, with each grammar selecting the candidate that best satisfies its particular constraint hierarchy.

The relation among inputs, candidates, and ranked constraints is conventionally represented in a tableau, as in (3). Candidates appear in rows and constraints in columns, ordered from higher to lower rank from left to right. Constraint violations are indicated by asterisks, while an exclamation mark identifies a fatal violation, that is, the violation that prevents a candidate from being selected as optimal.

The optimal candidate is marked by the pointing-hand symbol. Violations incurred after a candidate has already been eliminated are irrelevant to the outcome and are conventionally indicated by grey shading. A solid line between constraint columns represents a strict ranking relation required by the analysis, whereas a dashed line indicates that the relative ranking of the constraints in question is not established by the candidate set under consideration.

(3)

/input/	CON 1	CON 2	CON 3
a. <i>candidate a</i>		*!	
b. <i>candidate b</i>			*
c. <i>candidate c</i>	*!	*	*

In the schematic tableau in (3), three candidates are evaluated against three constraints. Candidate (3a) satisfies CONSTRAINT 1 but fatally violates CONSTRAINT 2. Candidate (3c) violates all three constraints and is eliminated by its violation of CONSTRAINT 1. Candidate (3b) therefore emerges as optimal and is selected as the output: although it violates CONSTRAINT 3, this violation is tolerated because CONSTRAINT 3 is ranked below CONSTRAINT 2. The comparison between candidates (3a) and (3b) establishes the ranking CON 2 >> CON 3. By contrast, the tableau provides no evidence for a fixed ranking between CON 1 and CON 2, since reversing their relative order would not alter the outcome.

Although OT was originally developed as a theory of synchronic grammar, its architecture also provides a useful formal means of representing phonological change. As mentioned, cross-linguistic variation is modeled through differences in the ranking of a limited set of constraints. The same logic can be extended diachronically. If two diachronic stages of the same language exhibit different phonological patterns, the change may be represented as a difference in constraint ranking between the

earlier and later grammars. On this view, OT provides a formal representation of the grammatical differences that obtain between successive synchronic stages. Constraint reranking characterizes diachronic change as a structural difference between successive grammars: a pattern that is optimal at one chronological stage ceases to be optimal under the ranking of a later grammar (see Green 1997; Cho 1998; Kiparsky 2008). The historical task remains to determine, on the basis of the available linguistic and philological evidence, how and under what conditions such a difference arose and spread.

Optimality-Theoretic models for PIE syllabification

In the last twenty years, a renewed interest in PIE syllabification has emerged as a result of the application of OT to model PIE phonology. One of the first studies in this framework is Keydana's (2004), which translates Hermann's (1923) model for medial cluster heterosyllabicity in OT terms. The crucial constraint in his analysis is *COMPLEXONSET, formulated in (4), which encodes the dispreference for the onset-maximizing syllabification */VCCV/ → *[V.CCV].

(4) *COMPLEXONSET

Syllables may not have more than one onset segment.

Count one violation for each complex onset in the output.

Although this principle correctly generates the heterosyllabicity of medial clusters *à la* Hermann, it encounters some problems in generating the attested syllabification of word-initial sequences, evidenced by the *Paradebeispiel* PIE */kwn-bʰys/ INS.PL 'dog' → *[kwn̥.bʰis] > Ved. *śvábhis* mentioned

above, and by one of Schindler's (1977) exceptions, namely (2a).⁶ Moreover, this claim clashes with Steriade's (1982) competing model for onset-maximizing cluster syllabification.

Onset maximization, instead, plays a more substantial role in Kobayashi's (2004) analysis of sonorant syllabification, which models Schindler's (1977) account by positing the alignment constraint $\text{ALIGN}(\text{Nucleus}, \text{R}, \sigma, \text{R})$, given in (5).

- (5) $\text{ALIGN}(\text{Nucleus}, \text{R}, \sigma, \text{R})$, from Kobayashi (2004: 23)
Align the right edge of a syllable nucleus with the right edge of a syllable, i.e. minimize codas.

Onset maximization thus stated not only captures the directionality of Schindler's (1977) rule, which selects the rightmost sonorant as nucleus, but also generates the correct syllabification of Ved. *śvábhis* and the exceptions in (2a) and (2b). Although not spelled out by Kobayashi himself, Byrd (2015: 77 fn. 93) points out that the reduction of medial **/mn/* in (2b) can be easily accounted for as a cluster simplification if both segments are parsed in onset position, as onset maximization dictates.

More recently, Cooper (2014) has devoted a monograph to PIE syllabification in which he has sought to unify the two main strands of previous work on the topic, namely medial cluster syllabification and nucleus selection. His treatment pursues two main goals, namely 1) re-affirming Hermann's (1923) principle of medial cluster heterosyllabicity through an analysis of (mostly) Vedic

⁶ In a later work, Keydana (2008) addresses this problem by positing a general tendency in PIE to avoid coronals in coda position. This solution, although it does rule out a candidate $^x[\text{kun.b}^{\text{h}}\text{is}]$, is at odds with other types of evidence. For detailed discussions of Keydana's analysis, see Cooper 2014: 174–80; Byrd 2015: 71–2, 137–9.

material, and 2) providing a global account of nucleus selection in PIE that accounts for all exceptions to Schindler's (1977) theory. Because of his adherence to Hermann's model, Cooper (2014: 170–4) finds fault with Kobayashi's (2004) claim for onset maximization and criticizes the narrow scope of his analysis. Kobayashi's (2004) model, if indeed it generates the attested syllabification for sequences of adjacent sonorants, fails to capture fundamental facts about PIE nucleus selection. To give just one example, Cooper (2014: 172–3) points out that sonority sequencing is not factored into the analysis. This overgenerates word-initial onsets of the shape sonorant + obstruent, i.e. $^{*}/\#ROV/ \rightarrow ^{x}[\#ROV.]$ instead of expected $^{*}[\#R_{\text{̥}}OV]$ according to Schindler's (1977) rule and based on, e.g., the weak aorist stem of PIE $^{*}nes-$ 'get away', syllabified as $^{*}n_{\text{̥}}s-$ (> Gk. ἄσμενος 'well pleased, glad'). Moreover, Kobayashi's (2004) analysis makes the wrong prediction about Schindler's exception in (2c), as an onset-maximizing syllabification would have the $^{*}/m/$ of athematic accusatives selected as nucleus instead of the stem-final sonorant ($^{*}/-r-m/ \rightarrow ^{x}[-r_{\text{̥}}m]$ instead of $^{*}[-r_{\text{̥}}m]$), but this is not the case.

Cooper's (2014: 184–255) own analysis makes more explicit claims about all facts of PIE nucleus selection and avoids overgeneration by constraining the tendency to onset maximization. To do so, he uses a different alignment constraint than Kobayashi's (2004) $ALIGN(Nucleus, Right, \sigma, Right)$, namely $ALIGN-Left(\mu, Prosodic\ Word)$, stated in (6a). Under the assumption that only nuclei and coda segments are moraic, but not onsets, this constraint alone still tends to maximize onsets to some extent, as fewer moraic segments incur fewer left-alignment violations. Therefore, Cooper also posits a Positional Markedness constraint $COINCIDE(\text{complex onset}, \text{initial syllable})$, stated in (6b), which outranks $ALIGN-L(\mu, PrWd)$ and allows complex onsets word-initially but not word-medially.

- (6) Crucial constraints in Cooper's (2014) model of PIE nucleus selection
 - a. ALIGN-Left(μ , Prosodic Word)

Align every mora with the left edge of the prosodic word.

Count one violation for each segment between a mora and the left edge of the prosodic word in the output.
 - b. COINCIDE(complex onset, initial syllable)

A complex onset belongs to an initial syllable.
 - c. COINCIDE(complex onset, initial syllable) >> ALIGN-L(μ , PrWd)

In his own monograph on PIE syllabification, Byrd (2015: 78–9) points out that these constraints, although they generate the expected syllabifications, are to some extent ad hoc solutions lacking both widespread cross-linguistic parallels and independent evidence within (Proto-)Indo-European phonology. Nonetheless, Cooper's model is adopted by Byrd as the theoretical starting point for his study, the most recent on this topic.

Byrd's (2015) own approach to PIE syllabification has marked significant progress in this subfield both in empirical and theoretical terms. The main result of his treatment is the identification of various conspiracies behind PIE synchronic rules that were previously thought unrelated and can now be seen as motivated by constraints on syllable structure. Another noteworthy finding of Byrd's work is that syllabification is influenced by morphological structure. Byrd (2015: 135–78) explores this idea in his account of Schindler's (1977) exception in (2d), namely the syllabification of nasal-infix presents, but puts it to full use in his discussion of Siever's Law (2015: 183–207).

Arguably the most prominent and novel of Byrd’s (2015: 123–5) proposals is the MAXIMUM SYLLABLE TEMPLATE, stated in (7). This is an undominated constraint bundle in PIE that determines what may and may not count as a licit word-medial consonant cluster.⁷

(7) MAXIMUM SYLLABLE TEMPLATE (MST) in PIE

The maximum PIE syllable consists of two consonants in the onset and two consonants in the coda. The onset may violate the Sonority Sequencing Principle; the coda may not.

Byrd determines the MST by applying the Decomposition Theorem, whereby “[a]ll medial clusters should be decomposable into a sequence composed of an occurring word-final cluster and an occurring word-initial cluster” (2015: 56). Violations to the MST can result in four different scenarios:

- i. **Sonorant Syllabicity:** if the sequence violating the MST contains a syllabifiable sonorant, that sonorant becomes a syllable nucleus — e.g., PIE */tentós/ → *[tntós] → *[t̥n̥.tós] ‘stretched’.
- ii. **Extrasyllabicity:** if the sequence violating the MST does not contain a syllabifiable sonorant but is at word’s edge, segments may be extrasyllabic to improve syllable structure — e.g., */nok^wts/ → *[nok^w]_σ<ts> NOM.SG ‘night’.

⁷ A constraint (or set of constraints) is undominated if no other constraint is ranked above it. Undominated constraints typically encode categorical properties of the grammar, excluding from the set of optimal outputs any candidate that violates the structural requirement they express. This reflects a core feature of standard OT, namely strict domination: “violation of higher-ranked constraints cannot be compensated for by satisfaction of lower-ranked constraints” (Kager 1999: 22).

- iii. **Stray Erasure:** if neither (i) nor (ii) applies, MST-violating sequences undergo deletion if the resulting cluster does not violate MST — e.g., PIE $*/d^h u g h_2 t r \acute{e} s/$ GEN.SG ‘daughter’ $\rightarrow * [d^h u k . t r \acute{e} s]$ via Lex Schmidt-Hackstein ($*H \rightarrow \emptyset / C_CC$).
- iv. **Stray Epenthesis:** if none of the above applies, $*[\text{ə}]$ is inserted to repair MST-violating clusters — e.g., the “schwa primum” such as in PIE $*/d^h h_1 s \acute{o} -/$ ‘divine’ $\rightarrow * [d^h \text{ə} h_1 . s \acute{o} -]$.

By applying the MST together with other phonological principles (such as the Obligatory Contour Principle and the dispreference for superheavy syllables), Byrd is able to motivate a number of phonological rules of PIE: Siever’s Law (2015: 183–207), Pinault’s Law (2015: 208–40), Szemerényi’s Law (2015: 107–13), and the *métron* rule (2015: 126–7).

Plan of the Dissertation

The dissertation is organized into five chapters arranged chronologically. The first three chapters deal exclusively with Mycenaean linguistic data and the Linear B writing system, whereas the final two chiefly examine Homeric Greek in comparison with Mycenaean.

Chapter 1 reexamines the evidence for Liquid Vocalization and Liquid Metathesis in Mycenaean, with the aim of determining whether the latter can be taken as a feature of Mycenaean phonology and, if so, whether it can be motivated by syllable well-formedness. It reassesses the inclusion of Liquid Metathesis among Risch’s (1966, 1979) distinctive features of “Normal” and “Special” Mycenaean and systematically reviews the forms adduced in support of the phenomenon. The

Mycenaean reflexes of $*\text{r}$ are also presented alongside forms continuing etymological $*\text{-or-}/*\text{-ro-}$,⁸ both to show that they pattern differently from the alleged cases of Liquid Metathesis and to establish the empirical dataset for the OT analysis developed in Chapter 2.

Chapter 2 develops an OT analysis of the Mycenaean reflexes of inherited syllabic liquids presented in Chapter 1, with particular focus on the directionality of vowel epenthesis. The analysis builds on Cooper’s (2014) model of nucleus selection and syllabification in PIE, assessing the extent to which the Mycenaean data can be modeled through the same core set of phonological constraints and what modifications are required to account for the attested patterns.

Chapter 3 turns to Linear B orthography and makes a further attempt to derive its spelling conventions from the syllable structure of Mycenaean. Rather than offering a new description of the orthographic facts, it develops an OT model integrating the multiple principles that govern Linear B spelling while remaining consistent with independently established evidence for Greek syllable structure. By defining a set of orthographic constraints and their ranking, the chapter models the spelling strategies attested in Linear B and addresses cases of orthographic variation.

⁸ Here and elsewhere in the dissertation, I explicitly notate syllabic sonorants with a circle underneath whenever giving reconstructed PIE forms, following standard practice in Indo-European studies. Other approaches to PIE phonology, especially within the “Leiden School,” may omit explicit syllabicity notation in reconstructed forms on the assumption that this was not a contrastive feature and nuclei were selected recursively by the grammar (see, e.g., Beekes 1995: 125). The exceptions to Schindler’s (1977) rule, together with cases of lexicalized syllabification (e.g., PIE $*\text{kur-}$, instead of $*\text{kwr-}$, as reflected by Hitt. *kūrkaš* ‘foal’ and Gk. *κύρνος* ‘bastard’; see Melchert 1994: 132 and Byrd 2015: 79), provide further support for retaining this conventional notation.

Chapters 4 and 5 investigate the rise of linking *-o-* in Greek morphology from complementary perspectives: Chapter 4 presents its distribution in Mycenaean and Homeric Greek, while Chapter 5 develops an OT account of the changes between these two diachronic stages, relying primarily on constraints sensitive to syllable structure. The analysis addresses the different treatment of consonant sequences at morphological boundaries in the two corpora and seeks to identify the phonological factors governing the presence or absence of linking *-o-*. Finally, it examines the grammatical status of linking *-o-* itself, asking whether it should be modeled as a morphological operation or as a phonological one, potentially restricted to the stem level.

A concluding section summarizes the findings of the dissertation by drawing together the results of the individual chapters and considers their broader implications for the history of Greek syllabification.

CHAPTER 1

Liquid Metathesis, Syllabicity and Vocalization in Mycenaean:

Data and Patterns

1.1 Introduction

Descriptive accounts of Mycenaean synchronic phonology often admit the existence of liquid metathesis (henceforth LM), that is, the inversion in linear order of a liquid (mostly /r/) and an adjacent short vowel (mostly /o/). This responds to the fact that in sets of etymologically related forms we sometimes find a spelling $\langle Co-ro \rangle$, sometimes $\langle Co \rangle$, i.e. notating /Cro/ and /Cor/ respectively (see, e.g., Hajnal and Risch 2006: 97). This behavior is observed both in cases where, historically, the liquid goes back to PIE $*\text{r}$ — hence the vowel is the product of epenthesis — and where an etymological $*o$ can be reconstructed. This phenomenon is not only attested in Mycenaean as later material also descriptively displays similar behavior (e.g., Hom. καρδίη vs. κραδίη ‘heart’, Hom. Ἀφορδίτη vs. Cret. Ἀφορδίτᾱ, Pamph. Ἀφορδισιυς; cf. Lejeune 1972: 142–3, 196, Hajnal and Risch 2006: 97 fn. 165).

The problem of LM intersects with the status of reconstructed PIE syllabic liquids ($*\text{r}$ and, with scant attestations, $*\text{l}$),⁹ which show non-uniform outcomes in Mycenaean. Variation is mostly found in interconsonantal position, as illustrated in (8) below.

⁹ Among the clearest proposed examples of $*\text{l}$ in Mycenaean are *wo-ro-ma-ta* /wlomata/ or /wlōmata/ NOM.PL.N ‘braided strap’ and the personal name *wo-si-jo-ne* /wolsionēs/ ‘one who rolls the burden’; additional, more problematic forms are mentioned by Morpurgo Davies (1968: 806 with fn. 65). As for *wo-ro-ma-ta*, equated

(8) Linear B spelling of interconsonantal $*r^{10}$

- a. $\langle Co \rangle$ b. $\langle Co-ro \rangle$ c. $\langle Ca \rangle$

Two main accounts have been put forward in the literature to motivate this spelling variation—which, in (8a–b), matches the one traditionally diagnostic of LM. According to Heubeck (1972), the alternation $\langle Co \rangle \sim \langle Co-ro \rangle$ instead indicates the retention of /r/ in Mycenaean. Since the Linear B sign inventory does not include a series of syllabograms for /r/, scribes would inconsistently resort to these two alternative spellings. Under this account, ambiguity is merely orthographic, and the phonological interpretation of the alternating forms appears straightforward. Heubeck’s analysis, however, does not account for the $\langle Ca \rangle$ sequences, which he himself admits are problematic (see Heubeck 1972: 73). García Ramón (1985) has then tried to reconcile these forms with Heubeck’s theory, arguing that these are secondary zero-grades, i.e. not derived from inherited $*r$. Most recently, van Beek (2022b: 57–102)

with alph. Gk. $\lambda\omega\mu\alpha$ ‘fringe’, Peters (1980: 49–51) reconstructs $*(h_1)w_l-$ as a preform for related forms (Gk. $\epsilon\tilde{\upsilon}\lambda\eta\rho\alpha$ ‘rein’, Lat. *lōrum* ‘id.’), but the long vowel in $\lambda\omega\mu\alpha$ remains a problem. To this end, Lane (2012: 134–5) proposes a preform with a laryngeal $*w_lH-$ (based on *LIV*² 677 $*welH^{-2}$ ‘turn (oneself), flow’). Both etymological connections are considered unconvincing by Beekes (*EDG* 884; cf. *New Docs* 753). If, at any rate, this form contained a laryngeal, the vocalism in *wo-ro-/λω-* would imply $*h_3$ and the root would have to be a homophone of *LIV*² 679 $*welh_3-$ ‘strike’. Reconstructing any laryngeal would also qualify the sequence in this form as $*CRHC$ (see, e.g., van Beek 2022b: 11–3), which is not a concern for this chapter. Turning to *wo-si-jo-ne*, Ittész (2012) interprets it as a $\tau\epsilon\rho\psi\iota\mu\beta\rho\omicron\tau\omicron\varsigma$ compound, i.e. one with a $*ti-$ stem first member, in this case from the zero grade $*w_l-$ of the root $*wel-$ ‘turn, roll’ (see *LIV*² 675). The second member would be an s-stem related to Lat. *onus* ‘burden’ and Ved. *ánas-* ‘cart’, with some complications concerning the exact PIE root etymology (see Ittész 2012: 40–53). This analysis is tentatively accepted by Meixner (2022: 419).

¹⁰ The Linear B inventory only includes signs with the shape V, CV, or CCV, and just one series of syllabograms for both /r/ and /l/, conventionally transliterated as $\langle -r- \rangle$.

has reignited the debate and argued that $\langle Co-ro \rangle$ spellings do not reflect the phonological development of PIE $*\text{ṛ}$ but rather inherited consonantal liquids. The only diagnostic alternation that could suggest the retention of $/r/$ in Mycenaean would thus be $\langle Co \rangle \sim \langle Ca \rangle$. Van Beek (2022b: 80) suggests that the $\langle Co \rangle$ spelling may be “conditioned by a preceding or following labial consonant, and expressing a phonetic feature of the nucleus, such as lip-rounding or a higher position of the tongue”. The $\langle Ca \rangle$ spelling would thus be used in a non-labial environment.

A second account traditionally argued for in the literature, to which I subscribe, is that PIE syllabic liquids had already undergone vocalization at the Mycenaean stage, and their reflexes vary according to two parameters, namely position and coloring of the epenthetic vowel.¹¹ The spellings in (8 = 9a) are thus taken as notating the sequences in (2b).

- (9) a. Linear B spelling of interconsonantal $*\text{ṛ}$
- i. $\langle Co \rangle$ ii. $\langle Co-ro \rangle$ iii. $\langle Ca \rangle$
- b. Linear B outcomes of interconsonantal $*\text{ṛ}$
- i. $/Cor/$ ii. $/Cro/$ iii. $/Car/$

Whereas some scholars have tried to determine which phonological factors yielded the different quality of the epenthetic vowel (see, e.g., Morpurgo Davies 1968: 811: “ $*\text{ṛ}$ tends to evolve in *or/ro* after ṷ and in *ar/ra* elsewhere.”), no compelling phonological account has been proposed to explain its position.

¹¹ This is the position, e.g., of Morpurgo Davies (1968), O’Neil (1969), Bader (1969/1970), Bernabé (1977).

In this chapter, I reexamine the evidence for both these processes to ascertain whether LM may in fact qualify as a feature of Mycenaean phonology and, if real, whether it may be motivated by syllable well-formedness. I also consider whether the forms in my dataset should all be assessed in the framework of (synchronic) LM or rather different analyses ought to be put forward for sequences with historical **r*, where attested /o/ is an epenthetic vowel, and forms with etymological **o*. In the following section, I review the literature about LM and the broader theory that this feature of Mycenaean has been associated with, namely Risch’s theory of “Normal” and “Special” Mycenaean, whereby LM would be an isogloss distinguishing two dialects (or rather sociolects) of Mycenaean (§1.2). I then outline briefly the theoretical and evidential problems posed by this formulation and discuss all the data points for LM put forward in the literature (§1.3). I finally present the forms with reconstructed **r* (§1.4).

In the following chapter (§2), I articulate an OT model for Mycenaean syllabification informed by the evidence discussed in §1.4.

1.2 Metathesis as a Feature of “Normal Mycenaean”

In the early days of Mycenaean studies, a theory emerged, originally formulated by Ernst Risch, positing the existence of two dialectal varieties within Mycenaean, i.e. “Normal” and “Special” Mycenaean. In his seminal work, Risch (1966) identifies a set of alternations on the tablets from Pylos and suggests that they can be understood in terms of dialectal variation. In particular, Risch (1966: 150) isolates three main distinctive features which can be formulated as in (10).

(10) FEATURE 1

Athematic DAT.SG ending: $\langle Ce \rangle$ /-ei/ (“Normal”) vs. $\langle Ci \rangle$ /-i/ (“Special”), e.g. *po-se-da-o-ne* /Poseidāhōnei/, *po-se-da-o-ni* /Poseidāhōni/ DAT.SG ‘Poseidon’.

FEATURE 2

Outcome of PIE **ŋ* and **m̥* after labials: <Co> /o/ (“Normal”) vs. <Ca> /a/ (“Special”), e.g. *pe-mo* /spermo/, *pe-ma* /sperma/ ‘seed’ (< **sper-mŋ*).

FEATURE 3

Raising of **e* to /i/ before labials or labiovelars (“Normal”) vs. retention of /e/ (“Special”), e.g. *ti-mi-ti-ja* /T^himistiās/, *te-mi-ti-ja* /T^hemistiās/ GEN.SG PLACE NAME (cf. alph. Gk. θέμις ‘justice’).

Risch (1966: 156–7) groups these variants based on frequency and ascribes the *po-se-da-o-ne*, *pe-mo*, and *ti-mi-ti-ja* types to “Normal” Mycenaean as they are more widespread, whereas the *po-se-da-o-ni*, *pe-ma*, and *te-mi-ti-ja* types to “Special” Mycenaean since they are less frequently attested. Furthermore, he observes that “Special” Mycenaean is closer to 1st-millennium Greek, while “Normal” Mycenaean appears idiosyncratic compared to later Greek developments. In conclusion, Risch hypothesizes that “Normal” Mycenaean could be the dialect spoken by the aristocracy, while “Special” Mycenaean could belong to lower social strata. For this reason, I suggest referring to these two alleged varieties as sociolects, rather than dialects, of Mycenaean.

Risch (1966: 156) only mentions LM in passing as a potential additional feature, giving the alternation between unmetathesized *ku-su-to-ro-qa* /ksun(s)trok^{w(h)}ā/ and metathesized *ku-su-to-qa* /ksun(s)tork^{w(h)}ā/ ‘sum’ (cf. alph. Gk. τρέπω ‘turn’, στρέφω ‘twist’) as an example. However, the only attestation of *ku-su-to-qa* /ksun(s)tork^{w(h)}ā/ Risch puts forward would be on PY Eb 847, now reclassified as Ed 847, where the text reads $\llbracket ku-su-qa \rrbracket$. In a footnote, Risch (1966: 156 fn. 3) claims that there would be enough space between the syllabograms <su> and <qa> for one missing sign, which he suggests would be <to>. Since none of the most recent editions of the Pylos texts — *ARN* I 270, *PofN* IV 519, *PT*³ 90, *PTT*² 103 — second this claim either with a notation $\llbracket ku-su-[-]-qa \rrbracket$ *vel sim.* or in the apparatus, $\llbracket ku-$

su-qa]] should rather be taken as an error of omission of some word-internal material. Although emending to *ku-su<-to>-qa*]] would require assuming only one missing sign, there is no independent evidence for this spelling. Therefore, one may only posit *ku-su<-to-ro>-qa*]], i.e. with two erroneously omitted syllabograms, as a potential emendation (cf. Duhoux 2013: 56–7, 61; see also §1.3.1 below).

Some related material from Knossos mentioned by Risch in the same footnote does, however, show some token variation, namely *to-ro-qa* /(*s*)trok^{w(h)}āi/ and *to-qa* /(*s*)tork^{w(h)}āi/ DAT.SG ‘feeding’ or ‘stirring’ (cf. alph. Gk. τροφή ‘nourishment’, τροπή ‘turn’, στροφή ‘id.’). Although Risch does not explicitly assign each variant to a specific sociolect, his discussion seems to imply that the form(s) with metathesis, i.e. *ku-su-to-qa* [†]/ksun(*s*)tork^{w(h)}ā/ and *to-qa* /(*s*)tork^{w(h)}āi/, would belong to “Normal” Mycenaean, while unmetathesized forms, i.e. *ku-su-to-ro-qa* /ksun(*s*)trok^{w(h)}ā/ and *to-ro-qa* /(*s*)trok^{w(h)}āi/, would correspond to “Special” Mycenaean.

Risch’s (1966) theory was soon accepted and further developed by other scholars. Nagy (1968: 663–4) suggests different terminology to identify the two sociolects of Mycenaean observed at Pylos, namely “Standard” and “Substandard” and points out that none of the diagnostic features appears to be exclusive to defined groups of scribes; rather, there are instances of hands notating both variants. Therefore, he describes the distribution of variants in terms of prevalence of a standard dialect with occasional intrusions of substandard forms, likely due to scribes speaking a different variety of Mycenaean as their own vernacular and having a lower level of literacy. Moreover, Nagy (1968: 667–76) proposes an additional distinctive feature, summarized in (11).

(11) FEATURE 4

Assibilation of $*t^{(h)}$ to /si/ (“Standard” = “Normal”) vs. retention of /t^(h)i/ (“Substandard” = “Special”), e.g. *ka-pa-si-ja* /Karpasiāi/ DAT.SG, *ka-pa-ti-ja* /Karpat^hiā/ NOM.SG personal name (probably an *ethnicon* from Κάργαθος, an island between Crete and Rhodes).¹²

In a revision of his previous work, Risch (1979: 99–101, 111) cautiously adds FEATURE 4 to the distinctive features between “Normal” and “Special” Mycenaean. The reason for such cautiousness is the somewhat weak evidential basis for lack of assibilation in Mycenaean. Most of the examples of retention of /t^(h)i/ are in fact found in ethnonyms or personal names which may simply be archaisms or *Wanderwörter* displaying a dialectal feature alien to Mycenaean (see Risch 1979: 99–100). Risch (1979: 98–9) puts forward similar considerations regarding LM, which for the first time he suggests as a potentially distinctive feature, with the caveat that it may not be suitable for dialectal classification as it is sporadically attested both in other Greek dialects (see the mentioned Hom. καρδίη ~ καρδίη) and other languages. Moreover, as Thompson (2002/2003a: 355) also points out, Risch (1979: 100) ultimately conflates under one feature two formally distinct phenomena, namely LM and vowel epenthesis. The vowel epenthesis Risch refers to in this instance would be observable in two items, namely the personal name *o-pe-te-re-u* /Op^heltreus/, also attested as *o-pe-to-re-u* /Op^heltoreus/ with apparent epenthetic /o/,

¹² This feature in particular is pivotal for Chadwick’s (1976b: 104–5, 111–4) claim that the speakers of “Special” Mycenaean were in fact the Dorians whom the collapse of the Mycenaean kingdoms was long attributed to. In his account, the Dorians were a subordinate class that coexisted with the other Greek speakers throughout the Mycenaean period, rather than external invaders, and “Special” Mycenaean corresponded to some West Greek vernacular. The broader question of West Greek features in Mycenaean encompasses other material and potential features, but Chadwick’s claim about unassibilated /t^(h)i/ is not likely to be correct. This, however, lies beyond the scope of this chapter.

and the place name *u-pa-ra-ki-ri-ja* /Huprakria/ together with the alternative version *u-po-ra-ki-ri-ja* /Huporakria/ (cf. alph. Gk. τὰ ὑπεράκρια ‘heights above (a plain)’). Risch’s FEATURE 5 can be thus formulated as in (12).

(12) FEATURE 5

- a. Metathesis of /ro/ to /or/ (“Normal”) vs. retention of /ro/ (“Special”), e.g. *to-qa* /(<s>tork^{w(h)}āi/, *to-ro-qa* /(<s>trok^{w(h)}āi/ DAT.SG ‘feeding’ or ‘stirring’ (cf. alph. Gk. τροφή ‘nourishment’, τροπή ‘turn’, στροφή ‘id.’).
- b. Vowel epenthesis in *Cr* clusters → /Cor/ (“Normal”) vs. retention of /Cr/ (“Special”), e.g. *o-pe-te-re-u* /Op^heltreus/, *o-pe-to-re-u* /Op^heltoreus/ PERSONAL NAME.

As for the continuators of Risch’s (1966, 1979) theory, Woodard (1986) and Varias (1994/1995) apply it to the Mycenaean attested, respectively, at Knossos and Mycenae, but crucially include only FEATURES 1–4 in their analyses.¹³ In his monograph about the dialectal differences within Mycenaean, Hajnal (1997) does not discuss any examples of LM and only focuses on one piece of evidence in the purview of FEATURE 5, namely the pair *u-pa-ra-ki-ri-ja* ~ *u-po-ra-ki-ri-ja*. He does not, however, analyze this alternation in the same terms as Risch (1979), but rather interprets *u-pa-ra-ki-ri-ja* as /Hupar-akria/, i.e. with a different vocalism than in *u-po-ra-ki-ri-ja* as /Hupor-akria/ (see Hajnal 1997: 142–55 and §1.3.2 below). Palaima (1998/1999) is the only one who accepts FEATURE 5 as well, but without considering vowel epenthesis. Palaima’s focus, however, is not Risch’s theory itself or its purely linguistic dimension, but rather its implications for our understanding of Linear B paleography and Mycenaean society.

¹³ In a recent version of his work on “Normal” vs. “Special” Mycenaean, Woodard (2024: 75–87) still operates with FEATURES 1–4 and seems to ignore FEATURE 5 altogether.

Thompson (1996/1997, 2002/2003a, and 2021) has on multiple occasions criticized Risch's theory in all its parts, questioning its whole theoretical and documentary basis. He contends that the identification of two dialectal varieties of equal prestige in Mycenaean should be based on systematic alternations in the distribution of the distinctive features, and such systematic alternations should also offer a certain degree of predictability of the variants used. For example, the use of one of the five features of "Special" Mycenaean in a text or in one scribe's set of tablets should anticipate and find confirmation in either the presence of another "Special" feature, or at least in the absence of "Normal" features altogether. However, no scribal hand consistently uses more than one single feature (see Thompson 1996/1997: 314–5, 330).

If the data are instead described in terms of a "Standard" variety opposed to a "Substandard" one — according to Nagy's (1968) hypothesis — the distribution should be different: scribes speaking "Substandard" Mycenaean as their vernacular would generally write "Normal" forms but occasionally lapse into "Special" Mycenaean. This sort of prediction, however, is logically flawed according to Thompson (1996/1997: 315): "If we assume that the distribution of substandard ["Special"-Mycenaean] forms is random, i.e. without pattern, how can we test for such a distribution: if the very test for the existence of a substandard second dialect is that we can detect no pattern in the occurrence of its forms, we deny the possibility of the null hypothesis *ab initio*, and the two-dialect hypothesis becomes trivially self-fulfilling." Moreover, he points out that Nagy's hypothesis predicts that scribes will not correct what is considered a "Standard" form into a "Substandard" one — yet this happened at least once, with Hand 11 correcting "Normal" *a-ti-mi-to* /Artimitos/ GEN.SG 'Artemis' into "Special" *a-te-mi-to* /Artemitos/ (see Thompson 1996/1997: 315, 330; cf. FEATURE 3 above).

The alternations isolated by Risch and followers, then, may at best reflect linguistic changes in progress, morphological in the case of FEATURE 1, phonological in that of FEATURE 2 (see Thompson 1996/1997: 325–31, 2002/2003a: 366, 2021: 320–5). As for FEATURES 3 and 4, Thompson does not consider the evidence for either of them to be usable to distinguish two varieties of Mycenaean, as FEATURE 3 is mostly observed in loanwords and FEATURE 4 in (likely conservative) place names and personal names (see Thompson 2002/2003a: 365–6, 2021: 313–9).

FEATURE 5, and in particular its LM component, seems to Thompson (2002/2003, 355–65, 2021: 319–20) to be linguistically real, yet cross-linguistically common and often highly irregular, thus having very limited value in distinguishing dialectal varieties — a point already raised by Risch (1979: 99) himself. Thompson, who cites Hock (1991: 35, 110–1, 632–3) in support of this claim, refers to the fact that metathesis is a traditional exception to the Neogrammarian Regularity Hypothesis, and therefore should not be expected to operate regularly as sound change proper does. In relation to this point, he mentions OE *bridd* > ME *bird* and OE *þridde* > ME *third* (with metathesis) alongside OE *þrysce* > ME *thrush* and OE *bricg* > ME *bridge* (without metathesis). Thompson is also aware that metathesis “can be regular if it serves a specific structural purpose,” which often “lies in converting phonologically or perceptually ‘marked’ structures into more acceptable ones” (Hock 1991: 115–6).¹⁴ He considers this possibility when speculating about Risch’s association between metathesis and epenthesis, but

¹⁴ This basic idea is also found elsewhere in the literature, starting with Ultan’s (1971) typological study on metathesis and continuing with more recent work, e.g. by Blevins and Garrett (1998, 2004, 2009) on the phonetic motivations for metathesis and its naturalness as a sound change, or by Finley (2016) on metathesis as a strategy to optimize syllable structure in language acquisition.

ultimately concludes this is not such a case: “There is no mileage in linking epenthesis to /ro/ > /or/ metathesis as a strategy for avoiding *CrV* sequences in *mycénien normal*, say; if *mycénien normal* did try to avoid *CrV*, we would expect /ro/ > /or/ metathesis to be much more regular than it is, since metathesis tends to be regular when it operates for structural reasons such as this.”

1.3 Data for Liquid Metathesis

Establishing a dataset for LM based on the literature discussed above is a task met with some difficulties. A first, general, difficulty is that, in Thompson’s (1996/1997: 314) words, “[t]he two-dialect hypothesis is frequently cited, but the evidence upon which it rests is rarely examined.” In the case of LM, moreover, this is complicated by the fact that the most thorough surveys of isogloss distribution (Nagy 1968, Woodard 1986, Varias 1994/1995) do not operate with FEATURE 5 as an isogloss. We are, therefore, left with Risch’s (1979: 111) list of forms, also discussed and partially expanded by Thompson (2002/2003a: 355–65) in his critique.

These data, as mentioned in the introduction, include alleged examples of LM from two different historical sources, namely outcomes of interconsonantal **r̥* and of etymological *o*-grades. For example, Risch (1979: 111) lists *to-pe-za* /torpedʒa/ ‘table’ and *qe-to-ro-po-pi* /k^wetropop(p)^{hi}/ DAT.PL ‘quadruped’ as “Normal” and “Special” respectively, under the assumption — now challenged by Sabattini (2021, 2023: 139) and van Beek (2022b: 69–70) — that both forms go back to the compositional form of the numeral ‘four’, PIE **k^w(e)twr̥-*. In addition, Risch (1979: 111) lists two items that would both show “Normal” LM, namely *wo-ze* /wordʒei/ 3SG.PRS.IND.ACT ‘work’ (< **wr̥ġ-ye-*) and *wo-do-we* /wordowen(t)/ ‘rose-scented’ (PGk. **wr̥do-*, loanword from Old Iranian **wr̥da-*; cf. EDG 1289–90). While

I defer discussion of these forms to §1.4, it is worth noting here that they illustrate yet another issue that relates to most of the LM data in this framework: not all items (or even sets of etymologically related forms) show token variation between metathesized and unmetathesized sequences. More often, only one variant is attested and ascribed to its putative sociolect — this is the case, e.g., for the mentioned *wo-ze* and *wo-do-we*, which lack “Special” counterparts.

Furthermore, the data for LM are always discussed alongside the two items displaying, according to Risch (1966: 156, 1979: 98–100), epenthesis as a “Normal” Mycenaean trait, i.e. the abovementioned *o-pe-to-re-u* ~ *o-pe-te-re-u* and *u-po-ra-ki-ri-ja* ~ *u-pa-ra-ki-ri-ja*. Whereas Risch does not elaborate on his association of these features, Thompson considers but ultimately rejects what in OT terms could be the action of some constraint causing the dispreference for *CrV* sequences. This bears on one of my research questions, namely whether one can identify a trigger for LM (and perhaps epenthesis) in terms of syllable structure. Although Thompson’s conclusion already appears cogent, in the following discussion I will not only examine the data for LM in words containing historical *o*-grades (§1.3.1), but also the two items allegedly displaying vowel epenthesis (§1.3.2).

Lastly, an aspect of the problem that is always assumed in the literature, perhaps arbitrarily, is that the underlying representation of all forms has the shape /CRV/, i.e. the unmetathesized version that surfaces as metathesized [CVR] in “Normal” Mycenaean. Although this assumption is nowhere explicitly justified, it seems to follow from the general principle that “Normal” Mycenaean will differ from the common 1st-millennium correspondents: e.g., since *θρόνος* ‘seat’ is the attested form in 1st-millennium Greek, Mycenaean *to-ro-no-* /*t^hrono-*/ is taken to reflect the unmetathesized, i.e. underlying, form, while the idiosyncratic *to-no* /*t^hornos*/ would display metathesis on the surface. This logic incurs

the methodological problem of projecting later — and for all we know dialectally distinct — outcomes as historically and structurally prior, ultimately due to availability bias. Moreover, it feeds into the ascription of forms lacking Mycenaean-internal variation to one or the other sociolect: e.g., the abovementioned *wo-do-we* /wordowen(t)/ ‘rose-scented’ has no ^x*wo-ro-do-we* ^x/wrodowen(t)/ alternant in Mycenaean, yet it is considered a “Normal” Mycenaean form because of 1st-millennium forms such as Hom.+ ῥοδόεντι DAT.SG (*Il.* 23.186).

1.3.1 Data for Liquid Metathesis proper

1.3.1.1 Forms related to *τρέπω*, *στρέφω*, or *τρέφω*

ku-su-to-ro-qa /ksun(s)trok^{w(h)}ā/: KN Bg (H 137); PY Ed 411 (H 41), 847 (H 1), Er 880 (H 24); TH Av 101 (H 304), Fq 187 (H –), 214, 229, 252, 254, 269, 276, 306, 359, 362, 294 (H 305)

to-qa /(s)tork^{w(h)}āi/: KN Fh 339, 8299 (H 141); *to-ro-qa* /(s)trok^{w(h)}āi/: KN Fh 358, 376, 5446, 5497 (H 141), X 9734 (H –)¹⁵

to-ro-qe-jo-me-no /(s)trok^{w(h)}ejomenos/: PY Eq 213 (H 1)

¹⁵ In his recent paper presented at the 16th Colloquium on Mycenaean Studies, Daniel Kölligan (2025) proposed to associate the obscure personal name *o-to-ro-qa* (KN De 1371 and, perhaps, PY Vn 493 *o-to-ro*[]; see *DMic.* II 54 and *DMic. Supl.* 252) to this set of forms, analyzing it as a compound with “copulative” ^{*}*sm*- (and *o*-outcome of the syllabic nasal, cf. *a₂-te-ro* /hateron/ ACC.SG.N ‘next (year)’ < ^{*}*sm-tero*-) in its first element. According to the etymological interpretation of the second element, the anthroponym could be interpreted as ‘rich in tricks, clever’ (cf. *στροφή* ‘turning, cleverness’) or as ‘rich in nurture, goods (for consumption)’ (cf. *τροφή* ‘nourishment’). Due to the still tentative character of this interpretation, I refrain from including it in the main discussion — which would not in any case be substantially affected.

to-ro-qo /*(s)trok^{w(h)}os*/: KN Od (1) 563 (H 103); (?) *jo-e-ke-to-qo* /jō(s) hek^hei *tork^wos*/:
KN Gv 863 (H –)¹⁶

This set of forms includes items that have been associated with three different Greek roots, namely that of *τρέπω* ‘turn’, *στρέφω* ‘twist’, or *τρέφω* ‘rear, feed’. The form *ku-su-to-ro-qa* /ksun(s)trok^{w(h)}ā/ is used at the end of tablets listing groups of workers, food allocations, or landholding parcels — following the entries for individual items. Functionally, it indicates the sum of all preceding quantities listed in the separate entries (see Duhoux 2013: 56–62 for a survey of the whole dossier). Its semantic interpretation is therefore ‘sum, total amount’, likely used as a nominative of rubric — although other cases cannot be excluded in principle, such as dative or locative (see Duhoux 2008: 251). Morphologically, the form can be analyzed into a prefix *ku-su-* /ksun-/ ‘(al)together’ (cf. Attic *ξυν-* ‘id.’) and a *τομή*-type derivative *to-ro-qa*. The exact root of which this would be a derivative is debated and crucially depends on the etymological interpretation of the abovementioned *τρέπω*, *στρέφω*, and *τρέφω* — all given as possibilities by Thompson (2002/2003a: 360) — and the likelihood that these could contain a labiovelar, which is implied by the transparent Mycenaean spelling.

¹⁶ Thompson (2002/2003a: 361) includes the form [†]*e-u-ṭo-ṛo-qo* [†]/Eu-(s)trok^{w(h)}os/ (PY Jn (1) 478 [H 2]) in this dossier, understanding it as a compound personal name with a *τομός*-type agentive noun as its second member. In recent editions, however, the sequence is read *e-u-ṛo-ṭo-qo*, which precludes this interpretation (see *ARN* II 18, *PofN* IV 282, *PT*³ 133, *PTT*² 163). Another potential addition could have been *e-to-ro-qa-ta* (KN M 878 [H –], U 736 [H –]). However, the obscurity of the context in both tablets and Leukart’s (1994: 92) interpretation of the form as a zero-grade derivative (perhaps a verbal adjective in **-tō-* /entrok^wta/ ‘twisted (leather thongs)’) tipped the scales against it. For an attempt to reconstruct an *o*-grade, and for a survey of other interpretations, see most recently Jiménez Delgado 2017: 40.

The picture is complicated by the fact that all three roots have τροφή-type derivatives attested in 1st-millennium Greek, namely τροπή ‘turn, turning’ (Hom.+), στροφή ‘twist, turning’ (Aesch.+), and τροφή ‘nourishment, food’ (Tyrt.+). Moreover, στροφή also has a compounded form συστροφή ‘twisting together’ which is attested earlier than the simplex (Heracl.+) and would be an almost exact match for Myc. *ku-su-to-ro-qa* — *almost* because alph. Gk. συν(-) < **su-m* and Myc. *ku-su-*/Att. ξυν(-) < **ks-su-* are etymologically distinct (see *LIPP* II 392, 717, 720).¹⁷

The equation with τροφή/τρέφω is suggested by the editors of the Thebes tablets in *FDC* I 171–2, 393 and the form is interpreted as ‘total amount of food’. Duhoux (2008: 251, 389; 2013: 65–6) rejects this interpretation on both semantic and formal grounds: *ku-su-to-ro-qa* in most cases refers to amounts of workers, not exclusively to food; moreover, the root of τρέφω ‘rear’ would not seem to contain a labiovelar. *LIV*² 153–4 in fact lists it under a PIE root **dʰrebʰ-* ‘thicken, congeal’, of which Gk. τρέφω covers the quasi-totality of reflexes.¹⁸

The two remaining options, τροπή/τρέπω and στροφή (, συστροφή)/στρέφω, pose some formal difficulties similar to those discussed with respect to τρέφω, as the reconstruction of a labiovelar in either of them is not uncontroversial. As for τρέπω, *LIV*² 650 lists it under a root **trep-* ‘turn’ with Hittite

¹⁷ On the other hand, τροφή has a compound συντροφή only attested from the 3rd century CE (Porphyr.+) and τροπή has none.

¹⁸ The only possible cognates would be the Lithuanian thematic and nasal-infix presents *drėbti* ‘splash, splatter’ and *drimbù* ‘fall down in flakes’, also given by the etymological dictionaries (*GEW* 925–7, *DELG* 1133–5, *EDG* 1504–6). Some Germanic, Slavic, and Celtic material referring to ‘dregs’ may also be related to the Greek and Lithuanian forms, namely: MLG *draff*, OHG *trebir* ‘dregs’, MoE *draff* ‘id.’; Ru. *drobá* ‘id.’; Mlr. *drab* ‘id.’ (*EDG* 1505).

teripp^{-zi} ‘plow’, Epic Sanskrit *trapate* ‘be perplexed or ashamed’ (somewhat late, but with the same semantic shift as in alph. Gk. ἐντρέπομαι ‘id.’), and Lat. *trepit* ‘vertit’ (Fest. 504.23–4 Lindsay) as cognates — i.e. without a labiovelar. However, τρέπω could also belong with the root **terk^w*- ‘turn’, having Hittite *tarku*^{-zi} ‘dance’, Latin *torqueō* ‘turn’, Alb. *tjerr* ‘spin’, TB *tärk*- ‘twist around, work (wood)’ as cognates (see *LIV*² 635).¹⁹ The first option is preferred by Beekes (*EDG* 1503–4), who considers the connection of the Mycenaean material with Lat. *torqueō* “untenable.” However, Beekes only considers Myc. *to-ro-qe-jo-me-no* (discussed below) and does not mention either *ku-su-to-ro-qa* or any related material.²⁰

In the case of στρέφω, the presence of a labiovelar in its root is admitted in *LIV*² *Add.* 86, where the root originally listed as **streb^h*- now figures as **streg^{w^h}*- ‘twist’. Crucially, though, this root has been set up based only on Greek material, without any cognates. The change in shape of this root therefore follows from the association of the Mycenaean forms discussed here to στρέφω rather than to τρέπω — an alternative that Kümmel (*LIV*² *Add.* 86 fn. 3) does not completely reject. To decide the matter, Duhoux compares the semantics of the two verbs in 1st-millennium Greek, pointing out that στρέφω

¹⁹ Jiménez Delgado (2017: 33) also mentions Skt. *niṣ-ṭarkyā*- ‘that can be unscrewed’, *tarku*- ‘spindle’, *tarkayati* ‘consider’ as potential cognates.

²⁰ A version of the root of τρέπω with a labiovelar is contemplated by van Beek (2022b: 68–9) in his analysis of Myc. *to-qi-de* /tork^widei/ DAT.SG.F ‘with a spiral’, which can go back to a preform **trk^w-id-* and belong with alph. Gk. τρόπις ‘keel (of a ship)’ (this account is in Jiménez Delgado 2017: 37 and Sabattini 2023: 139–40, and it is followed in §1.4.1 below). Van Beek ultimately prefers a preform **strg^{w^h}-id-* and an association with στρέφω on semantic grounds, as ‘twist’ would match the idea of a spiral more exactly.

‘twist’ seems more prone to shifting to ‘gather, group’ than the more basic τρέπω ‘turn’ (cf. also Jiménez Delgado 2017: 36).²¹

Another possibility — sketched out by Melena (2014: 39–40) and developed further by Jiménez Delgado (2017) — is to keep the Mycenaean material and 1st-millennium τρέπω etymologically apart. The Mycenaean forms, together with alph. Gk. ἄτρακτος ‘arrow; spindle’ (Sapph./Alc.+), would go back to PIE **terk^w-*, while τρέπω would belong with PIE **trep-*.

In sum, the etymological interpretation of the Mycenaean material is relevant to which root between **trep-* and **terk^w-* later τρέπω goes back to, and whether the correct shape of the root of στρέφω is either **streb^h-* or **streg^{w^h}-*. As far as *ku-su-to-ro-qa* is concerned, Duhoux’s argumentation together with the quasi-match with alph. Gk. συστροφή and the treatment in *LIV*² *Add.* 86 make the case for στρέφω more convincing — though not by far. Concerning alph. Gk. τρέπω, the following material (as well as Myc. *to-qi-de* /tork^widei/ DAT.SG.F ‘with a spiral’; see below §1.4.1) provides good evidence for a root **terk^w-* in Mycenaean, perhaps with no need for Melena’s two-root solution.

Let us now consider the forms *to-qa* /(s)tork^{w(h)}āi/ and *to-ro-qa* /(s)trok^{w(h)}āi/. These are attested on tablets listing allocations of oil, the majority of which lack any additional entries. Beyond the connection with oil, some contextual information can be retrieved by looking at parallel annotations on tablets in the same series (KN Fh). In the same position as *to-(ro-)qa*, we find 1) allatives of place

²¹ This would be confirmed, according to Duhoux, by the absence of a compound form **συντροπή*, which would follow from a semantic incompatibility between the prefix συν- ‘(al)together’ and the basic notion of ‘turning’ expressed by τρέπω.

names, 2) datives of personal names indicating the recipients of the allocations, or 3) the form *zo-a* /dʰohāi/ DAT.SG.F ‘boiling’ (cf. alph. Gk. ζέω ‘boil’), presumably a dative of purpose specifying the intended use for the oil listed (see Thompson 2002/2003a: 360). Despite the fact that Godart (1968: 603) and Heubeck (1972: 65) interpret it as a personal name, it seems preferable to take *to-(ro-)qa* as a dative of purpose parallel to *zo-a*.²²

Semantically, Fischer (2003: 177–8) and Piquero (2019: 464) equate *to-(ro-)qa* with τροφή, so that the form would indicate oil meant “for consumption”. This hypothesis, despite its being very attractive semantically, incurs the abovementioned problem that the root of τρέφω, i.e. *dʰrebʰ-, does not contain a labiovelar.²³ Thompson (2002/2003a: 360) suggests an equation with τροπή and a semantic interpretation ‘for stirring; to be stirred up’, operating on the assumption that τρέπω goes back to PIE *terkʷ-, which however is still *sub iudice*. Finally, Melena (2014: 39) and Jiménez Delgado (2017: 40–1) connect the form directly to PIE *terkʷ-, i.e. without any association to τρέπω, tentatively suggesting that the process of ‘turning’ could refer to: the production of oil, i.e. by “twisting a bag of olives, as in Egypt” (Melena); a technique to extract fragrances from plants and fragile flowers by using odorless oil, the so-called “cold enfleurage” (Jiménez Delgado).

The pair *to-qa* ~ *to-ro-qa* is also particularly relevant because it would be the only case of token variation by LM identified by Risch (1966: 156 fn. 3) in this subset of data — at least after the exclusion

²² As do Thompson (2002/2003a: 360), Fischer (2003: 177–8), Melena (2014: 39), Jiménez Delgado (2017: 40–1), and Piquero (2019: 464).

²³ Unless one decides to challenge the connection with Lithuanian *drėbti* and *drimbù* LIV² 153–4 operates with.

of $^{\dagger}ku-su-to-qa$ $^{\dagger}/ksun(s)trok^{w(h)}\bar{a}/$ on philological grounds (see §1.2 above). This claim too, however, is met with some documentary difficulties. All instances of *to-qa* (2×), i.e. those that would show LM as set up by Risch, are notated by the same hand that notates all but one instance of *to-ro-qa* (4×), namely Hand 141. This fact seems to preclude the possibility of two competing dialectal varieties, and it is also at odds with Nagy’s (1968) notion of “Standard” vs. “Substandard” Mycenaean. In fact, the scribe notates what would count as a “Substandard” form (*to-ro-qa*) twice as much as the corresponding “Standard” form (*to-qa*) — while we would expect the opposite distribution. Perhaps a more economical way to go in this case is to think of a bona fide scribal error, as in *DMic.* II 363, whereby the target sequence for *to-qa** was *to-ro-qa* — which leaves no room for LM. Now, whether this was a purely orthographic error by omission of the syllabogram $\langle ro \rangle$ or a slip on the phonological level by inversion ($/ (s)trok^{w(h)}\bar{a}i/$ * for $/ (s)trok^{w(h)}\bar{a}i/$) can be open to further consideration.

The following form in this subset, *to-ro-qe-jo-me-no* $/ (s)trok^{w(h)}ejomenos/$, is commonly understood as the middle participle of a causative-iterative stem in $*-éye/o-$ (see, e.g., Thompson 2002/2003a: 361 and Melena 2014: 39), or alternatively as a $*-yé/ó-$ denominative (see Jiménez Delgado 2017: 39). It appears in the heading of a landholding tablet that records a land inspection performed by the palace official *a-ko-so-ta* $/Alksoitās/$ (one of the four “collectors”; see Nakassis 2013: 103). The heading reads as follows:

PY Eq 213.1: o-wi-de , a-ko-so-ta , to-ro-qe-jo-me-no , a-ro-u-ra , a₂-ri-sa ,

hōs wide Alksoitās (s)trok^{w(h)}ejomenos arourans a₂-ri-sa

Alksoitās saw the following as he was walking around the a₂-ri-sa fields

The form is generally associated to alph. Gk. τρέπω (see Thompson 2002/2003a: 361 and Piquero 2019: 460), or directly to PIE **terk^w*- (see Melena 2014: 39 and Jiménez Delgado 2017: 38–40) — except for Del Freo (2005: 151), who raises the possibility that this could belong with alph. Gk. στρέφω. Both verbs have an **-éye/o-* derivative in 1st-millennium Greek, namely τροπέω ‘turn’ (Hom.+) and στροφέω ‘whirl; cause a colic (= twisting of the bowels)’ (Ar.+). The interpretation of the verb in the Mycenaean text rests on the semantic shift ‘turn (in a certain direction)’ → ‘walk around’ as seen in many modern expressions.²⁴ Both formally and semantically, therefore, the root of either τρέπω or στρέφω can be a suitable candidate in this case if we operate with their versions with a labiovelar.

Finally, two more forms should be added to this subset, even though they are not discussed by Risch (1966, 1979) or Thompson (2002/2003a) with reference to LM. First, *to-ro-qo* /(*s*)trok^{w(h)}os/ appears on a tablet from Knossos recording an allocation of wool, whose general interpretation remains obscure. Morphologically, the form is taken to represent either a τóμος-adjective or a τόμος-noun, once again associated to either τρέπω (see Piquero 2019: 464), στρέφω (see Luján 1999: 129–30, Jiménez Delgado 2017: 36, Piquero 2019: 432), or PIE **terk^w*- (see Melena 2014: 39). The connection with wool suggests a semantic interpretation of the form as ‘twisted band, cord’, which matches both alph. Gk. τροπός ‘twisted leathern thong (with which the oar was fastened to the thole)’ (Hom.+) and στροφός ‘twisted band, cord’ (Hom.+).

Potentially related to this form is *-to-qo* as it appears in the phrase written in *scriptio continua* *jo-e-ke-to-qo* /jō(s) hek^hei tork^wos/. The sequence can be analyzed into a particle *jo-* /jō(s)/ (cf. alph. Gk.

²⁴ For example, Eng. *tour* from OFr. *torner* ‘turn’ (< Lat. *tornāre* ‘turn in a lathe; round off’), It. *fare un giro*, *girare* ‘walk around’ (< Lat. *gīrus* ← Gk. γῦρος ‘ring’), Sp. *dar una vuelta* ‘walk around’ (← Lat. *volvō* ‘roll, turn around’).

ὥς ‘thus’),²⁵ a 3SG.ACT.PRS.IND *-e-ke-* /hek^hei/ (cf. alph. Gk. ἔχω ‘have’), and a noun *-to-qo* either NOM.SG /tork^wos/ or DAT.SG /tork^wōi/. The rest of the tablet, although fragmentary, suggests a connection with grapevines, which has led some to interpreting *-to-qo* as a τόμος-type action noun meaning either ‘circuit (of vines)’ (Melena 2014: 39) or ‘(wine) pressing’ (Milani 1965: 427), or as a substantivized τωμός-type agentive adjective ‘(wine) press’ (Jiménez Delgado 2017: 38).²⁶ The different semantics of *to-ro-qo* and *-to-qo*, let alone the possibility that they go back to two different roots (*streg^{wñ}- in the case of *to-ro-qo*, *terk^w- in that of *-to-qo*, according to Jiménez Delgado 2017: 43), would suggest that we are dealing with two different lexemes, rather than with a case of token variation by LM.

If this interpretation of *-to-qo* as /tork^wos/ were accepted, this would become the only item in this subset with a linear order /or/ in the root syllable, as opposed to /ro/ elsewhere. This may simply follow from the root shape of *terk^w- as set up in LIV² 635, which yields an *o*-grade *tork^w-. However, a completely different interpretation of *-to-qo* is presented in *New Docs* 627, whereby the form would correspond to a personal name being the subject of the entire verb phrase, and therefore the owner of the vineyards (*wo-na-si* /woinassi/ LOC.PL) and grapevines listed. This different reading would thus exclude the form from the present discussion.

²⁵ See Thompson 2002/2003b, Probert 2008, and Jiménez Delgado 2016: 132–5 for different thoughts about origin and usage of this particle.

²⁶ Semantic parallels for this last interpretation can be found in alph. Gk. (ἐκ)τροπήϊον ‘press’ (*hapax* in Hippon. 57 West) and Lat. *torcular*, *torculum* ‘(wine, oil) press’. For some additional, but considerably later, Greek material, see Jiménez Delgado 2017: 38.

This last point calls for more general considerations. If the linear order of the segments within the roots as set up in *LIV*² can at all be a diagnostic for adjudicating the etymology of the forms discussed so far, we may argue that the linear order /ro/ found everywhere but in *-to-qa* may simply follow from the root shape of **streg^{wh̥}-* as now set up in *LIV*² *Add.* 86. This would produce an *o*-grade **strog^{wh̥}-*, which, as seen above, would fit both formally and semantically *ku-su-to-ro-qa* /ksunstrok^{wh̥}ā/ and *to-ro-qa* /strok^{wh̥}os/. As for the two remaining items, namely *to-ro-qa* and *to-ro-qe-jo-me-no*, a derivation from **streg^{wh̥}-* along these lines is also theoretically viable, as we may interpret them as /strok^{wh̥}āi/ ‘for stirring’ and /strok^{wh̥}ejomenos/ ‘doing a round of inspection’ respectively.

However, the majority view is to associate them with **terk^w-*, notwithstanding the unexpected linear order /ro/. In order to accommodate this, Jiménez Delgado (2017: 43–4) suggests that a contamination between **terk^w-*, on the one hand, and **trep-* and **streg^{wh̥}-*, on the other, may be taking place in Mycenaean.²⁷ In his account, this would also explain the abovementioned alternation between *to-qa*, which would be an etymological spelling for /tork^wāi/, and *to-ro-qa*, which would be due to contamination from forms like *ku-su-to-ro-qa* /ksunstrok^{wh̥}ā/ and *to-ro-qa* /strok^{wh̥}os/. This hypothesis is not completely at odds with my suggestion that the alternation between *to-qa* and *to-ro-qa* may be due

²⁷ In Jiménez Delgado’s (2017: 33–6, 41–4) account, **terk^w-* and **trep-* would both be attested in Mycenaean as separate roots. The latter, however, would only figure in the extremely controversial verb form *te-re-pa-to*, which he takes as a passive “alpha-thematic” aorist /trep(a)n to/ of unclear meaning. The two roots would then undergo complete convergence in 1st-millennium Greek, when the opposition between labiovelar and labials had been neutralized and the distinction between **terk^w-* > **terp-* and **trep-* had become opaque.

to scribal errors, but it crucially takes the less frequent *to-qa* as the target sequence, while *to-ro-qa* would be the product of a slip triggered by interference.

Unless one challenges the linear order of the root **terk^w*-, as per *LIV*² 635, and posits **trek^w*- instead, then, the only data in this subset pointing towards *some sort of* metathesis, are *to-ro-qa* and *to-ro-qe-jo-me-no*. Ostensibly, though, this “metathesis” does not correspond to LM as defined by Risch and followers, as it operates in the opposite direction: from a historical/underlying linear order /or/ we obtain [ro], whereas Risch considers /ro/ to be underlying and [or] to be the product of LM. I go back to this point in §1.3.3 below.

1.3.1.2 *A form related to πρέπω*

***po-po-i* /*porpoihi*/: MY Oi 702 (H 64); *po-ro-po-i* /*propoihi*/: MY Oi 701 (H 63)**

The interpretation of these two forms goes back to Petruševski (1966, 1986), who takes *po-ro-po-i* /*propoihi*/ as the DAT.PL of an occupational name, parallel to *ka-na-pe-u-si* /*knap^heusi*/ DAT.PL ‘fuller’ (cf. alph. Gk. *κναφεύς* ‘id.’) and *ku-wa-]-no-wo-ko-i* /*kuwanoworgoihi*/ DAT.PL ‘*ku-wa-no*-maker’ (cf. alph. Gk. *κύανος* ‘dark-blue enamel’, *ἔργον* ‘work’) on the same tablet. These all appear to be recipients of some food commodity represented by the logogram **i90* (perhaps salt/brine, beer, or milk; see Del Freo 2019: 154). Petruševski connects *po-ro-po-i* to alph. Gk. *πρέπω* ‘be conspicuous, fitting’ and argues for a semantic interpretation ‘seer, prophet, augur’ based on Hom. *θεοπρόπος* ‘id.’ and a Cypriot gloss in Hesychius (Hesych. π 3238 H. *πρέπον· τέρας. Κύπριοι*). This account would fit the ritual context which the MY Oi series is associated with (see, e.g. Killen 2015: 917–20) and the mention of the *si-to-po-ti-ni-ja* /*sitōn Potnia*/ ‘Lady of the harvests’ (cf. alph. Gk. *σίτος* ‘grain’, *πότνια* ‘lady’) on MY Oi 701.

Petruševski's interpretation is now commonly accepted (see Varias 1993: 371–2, Thompson 2002/2003a: 361, Piquero 2019: 399–400), even after Olivier, in his revised edition of MY Oi 702 (*MT* IV 22; cf. also *TITHEMY* 69) read *po-po-i* instead of Chadwick's *po-po-re* (*MT* III 59). Olivier considers *po-po-i* either a scribal error by omission for *po-ro-po-i*, or an alternative spelling, given the different scribal hands for MY Oi 701 and 702 (cf. also Varias 1993: 380). Thompson (2002/2003a: 361), on the other hand, takes this spelling alternation as an example of LM, whereby *po-ro-po-i* /propoihi/ would be an unmetathesized (i.e. “Special”) τμός-type agent noun, while *po-po-i* /porpoihi/ would be its metathesized (i.e. “Normal”) correspondent.

This etymology, however, poses some problems, both formal and semantic. As Viredaz points out in *CEG* 5: 280, the root of alph. Gk. πρέπω, cognate with Armenian *erewim* ‘appear’, is likely **k^wrep-* rather than **prep-*.²⁸ The attested Mycenaean spelling, therefore, would be incompatible with a preform **k^wrop-ó-*, as we would expect **qo-ro-po-*. Moreover, the meaning ‘seer’ attested in Hom. θεοπρόπος is likely compositional and partly derives from the first member θεο° ‘god’, which is absent in the Mycenaean forms. Thompson's (2002/2003a: 361) claim, therefore, cannot be upheld here, while

²⁸ This is based on the connection, first suggested by Schindler (1972: 67), between alph. Gk. πρέπω and the Indo-Iranian root noun *kṛp-* ‘beauty, appearance’ (Ved. INS.SG *kṛpá*, OAv. ACC.SG *kəhrpəm*; see *EWA* I 393, s.v. *kṛp-*). As Clackson (1994: 165–6) points out, the question whether the Armenian and Greek material goes back to **prep-* or **k^wrep-* depends on one's assessment of some potential cognates: on the one hand, Old Irish *richt* ‘form, shape’ and Welsh *rhith* ‘species’, for which a preform **pṛp-tó-* has been posited (and perhaps also Old High German *furban* ‘to make good to see’); on the other, Latin *corpus* ‘body’ and Old English *hrif* ‘womb’, which appear to be related to Indo-Iranian *kṛp-*. Cf. also *EDG* 1230–1.

Olivier’s analysis of the alternation between *po-ro-po-i* and *po-po-i* as a scribal error, in the absence of a tenable etymology, ultimately appears preferable.

1.3.1.3 *Forms related to θρόνος and θρόνα*

to-no /t^hornos/: PY Ta 707 2×, 708 2×, 714 (H 2)

a-pi to-ni-jo /amp^hit^horniō/: PY Ta 716 (H 2)

to-ni-ja /t^hornia/: KN L 192 (H 124)

to-no-e-ke-te-ri-jo /t^hornohe(l)ktēriōi/: PY Fr 1222 (H 2)

to-ro-no-wo-ko /t^hronoworgoi/: KN As(2) 1517 (H 102)

The first form in this subset, *to-no* /t^hornos/ NOM.SG ‘seat, chair, throne’ is attested in a catalogue of furniture and most likely represents the direct correspondent of alph. Gk. θρόνος ‘id.’ (Hom.+; see, e.g., Piquero 2019: 247–8). A *-yo-adjective derived from *to-no* may be identified in the same catalogue, namely *a-pi to-ni-jo* /amp^hit^horniō/, which most take as a NOM.DU.M/N referring to golden chains (*ku-ru-so pa-sa-ro* /k^hrusō(i) psalō/, cf. alph. Gk. χρυσός ‘gold’, ψάλιον ‘chain, curb-chain’ and Hesych. ψ 50 H.-Cunn. ψαλόν· εἶδος χαλινῶ).²⁹ The form would designate chains to be attached ‘on both sides of the throne’, although it is unclear what function beyond decoration these would have.³⁰

²⁹ See Ruipérez and Melena 1990: 175, Sacconi 1999: 288, Bernabé and Luján 2008: 227, Tsagarakis 2012: 329–30, Melena 2014: 127, Piquero 2019: 246.

³⁰ For this reason, Speciale (1999: 293) proposes an interpretation /amp^hit^hoiniō/ based on alph. Gk. θοίνη ‘meal, feast’ and interprets the adjective as ‘(to be placed) around the sacrificial victim’, assuming a more specific original meaning for θοίνη.

In the other forms, the connection with alph. Gk. *θρόνος* is less secure. An alternative possibility is to identify them with *θρόνα* NOM/ACC.PL.N ‘flowers embroidered on cloth (1x, *Il.* 22.441); herbs used as drugs and charms (Theoc.+).’ This is especially the case for *to-ni-ja* /t^hornia/ NOM.PL.N, which Luján (1996/1997: 360) interprets as ‘decorated with *θρόνα*’. Luján suggests that such a decoration, despite what is found in the lexica, would not correspond to embroideries but rather to dyed motifs. This is based on scholia to *Il.* 22.441 that define *θρόνα* as τὰ βαπτὰ ἔρια ‘dyed wool cloths’ and ἄνθη ποικίλα, ἐξ ὧν βάπτουσι ‘variegated flowers from which (people) dye (textiles)’ (cf. Erbse 1977: 347). The context of the tablet that attests *to-ni-ja*, however, is not very informative, as it only shows a connection with textiles.³¹

More controversial are perhaps the two remaining compound forms, for which interpretations based both on *θρόνος* and *θρόνα* have been proposed. As for *to-no-e-ke-te-ri-jo*, there is widespread consensus that this compound form designates some religious festival — consensus that vanishes when it comes to the interpretation of its name. Varias (2021), who most recently collected all the alternative proposals, counts six of them, four of which take *θρόνος* as the first member of the compound, while the other two operate with *θρόνα*.³² Varias (2021: 94) ultimately reconfirms Bennett’s (1958: 30, 52–3) and

³¹ Alternative accounts are available, such as a connection with alph. Gk. *στροφή* ‘belt’ or *τόνιον* ‘bandage’, or the identification as an ethnic adjective from the place name *to-ni* (see *DMic.* II 361).

³² These are: 1) /t^hornohelktēriōi/ DAT.SG ‘festival of the drawing of the throne’, based on alph. Gk. *ἔλκω* ‘draw, drag’ (Bennett 1958: 30, 52–3; Heubeck 1966a: 105; Doria 1970: 56, *Docs*² 482; Weilhartner 2012: 214 fn. 35); 2) /t^hornoekk^heutēriōi/ DAT.SG ‘festival of the anointing of the throne’, based on alph. Gk. *ἐκχέ(ν)ω* ‘pour out’ (Pugliese Carratelli 1959: 418–9; Stella 1959: 256; Maddoli 1962/1963: 101); 3) /t^hornoenk^heutēriōi/ DAT.SG ‘festival of the libation on the throne’, based on alph. Gk. *ἐγχέ(ν)ω* ‘pour in’ (Hiller 1969/1970: 83–5; 2011: 172, 199); 4) /t^hornohektēriōn/ GEN.PL ‘festival of the holding of the throne’, based on alph. Gk. *ἔχω* ‘have, hold’ (Ruijgh 1967: 113; Risch 1972: 17–8; *Docs*² 482, 586; Chadwick 1976a: 130; Weilhartner 2012: 214 fn. 35); 5) /t^hornohelktēriōis/

Hiller's (1969/1970: 83–5; 2011: 172, 199) interpretations, respectively /t^hornohelktēriōi/ DAT.SG 'festival of the drawing of the throne' (cf. alph. Gk. ἔλκω 'draw, drag') and /t^hormoenk^heutēriōi/ DAT.SG 'festival of the libation on the throne' (cf. alph. Gk. ἐγχέ(ϝ)ω 'pour in') — deemed equally plausible. Both these proposals take Myc. *to-no*, alph. Gk. θρόνος 'seat, chair, throne' as the first member of the compound, which matches the paleographic and archaeological evidence: the form *to-no-e-ke-te-ri-jo* is notated by Hand 2, i.e. the scribe that notated all of the occurrences of both *to-no* and *a-pi to-ni-jo* in the PY Ta series; moreover, the tablet PY Fr 1222, on which the form is notated, was found in a room just adjacent to the *megaron* of the Pylos palace, where the throne was located.

On the other hand, Petrakis' (2002/2003: 306–12, 314–6) interpretation as /t^hornohektēriōn/ GEN.PL 'festival of the holding/bearing of flowers/herbs' (cf. alph. Gk. ἔχω 'have, hold'), based on θρόνα, would be backed up by iconographic material. Namely, frescoes from several Mycenaean sites (Pylos, Thebes, Tyrins, Mycenae) seem to confirm the existence of ritual processions that involved women carrying flowers or herbs — i.e., what Petrakis argues the *to-no-e-ke-te-ri-jo* festival ultimately was. This interpretation, however, is at odds with the fact that θρόνα in Homer seems to designate *embroidered* flowers — or, per Luján (1996/1997: 360), dyed decorations — rather than ritual bouquets. Petrakis (2002/2003: 300–1) deals with this problem by arguing that the meaning of Homeric θρόνα is a metonymy from a basic sense 'flowers, herbs', which is theoretically possible but ultimately unverifiable.

DAT.PL 'festival of the offering of an embroidered cloak', based on alph. Gk. ἔλκω 'draw, drag' (Probonas 1974: 107; Ruipérez and Melena 1990: 193); 6) /t^hornohektēriōn/ GEN.PL 'festival of the holding/bearing of flowers/herbs', based on alph. Gk. ἔχω 'have, hold' (Petrakis 2002/2003).

A similar conundrum is posed by the other compound *to-ro-no-wo-ko* /t^hrono-worgoi/, which is also particularly relevant for LM, being the only form with a linear order /ro/ as opposed to /or/ elsewhere in the subset. The traditional interpretation for this form is ‘chair-makers’, with a first member being a variant of the simplex *to-no* and the second going back to PIE **werǵ-* ‘work’.³³ This sense would match the context of the tablet, which lists personnel related, at least in part, to the production of furniture (see Varias 2002/2003: 26 and Killen 2015: 1069 fn. 83).

However, van Beek (2022b: 84–8) has recently made a strong case for an interpretation as ‘dyers of threads’ or ‘producers of dyes’, connecting the first element to θρόνα instead. One first crucial point in van Beek’s (2022b: 85) argumentation is that “the fact that the word for ‘chair’ is consistently written *to-no* in Pylos might be an argument in favor of connecting *to-ro-no-wo-ko* with Hom. θρόνα.” In other words, van Beek takes the linear order /or/ vs. /ro/ as a diagnostic to set apart a stem *to-no-* /t^horno-/ belonging with alph. Gk. θρόνος and another stem *to-ro-no* /t^hrono-/ belonging with alph. Gk. θρόνα.

Van Beek does not seem to be aware of Lujan’s (1996/1997: 360) interpretation of *to-ni-ja* /t^hornia/, mentioned above, that associates the form with θρόνα. Crucially, the linear order in this form is /or/ and yet a connection with alph. Gk. θρόνος does not seem very likely. The rest of van Beek’s proposal — which consists of a re-examination of the 1st-millennium attestations of θρόνα and their semantics informed by Risch (1972: 19–20) and proceeds along the same lines as Luján’s (1996/1997: 360) — appears more compelling. Van Beek points out that, in its only Homeric appearance, θρόνα is

³³ This interpretation is, e.g., in Hiller 1992: 307; de Lamberterie 2004: 243 fn. 18; Varias 2008: 776, 790; Piquero 2019: 247.

governed by the verb *πάσσω* ‘sprinkle’ → ‘embroider’ (see *Il.* 22.441 *δίπλακα πορφυρέην, ἐν δὲ θρόνα ποικίλ’ ἔπασσε* ‘a purple mantle, and she [*sc.* Andromache] embroidered it with varicolored *θρόνα*’; tr. van Beek), which in later Greek is normally associated with *φάρμακα* ‘drugs’. This would justify a reinterpretation of *θρόνα* as an epic variant of *φάρμακα*, which in turn would explain the meaning of the word in Hellenistic poetry as ‘herbs used as drugs and charms’. Van Beek then turns to the interpretation of *θρόνα* as found in the abovementioned Homeric scholia and some ancient commentators, which support a meaning ‘dyes’ rather than ‘embroideries’. This both fits nicely the interchangeability with *φάρμακα* and reconciles the semantics of the word with the Homeric and Mycenaean material.

The convergence of van Beek’s (2022b: 84–8) and Luján’s (1996/1997: 360) interpretations makes this an even stronger case for the connection of *to-ni-ja* and *to-ro-no-wo-ko* with alph. Gk. *θρόνα*.³⁴ These two items are also both attested at Knossos, while the forms more securely connected with *θρόνος* — *to-no*, *a-pi to-ni-jo*, and *to-no-e-ke-te-ri-jo* — all appear in Pylian documents.

This survey allows us to make some considerations related to LM. Risch (1979) and Thompson (2002/2003: 359–60) explain *to-no* /*t^hornos*/ as a “Normal” metathesized form and *to-ro-no-wo-ko* /*t^hronoworgoi*/ as its “Special” unmetathesized counterpart, based on the assumption that they both belong with alph. Gk. *θρόνος*. If, however, *to-ro-no-wo-ko* /*t^hronoworgoi*/ rather belongs with alph. Gk. *θρόνα*, such a claim must be modified. First, the Mycenaean occurrences of alph. Gk. *θρόνος* — i.e. *to-no*

³⁴ Pace de Lamberterie (2004: 243 fn. 18), who claims that “[l]’interprétation de *to-ro-no-wo-ko* (KN As 1517) comme *θρονο-φοργοί* ‘fabricants de sièges’ a parfois été contestée, mais elle demeure de loin la meilleure (*DMic* s.u.). En revanche, *to-ni-ja* et *api to-ni-jo* ne semblent pas avoir de rapport avec ce groupe et restent obscurs (*DMic* s.u.).”

/t^hornos/, *a-pi to-ni-jo* /amp^hithorniō/, and likely *to-no-e-ke-te-ri-jo* /t^hornohe(l)ktēriōi/ — consistently show a linear order /or/. This item, therefore, does not show LM in Mycenaean, but either *some* metathesis (or a different explanation altogether) should be called for to account for the linear order /ro/ in alph. Gk. θρόνος. Second, it is rather the Mycenaean correspondents of alph. Gk. θρόνα — namely *to-ni-ja* /t^hornia/ and *to-ro-no-wo-ko* /t^hronoworgoi/ — that might show LM at this stage.³⁵

This second point is perhaps more straightforward to address. As both Petrakis (2002/2003: 298) and van Beek (2022b: 85 fn. 84) point out, the etymology of alph. Gk. θρόνα is unclear. One potential etymology, given in *GEW* 686, connects it with Alb. *drëri* ‘deer’ (assuming a preform *d^hroni- ‘multicolored’) but lacks any conclusive evidence. Solmsen (1898: 474–6) connects it with Latin *frons*, *frondis* ‘foliage’ and Ru. *dërn* ‘turf’, but de Vaan (*EDLIL* 244) suggests that, if any at all, the connection between the Greek and Latin material “might go back to an identical Mediterranean substrate word of floral character.” Finally, Lawler (1948: 81), Furnée (1972: 189), and ultimately Beekes (*EDG* 557–8) suggest a Pre-Greek origin for θρόνα, mostly based on the variant τρόνα· ἀγάλματα, ἢ ῥάμματα ἀνθίνα ‘ornaments, or stitched flowers’ (Hesych. τ 1483 H.-Cunn.). Lacking a solid etymology and any guarantee that this item is inherited, it seems unwise to build generalizations based on the alternation in *to-ni-ja* and *to-ro-no-wo-ko*.

³⁵ This picture could be complicated by the addition of the form *o-to-ro-no* (TH Fq 214). Normally, it is considered a personal name and tentatively connected with the place name Ὀθρωνός/Ὀθρωνός, an island off the coast of Sicily (cf. *DMic. Supl.* 252). Recently, Kölligan (2025) has proposed to interpret the form as a compound with “copulative” *sm- as first element and *-to-ro-no* belonging either with θρόνος or θρόνα. Although Kölligan seems to prefer an interpretation as ‘having equal/high/good rank’, where ‘throne’ = ‘rank’, the linear order might instead suggest connection with θρόνα.

Going back to Myc. *to-no*, alph. Gk. θρόνος (together with the Cypriot gloss Hesych. θ 647 L.-Cunn. θόρναιξ· ὑποπόδιον ‘footstool’), it is debated whether these go back to: 1) a preform with a zero grade, whereby the alternation could depend on different outcomes of **r*; 2) an *o*-grade, in which case metathesis could be called for.³⁶ In either case, the root that is usually posited to etymologize these forms is PIE **d^her-* ‘attach, fix, mount’ (cf. *LIV*² 145–6). Among those who reconstruct a zero grade **d^hr-no-* are Wathelet (1966: 165), Bader (1969/1970: 34–5), O’Neil (1969: 37), and Heubeck (1972: 63–4, 78).³⁷ Should this be the case, this form would belong with the data presented in §1.4.1 — and would even match the tendencies observed in the rest of the items discussed there, as I highlight in §2.1.

On the other hand, Thompson (2002/2003a: 359–60) and de Lamberterie (2004: 241–9) take these forms to go back to an *o*-grade.³⁸ De Lamberterie’s account hinges on the co-occurrence, both in

³⁶ A third option is in *GEW* 686–7 and *DELG* 442–3, namely that θρόνος could be analyzed as θρ-όνος to match forms such as κλόνος ‘confused motion, turmoil’ and χρόνος ‘time’. This analysis, however, is at odds with the Mycenaean and Cypriot forms, and produces a morphologically arbitrary segmentation based on etymologically obscure forms (cf. Bader 1969/1970: 35, de Lamberterie 2004: 243 fn. 19, and *EDG* 558). A fourth way, finally, is in *EDG* 558, namely that the form is Pre-Greek.

³⁷ In particular, Bader (1969/1970: 34–5) points out that a **no*-suffix preceded by a zero-grade is paralleled in Greek by ὕπνος ‘sleep’, a zero-grade formation **sup-no-* from PIE **swep-* ‘sleep’ (cf. *LIV*² 612–3). Vine (1999b: 579–80), however, contemplates an *o*-grade formation **swop-no-* and explains the Greek vocalism via sound change **swop-no- > *swup-no-*.

³⁸ De Lamberterie (2004: 243–5) challenges one common argument in support of **d^hr-no-*, having to do with the metrical behavior of θρόνος throughout the Homeric poems. Wathelet (1966: 165) and Heubeck (1972: 63–4, 78) take the fact that the initial complex onset θρ- sometimes receives *muta-cum-liquida* treatment as evidence for a preform with **r*. This follows from the assumption that when the poems were orally composed, **r* could still be parsed as a syllabic nucleus rather than an onset segment, hence the preceding consonant

Mycenaean and in the Homeric poems, of *to-no*/θρόνος ‘chair’ with *ta-ra-nu* /t^hrānus/ and θρήνυς ‘(foot)stool’ (alongside Att. θράνος ‘bench’). In his view, these would go back to the same root, a *set* version of **d^her-*, namely **d^herh₂-* and only differ in terms of ablaut grade: an *o*-grade in **d^horh₂-no-* > **d^hor-no-* with laryngeal loss via Saussure Effect, and a zero-grade in **d^hrh₂-no(/u)-* > *t^hrāno(/u)-*.³⁹ To make this analysis work, de Lamberterie (2004: 247) explains Hom.+ θρόνος as the result of metathesis, while Myc. *to-no* /t^hornos/ and Cyp. θόρναξ would be conservative. This metathesis would be based on the linear order in *ta-ra-nu*/θρήνυς and Myc. *to-ro-no-wo-ko* (which he believes belongs with *to-no*), where the metathesis would be phonetically justified as some sort of dissimilation **/t^horno-worgoi/* > */t^hrono-worgoi/*. As pointed out by van Beek (2022b: 339), de Lamberterie’s etymology, though attractive, incurs two problems. First, the Indo-Iranian attestations of **d^her(h₂)-* point to an *aniṭ* root (Ved. *dhar-* ‘hold, support’), so we would have to admit an **h₂* enlargement in Greek. Second, Attic θράνος would appear to be more conservative, in terms of its suffix, than Homeric θρήνυς and Mycenaean *ta-ra-nu* — but the opposite is probably more likely, i.e. that Attic θράνος was influenced by θρόνος, since *u*-stem nouns were not productive in Greek.

would not “close” the preceding syllable. De Lamberterie, following Hoekstra (1965: 144–5), points out that θρ- in θρόνος normally makes position, save for a few exceptions mostly found in the *Odyssey*, which could be later licenses. Moreover, he disavows the association of *muta-cum-liquida* treatment as a diagnostic for **ɹ*.

³⁹ As an example of a **-no-* formation with both zero- and *o*-grade, de Lamberterie (2004: 249) mentions Gk. ὕπνος ‘sleep’ < **sup-no-* and Armenian *k’un* < **swop-no-*.

1.3.1.4 A form related to ὀργή, ἔργον, ῥοικός, or ῥήγνυμι

wo-ro-ki-jo-ne-jo /wrogionejon/ or /wroikiōnejon/: PY Er 312, Un 718 (H 24)

This particularly vexed form appears on a landholding tablet (PY Er 312) and on a tax record listing contributions to the sanctuary of Poseidon (PY Un 718). In both cases, it appears to modify a landholding term, namely *e-re-mo* /erēmon/ NOM.SG.N ‘barren or uncultivated field’ (cf. alph. Gk. ἐρήμος ‘desolate’) on Er 312 and *ka-ma* /kamas/ NOM.SG.N ‘arable field’ (cf. alph. Gk. κάμνω ‘work, labor’) on Un 718, which suggests it could be an **eyo*-adjective (see Piquero 2019: 362–3). Some want to see in this form the denomination of a social group, to which these parcels would belong, perhaps with some religious connotations and related to marginalized individuals.⁴⁰ This account rests on the association of *wo-ro-ki-jo-ne-jo* with the Attic ὀργεῶνες ‘members of a religious association’ (on which see, e.g., Ustinova 1996), in turn connected either with alph. Gk. ὀργή ‘natural impulse; anger’ or ἔργον ‘work’. The Mycenaean form is therefore read /wrogionejon/ and traced back to either PIE **werǵ-* ‘swell’ (cf. Ved. *úrj-* ‘nourishment’, Hitt. *warka* ‘fat’; see EDG 1097 s.v. ὀργή, EWA I 242–3 s.v. *úrj-*; Yates 2024: 103–4) or its homophone **werǵ-* ‘do, work’ (LIV² 686–7).

The connection with **werǵ-* ‘do, work’, which is reflected in Mycenaean by the abovementioned *wo-ze* /word²ei/ 3SG.PRS.IND.ACT ‘work’ (+ more forms in the same paradigm), is presumably what led Risch (1979: 111) to include these two forms in his list: *wo-ze* /word²ei/ would show “Normal” LM, whereas *wo-ro-ki-jo-ne-jo* /wrogionejon/ would be a “Special” unmetathesized form. This, however, is at odds with

⁴⁰ Among these are Ruipérez (1992: 563), Palaima (1995: 132; 2004: 110), Pontani (1998: 45–7), Milani (2002: 6–8), Nikoloudis (2006: 89–95; 2008: 589), and Nakassis (2012: 4–5).

the fact that *wo-ze* /word^{zei}/ likely represents a zero-grade formation **wrġ-ye/o-* (in which, as discussed in §2.1, we do expect an outcome with prevocalization), while *wo-ro-ki-jo-ne-jo* /wrogionejon/ may be based on a morphological *o*-grade. Moreover, as pointed out by Thompson (2002/2003a: 361–2), based on the reconstructed root shape **werġ-*, it is *wo-ro-ki-jo-ne-jo* /wrogionejon/ that would appear to have undergone metathesis — i.e., the opposite of what Risch’s analysis postulates. The root **werġ-* ‘do, work’, after all, seems to have been prone to metathesis, as suggested by alph. Gk. ῥέζω ‘do’ vis-à-vis ἔρδω ‘id.’⁴¹

As for **werġ-* ‘swell’, this one does not seem to have any (other) reflexes in Mycenaean, so we cannot test a LM hypothesis synchronically. At any rate, also in this case *wo-ro-ki-jo-ne-jo* /wrogionejon/ would show a somewhat unexpected linear order based on the reconstructed root shape, rather than be an unmetathesized form. Others, however, interpret *wo-ro-ki-jo-ne-jo* as a derivative of a personal name **/Wroikiōn/* (cf. alph. Gk. ῥοῖκος and ῥοικός ‘crooked’) and read it */wroikiōnejon/*.⁴² The *e-re-mo* /erēmon/ and *ka-ma* /kamas/ would thus belong to the personal estate of a single individual. Finally, Heubeck (1966b) takes it as a toponymic adjective */wrōgionejon/* connected to alph. Gk. ῥῶξ ‘cleft’, which in turn belongs with ῥήγνυμι ‘break’. For our purposes, it is sufficient to point out that neither of these last accounts would imply any metathesis in Mycenaean, be it synchronic or diachronic: the PIE roots ῥοικός and ῥήγνυμι go back to, **wroik-* ‘turn, make crooked’ and **wreh₁ġ-* ‘break’ respectively, both

⁴¹ A potential example of a similar linear order as Myc. *wo-ro-ki-jo-ne-jo* /wrogionejon/ comes from Cypriot *mu-ro-wo-ro-ko* GEN.SG ‘perfume-maker’. Egetmeyer (2010: I 146, 225, 242) transcribes it as */muroworgō/* (not */murowrogō/*) only because the linear order */-wor-/* is more frequent elsewhere in Greek.

⁴² This interpretation is preferred by Melena (2001: 42, 74), Del Freo (2009: 44), Rougemont (2009: 522–4), Nakassis (2013: 410–1), and Killen (2015: 290–1, 500, 705).

display the same linear order we find in *wo-ro-ki-jo-ne-jo* (cf. *EDG* 1282–3 s.v. ῥήγγυμι, 1285–6 s.v. ῥικνός). Whatever of these alternative etymological accounts one should prefer, therefore, this form would ultimately not prove particularly informative about LM in Mycenaean.

1.3.2 Data for Vowel Epenthesis

o-pe-te-re-u /Op^heltreus/: PY Ea 805 (H 43), Eb 294 (H 41); *o-pe-to-re-u* /Op^heltoreus/:
PY Ep 704 (H 1)

The interpretation of this item as a personal name, likely /Op^helt(o)reus/ (cf. alph. Gk. ὀφέλλω/ὀφεῖλω ‘owe’), as well as the fact that both spellings refer to the same individual, is beyond doubt (see Nakassis 2013: 326). What is to an extent unclear is the reason for the different spellings attested, and in particular for the one occurrence of *o-pe-to-re-u*. As mentioned above, Risch’s (1966: 156; 1979: 98–100) explanation is vowel epenthesis, present in *o-pe-to-re-u* /Op^heltoreus/ as a “Normal” Mycenaean trait and absent in *o-pe-te-re-u* /Op^heltreus/, a “Special” Mycenaean form. Hajnal (1997: 155 fn. 290) contends that epenthesis may have arisen to repair the cluster /-ltr-/ in /Op^heltreus/, on account of it being tri-consonantal. However, this sequence would be syllabified as [-l.tr-], a perfectly well-formed configuration generally allowed in Greek (e.g., φίλτρον ‘love-charm’). Alternatively, he suggests that the form may be analogical to *tor*-stems, which would disqualify the pattern as epenthesis. Either proposal would also make the form unusable to describe any sociolectal differentiation.⁴³

⁴³ Heubeck’s (1972: 67) hypothesis that the alternate spellings would stand for a sequence /Opetr(r)eus/, i.e. with retained /r/, is simply untenable, as at no diachronic stage would /r/ be syllabic when adjacent to a vowel.

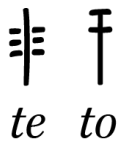


Figure 1: Shapes of syllabograms <te> and <to>.

Preferably, as suggested already in *Docs*² 565, *o-pe-to-re-u* can be assessed as a scribal error. This hypothesis appears particularly well-founded for two reasons: 1) the shape of syllabograms <te> and <to> is similar enough to have caused confusion in the scribe (see **Figure 1**); 2) PY Ep 704 is a page-format copy, executed by Hand 1,

of a palm-leaf-format tablet (PY Eb 294). In the copying process, where the visual channel is predominantly activated, an error driven exactly by the shape of syllabograms would not be surprising at all. Discrepancies between Eb originals and Ep copies due to errors are not uncommon, but this one would stand out as it is Hand 1, i.e. the copyist and reviewer, who misspelled a form. Usually, as pointed out by Maurice (1985: 33–5), we observe the opposite: *to-e* (PY Eb 842), *wo-zo-e* (PY Eb 338), and *ke-me-na* (PY Eb 747) are all errors made by Hand 41 and corrected by Hand 1 into *to-me* (PY Ep 613), *wo-ze-e* (PY Ep 704), and *ke-ke-me-na* (PY Ep 301).

u-pa-ra-ki-ri-ja /Hup(a)rakria/: PY An(5) 289 (H 3); *u-po-ra-ki-ri-ja* /Huporakria/: PY Cn(5) 45 5× (H 21)

This pair of alternate spellings, which appear in a list of personnel and one of livestock, is associated with alph. Gk. τὰ ὑπεράκρια ‘heights above (a plain)’ and commonly interpreted as a place name. In this case, too, the spelling alternation has received various explanations. The form *u-po-ra-ki-ri-ja* /Huporakria/ is taken by Risch (1966: 156) as another case of “Normal” vowel epenthesis vis-à-vis unepenthesized *u-pa-ra-ki-ri-ja* /Huprakria/. Ruijgh (1967: 175) instead describes *u-po-ra-ki-ri-ja* /Huporakria/ in terms of regressive dissimilation from *u-pa-ra-ki-ri-ja*, understood as /Huparakria/ — but the opposite could theoretically be true, i.e. a regressive *assimilation* in /Huparakria/ from /Huporakria/. Heubeck (1972: 66) and, more recently, van Beek (2022b: 71–3, 90, 101–2) take this

alternation as reflecting synchronic /r/ in Mycenaean, comparing Pamphilian $\upsilon\pi\alpha\rho$ as another zero-grade of $\acute{\upsilon}\pi\acute{\epsilon}\rho$ ‘above’.

Van Beek suggests that historically such a zero-grade prefix would surface as [upr-] prevocally and [upr̥-] preconsonantly (as expected) in both compounds and prepositional phrases. At a later stage then the preconsonantal alternant would become more productive and be generalized in all positions (cf. $\pi\rho\acute{o}\varsigma$ superseding **prosi*, Hom. $\pi\rho\omicron\tau\acute{\iota}$). Thus, van Beek reads *u-pa-ra-ki-ri-ja* as “archaic” /Huprakria/ and *u-po-ra-ki-ri-ja* as /Hupr̥akria/ with the preconsonantal outcome generalized. Van Beek’s comparison with $\pi\rho\acute{o}\varsigma/\pi\rho\omicron\tau\acute{\iota}$ however highlights a crucial difference between the two cases: $\pi\rho\acute{o}\varsigma$ is the prevocalic alternant extended to preconsonantal position, [upr̥-] would be the preconsonantal one extended to prevocalic position. Whereas an *s*-final preposition/prefix would merely create -sC- clusters, highly tolerated in Greek and PIE (see §3.3.3), the sequence of two syllabic segments [-r̥V-] that a “prevocalic” [upr̥-] originates would hardly have been equally acceptable in Greek, let alone become the productive pattern.

Finally, Hajnal (1997: 151–5) contemplates two alternative accounts. One is to admit two different morphological analyses: in *u-po-ra-ki-ri-ja* /Huprorakria/, /or/ would represent the word-internal pre-consonantal outcome of **r̥*, whereby *u-po-* would be a prefix; /ar/ in *u-pa-ra-ki-ri-ja* /Huparakria/, on the other hand, would be the word-final outcome of **r̥*, extended from an independent adverb **u-pa*. The second is to analyze both forms as containing the same prefix but explain the *o*-vocalism in *u-po-ra-ki-ri-ja* /Huprorakria/ as a *Hypermykenismus*.

For present purposes, Risch’s epenthesis hypothesis seems untenable, as this sequence would lack a plausible trigger for epenthesis to arise (vis-à-vis the tri-consonantal cluster in the forms above). As for the other proposals, Ruijgh’s — perhaps reframed in terms of regressive assimilation rather than dissimilation — seems to be the most reasonable and economical.

1.3.3 Conclusions for Liquid Metathesis

Let us now return to the questions outlined in §1.1, namely whether LM may qualify as a feature of Mycenaean phonology, and whether structural factors such as syllable well-formedness may be behind the alternations identified by Risch (1966, 1979) and Thompson (2002/2003a).

The examination of the data carried out in this section reveals that some of the forms that have been taken as evidential basis for LM are not reliable enough, on philological grounds, to base phonological generalizations on. This has been shown to be the case of three items in particular, namely: *po-po-i* ~ *po-ro-po-i*, as both its semantic interpretation as ‘augur’ and its formal connection with alph. Gk. *πρέπω* (< **k^wrep-* rather than **prep-*) are untenable; *to-ni-ja*, *to-ro-no-wo-ko*, as both forms likely belong with alph. Gk. *θρόνα*, which lacks a solid etymology and may not be of Indo-European origin; *wo-ro-ki-jo-ne-jo*, as the very meaning of this word is still *sub iudice* and therefore no etymology can be securely established.

In other more transparent items, no token variation which could potentially point to LM is attested, as is the case of *to-no* /t^hornos/, *a-pi to-ni-jo* /amp^hit^horniō/, and *to-no-e-ke-te-ri-jo* /t^hornohe(l)ktēriōi/ on the one hand, all showing a linear order /or/, and *ku-su-to-ro-qa* /ksunstrok^{whā}/

on the other, displaying a linear order /ro/ in all attestations. This leaves us with the forms in (13), in which spelling variation could be (and has been) taken at face value as reflecting LM:

(13) Forms showing inner-Mycenaean variation

- a. *to-ro-qa* /trok^wāi/ ~ *to-qa* /tork^wāi/
- b. *to-ro-qe-jo-me-no* /trok^wejomenos/, *to-ro-qo* /trok^wos/ (~ *to-ko* /tork^wos/)

In the case of (13a), however, we have seen that the alternation plausibly represents scribal errors, given that all tokens were notated by the same hand. As for (13b), the LM hypothesis rests on the assumption that all three forms go back to PIE **terk^w-*, but this may not be the case. First of all, *-to-ko* may represent a personal name (currently lacking a phonological interpretation; see *New Docs* 627), thus ruling out also this second group of forms as attesting variation. Another possibility entertained above is that *to-ro-qe-jo-me-no* and *to-ro-qo* (+ *to-ro-qa*) derive from PIE **streg^whⁱ-* while *-to-ko* would be the only reflex of **terk^w-*. However, even without challenging the majority view on the etymology of these forms, Jiménez Delgado's (2017) suggestion that the metathesis observed in this set of forms derives from the formal and semantic similarity between these two roots disqualifies this alternation as purely phonological. A comparable phenomenon is discussed in §2.2, where I argue that some forms display an unpredicted linear order, /ər/ instead of /rə/ as a reflex of **r̥*, based on analogy. To account for those instances, I propose to interpret them as analogical to their respective *e*-grades. This type of change, in theoretical terms, can be modeled using Output-to-Output correspondence. In other words, faithfulness to the moraic structure of another available allomorph in the paradigm (in this case, the *e*-grade) would prompt an inversion in the linear order of the epenthesized zero-grade forms. The case in (13b), similarly, would be prompted by the interference between two lexical items (**/strek^{wh}ō/* 'twist' from

**streg^{wñ}-* and **/terk^wō/* ‘turn’ from **terk^w-*) rather than allomorphy, but it may be descriptively similar. At any rate, the crucial takeaway is that these phenomena do not support the claim for LM as a productive feature of Mycenaean or one of its alleged sociolects.

The comparison with the two alleged cases of vowel epenthesis, moreover, generally aligns with the above considerations. In the case of *o-pe-te-re-u* ~ *o-pe-to-re-u*, Risch’s (1966, 1979) account may hardly find any phonological motivation if we read the forms as /Op^heltreus/ and /Op^heltoreus/ respectively, as the presence of a triconsonantal cluster /-ltr-/ (syllabified [-l.tr-]) in the unepenthesized form does not qualify as a trigger for epenthesis. Instead, paleographic evidence points very strongly in the direction of a scribal error. As for the pair *u-pa-ra-ki-ri-ja* ~ *u-po-ra-ki-ri-ja*, a trigger for epenthesis also seems to be lacking, and other (preferable) explanations for this alternation are available.

In conclusion, the data discussed here do not support the view that LM was a productive feature of Mycenaean phonology. They rather point to a combination of separate alternations that, even when phonological, defy the definition of LM as set up by Risch (1966, 1979). Thompson’s (2002/2003a) idea that LM may be a suitable description for such alternations — but was just not regular enough to distinguish between sociolects of Mycenaean — is also ultimately to be rejected. Even when an inversion of linear order can be identified on the surface, it does not seem to be a purely phonological alternation, and analogical factors seem to have played a role.

1.4 Data for Liquid Vocalization⁴⁴

In this section, I briefly present the forms in which interconsonantal syllabic **r* has been reconstructed in previous literature, only including items with a relatively reliable etymology — which represent the evidential basis for the analysis in §2.1 — organized by outcome. A more in-detail discussion of these forms, as well as the inclusion of disputed items, would only repeat the thorough sifting of the evidence recently carried out by van Beek (2022b: 59–90). Although my conclusions on this material are different, I refer the reader to his work for the philological and etymological examination.

As the following survey reveals, the forms with a spelling <Co> are overwhelmingly more common than the forms with either alternant, i.e. <Co-ro> or <Ca>. In my dataset, <Co> appears in a total of eighty tokens, distributed over fifteen lexical items. On the other hand, <Co-ro> is attested five times (1× in *ma-to-ro-pu-ro*, 4× in *qe-to-ro-po-pi*), and <Ca> only twice (1× in *a-na-qo-ta*, 1× in *tu-ka-ta-ṣi*).⁴⁵ This quantitative distribution alone seems highly problematic for any analysis that interprets this variation in terms of spelling inconsistency or synchronic epenthesis: in either case, we would expect a more even distribution of outcomes.

Furthermore, the alternation that van Beek identifies as diagnostic for the potential retention of /*r*/ in Mycenaean, namely between <Co> and <Ca> (cf. §1.1 above), is not only found in the outcomes

⁴⁴ This section and the OT analysis in §2.1 represent a reworked version of Sabattini 2023.

⁴⁵ A few more items are discussed in §2.1 as potential additions to the dataset but not included in the present counts: *to-no*, together with its derivatives *a-pi-to-ni-jo* and *to-no-e-ke-te-ri-jo* (cf. also §1.3.1), as further examples of <Co> spellings (7× in total); *e-to-ro-qa-ta* (2×) as an example of <Co-ro> spelling.

of **r* but is widespread in those of syllabic nasals, too. Crucially, however, this alternation is never taken as evidence for the retention of /m/ or /n/ in Mycenaean. Rather, scholars, including van Beek (2022b: 27–31), interpret it as reflecting variable vocalization outcomes conditioned by neighboring sounds: /o/ would be triggered by a labialized context, /a/ would be the elsewhere outcome — although exceptions are found.⁴⁶ A few examples are given in (14).

(14) Vocalized nasals with alternating outcomes in Mycenaean

- a. ****m̥n-(t)* action nouns:** *a-mo-ta* /ar(h)mota/ NOM.PL ‘wheel’, *e-ka-ma-pi* /hek^hma(p)p^hi/ INS.PL ‘support (for tables)’, *pe-mo* /spermo/ ~ *pe-ma* /sperma/ ‘seed’
- b. ****r/*n* heteroclitics:** *a-re-pa-te* /aleip^hatei/ DAT.SG ‘unguent’ ~ *a-re-po-zo-o* /aleip^hod^zohos/ NOM.SG ‘unguent boiler’
- c. **numerals:** *a₂-te-ro* /hateron/ ACC.SG.N ‘next (year)’ (< **sm̥-*), *e-ne-wo-pe-za* /en(n)ewoped^za/ ‘nine-legged (table)’ (< **h₁new̥n-*)
- d. **other sources:** *a-pi-qo-to* /amp^hig^wotos/ NOM.SG.F ‘eight-shaped’ (see Bernabé 1998: 45–8) ~ *pe-qa-to* /pegg^waton/ NOM.SG ‘platform’ (< **g^wm̥-*, cf. alph. Gk. βάλω ‘go’)

Although van Beek does argue that the vocalization of nasals and that of liquids are formally and chronologically distinct changes and therefore should not be evaluated together, this claim by itself does not justify assigning the same empirical pattern to retention in one case and to vocalization in the other. For these reasons, I rather take the following data to reflect underlying sequences with the historical epenthetic vowels phonologized via sound change in Mycenaean.

⁴⁶ Cf. also Risch 1955, 1957/1958; Morpurgo Davies 1960; Ruijgh 1961; Bader 1969/1970; Bernabé 1977. For an attempt to model the variation in the same phonological context, see Thompson 1996/1997 and 2021.

1.4.1 Forms with <Co> /Cor/

a-no-me-de /Anormēdēs/: PY Jn(2) 706 (H 21);

a-no-qa-si-ja /anork^{wh}asiās/: PY Ea 805 (H 43);

a-no-qo-ta /Anork^{wh}ontās/: KN Ak(2) 615 (H 108), Ap(1) 618 (H 103), D 7334 (H –), Da 1289 (H 117), Dq(1) 440 (H 121), Vc(7) 173 (H 124), X 1051 (H –); *a-no-qo-ta-o* /Anork^{wh}ontāo/ GEN.SG: KN Da 1323 (H 117),⁴⁷ Dq(3) 45 (H 217), E 847 (H –)

This set of forms includes three compounds with a first element **h₂n̥r-* ‘man, hero’ (cf. alph. Gk. ἀνὴρ ‘id.’). Two of them have been interpreted by Mühlestein (1958) as NOM.SG.M personal names, *a-no-me-de* /Anormēdēs/ ‘providing the host with (good) counsel’ corresponding to Cl. Gk. Ἀνδρομήδης (cf. μῆδομαι ‘to plan cunningly’; see Meixner 2022: 56–7), *a-no-qo-ta* /Anork^{wh}ontās/ (GEN.SG.M *a-no-qo-ta-o* /Anork^{wh}ontāo/) ‘Manslayer’ matching Hom. ἀνδρεῖφόντης (cf. θείνω ‘strike, slay’ and φόνος ‘slaughter’). Semantically related to the latter, *a-no-qa-si-ja* /anork^{wh}asiās/ is a GEN.SG.F in association with *e-ne-ka* /(h)eneka/ ‘on account of’ (cf. alph. Gk. ἐνεκα ‘id.’) designating a land parcel assigned as compensation ‘on account of manslaughter’, i.e. to avoid blood revenge (cf. Killen 2015: 578–80; García Ramón 2007).⁴⁸

⁴⁷ Cf. *DMic. Supl.* s.v. *a-no-qo* [for this attestation.

⁴⁸ Heubeck (1972) reconstructs the same first element for *a-no-ra-ta* /Anoraltās/ ‘Man-feeder’ (PY An 340 [H 22], Jn 832 [H 2]), another personal name associated with Hom. ἄναλτος ‘insatiable’ and Lat. *alere* ‘to feed’. Van Beek (2022b: 71 fn. 45) suggests this would be an “instance of a pre-consonantal allomorph being generalized to pre-vocalic position,” so I do not include this item in my analysis.

ma-to-pu-ro /mātorpulos/: PY Mn(2) 1412 (H 14)

This form, together with the variant *ma-to-ro-pu-ro* discussed below in §1.4.2, is commonly interpreted, after Lejeune (*Mém.* III 176), as a place name referring to some “Ville-mère de Pylos” (cf. alph. Gk. μητρόπολις ‘mother-city’). It is analyzed as a determinative compound whose first element is the zero grade **meh₂tr-* ‘mother’. The second element likely corresponds to the place name for Pylos, attested elsewhere in Mycenaean as *pu-ro* /Pulos/. Meixner (2022: 253–4) instead interprets it as an “inverse *Bahuvrīhi*,” like English *Armstrong*, and translates it as ‘(Ort, der) Pulos zur Mutter(stadt) hat’, i.e. ‘von Pulos her gegründeter Ort’. He rejects the traditional analysis because it would require an otherwise unattested left-headed determinative in Mycenaean and because the prominence of Pylos makes it more likely that *ma-to-(ro-)pu-ro* denotes a settlement founded by it, instead of the reverse. Under either analysis, the phonological interpretation of the form remains the same.

o-pa-wo-ta /opaworta/: KN Sk 5670 (H 206), 7751 (H –), 8100 2x, 8149 (H 206); PY Sh 737, 740 (H 5)⁴⁹

The form, which appears on tablets related to the production and stocking of armors, is traditionally interpreted as the NOM.PL.N of a verbal adjective in **-tó-* from the zero-grade **h₂wr-* of the root **h₂wer-* ‘hang’ (*LIV*² 290), reflected by the alphabetic Greek ἀείρω ‘to lift’ (see Luján 2012: 144). The form also shows a preverb /op(i)-/ < PIE **h₁opi*, *o*-grade of alphabetic Greek ἐπί < PIE **h₁epi* ‘on, above’ (cf. HLuw. *api* ‘back’ for another *o*-grade of this form). Semantically, it is likely to indicate protective plates for

⁴⁹ The form is also abbreviated as *O* elsewhere in the PY Sh series (733, 734, 735, 738, 739, 741, 742, 743, 744) and, at least according to Sacconi (1968: 526), potentially in the TH Ug series (3, 4, 5, 6, 9, 11, 12, 13, 14, 21, 22, 23, 421, 422, 423, 424, 425).

corslets and helmets, from a literal sense of ‘hanging (i.e. overlapping) pieces’ (see Bernabé 2019: 492). Vine (1994/1995: 37–9) has instead proposed that the spelling *o-pa-wo-ta* stands for two homographs in Linear B, the abovementioned /opaworta/ with its traditional meaning only when it refers to corslets, and /opāwota/ ‘helmet spikes’ (< **opā-wnt-a*, cf. alph. Gk. ὄπεαρ ‘awl’) in registrations of helmets. Only the attestations of the former would thus be relevant for the present discussion.

to-pe-za* /torped²a/:** KN V(2) 280 (H 124), PY Ta 642 3×, 713 4×, 715 3× (H 2); ***to-pe-zo
/torped²ō/ NOM.DU: PY Ta 715 (H 2)

These two forms represent, respectively, the NOM.SG and the NOM.DU of the Mycenaean compound noun for ‘table’, paralleled by alphabetic Greek τράπεζα. The etymological interpretation of the first element of these forms is at stake, being the second member **ped-* ‘foot’ with a derivational suffix *-*ih*₂. Traditionally, the PIE root for ‘four’ is posited as the first element in the shape **k*^w(*e*)*twr-*, but a derivation from **tṛ-* ‘three’ is preferable. The phonological difficulties raised by the former etymology (**k*^w(*e*)*twr-* > Myc. <*to-*>) together with archaeological and iconographical evidence of three-footed tables in the second millennium BCE point in this direction (see Sabattini 2021 and van Beek 2022b: 69–70).

***to-mi-ka* /tormiska/:** KN L(9) 761, 764, 7400 (H 213), 7401, 8025, 8035 (H 213²)

The same first element as in *to-pe-za* is reconstructed by Mühlestein (1968: 115–6) in this compound related to the textile industry at Knossos. He interprets it as the NOM.PL.N ‘four-threaded’, after Hesych. τ 1398 Cunn. τριμίσκον ἱμάτιον. Ἀσπένδιοι and alphabetic Greek τρίμιτος ‘three-threaded’. However, the same considerations mentioned with respect to *to-pe-za* above point towards a preform **tṛ-* ‘three-’.

to-pa /torpā/: PY Ub(1) 1318 (H 32);

to-pa-po-ro-i /torpā^horoihi/: TH Av 101 (H 304), Fq 341 (H 305),⁵⁰ Gp 184 (H 306)

The simplex *to-pa* /torpā/ has since Docs² 490–1 been taken to designate a ‘basket’ involved in the process of leather manufacture and associated with alph. Gk. τάρπη ‘large wicker basket’, mostly attested by lexicographers. The compound form *to-pa-po-ro-i* /torpā^horoihi/ has then been interpreted as DAT.PL.M ‘basket carrier’, being involved in ritual processions (cf. Weilhartner 2014: 202–204). This etymological connection, which suggests a preform **tṛp-* has been upheld by Blanc (CEG 14 s.v. τάρπη) and by de Lamberterie (CEG 15 s.v. τάρπη), who connects it to PIE **terp-* ‘to enjoy; to use’. Van Beek (2022b: 77) cautiously deems this etymology “possible, but not certain.”

to-qi-de /tork^widei/: PY Ta 642, 713 2×, 721 2× (H 2); *to-qi-de-ja* /tork^wideyai/: PY Ta 709 (H 2); *to-qi-de-jo* /tork^wideyō/ NOM.DU.F: PY Ta 715 (H 2); *to-qi-de-we-sa* /tork^widwessa/: PY Ta 711 (H 2)

The form *to-qi-de* /tork^widei/ DAT.SG.F, together with its **-yo-* and **-went-* derivatives (NOM.PL.F *to-qi-de-ja* /tork^wideyai/ and DU.F *to-qi-de-jo* /tork^wideyō/, and NOM.SG.F *to-qi-de-we-sa* /tork^widwessa/) all cluster in descriptions of tables and other pieces of furniture, and are taken to designate carved decorative motifs ‘with a spiral’ (see Piquero 2021: 46). The base form *to-qi-de* is formally equated with alph. Gk.

⁵⁰ Cf. DMic. Supl. s.v. *to-pa-po-ro-i* for this attestation.

τρόπις, that indicates a ‘ship’s keel’. Etymologically, the form belongs with alph. Gk. *τρέπω* ‘to turn’ and goes back to a preform **trk^wid-*.⁵¹

wo-do-we /wordowen(t)/: PY Fr 1207 (H 41), Fr(1) 1238 (H 2), Fr(2) 1204 (H 4), Fr(3) 1203, 1208 (H 17), Fr(4) 1223 (H 18)

This form is unanimously associated with alphabetic Greek *ρόδον* ‘rose’ and interpreted as a **-went-* derivative adjective in the NOM.SG.N meaning ‘rose-scented’, as it appears on tablets related to ritual perfumed oils. Morpurgo Davies (1968: 811), Heubeck (1972: 70) and van Beek (2022b: 73) consider *wo-do-we* to reflect a syllabic **r* in a sequence **wrdo-*. Etymologically, the Greek word for ‘rose’ is likely a loanword from Old Iranian **wrda-*, which indeed shows a syllabic **r* (see *EDG* 1289–90).

wo-ne-we /wor(h)nēwes/: KN Ga(2) 1335 (H 136), PY Cn(3) 643, 719 (H 1), Cn(5) 40 (H 21)

This form has been associated with the alphabetic Greek noun *ἀρήν/ῥήν* ‘lamb’, as the word patterns with the logogram for male sheep (OVIS^M) on a recording of livestock (cf. *DMic.* II 442–3). This association would imply a preform **wrh₁-(ē)n-*, that would not be suitable for my analysis due to the presence of the laryngeal. However, based on an alternative proposal by Peters (1993: 387–91), recently upheld by van Beek (2022b: 74), the form rather seems to be associated with alph. Gk. *ἀρνειός* ‘ram’ and to go back to a preform **wrsn-ēw-*, **-ēw-* derivative of **wrs-(e)n-* ‘male animal’ (cf. Ved. *vr̥ṣaṇ-* ‘breeding male (animal)’, ‘virile’, ‘strong’).

⁵¹ But cf. van Beek (2022b: 68–9), who is more inclined toward a derivation from **strk^wid-* and an association with alph. Gk. *στρέφω* ‘to twist’.

wo-ze / *word^zei*/: PY Ea 309 (H 43), Eb 156, 177, 338, 839 (H 41), Ep 539, 613 6×, 704 (H 1);
wo-ze-e / *word^zehen*/: PY Eb 338 (H 41),⁵² Ep 704 (H 1); *wo-zo* / *word^zōn*/: PY Eb 862 (H 41); *wo-zo-te* / *word^zontes*/: PY Ed 236, Ep 539 (H 1); *wo-zo-me-na* / *word^zomenai*/: KN
 So(2) 4438 (H 131); *wo-zo-me-no* / *word^zomenō*/: KN So(2) 4433 (H 131)

All belonging to the same verbal paradigm, these forms are paralleled by the alphabetic Greek PRS.IND $\xi\rho\delta\omega < *wer\hat{g}-y\bar{o}$ and PRF.IND $\xi\omicron\rho\gamma\alpha < *we-wor\hat{g}-h_2e$, but are built on the zero grade $*w\check{r}\hat{g}-$ of the PIE root $*wer\hat{g}-^2$ ‘do, work’ (see *LIV*² 686–7). The forms can be interpreted as follows: *wo-ze* is a 3SG.PRS.IND.ACT / *word^zei*/, *wo-ze-e* corresponds to the PRS.INF.ACT / *word^zehen*/; the rest of the forms are all participial, namely PRS.PTCP.ACT.NOM.SG.M *wo-zo* / *word^zōn*/ and PL.M *wo-zo-te* / *word^zontes*/, PRS.PTCP.MID.NOM.PL.F *wo-zo-me-na* / *word^zomenai*/, and DU.F *wo-zo-me-no* / *word^zomenō*/.

1.4.2 Forms with <Co-ro> /Cro/

ma-to-ro-pu-ro / *mātorpulos*/: PY Cn(5) 595 (H 1)

Like *ma-to-pu-ro* / *mātorpulos*/ above, I take this form as going back to a preform $*m\check{a}tr\hat{p}ulos$ (< $*meh_2tr-$ ‘mother’), displaying a variant development of the syllabic liquid.⁵³ The status of this form as a direct

⁵² The tablet reads *wo-zo-e*, likely a scribal error for *wo-ze-e* (see, e.g., *PofN* IV 214).

⁵³ A similar analysis could in principle apply to a further, more problematic pair of spellings: *a-ko-da-mo* (DAT.SG, TH 22×) and *a-ko-ro-da-mo(-jo)* (NOM.SG, GEN.SG, KN 2×; DAT.SG, TH 2×). Both are personal names, recently analyzed by Meixner (2022: 35–6) as continuing a first member $*h_2\hat{g}r-$ from the root $*h_2\hat{g}er-$ ‘gather, bring together’ (see *LIV*² 276 and *LIV*² *Add.* 40). He interprets the compound as ‘der den *Dāmos* versammelt’, possibly also as a wish-name ‘versammeln, einberufen möge’. Following Heubeck (1972), Meixner takes the spelling alternation to reflect the retention of /r/ in Mycenaean. Several complications, however, prevent these forms from providing secure evidence. Alternative etymologies include /Akrodāmos/ (cf. alph. Gk. ἄκρος ‘topmost’), /Arg(r)odāmos/ (cf. Ved. *rjrá-* ‘reddish’, Gk. ἀργός ‘bright’), /Ark^hodāmos/ (cf. alph. Gk. ἀρχός ‘leader’), and it

phonological outcome of **meh₂tr-* has been recently disputed by van Beek (2022b: 88–90). He takes *ma-to-pu-ro* as a “more archaic spelling” of /mātr̥pulos/ and analyzes *ma-to-ro-pu-ro* as /matr-o-pulos/, in which -o- would represent a linking vowel. He thus calls for a “morphological replacement in progress” to account for the variation between the two forms. However, van Beek’s claim, as he himself points out, has little empirical support, as it is ultimately based on a pair of personal names which might contain a linking vowel, i.e. *i-su-ku-wo-do-to* /(h)Iskhu-o-dotōi/ DAT.SG.M (cf. alph. Gk. ἰσχύς ‘force’) and *ke-ro-ke-re-we-o* /K^hehr-o-klewehos/ (cf. alph. Gk. χεῖρ ‘hand’). In §2.1, I account for this variation phonologically, while in Chapter 4 I expand on the status of linking -o- in Mycenaean and its diachronic development.

qe-to-ro-po-pi /k^wetro-po(p)p^hi/: PY Ae(1) 27, 108, 134, 489 (H 42)

This form is securely reconstructed as an INS.PL compound of the numeral four **k^wet(w)r-* and the root for ‘foot’ in the *o*-grade **pod-*. Given its occurrence in tablets related to livestock and the direct correspondence with alphabetic Greek τετράπους, the meaning ‘quadruped’ is the most likely. In this case, too, van Beek (2022b: 98) has contended that the outcome /k^wetro-/ is not phonological from **k^wet(w)r*, but rather that the *o*-vowel has spread analogically from the compositional form of the numeral ‘nine’, attested in the form *e-ne-wo-* /e(n)newo-/ (< **h₁newn-*).⁵⁴ This change would be paralleled

remains unclear whether the two spellings represent variants of the same personal name at all (see Ruijgh 2003: 223; García Ramón 2006: 50; *New Docs* 925–6). A further complication is that, if they reflect a thematic first member, the alternation could instead be analyzed as metathesis and would thus belong with the material discussed in §1.3. Given these philological uncertainties, I exclude the forms from both datasets.

⁵⁴ Van Beek also speculates that the compositional form of the numeral ‘ten’, unattested in Mycenaean, would have been *de-ko-* /deko-/, providing a further base for the analogical spread.

by a similar spread found in alph. Gk.: πεντα- ‘five’, ἑξά- ‘six’, ὀκτα- ‘eight’ after ἑπτα- ‘seven’, ἐννα- ‘nine’, and δεκα- ‘ten’; Arcadian πεμποτος ‘fifth’ after ενφοτος ‘ninth’ and δεχοτος ‘tenth’. I return to this problem and propose an alternative solution in §2.1.

1.4.3 Forms with <Ca> /Car/

a-na-qo-ta /Anark^{wh}ontās/: KN B 798 (H 107)

This form corresponds to a variant outcome, with *a*-vocalism, of the abovementioned *a-no-qo-ta*. Van Beek (2022b: 80) takes this as a spelling alternation pointing in the direction of an underlying /anrk^{wh}ontās/.

tu-ka-ṭa-ṣi /t^hugatarsi/: MY Oe 112 (H 52)

The form is securely reconstructed as the DAT.PL of the noun for ‘daughter’, corresponding to alphabetic Greek θυγατράσι. The reading *tu-ka-ṭo-ṣi* /t^hugatarsi/, assumed by Lejeune (1972: 197–8), is rejected by Melena and Olivier in *TITHEMY*. This form is the second piece of evidence that van Beek (2022b: 79–80) puts forward for alternant spellings of preserved **r* in Mycenaean.

CHAPTER 2

A Syllabification-Based Analysis of Liquid Vocalization in Mycenaean

In this chapter, I seek to model the alternating outcomes of interconsonantal **r* presented in §1.4 adopting an OT framework, under the assumption that the Mycenaean data reflect a diachronic stage in which vowel epenthesis has already taken place. As a starting point for my analysis, I take Cooper's (2014: 184–255) OT account of nucleus selection and sonorant vocalization in PIE. A virtue of his theory is that it generates the correct syllabification for sequences like those in (15), with Greek reflexes like (15a, c).

- (15) PIE sequences syllabified by Cooper's (2014) model
- PIE */per-wr/, syllabified *[per.wr̥] > alph. Gk. πεῖραρ 'end, limit'
 - PIE */kwn-bʰys/, syllabified *[kwn̥.bʰis] > Ved. *śvábhis* INS.PL 'dog'
 - PIE */mn-ye-/ , syllabified *[mn̥.ye-] > Ved. *mányate* 3SG.PRS.MID.IND 'think'
> alph. Gk. μᾰίνομαι 1SG.PRS.MID.IND 'rage'

In other words, it models the generalizations captured by Meillet (1937: 134–6) and Schindler (1977) about nucleus selection in sequences of adjacent sonorants.⁵⁵ The traditional account can be summarized with Schindler's (1977: 56–7) rule in (16) below.

(16)
$$\begin{bmatrix} + \text{sonorant} \\ - \text{syllabic} \end{bmatrix} \rightarrow [+ \text{syllabic}] / \left\{ \begin{bmatrix} - \text{syllabic} \\ \# \end{bmatrix} \right\} \text{-----} \left\{ \begin{bmatrix} - \text{syllabic} \\ \# \end{bmatrix} \right\}$$

Iterative, right-to-left

⁵⁵ With refinements, it may also capture well-known exceptions to these generalizations; see Cooper 2014: 256–317, and for an alternative account Byrd 2015: 140–78.

However, Cooper's (2014: 184–255) theory has not yet been rigorously tested against the Mycenaean data for sonorant vocalization. In what follows, I therefore point out any significant similarities and discrepancies between the constraints (and ranking thereof) used in his analysis and in my own.

2.1 The Phonological Core of Liquid Vocalization Patterns in Mycenaean

2.1.1 Allowing for vowel epenthesis (*PEAK/LIQUID >> DEP-IO)

The first generalization that any analysis must capture is that syllabic liquids are disallowed in Mycenaean, and therefore they have undergone a process of vowel epenthesis in order to be syllabified. This is the most conspicuous (and trivial) difference between Mycenaean and PIE, where all segments except for obstruents can be syllabic. To model this first fact, I use the markedness constraint *PEAK/LIQUID, defined in (17), which bans liquids as syllable nuclei, and the faithfulness constraint DEP-IO, which penalizes the insertion of new segments in the output forms, defined in (18).

(17) *PEAK/LIQUID

No liquids as syllable peaks. Count one violation for each syllable peak consisting of a liquid in the output.

(18) DEP-IO

Any output segment must have a correspondent in the input.
Count one violation for each inserted segment in the output.

In terms of ranking, the Mycenaean situation mirrors the PIE one. As per Cooper 2014: 190–1, “[t]he positioning of DEP-IO [*sc.* in PIE] allows for epenthesis only when the alternative would be a vocalic obstruent; otherwise insertion of a vowel is less preferred than vocalizing a sonorant consonant.” What descriptively distinguishes PIE and Greek, therefore, is that the former allows liquid syllabicity and

disallows vowel epenthesis (encoded by the ranking DEP-IO >> *PEAK/LIQUID in Cooper 2014). Under my assumptions, the Mycenaean evidence is the result of a diachronic process where the speakers' synchronic grammar, at an earlier stage, disallowed liquid syllabicity and selected vowel epenthesis as a repair strategy. Therefore, I model such a grammar to have a ranking *PEAK/LIQUID >> DEP-IO. This ranking is illustrated by the tableau in (19).

(19)

	/trpedʒa/	*PK/LIQ	DEP-IO
a.	tɾpedʒa	*!	
b.	təpedʒa		*

2.1.2 Modeling directionality: word-initial syllables

What the tableau in (19) alone crucially fails to predict is the locus of the epenthetic vowel. As a matter of fact, if we included an output ^x[trəpedʒa] (cf. alph. Gk. τράπεζα 'table'), this would be computed as equally optimal by the grammar, as shown in (20).

(20)

	/trpedʒa/	*PK/LIQ	DEP-IO
a.	tɾpedʒa	*!	
b.	təpedʒa		*
c.	trəpedʒa		*

A further step in the analysis can therefore be made by considering syllable well-formedness. In this case, the dispreference for ^x[trəpedʒa] can be modelled by including the constraint *COMPLEXONSET, stated in (21), into the analysis, not crucially ranked with respect to the present constraints, as shown

by the tableau in (23). *COMPLEXONSET must however outrank the constraint NOCODA, stated in (22), which prioritizes open syllables, potentially at the cost of creating complex onsets.

(21) *COMPLEXONSET

Syllables may not have more than one onset segment.

Count one violation for each complex onset in the output.

(22) NOCODA

Syllables may not have a coda.

Count one violation for each coda segment in the output.

(23)

	/trped ^z a/	*PK/LIQ	DEP-IO	*COMPONS	NOCODA
a.	t̪.ɸe.d ^z a	*!			
b.	t̪ɐ.ɸe.d ^z a		*		*
c.	tr̪.ɸe.d ^z a		*	*!	

The introduction of this constraint generates all the attested forms where the reconstructed **r* is parsed in the initial syllable of the words, with no exceptions. Such forms are listed in (24).

(24) Mycenaean forms with interconsonantal **r* in the first syllable

a. *to-pe-za* /torped^za/, *to-pe-zo* /torped^zō/

b. *to-mi-ka* /tormiska/

c. *to-pa* /torpā/, *to-pa-po-ro-i* /torpāp^horoihi/

d. *to-qi-de* /tork^widei/, *to-qi-de-ja* /tork^wideyai/, *to-qi-de-jo* /tork^wideyō/, *to-qi-de-we-sa* /tork^widwessa/

e. *wo-do-we* /wordowen(t)/

f. *wo-ne-we* /wor(h)nēwes/

- g. *wo-ze* /word^zei/, *wo-ze-e* /word^zehen/, *wo-zo* /word^zōn/, *wo-zo-te* /word^zontes/,
wo-zo-me-na /word^zomenai/, *wo-zo-me-no* /word^zomenō/

In other words, we can generalize that, in any initial sequence $*\#C_l$,- the epenthetic vowel can only arise before the liquid, in order to avoid a complex onset. Such a claim, though being fairly economical in theoretical terms, is not without implications. First, from a Greek-internal perspective, this pattern seem to contradict the view that Mycenaean was an onset-maximizing dialect.⁵⁶ As mentioned in the General Introduction, Steriade (1982: 333–9) in particular has provided an account of Linear B spelling rules whereby all elements of a consonant cluster in Mycenaean are notated whenever they are in onset position, while coda segments are never notated. It follows from this principle that, if a consonantal cluster is notated in Linear B, it must have been parsed as an onset by the scribes. This produces syllabifications as in (25) below.

(25) Onset-maximizing syllabifications in Mycenaean according to Steriade

- a. *po-ti-ni-ja* /potnia/ → [po.tni.ja] ‘lady’
- b. *te-ko-to* /tektōn/ → [te.ktōn] ‘builder’
- c. *a₃-ka-sa-ma* /aiksmans/ → [ai.ksmans] ACC.PL ‘spear point’

As Morpurgo Davies (1987: 92–4) remarked with reference to Mycenaean, this onset-maximizing syllabification [V.CC(C)V] — outside the Attic *muta-cum-liquida* sequences — would not only be peculiar among the Greek dialects, but also at odds with Hermann’s (1923) view of Indo-European

⁵⁶ See, e.g., Guion 1996 and Consani 2003.

syllabification, i.e. cluster heterosyllabicity ([VC.C(C)V]).⁵⁷ This discrepancy, in turn, raises a broader methodological question: whether scribal practice may be a direct reflection of the underlying syllable structure of Mycenaean or rather stem from the scribes' own perception of what constitutes a syllable and what does not. Along these lines proceeds Morpurgo Davies' (1987: 101–4) argumentation, who also mentions how even ancient grammarians such as Herodian produced syllabification criteria that did not match phonological reality, but were rather conventions mediated by the written language and the speakers' own metalinguistic awareness. Although I agree with Steriade's (1982) observation that Linear B scribal practice was to some extent dictated by syllabification, orthography alone cannot be taken at face value as direct evidence for syllable well-formedness principles. In Chapter 3, I expand on this broader issue and propose an OT-based model of Linear B spelling rules that relies on linguistically established syllabifications, rather than inferring syllable structure from the orthography itself.

Second, modeling a *COMPLEXONSET constraint to be active word-initially marks a shift from Cooper's (2014) analysis of PIE, where complex onsets are indeed allowed only word-initially. Cooper (2014: 186) models this for PIE by means of the Positional Markedness constraint COINCIDE(complex onset, initial syllable), stated as in (26) and used in lieu of *COMPLEXONSET.

- (26) COINCIDE(complex onset, initial syllable)
A complex onset belongs to an initial syllable.

⁵⁷ For Greek, this view supported by metrical evidence from early poetry, as well as phonological developments that are sensitive to metrical structure, such as the Rhythm Rule, the accentuation of trisyllabic -ισν neuters, Wheeler's Law, and Vendryes' Law. See, among others, Devine and Stephens 1994: 32–43, Woodard 1997: 20–2, Cooper 2014: 108–9, and Steriade 2018.

The formulation of this constraint is crucial in Cooper’s (2014: 230–3) analysis to generate the correct syllabification in forms such as PIE $*/k̑wn-bʰys/ \rightarrow *[k̑wn.bʰis]$ (> Ved. *śvábhis* INS.PL ‘dog’), in which *COMPLEXONSET would predict the wrong syllabification $^x[k̑un.bʰis]$. However, if one were to maintain a COINCIDE(complex onset, initial syllable) in the analysis of Mycenaean, this would prove ineffective in predicting the directionality of epenthesis in initial syllables, as shown in (27) below.

(27)

	/trped ^z a/	*PK/LIQ	DEP-IO	COINCIDE
a.	t̑r.pe.d ^z a	*!		
Ⓢ	b. t̑r.pe.d ^z a		*	
Ⓢ	c. tȓa.pe.d ^z a		*	

One possibility is that, by the time such sequences underwent epenthesis, an innovation had taken place and complex onsets were dispreferred across the board in the speakers’ grammar, unlike in PIE. Alternatively, the Mycenaean data may faithfully continue the PIE situation, in which case a different account of the syllabification reflected by Ved. *śvábhis* would be necessary (cf. Byrd 2015: 78–9, 250–2; see further §2.3 below).

A final fact that this claim must reckon with is that word-initial complex onsets are indeed attested in Mycenaean, as shown by the examples in (28).

(28) Complex onsets attested in Mycenaean (selection)

- | | | | |
|----|--|----|---|
| a. | <i>ti-ri-po</i> /tripōs/ ‘tripod’ | d. | <i>ke-se-nu-wi-ja</i> /ksenwia/ NOM.PL.N ‘for the guests’ |
| b. | <i>pe-re-ke-u</i> /plekeus/ ‘weaver’ | e. | <i>ki-ti-je-si</i> /ktiensi/ 3PL.PRS.IND.ACT ‘to cultivate’ |
| c. | <i>wi-ri-za</i> /wrid ^z a/ ‘root’ | f. | <i>ka-ra-wi-po-ro</i> /klāwip ^h oros/ ‘key-bearer’ |

The crucial difference between such forms and those in my dataset is that the former never contained a syllabic liquid and, therefore, they never underwent epenthesis. The retention of complex onsets in these cases boils down to a matter of faithfulness, whereby a marked complex onset is not repaired by the same epenthesis process historical syllabic liquids underwent (e.g. /tripōs/ → ^x[tə.ri.pōs]), nor by metathesis (e.g. /tripōs/ → ^x[tir.pōs]). In the philological discussion carried out in §1.3, I have not identified any productive metathesis pattern in the grammar of Mycenaean, let alone one motivated by syllable well-formedness. This fact then allows inclusion of LINEARITY, stated in (29), in my set of constraints. The tableau in (30a) demonstrates that LINEARITY must be ranked above *COMPLEXONSET: it rules out the losing candidate (ii) with metathesis, allowing candidate (i) with a complex onset to emerge as the winner. This tableau also provides a further ranking argument: it shows that DEP-IO must also dominate *COMPLEXONSET (which has been left unranked so far). DEP-IO eliminates the losing candidate (iii) with epenthesis.

(29) LINEARITY

The output must preserve the linear order of segments in the input.

Count one violation for each metathesized segment in the output.

(30) a.

/tripo:s/	*PK/LIQ	LINEARITY	DEP-IO	*COMPONS	NoCODA
i. tri.po:s				*	*
ii. tir.po:s		*!			**
iii. tə.ri.po:s			*!		*

b.

/trped ^z a/	*PK/LIQ	LINEARITY	DEP-IO	*COMPONS	NoCODA
i. t̪.ɸe.d ^z a	*!				
ii. t̪ɹ.ɸe.d ^z a			*		*
iii. tr̪.ɸe.d ^z a			*	*!	

The action of *COMPLEXONSET in modeling Mycenaean epenthesis can therefore be framed as an instance of “The Emergence of The Unmarked” (TETU). Originally formulated by McCarthy and Prince (1994), this principle describes cases in which structures that are normally allowed in the grammar become dispreferred in more restricted contexts as a consequence of constraint ranking. The correlation between TETU and epenthesis is well established in canonical OT literature (see, e.g., Kager 1999: 125–30): epenthetic segments are structurally more sensitive to markedness constraints because “[t]he very essence of an epenthetic segment is that it does not occur in the input, hence it has no lexical feature specification to be faithful to” (1999: 125). In the present analysis, the dispreference for complex onsets surfaces only when *PEAK/LIQUID, undominated in Mycenaean, would be violated if epenthesis did not take place. In Kager’s (1999: 98) words, “the costs of inserting a (non-underlying) segment are less than those of imperfect syllable structure.” In all other contexts, instead, the dispreference for metathesis (LINEARITY) and epenthesis (DEP-IO) outweighs the dispreference for complex onsets.

2.1.3 Modeling directionality: word-medial syllables

In word-medial syllables, the position of the epenthetic vowel displays some variation. In the forms in (31), the vowel (either *o* or *a*) precedes the liquid, whereas in the forms in (32) the vowel follows it.

- (31) Forms showing word-medial prevocalization of r^*
- a. *a-no-me-de* /Anormēdēs/; *a-no-qo-ta* /Anork^{wh}ontās/ ~ *a-na-qo-ta* /Anark^{wh}ontās/; *a-no-qo-ta-o* /Anork^{wh}ontā^ho/; *a-no-qa-si-ja* /anork^{wh}asiās/
 - b. *o-pa-wo-ta* /opaworta/
 - c. *tu-ka-ṭa-ṣi* /t^hugatarsi/
 - d. *ma-to-pu-ro* /mātorpulos/
- (32) Forms showing word-medial postvocalization of r^*
- a. *qe-to-ro-po-pi* /k^wetro-po(p)phi/
 - b. *ma-to-ro-pu-ro* /mātropulos/

As mentioned in §1.4.2, van Beek (2022b: 88–90, 98) proposes morphological analyses of the forms in (32) that rule out the presence of r^* in their preforms, calling for an analogical spread of the *o*-vowel in (32a) from other numeral stems, and a linking vowel in (32b). However, I take these two forms as reflecting the phonological outcome of r^* in word-medial syllables. Both of van Beek's solutions, although they find some support in 1st-millennium dialects, have little Mycenaean-internal evidence. Moreover, the spread of *-o-* throughout Mycenaean numerals is contradicted by the form *we-pe-za* /hwe(k)sped^za/ NOM.SG.F '(table) with six feet', where no *o*-vowel is inserted at the end of the numeral stem.⁵⁸ Further, the presence of linking vowels in Mycenaean is at best disputed (see Chapter 4). If, therefore, one takes the outcome /ro/ as phonological, the forms in (31) require an alternative

⁵⁸ To motivate this, Van Beek (2022b: 98–9) posits a Proto-Greek preform $\text{*k}^w\text{etru-}$ for 'four' and argues that it was remodeled as Myc. /k^wetro-/ because it ended in a vowel, whereas *sweks- > Myc. /hwe(k)s-/ was left unchanged because it ended in a consonant.

explanation. I propose to interpret (31a–c) as analogical on their respective full grades. As van Beek (2022b: 69) admits in the case of *o-pa-wo-ta* /opaworta/ ‘plates (of an armor)’, “an analogical reshaping of the zero-grade **auro-* >> *aṽor-* after the full grade **aṽer-* cannot be excluded.” The same principle may also apply to *a-no-* (~ *a-na-*) /anor-/ ‘man, hero’, where a phonological **anro-* may have been reshaped as *anor-* after the full grade **aner-*, and to *tu-ka-ṭa-ṣi* /tʰugatarsi/ DAT.PL.F. ‘daughter’ (**tʰugatrasi* >> *tʰugatarsi*). In this case, the full grade of the stem is attested in Myc. *tu-ka-te-* /tʰugatēr/ NOM.SG.F ‘id.’. As for (31d), I account for this form in §2.1.4.

Going back to the analysis, the constraints introduced so far are insufficient to select a winning candidate between /or/ and /ro/ in medial syllables, as illustrated in (33).

(33)

	/k ^w etrpopp ^h i/	*PK/LIQ	DEP-IO	*COMPONS	NOCODA
a.	k ^w e.t̪.r.pop.p ^h i	*!			*
b.	k ^w et.rə.pop.p ^h i		*		**
c.	k ^w e.t̪ər.pop.p ^h i		*		**
d.	k ^w e.trə.pop.p ^h i		*	*!	*

This impasse can be overcome by introducing an alignment constraint, a category of constraints normally used, among other purposes, to model directionality of phonological processes. For the purposes of my analysis, I select the same alignment constraint formulated by Cooper (2014: 207–29), namely ALIGN-Left(μ , Prosodic Word), stated in (34).

(34) ALIGN-Left(μ , Prosodic Word)

Align every mora with the left edge of the prosodic word.

Count one violation for each segment between a mora and the left edge of the prosodic word in the output.

Under the assumption that only nuclei and coda segments are moraic, but not onsets, this constraint alone tends to maximize onsets, as fewer moraic segments incur fewer left-alignment violations. Therefore, I posit the ranking $*\text{COMPLEXONSET} \gg \text{ALIGN-Left}(\mu, \text{Prosodic Word})$ — which parallels Cooper's (2014: 232) $\text{COINCIDE} \gg \text{ALIGN-Left}(\mu, \text{Prosodic Word})$. If we now factor this constraint into the analysis, the predicted outcome /ro/ is generated, as shown in (35).

(35)

/k ^w etrpop ^h i/	*PK/LIQ	DEP-IO	*COMPONS	ALIGN-L(μ , PrWd)
a. k ^w e.t̪.pop.p ^h i	*!			23 (1 e, 3 ɾ, 5 o, 6 p, 8 i)
b. k ^w et.rə.pop.p ^h i		*		29 (1 e, 2 t, 4 ə, 6 o, 7 p, 9 i)
c. k ^w e.təɾ.pop.p ^h i		*		30! (1 e, 3 ə, 4 r, 6 o, 7 p, 9 i)
d. k ^w e.trə.pop.p ^h i		*	*!	27 (1 e, 4 ə, 6 o, 7 p, 9 i)

The two positionally conditioned linear orders that my analysis generates, [Cəɾ.C] in word-initial syllables and [C.rə.C] word-medially, align with a couple of items not originally included in my dataset as they are less transparent etymologically. In §1.3.1, I discussed *to-no* /t^hornos/ ‘seat, chair, throne’, together with its derivatives *a-pi to-ni-jo* /amp^hit^horniō/ ‘(chains) for both sides of a throne’ and *to-no-e-ke-te-ri-jo* /t^hornohe(l)ktēriōi/ ‘festival for the drawing/holding of the throne’, with reference to metathesis. The two main etymological interpretations both connect /t^hornos/ to the root $*d^her-$ ‘attach,

fix, mount’ and take it as a **-no-* derivative, but they differ on whether an *o*-grade or zero-grade should be reconstructed. Assuming a zero-grade preform **d^hr-no-*, /t^hornos/ is the expected Mycenaean outcome of the syllabic liquid in an initial syllable, according to my analysis. The linear order /or/ would then be maintained in /amp^hit^horniō/ assuming the derivative was created once the sequence had phonologized. While the analysis itself does not rule out a preform **d^hor-no-*, it does not incur one problem associated with the *o*-grade hypothesis, i.e. the linear order in alphabetic Greek θρόνος. In de Lamberterie’s (2004: 247) account, /ro/ would result from metathesis by analogy on the linear order in Myc. *ta-ra-nu*, alph. Gk. θρῆνυς ‘(foot)stool’. Assuming instead a zero-grade formation, the different linear orders can instead be explained as two dialectally distinct outcomes of the syllabic liquid, based on different constraint rankings. In this perspective, the abovementioned gloss θόρνᾱξ ‘footstool’ would hypothetically point to a similar constraint ranking in Cypriot — a dialect otherwise known to share similarities with Mycenaean — while Hom.+ θρόνος would reflect a lower ranking of **COMPLEXONSET*.⁵⁹

The second item that aligns with the linear orders generated by my analysis is *e-to-ro-qa-ta*. The form is attested in two Knossos tablets, once in relation to textiles (KN M 878) and once in connection with ship builders (KN U 736). It is interpreted as either /entrok^wta(i)/ NOM.PL.F/N or /entrok^wātai/ NOM.PL.F, both with a meaning ‘twisted (leather thongs)’. Etymologically, the form is generally connected with the root **terk^w-* ‘turn’, with different morphological interpretations: as a zero-grade derivative (as per Leukart 1994: 92), it is taken as either 1) a substantivized **-tó-* verbal adjective, 2) a deadjectival **-ās*

⁵⁹ Although van Beek (2022b: 343) does not believe a preform **d^hr-no-* should be reconstructed for θρόνος, it would match his proposed “Epic” outcome of **r*, with postvocalization as either ρα or (after labials) ρο.

tool noun, derived from the **-tó-* verbal adjective, or 3) a **-tās* agent noun; alternatively, Jiménez Delgado (2017: 40) has suggested to interpret the form as a denominal agent noun via **en-trok^w-ā* (see alph. Gk. ἐντροπή ‘turning towards’), thus based on an *o*-grade.⁶⁰ He prefers this interpretation based on some *o*-grade items in alphabetic Greek with similar meanings to *e-to-ro-qa-ta*: τροπός and τροπότηρ, both meaning ‘twisted leathern thong’, (ἐν)τροπώω ‘fasten the oars with thongs’. This claim, however, forces Jiménez Delgado to posit another case of metathesis, motivated by interference between **terk^w-trep-*, to explain the linear order in /entrok^wātai/ (crucially not ^x/entork^wātai/) and later items. Assuming, with Leukart (1994: 92), a zero-grade formation, the attested linear order /ro/ in the Mycenaean form is instead expected as the phonological outcome of **ɣ* in a word-medial syllable.

2.1.4 A tentative solution for token variation in *ma-to-pu-ro* ~ *ma-to-ro-pu-ro*

By far the most problematic pair of forms in the dataset is *ma-to-pu-ro* /mātorpulos/ ~ *ma-to-ro-pu-ro* /mātropulos/, the only case of token variation in the dataset. One solution to explain this pair of forms is taking the spelling *ma-to-pu-ro* as a scribal error, as argued by Viredaz (1983: 171): “La coexistence de deux formes phonétiquement différentes *Mātor-p.* et *Mātro-p.* à l’intérieur du mycénien de Pylos n’est pas impossible; mais il est certainement plus économique de ne voir dans la première graphie qu’une erreur pour *ma-to-⟨ro⟩-pu-ro* (l’omission d’un signe intérieur même sans raison précise est une erreur relativement fréquente), d’autant plus qu’elle s’expliquerait ici par une dissimilation graphique.” Both

⁶⁰ See also García-Ramón’s (2000: 166–7) interpretation as a personal name /Est^hlo-(k)k^wā(s)tās/ (cf. alph. Gk. ἐσθλός ‘noble, fine, good’ and πάσμαι ‘acquire’).

PofN IV 674 and *PT*³ 163 suggest this emendation as a possibility in their apparatus, while in other editions of the Pylos texts (*ARN* II 90, *PTT*² 192–3), editors seem to suspend their judgement.

Alternatively, this alternation could be the result of a constraint banning super-heavy (trimoraic) syllables ($*_3\mu$), which seems to be active in other aspects of Greek (and PIE) phonology.⁶¹ Although attested and predicted by the above analysis, the form [ma:t.ro.pu.los] would violate such a constraint $*_3\mu$ in the first syllable, while [ma:tor.pu.los] would not. To now account for token variation, we can consider $*_3\mu$ and ALIGN-L to have a variable ranking in the grammar, so that the selected candidate may vary each time an output is generated by the individual speaker, as represented in (36).⁶²

⁶¹ For example, Hoenigswald (1991) discusses the tendency to avoid superheavy syllables in Greek cadences, a phenomenon observed in Vedic too (cf. Hoenigswald 1988, 1989, and Ryan 2021). Moreover, Cooper (2014: 75–106) employs a constraint $*_3\mu$ in his analysis of syllabification of Vedic medial consonant clusters. As for PIE, Byrd (2015: 183–207) has argued that Sievers’ Law is motivated by a general tendency to avoid superheavy syllables in medial position. Similar considerations are also put forward with reference to Osthoff’s Law. See also Chapter 5 for the discussion of another $*_3\mu$ effect in Greek.

⁶² Classical OT only contemplates strict constraint ranking, hence several alternative theories have been devised to capture this type of variability, such as Anttila’s (1997) proposal for stratified constraint ranking, or Boersma’s (1998) stochastic constraint ranking. In addition, maximum entropy models (see, e.g., Goldwater and Johnson 2003) accommodate variability by assigning constraints relative weights and candidates a positive probability.

(36)

	/ma:trpulos/	*PK/LIQ	DEP-IO	*COMPONS	*3μ	ALIGN-L(μ, PrWd)
a.	ma:ɾɾ.pu.los	*!				25 (2 a:, 3 ɾ, 5 u, 7 o, 8 s)
b.	ma:t.rə.pu.los		*		*	31 (2 a:, 2 t, 4 ə, 6 u, 8 o, 9 s)
c.	ma:t.ər.pu.los		*			32 (2 a:, 3 ə, 4 r, 6 u, 8 o, 9 s)
d.	ma:trə.pu.los		*	*!		29 (2 a:, 4 ə, 6 u, 8 o, 9 s)

2.2 Generating “Analogical” Linear Orders with Moraicity Faithfulness

In his treatment of the anomalous syllabification of PIE nasal-infixed presents, Byrd (2015: 144–78) tackles the question of “analogical” syllabifications. Nasal-infixed presents are a productive verbal formation in PIE in which a nasal element **-né-/*-n-* is inserted into a verbal root to form a present stem, typically contrasting with root aorists (see Lundquist and Yates 2018: 2161–2). Whenever the zero grade of the infix surfaces interconsonantly, it is expected to be syllabic according to Schindler’s (1977) rule, given in (16) and repeated in (37), but it consistently behaves as a consonant — as shown in (38).

$$(37) \quad \left[\begin{array}{c} + \text{sonorant} \\ - \text{syllabic} \end{array} \right] \rightarrow [+ \text{syllabic}] / \left\{ \begin{array}{c} [- \text{syllabic}] \\ \# \end{array} \right\} \text{-----} \left\{ \begin{array}{c} [- \text{syllabic}] \\ \# \end{array} \right\}$$

Iterative, right-to-left

(38) Anomalous syllabification of PIE nasal-infixed presents (from Byrd 2015: 144)

- a. PIE **/ywnɡénty/* → **[yun.ɡén.ti]*, ↗ **[i.wn̥.ɡén.ti]* > Lat. *iungunt* 3PL.PRS.IND.ACT ‘yoke’
- b. PIE **/bʰyndénty/* → **[bʰin.dén.ti]*, ↗ **[bʰyn̥.dén.ti]* > Ved. *bhindánti* 3PL.PRS.IND.ACT ‘split’
- c. PIE **/ǵnnh₃énty/* → **[ǵnn̥.h₃én.ti]*, ↗ **[ǵnn̥.h₃én.ti]* > Goth. *kunnan* 3PL.PRS.IND.ACT ‘know’

One traditional way of dealing with this mismatch has been to invoke analogy on the respective root shapes: in the case of **yewg-/yug-* ‘yoke’ (37a), “**yung-* is closer to the root in shape and sound than **iwn̥g-*” (Fortson 2010: 71). Byrd takes this explanation as his starting point but argues that simply appealing to analogy is not enough. He observes that syllabification and analogy are incompatible mechanisms for the most part, as syllabification is cross-linguistically predictable and purely phonological: “Should there exist an instance of analogical syllabification, presumably it would occur in a paradigm that contains multiple allomorphs, with the syllabification of one (or more) related form(s) in the paradigm influencing the syllabification of a separate form within said paradigm” (2015: 146). Byrd finds no typological parallels for a similar pattern, so he moves on to outlining some tentative solutions to generate phonologically what *appear to be* analogical syllabifications in nasal-infixed presents, including the possibility that the syllabification is determined by underlying representations, by the morphological relationship between present and aorist stems, or by prosodic structure.

As a tentative solution, Byrd (2015: 153–62) explores Output-to-Output correspondence (OO-correspondence) constraints.⁶³ This type of constraint establishes a correspondence between a surface form within a morphological paradigm (the base) and affixed forms within the same paradigm, which preserve phonological features of the base defying markedness or Input-Output faithfulness constraints. In this section, I present some of the OO-correspondence constraint types introduced by Byrd (2015: 159–62, 173–6) in his own analysis and apply them to model the patterns of “analogical”

⁶³ This denomination, now current, is adopted by Kager (1999: 257) to subsume a number of similar OT approaches to “paradigm uniformity” (see, e.g., Kuryłowicz 1949 and Kiparsky 1982), such as Benua 1995, Flemming 1995, McCarthy 1995, Burzio 1996, Kenstowicz 1996, Steriade 1996, among others.

syllabifications discussed in the previous section. With reference to Liquid Vocalization, in §2.1.3 I argued that the forms in (39) display an unpredicted linear order, /ər/ instead of /rə/ as a reflex of **r*. To account for this pattern, I proposed to interpret them as analogical to their respective *e*-grades, namely */aner-/ (cf. alph. Gk. ἀνὴρ ‘man’, Hom. NOM.PL ἀνέρες), */awer-/ (cf. alph. Gk. αἶρω ‘lift; hang’), and */thugater-/ (cf. Myc. *tu-ka-te*- NOM.SG /thugatēr/ ‘daughter’, alph. Gk. θυγάτηρ, NOM.PL θυγατέρες).

(39) Forms with analogical development **r* > /rə/ >> /ər/

- a. *a-no-me-de* /Anormēdēs/ PERSONAL NAME << */Anro-/
a-no-qo-ta /Anork^{wh}ontās/ PERSONAL NAME << */Anro-/
a-no-qa-si-ja /anork^{wh}asiās/ GEN.SG ‘manslaugther’ << */anro-/

- b. *o-pa-wo-ta* /opaworta/ NOM.PL.N ‘hanging plate’ << */-awro-/

- c. *tu-ka-ṭa-ṣi* /thugatarsi/ DAT.PL ‘daughter’ << */thugatra-/

Since OO-correspondence requires that the base be a free-standing form within the paradigm, I illustrate my claim in the tableau in (41) with the form *tu-ka-ṭa-ṣi* /thugatarsi/ DAT.PL ‘daughter’, selecting the attested NOM.SG *tu-ka-te*- /thugatēr/ as the base. To model faithfulness to the base, I introduce a MAXLINK constraint in the analysis. This category of constraints, first theorized by Morén (1999), is an extension of the standard MAX constraints in that they require that association links between elements (e.g., moras and segments) in one representation be preserved in the corresponding representation, penalizing candidates that delete or fail to maintain those links even if the elements themselves remain present. The constraint I introduce in the analysis is MAXLINK(μ)-BA, stated in (40).

(40) MAXLINK(μ)-BA

Do not delink a mora (μ) from a segment associated with a mora in the base. Count one violation for each mora in the output lacking a corresponding mora–segment association link present in the base.

(41)

Input: /t ^h ugatr _{si} /		*PK/LIQ	DEP-IO	*COMPONS	MAXLINK(μ)-BA	ALIGN-L(μ , PrWd)
Base: t ^h u _{μ} .ga _{μ} .te _{μ} .r _{μ} si _{μ}						
a. t ^h u _{μ} .ga _{μ} .tr _{μ} si _{μ}		*!				16 (1 u, 3 a, 5 r, 7 i)
b. t ^h u _{μ} .ga _{μ} .tə _{μ} r _{μ} si _{μ}			*			23 (1 u, 3 a, 5 ə, 6 r, 8 i)
c. t ^h u _{μ} .ga _{μ} t _{μ} rə _{μ} si _{μ}			*		*!	22 (1 u, 3 a, 4 t, 6 ə, 8 i)
d. t ^h u _{μ} .ga _{μ} .trə _{μ} si _{μ}			*	*!	*	18 (1 u, 3 a, 6 ə, 8 i)

The introduction of the MAXLINK(μ)-BA constraint and its ranking above ALIGN-L(μ , PrWd) generates the preference for the “analogical” linear order in /t^hugatarsi/ (candidate b), while the previous analysis without OO-correspondence would favor ^x/t^hugatrasi/ (cf. Attic-Ionic $\theta\upsilon\gamma\alpha\tau\rho\acute{\alpha}\sigma\iota$). The selection of (41b) as the winning candidate hinges on the fact that while [r] is moraic in the base [t^hu _{μ}] _{σ} [ga _{μ}] _{σ} [tē _{μ} r _{μ}] _{σ} because it is in coda position, in (41c) the [r] is parsed in onset position ([t^hu _{μ}] _{σ} [ga _{μ} t _{μ}] _{σ} [rə _{μ}] _{σ} [si _{μ}] _{σ}) and thus loses its association to a mora. In (41b), thanks to the epenthetic vowel arising before it, [r] remains in coda position and keeps its moraicity ([t^hu _{μ}] _{σ} [ga _{μ}] _{σ} [tə _{μ} r _{μ}] _{σ} [si _{μ}] _{σ}).

Introducing this type of OO-correspondence as active in the paradigm does not interfere with the syllabification of the /-tr-/ cluster whenever the zero-grade is associated with vowel-initial endings,

i.e. GEN.SG *-os*, DAT.SG *-(e)i*, GEN.PL *-ōn*. To illustrate this point, I use the DAT.SG *tu-ka-te-re* /t^hugatrei/, attested on MY Oe 106, in (42).

(42)

Input: /t ^h ugatrei/ Base: t ^h u _μ .ga _μ .te _μ r _μ	DEP-IO	*COMPONS	MAXLINK(μ)-BA	ALIGN-L(μ, PrWd)
a. t ^h u _μ .ga _μ .trē _μ		*!	*	16 (1 u, 3 a, 12 ēl)
b. t ^h u _μ .ga _μ t _μ .rē _μ			*	20 (1 u, 3 a, 4 t, 12 ēl)
c. t ^h u _μ .ga _μ .tə _μ .rē _μ	*!		*	23 (1 u, 3 a, 5 ə, 14 ēl)
d. t ^h u _μ .ga _μ .tə _μ r _μ .ē _μ	*!			29 (1 u, 3 a, 5 ə, 6 r, 14 ēl)

In this type of sequence, the **r* was never syllabic as it was vowel-adjacent (hence the exclusion of *PEAK/LIQUID from the tableau); in candidates (42a–c), it is parsed as an onset (i.e., non-moraic) and therefore incurs the same number of MAXLINK(μ)-BA violations. This in turn ensures that candidate (42b), with the posited heterosyllabicity of the cluster, is selected as the winner. The only candidate in which [r] remains moraic is (42d), which however features an unnecessary epenthetic vowel and is ruled out by DEP-IO.

2.3 Implications and Further Questions

In the previous sections, I have argued that historical syllabic liquids in interconsonantal position had developed an epenthetic vowel by the time Mycenaean was attested, and I have proposed an OT analysis to model the alternating outcomes of these segments, with a specific focus on the directionality of the epenthesis. My core analysis claims that syllable well-formedness determined the locus of the

epenthetic vowel in Mycenaean, distinguishing between two conditioned outcomes: /CrC/ → [Cər.C] in word-initial syllables, /CrC/ → [C.rə.C] in word-medial syllables.

This claim has some implications both in terms of the prehistory of liquid vocalization and in terms of the dialectal status of the phenomenon in Mycenaean vis-à-vis 1st-millennium Greek dialects. It to some extent supports the model of nucleus selection and syllabification proposed by Cooper (2104) for PIE, as the Mycenaean data can be generated employing the same core of phonological constraints at the expense of the following changes. First, I posited an inverted ranking for *PEAK/LIQUID and DEP-IO, which alone encodes the arising of epenthesis as a repair strategy for otherwise unsyllabifiable sequences. This alternative constraint ranking may thus reflect a change in the speakers' grammar which happened early in the prehistory of Greek. It is in fact descriptively true of most Indo-European languages that syllabic liquids have undergone epenthesis, *mutatis mutandis*. Since the only Indo-European branch that clearly retains liquid syllabicity is Indo-Iranian, the most likely scenario would be that this specific branch has not undergone a phonological innovation all others have. It seems indeed sensible to assume that this innovation has taken place independently in each branch, especially given the variety of language-specific outcomes.

As for Greek, I believe this change had already taken place by the time the Linear B tablets were inscribed. The distribution of alternating outcomes in the forms discussed does not seem to reflect either a synchronic epenthesis with outcomes in free variation or a spelling inconsistency for a syllabic surface segment. Both alternations put forward as evidence in other accounts (<Co> ~ <Co-ro> and <Co> ~ <Ca>) display a skewed distribution, whereby <Co> is distinctly predominant and either alternant is confined to a couple of forms — quite far from a coin-flip distribution. In the absence of compelling

alternations, it therefore seems more reasonable to take the attested forms to reflect underlying sequences with the historical epenthetic vowels phonologized.

The present analysis does not make predictions in terms of the vocalism of the epenthetic vowels, but it is conceivable that the epenthetic vowel (notated as [ə] in my tableaux) originally had no coloring and this was a secondary development. It is indeed a typologically common fact that “epenthetic segments tend to be realized as the ‘minimally marked’ segment, and tend to be subject to contextual colouring” (Kager 1999: 124; see also Selkirk 1981, Itô 1986, Lowenstamm and Kaye 1986). Alternatively, one might argue that the only two secure forms attesting an *a*-vocalism, namely *a-na-qo-ta* /Anark^{wh}ontās/ and *tu-ka-ṭa-ṣi* /t^hugatarsi/ are either scribal errors driven by perseveration of the preceding vowel coloring (*a-na*-* for a target *a-no*- and *tu-ka-ṭa*-* for a target *tu-ka-ṭo*-) or instances of vowel assimilation.

The second deviation my analysis takes from Cooper’s (2014) is the replacement of COINCIDE(complex onset, initial syllable) with *COMPLEXONSET. I have already discussed above how this claim can be reconciled with the phonology of Mycenaean and predicts the data very accurately. This fact could therefore be interpreted as a Mycenaean innovation from the inherited core of constraints. Alternatively, it may provide counterevidence to Cooper’s claim for PIE. As Byrd (2015: 78–9) has pointed out, Cooper’s COINCIDE(complex onset, initial syllable) is to some extent an ad hoc constraint lacking widespread cross-linguistic parallels and does not seem to be involved in other phonological processes in PIE. Moreover, Byrd (2015: 250–2) is able to generate the *Paradebeispiel* for alleged word-initial onset maximization in PIE, i.e. Ved. *śvábhis* INS.PL ‘dog’ < *[kwn̥.b^his], as a consequence of a low ranking of *COMPLEXONSET — similarly to what I have proposed for Mycenaean. If one then were to question the

validity of this constraint and posit *COMPLEXONSET in PIE as well, Mycenaean would rather appear to be conservative in this respect.

In §2.2, I expanded my core analysis with OO-correspondence to model some forms displaying an unexpected word-medial syllabification [Cər.C]. Since all forms in this subset belong in ablauting paradigms with *e*-grade alternants having a linear order [Cer(.C)], I proposed that the linear order of the epenthesized zero-grade forms is faithful to the *e*-grade ones. In practical terms, I introduced a MAXLINK constraint in my OO-correspondence analysis, building on Byrd's (2015: 153–62) discussion of PIE nasal-infixed presents. Once again, I shall note a few deviations my own approach takes. Byrd (2015: 167–77) ultimately ties his preferred solution for PIE nasal-infixed presents to the process of syncope behind the synchronic alternation in PIE between zero and full grades. While my data and their chronological horizon are incompatible with any analysis that takes ablaut-driven syncope as synchronic, I maintained one of the theoretical tools presented by Byrd and adapted it to an OO-correspondence approach. OO-correspondence is presented by Byrd as a tentative solution for the PIE data as well, but he ultimately abandons it because it does not explain why only one morphological category would be subject to OO-correspondence while in the rest of the language syllabification seems to be fully predictable. My data are also not exempt from this issue: why would exactly this handful of nominal stems display the relics of OO-correspondence, while the rest of forms in my dataset follow the phonological distribution of outcomes generate in §2.1? Perhaps, the pattern observed in the *ma-to-pu-ro* /mātorpulos/ ~ *ma-to-ro-pu-ro* /mātropulos/ pair, which I attempted to model by positing an unstable ranking interaction between *₃μ and ALIGN-L (§2.1.4), can be better understood as variation between a base faithful *ma-to-pu-ro* /mātorpulos/ (cf. NOM.SG *ma-te* /mātēr/, Attic-Ionic μήτηρ) and a

“phonological” *ma-to-ro-pu-ro* /mātropulos/. As for *qe-to-ro-po-pi* /k^wetro-po(p)p^{hi}/, it is conceivable that, as a numeral, this stem would belong in a relatively opaque paradigm or have already lost a productive alternation between full and zero-grades. For example, in 1st-millennium Greek, a zero-grade form of the numeral is attested by Homeric πίσυρες ‘four’ < *k^wtwores (also ACC πίσυρας), in which the labial outcome of the labiovelar might have introduced some opacity vis-à-vis the dental in the parallel full-grade formation τέσσαρες.⁶⁴ The Mycenaean data is however difficult to evaluate in this perspective, since the numeral ‘four’ is only attested in its compositional shape, namely in *qe-to-ro-po-pi* and *qe-to-ro-we* /k^wetrōhwes/ NOM.SG.N ‘four-handled’. Both these formations are unsurprisingly uniform in terms of ablaut, as they display an *e*-grade in the first root syllable and a zero-grade (with *w*-deletion) in the second. In the absence of any free-standing forms, where one would expect some full grades, it is impossible to confirm the presence of either a productive alternation or a leveled paradigm within Mycenaean, and my hypothesis will therefore remain speculative.

⁶⁴ Another case of opaque zero-grade, though in the compositional form of the numeral, might be τρυφάλεια ‘four-crested helmet’ < *k^wtwr-, with deletion of *k^w- and metathesis in *-wr- > -ru-.

CHAPTER 3

Mycenaean Orthography and Syllabification:

A Constraint-Based Account of Linear B Spelling Rules

3.1 Introduction

Since its decipherment, Linear B has often been characterized in terms of the mismatch between the phonological contrasts encoded by the script and those operative in the phonology of Mycenaean. Emphasis has traditionally been placed on the syllabary's failure to represent a number of distinctive features, to the point that Linear B is frequently described as an inadequate or imperfect vehicle for the notation of Greek. Yet such assessments risk overstating the extent of the mismatch (see Consani 2016 and Marazzi 2016, both critical of claims of the script's inadequacy). What might be deficient as a writing system from the modern philologists' point of view was likely perfectly functional for its users in antiquity. And although Linear B undoubtedly leaves several phonological contrasts unexpressed, it also records some distinctions of considerable linguistic significance and even archaic in character.

Most notably, Linear B does not indicate accent, vowel quantity, or consonant gemination. Likewise, it does not distinguish between lateral and rhotic liquids — for which the *r*-series is conventionally employed in transliteration. The representation of stops is similarly deficient, since voicing and aspiration are generally not marked. The only secure exception is the distinction between /t^(h)/ (*t*-series) and /d/ (*d*-series), to which one might perhaps add that between /p/ and {/b/, /p^h/} (*p*-series vs. *29 <pu₂>, *22 <pi₂>^{??}, *56 <pa₂>^{??}; see Hajnal 1993 and Melena 2014: 24, 71–3), though the

interpretation of the evidence remains disputed. At the same time, Linear B does record several features of Greek phonology, some of them preserving archaic distinctions that were later lost in most 1st-millennium dialects. The script features a dedicated *q*-series for labiovelars and distinct sign series for the glides /w/ and /j/, the *w*-series and *j*-series. Aspiration is occasionally represented, most notably by the sign <*a*₂> for /ha/ and in certain cases of internal hiatus. The second elements of diphthongs may also be written, particularly in diphthongs in /-u/, whereas the full notation of /-i/ diphthongs is comparatively rarer.

Since the Linear B sign inventory only includes syllabograms with structures <V>, <CV>, or <CCV>, consonant clusters are represented by a variety of orthographic strategies. One of these is the use of complex signs, that is, individual syllabograms whose phonetic value corresponds to an entire cluster. Thus, *te-mi-dwe* represents /termidwen/ ‘wedged’, with /-dw-/ encoded by a single sign <*dwe*>. The inventory of complex signs is limited and securely includes the values <*dwe*>, <*dwo*>, <*twe*>, <*two*>, <*nwa*>, and <*pte*>. Additional values, namely *86 <*dwa*>^{??}, *82 <*twa*>^{??}, *64 <*twi*>^{??}, *83 <*nwe*>^{??}, and *92 <*sja*>^{??}, have also been proposed, although their status is less certain (see Melena 2014: 53–4). Complex signs are limited to sequences with either a labiovelar or (historical) palatal glide as a second element, hence Melena’s distinction of a labialized and a yodized group. Among the securely deciphered signs, <*pte*> is the only member of the yodized group, assuming, with Lejeune (1976), as is now standard, that it originally represented *<*pje*>.⁶⁵

⁶⁵ This reconstruction is supported by the regular 1st-millennium Greek outcome of **p*^(h)*j* as πτ, as in the *-*yé/ó*-present κλέπτω ‘steal’ beside the aorist ἐκλάπην and the agent noun κλοπός ‘thief’ (see Lejeune 1972: 79). This interpretation also bears on the chronology of the adaptation of Linear B from Linear A, which must have

Since the set of complex signs is limited, the most widespread patterns however involve simple signs, which are subject to two further strategies: elements of clusters can be included entirely in the notation by means of a “dummy” or “empty” vowel (e.g., *e-na-ri-po-to* /enaliptos/ ‘anointed’), or they can be not represented at all (OMISSION; e.g., *te-u-ke-pi*, /t^heuk^hesp^{hi}/ INS.PL ‘implement (of bridles)’). When a dummy vowel is used in Linear B, in the vast majority of cases it copies the vocalic element of the following sign (PROGRESSIVE NOTATION, as in *e-na-ri-po-to* just above), but sometimes the preceding vocalic element is copied instead (REGRESSIVE NOTATION; e.g., *ke-se-ne-wi-ja* /ksenwia/ NOM.PL.N ‘of the guests’). Much of the debate concerning the Linear B spelling rules, therefore, has sought to model the variation between OMISSION and (PROGRESSIVE) NOTATION. The proposals put forward to explain these patterns have traditionally referred to two concepts drawn from phonological theory: the notion of syllable structure and the principle of the sonority scale.

This chapter is therefore concerned with the orthographic representation of consonant clusters in Linear B and its sensitivity to syllabification principles. Several related phenomena however remain outside its scope. The first is the behavior and notation of diphthongs and the so-called “transitional” glides (see Melena 2014: 92–102). These issues do not directly bear on the representation of consonant clusters and are therefore not incorporated into the analysis developed here. They nevertheless raise important questions related to syllable structure, which I intend to address in the future. Crucially, the

taken place before this sound change had occurred in Greek. The same reasoning applies to the so-called “doublets” $\langle ra_2 \rangle$ and $\langle ro_2 \rangle$. Historically, these represent the complex signs $^*\langle rja \rangle$ and $^*\langle rjo \rangle$, although by the time of the extant documents they probably denoted sequences with geminate liquids /rr-/ or /ll-/ , the regular Mycenaean outcomes of historical *ry and *ly (see Melena 2014: 71 fn. 96).

synchronic status of the glides /j/ and /w/ in Mycenaean should be clarified, namely whether these segments should be analyzed as underlying consonants or as allophonic realizations of /i/ and /u/, and under what conditions they are to be parsed as components of diphthongal nuclei rather than as onset consonants (see Hajnal 1997: 155–66 for one take on the problem).

A second set of problems concerns the use, and sporadic absence, of the word-divider (see Melena 2014: 123–7). Whereas most of the evidence appears to reflect the phonological-word boundaries of Mycenaean, certain sequences may respond to other factors: e.g., *to-so-ku-su-pa* /tosson ksumpan(t)/ ‘so much in total’, *si-to-po-ti-ni-ja* /Sitōn Potniāi/ DAT.SG ‘Mistress of Grains’, and *a-ta-na-po-ti-ni-ja* /Athānās Potniāi/ DAT.SG ‘Mistress of *At^hānā*’. By way of suggestion, the absence of word divider may be due to the prosodic status of /-n#C-/ and /-s#C-/ rather than to the lexical unity of these phrases — although they belong in formulaic contexts, bureaucratic or religious (see Melena 2014: 126).

3.1.1 Syllable-based approaches to Linear B orthography

The fundamental theoretical premise of a first group of studies dealing with consonant cluster notation is that Linear B orthography reflects, or is informed by, the syllable structure of the notated sequences. A first attempt to formulate a general principle describing the Linear B orthographic strategies in this framework was made by Householder (1964). On the basis of the individual spelling rules set out in *Docs* 42–8, he proposes an “alternative formulation,” according to which “all syllable codas are omitted except *w* (written *-u-*), and *n* (rarely *r-l*) before *w*” (p. 73).⁶⁶ Although the coda omission rule alone does not

⁶⁶ This principle, *in nuce*, is already found in *Evidence* 89, Gallavotti 1956: 16, and Lejeune, *Mém.* I 258–9. Analogous formulations are proposed by Doria (1965: 43–7) and Heubeck (1966a: 15–6).

entirely capture Linear B spelling, it provides an elegant generalization. Problematic in relation to this principle, as Householder himself acknowledges, are the cases in which the syllable coda at the end of a word consists of a stop + sibilant cluster. Such a sequence, in fact, admits two possible graphic treatments, summarized in (43):

(43) Notation of word-final stop + sibilant clusters

- a. The entire cluster is not represented — e.g., *to-ra* /thōrāks/ ‘suit of armor’;
- b. Only the stop is notated, accompanied by a dummy vowel — e.g., *to-ra-ka* /thōrāks/, *wa-na-ka* /wanaks/ ‘king’, and *a₃-ti-jo-qo* /Ait^hiok^ws/ PERSONAL NAME.⁶⁷

To account for the two alternative qualities of the dummy vowel in (43b), Householder suggests that it is an ad hoc convention of the scribes: <-o> is used with <q-> signs, <-a> with <k-> (see §3.4.4).

A more comprehensive proposal in line with the “syllabist” approach (see Viredaz 1983: 127) was put forward by Beekes (1971). He extends the empirical basis of his analysis to include the Classical Cypriot syllabary, whose orthographic tendencies he presents as a comparandum for those of Linear B. As regards Linear B, Beekes (1971: 342) maintains that “the general principle is that writing of consonant groups in Mycenaean was determined by the syllabic structure of the word”. In practical terms, in a formulation similar to Householder’s (1964: 73), he states that consonants in syllable onset position are always represented, whereas those in coda are not. In his discussion, Beekes (1971: 348–50) also takes

⁶⁷ As regards the quality of the dummy vowel, it predominantly reproduces the quality of the vowel preceding the consonant cluster (see the examples cited), but there are also cases in which the vowel <a> is used regardless of what precedes (cf. e.g. *o-nu-ka* /onuks/ ‘shuttle’, ‘rim’, or ‘thread’). See §3.4.4.

into account one complication of cluster notation, namely the notation of the sibilant in both word-initial and word-internal clusters. Similarly to stop + sibilant sequences in word-final position, they display the variable graphic treatment illustrated in (44):

(44) Notation of /s/ in non-final clusters

- a. When followed by a stop, the sibilant is generally not represented, neither word-initially (e.g., *pe-mo* /spermo/ ‘seed’), nor word-internally (e.g., *te-u-ke-pi* /^hteuk^hesp^hi/ INS.PL ‘equipment’);
- b. More rarely, the sibilant is represented by means of a dummy vowel in both initial position (e.g., *sa-pa-ka-te-ri-ja* /sp^haktēria/ NOM.PL.N ‘suitable for slaughter; victim’) and internal position (e.g., *i-su-ku-wo-do-to* /Isk^huodotos/ PERSONAL NAME);
- c. When followed by a sonorant, /s/ is notated — e.g., *si-mi-te-u* /Smint^heus/ EPITHET, *ḍa-so-mo* /dasmos/ ‘distribution’ (cf. *de-so-mo* /desmois/ INS.PL ‘binding’ and *do-so-mo* /dosmos/ ‘contribution’), and *wi-so-ṽo-pa-tō* /wiswōn pantōn/ ‘of all alike’.⁶⁸

Beekes explicitly discusses only (44a) and (44c), as they are not totally consistent with the model he proposes: when word-initial, the sibilant should be notated since it can only be parsed as an onset in forms such as *pe-mo* /spermo/ (44a); when word-internal, it should be omitted because it is expected to be parsed as a coda, as in *ḍa-so-mo* /dasmos/ (44c). He accounts for these incongruences by again appealing to syllable structure and introducing the notion of “aperture” of the sibilant relative to stops — a concept that partially overlaps with that of sonority scale, which informs another strand of

⁶⁸ Beekes does not actually address word-initial notations such as in *si-mi-te-u* — presumably because they abide by his onset notation rule. Moreover, he prints *wi-so-ṽo-pa-tō* as *wi-so-wo-pa-na*, following an earlier reading.

scholarship (see §3.1.3). According to Beekes (1971: 349–50), since the sibilant has greater articulatory aperture than stops, in word-initial position it would not stand in onset position before a stop ([sCV]_σ, e.g. [sper]_σ[mo]_σ) but would instead belong to a preceding syllable ([s]_σ[CV]_σ, e.g. [s]_σ[per]_σ[mo]_σ). Alternatively, he hypothesizes a syllabification of the type [ʃC]_σ[CV]_σ (e.g. [ʃp]_σ[per]_σ[mo]_σ), in which the stop would geminate and the sibilant would have “vocalic function.”⁶⁹ Finally, Beekes extends this principle also to cases of stop + sibilant in word-final position, in which the stop, in apparent contradiction with his coda omission principle, is represented: the stop would geminate, forming the onset of a distinct syllable ([VC]_σ[Cs]_σ, e.g. *wa-na-ka* [wa]_σ[nak]_σ[kʃ]_σ), with the sibilant as nucleus. Beekes’ model generates syllabifications that are typologically unparalleled within Indo-European (where, e.g., obstruents are strictly disallowed as nuclei) and therefore cannot be accepted in its theoretical formulation. It however has the benefit to single out the aberrant behavior of /s/ in both its orthographic and phonological status and, especially in the proposed parsing [s]_σ[CV]_σ, foreshadows the current notion of /s/ extrasyllabicity, which I discuss in §3.3.3.

In the General Introduction and Chapter 1, I have already introduced Steriade’s (1982) model of Linear B orthography in connection with the onset maximization principle. To recapitulate, she restates the above rules — all onset segments are notated, all coda segments are omitted — and builds in the notion of sonority scale. In Steriade’s (1982: 334–8) view, every sonority-abiding cluster in Mycenaean is

⁶⁹ In connection to this, Beekes (1971: 349–50) refers to the development of a prothetic vowel under the same conditions in certain modern languages, e.g. Spanish *escuela* < Lat. *schola*, as an alternative prosodic solution to the sibilant + stop sequence in initial position. See also Doria (1968: 59–64), who proposes to treat the cluster as “monophonemic,” on the basis of a parallel with Old Germanic.

parsed as an onset and therefore fully notated graphically. Only sonority-violating clusters, such as sonorant + stop ones, are parsed heterosyllabically and only partially notated (i.e., with omission of the first segment).⁷⁰ The issue with Steriade’s account, as mentioned previously, is that it overgenerates syllabifications such as those in (45), which are at odds with reconstructions of PIE syllabification and the facts presented in Chapters 2 and 5.

(45) Onset-maximizing syllabifications in Mycenaean according to Steriade

- a. *po-ti-ni-ja* /potnia/ → [po.tni.ja] ‘lady’
- b. *te-ko-to* /tektōn/ → [te.ktōn] ‘builder’
- c. *a₃-ka-sa-ma* /aiksmans/ → [ai.ksmans] ACC.PL ‘spear point’

The basic architecture of her model of Linear B orthography, however, is not flawed *per se*, and it crucially introduces sonority sequencing as a factor of syllable well-formedness — rather than as a direct guiding principle of orthography (see §3.1.3). A more constrained version of Steriade’s rules can therefore accommodate the attested spellings without overgenerating aberrant syllabic structures. Furthermore, Steriade (1982: 338–9) briefly addresses the problem of /s/ omission in word-initial clusters and suggests some theoretical notions to explain this fact:⁷¹ degenerate syllable, appendix, and stray consonant. These are all different gradations of the notion of extrasyllabicity, which I build into my own analysis (§3.3.3).

⁷⁰ For an extension of Steriade’s model to the orthography of syllabic Cypriot, see Guion 1996.

⁷¹ Steriade does not seem to contemplate the sporadic cases of /s/ notation, addressed explicitly by Beekes (1971).

Finally, Sampson (1985: 62–76), in a volume on the typology of writing systems, devotes the chapter on syllabaries to Linear B. In his discussion of cluster notation, he does not identify any further patterns but generally restates the principles of onset notation and coda omission, together with the exceptions mentioned above. Sampson (1985: 69) then proposes a modified formulation of the general orthographic rule: “a consonant which is not a stop is omitted if it occurs after the vowel of its syllable, and (in the case of /s/) if it immediately precedes a stop; otherwise all consonants are written, with borrowed vowels where necessary.”⁷² This version of the rule crucially narrows down the coda omission principle only to continuants, which Sampson tentatively connects with the fact that only continuant sounds {n, r, s} are allowed word-finally in 1st-millennium Greek. I return to this point in §3.3.1.

3.1.2 Orthographic vs. phonological syllabification

As mentioned in the General Introduction and just above, the core generalization whereby, in Linear B, all onsets are notated, all codas are omitted overgenerates syllabifications that contradict the principle of cluster heterosyllabicity. This is both a theoretical and an empirical problem, as metrical and linguistic evidence (including the patterns presented in Chapters 2 and 5) would seem to clash with Linear B and alphabetic orthography and the syllabification principles described by ancient Greek grammarians, both supporting onset maximization. A solution to this problem is explored in the studies by Ruijgh (1985), Morpurgo Davies (1987), and Devine and Stephens (1994), who all propose a distinction between phonological and orthographic syllabification. In this way, the “syllabist” principle is not invalidated as a rationale for describing Linear B spelling and it need not challenge linguistically

⁷² By the expression “borrowed” vowels, Sampson (1985: 69) refers to what has been termed “dummy” vowels.

established principles of syllable division. These contributions refer to syllabification criteria observable in 1st-millennium alphabetic inscriptions and the codification of syllable division by Greek grammarians as comparanda for Linear B orthography. Moreover, they suggest how scribes and grammarians could possess enough metalinguistic awareness to apply orthographic syllabification in their writing practice.

Ruijgh (1985: 119–21) first discusses alphabetic Greek and distinguishes between phonological syllables, corresponding to the prosodic units observable in meter (e.g., λεπτός ‘thin’ → [λεπ]_σ[τός]_σ), and orthographic syllables. These would be defined metalinguistically based on the sequences observable at the beginning and end of words in the Greek language. In the case of λεπτός, the orthographic syllabification would be <λε><πτός>, since the word-initial sequence #πτ- is licit and attested in Greek (e.g., πτώσις ‘falling’), whereas word-final -π# is phonotactically impossible. This is the principle Ruijgh sees reflected in the Greek grammatical tradition and in syllable division as attested in Hellenistic inscriptions, papyri, and manuscripts. Ruijgh (1985: 123–4) then retrojects these concepts to the second millennium and argues that Linear B spelling rules as well are based on orthographic, not phonological, syllables. The principle formulated by Ruijgh, therefore, is that word-internal consonant clusters at the onset of an orthographic syllable are notated just as they are in word-initial position; segments in the coda of an orthographic syllable are not notated, unless they are stops.⁷³ Concretely, the spelling *a-mi-ni-so* /Amnīsos/ PLACE NAME, where /mn/ is parsed as an orthographic onset, is sanctioned by forms such as *ma-na-si-we-ko* /Mnāsiwergos/ PERSONAL NAME, where the sequence /mn/ is word-initial *and* notated.

⁷³ This is essentially the same principle formulated by Householder (1964), Beekes (1971), Steriade (1982), and Sampson (1985) — just transposed to the orthographic domain.

With this rationale, Ruijgh avoids some of the difficulties relating to word-internal sibilant + stop sequences: since in word-initial position these consonant clusters are (generally) notated without the sibilant (e.g., *ta-te-re* /statêres/ NOM.PL ‘debtor’ (?)), this omission is reproduced in internal position as well (e.g., *wa-tu* /wastu/ ‘town’).

Morpurgo Davies (1987: 102) likewise suggests that the syllable boundaries observed in Linear B spelling do not correspond to those determined phonologically; rather, the scribes’ notion of syllable structure would be determined by analogy to the licit sequences at the beginning and end of words. Similarly to Ruijgh, she considers the evidence for the notion of syllable in 1st-millennium Greek culture and draws a connection to the metalinguistic awareness users of Linear B might possess. Morpurgo Davies’ (1987: 100) focus is on the Greek grammatical tradition, in particular the work of Herodian (2nd c. CE; see *GG* III/2 393–396), from which the rules in (46) may be derived:

(46) Herodian’s rules of syllable division (from Morpurgo Davies 1987: 100)

- a. All consonant groups at the beginning of a word belong to the first syllable of the word.
- b. For internal clusters of the type VC_1C_2V , the two consonants belong to the second syllable if the cluster is admitted in word-initial position.
- c. If C_1C_2 is a cluster not admitted in word-initial position, internal C_1 and C_2 belong to two different syllables.
- d. Internal clusters $\gamma\mu$, $\varphi\nu$, $\gamma\delta$, $\chi\mu$, $\kappa\mu$, $\sigma\gamma$, $\sigma\delta$, when intervocalic, are not divided between two syllables (though they do not occur initially).

Commenting on these rules, Morpurgo Davies observes that the syllable division proposed by the grammarians is another case of mismatch between phonologically established syllabification (i.e.,

cluster heterosyllabicity, which she reaffirms) and written practice. She further argues that Linear B writing reflects a conceptualization of the syllable very similar to that found in Herodian, resulting in a set of rules that are not identical but “intertranslatable” between a syllabic and an alphabetic script.

Devine and Stephens (1994: 32–43) present the full array of evidence for Greek syllable division and address the contrasting models of syllabification they support. In addressing the conflict between metrically and linguistically evidenced syllable divisions and those observed in alphabetic inscriptions, inferred from Linear B orthography, and conceptualized by the grammarians, they take a step further by appealing to the notion of speech rate. Devine and Stephens (1994: 38–9) thus abandon the opposition between metrical and orthographic syllabification in terms of linguistic and non-/meta-linguistic respectively. Rather, they claim that “the metrical syllable divisions are those of normal speech, the orthographic syllable divisions are those of an artificially slow rate of speech.” As writing is an inherently slower activity than speaking, speech production is slowed down by the speaker/writer, which in turn affects the parsing of segments as syllable components. Based on experimental studies on modern languages,⁷⁴ Devine and Stephens (1994: 38) describe the effects of a slower speech rate on syllabification listed in (47):

- (47) Alterations to syllable structure with artificially slow speech rate
- a. Vowels are greatly lengthened and syllables may be separated by pauses;
 - b. Coda consonants are in open rather than in close contact with the preceding lengthened vocalic nucleus;

⁷⁴ See Stetson 1951, Kahn 1976, Bailey 1978, Läufer 1985, and Derwing 1992.

- c. To the extent that they are unreleased, syllable final stops will be hard to perceive unless geminated or simply resyllabified into the onset of the next syllable;
- d. A coda sonorant or fricative can be lengthened, as an alternative strategy to lengthening the preceding vowel, in which case it would remain in close contact with the syllable nucleus; the choice between these two strategies may be influenced by the phonotactic structure of word initial onsets, so that sonorants remain coda consonants, but fricatives allow either lengthening of the vowel or lengthening of the fricative.

In this framework, the tendency of Mycenaean to maximize onset would neither challenge cluster heterosyllabicity nor belong in an extra-linguistic domain. It would rather follow from (47b–d) and be a fact of the language just as the syllabification of normal-rate speech. The tendency described in (47d) with respect to fricatives would also explain the variable notation of the sibilant in Linear B.

3.1.3 Sonority-based approaches to Linear B orthography

Parallel to the studies presented above, another model to explain Linear B orthography has been formulated and refined over time by referring to the notion of sonority scale — sometimes as a concurrent factor to syllable structure, sometimes as the only parameter needed to generate the attested spellings. Tronsky (1962: 624) was the first to develop an explanatory model of Linear B spelling rules that combines the “syllabist” approach with the concept of sonority.⁷⁵ While he reaffirms that any single onset consonant is notated and any coda consonant is omitted, he further adds that within a syllabic

⁷⁵ Tronsky’s (1962) contribution, as suggested by Woodard (1997: 58) and Consani (2003: 4), was probably of limited accessibility to Western scholars, as it was published exclusively in Russian, and did not enter the debate within Mycenaean studies at the time of its publication.

onset a cluster of multiple consonants is represented only if they occur in order of increasing sonority. This “mixed” formulation, similar to Steriade’s (1982: 334–8), explains why, in sibilant + stop sequences, /s/ is generally omitted, since it has greater sonority than the stop and yet precedes it.

Moreover, Woodard (1997: 79) reports of a lecture by Laurence Stephens and John Justeson, delivered at Yale University in 1979, which was never published in definitive form. In it, the two scholars proposed that the orthographic criteria of Mycenaean scribes were based entirely on the concept of sonority (which they termed “resonance”). The text of this lecture is not available, but a summary can be found in Justeson’s (1988: 423) review of Sampson 1985, where he encapsulates their formulation by stating that “no consonant is spelled before a consonant of lesser resonance.” Justeson also discusses the case of stop + sibilant sequences in word-final position and specifies that at the end of a word the progression of sonority is reversed: a coda consonant is not graphically represented if it is separated from the nucleus by a consonant of lower sonority. This is the case of *wa-na-ka* /wanaks/ (43b), in which the final sibilant is omitted because it is separated nucleus a by a stop /k/, of lower sonority. Such an explanation, however, does not account for the spelling of nasal + sibilant clusters in word-final position, as, for example, in the form *si-a₂-ro* /sihalons/ ACC.PL ‘fattened pig’. In sequences of this type, in fact, neither of the two final consonants is graphically represented despite belonging to a sequence of decreasing sonority, which therefore runs counter to the stated principle (cf. Woodard 1997: 80).

Viredaz (1983: 140–1) proposes a formulation of Linear B spelling rules based on an “*escalier*,” that is, a hierarchical scale of the consonantal graphemes of the syllabary. Unlike the sonority scale, the units of the *escalier* are not speech sounds, but rather graphic signs. Viredaz establishes his *escalier* inductively, noting that, generally, if a given C_1C_2 sequence is fully notated (e.g., /pr/ in *ku-pi-ri-jo*

/Kuprios/ PERSONAL NAME), then its reversal C_2C_1 is only partially notated (e.g., /rp/ in *ka-po* /karpoi/ NOM.PL ‘fruit’). He thus establishes the relative “strength” of graphemes and arranges them as in (48), following the general rule whereby, if C_1 is higher in the escalier than C_2 , both are notated (e.g., /wr/ in *e-wi-ri-po* /Ewripos/ PERSONAL NAME); if C_1 is lower than C_2 or in its same tier, only C_2 is notated (e.g., /rw/ in *ko-wo* /korwos/ ‘boy’).⁷⁶

(48) Viredaz’ (1983) *escalier*⁷⁷

$\langle k \rangle, \langle q \rangle, \langle z \rangle > \langle p \rangle > \langle t \rangle, \langle d \rangle, \langle s \rangle > \langle m \rangle > \langle n \rangle > \langle w \rangle > \langle r \rangle > \langle j \rangle$

Although the scale only refers to orthographic “strength,” Viredaz (1983: 141) draws a parallel with the phonetic notion of “aperture,” going back to Saussure 1916: 70–6 and Grammont 1933: 99 (cf. also Beekes 1971 discussed above): an orthographically “stronger” consonant is one with lesser aperture. This would be the perceptual feature guiding the scribes’ orthographic practice, rather than a metalinguistic awareness of the scale itself — although there are some mismatches between the *escalier* and the relative aperture of segments (e.g., $\langle w \rangle$ being higher than $\langle r \rangle$ in the scale but phonetically more open). Viredaz’ (1983: 147–9, 158–9) *escalier* admittedly has some limitations, in that it fails to generate some exceptional spellings: to the abovementioned notation of /s/ before stops (2b: *sa-pa-ka-te-ri-ja, i-su-ku-*

⁷⁶ Viredaz (1983: 126) refers to “*traitement 1*” or “*notation partielle*” when only the second of two consonants in a cluster is represented, and to “*traitement 2*” or “*notation complète*” when both consonants are notated.

⁷⁷ Given the nature of the Linear B syllabary, which does not distinguish between voiceless, voiceless aspirated, and voiced phonemes (except in the case of the dental stops and, according to some interpretations, the labials), it follows that the indication, e.g., of the grapheme $\langle k \rangle$ encompasses the representation of three different phonemes, /k/, /k^h/, and /g/. Cf. Melena 2014: 15, 24, Del Frego 2019: 138–40, and Bernabé and Luján 2020: 66–91 for the structural aspects of the syllabary and the discussion of various proposals.

wo-do-to) and that of word-final stop + sibilant sequences (43b: *wa-na-ka*) he adds the forms in (49), featuring liquid + {m, w} clusters.

(49) Exceptional notation of liquid + {m, w} clusters⁷⁸

- a. *a-ra-ro-mo-te-me-na* ~ *a-ra-ro-mo-to-me-na* PRF.PTCP.MID.NOM.SG.F ‘fit out’
/ararmotmenā/ and PL.F /ararmotmenai/, DU.F *a-ra-ro-mo-te-me-no* /ararmotmenō/
- b. *a-ra-ru-wo-a* /arārwoha/ PRF.PTCP.ACT.NOM.PL.N ‘fit’
- c. *a₂-ru-wo-te* /Halwontei/ LOC.SG PLACE NAME (?) (cf. alph. Gk. Ἀλοῦς)

In all these cases, the liquid precedes a sound that stands higher on the *escalier*, so that one would expect its omission — just as in attested spellings like *a-mo-ta* /ar(h)mota/ NOM.PL ‘wheel’ and *ko-wo* /korwos/ ‘boy’. This notation is also exceptional under the “syllabist” approach, as the liquid is in coda position and thus not expected to be notated. I return to these exceptions in §3.4.2.

In the mid-1990s, both Miller (1994) and Woodard (1994, 1997) further integrate the sonority scale into the description of Linear B orthography. Miller’s (1994: 26, 35–7) work seeks to refute the thesis that the speakers’ ability to segment language into internal units is a consequence of the advent of alphabetic writing systems. Rather, he claims that already in earlier historical periods, and through syllabic scripts, high levels of metalinguistic competence can be observed with respect to syllable structure and arrangement of speech sounds. Miller (1994: 15–6) essentially reaffirms the principle

⁷⁸ Viredaz (1983: 147) also includes the forms *ko-we-ja* (KN X 697), *ko-ro-we-ja* [(KN X 1013) and]*ko-ru-we-ja* (KN L(6) 472) as alternative spellings for a sequence /korwe-/. All forms, however, are of obscure interpretation and only contextually associated to the Knossian textile industry, so that no secure linguistic identification is viable.

already found in Tronsky 1962 and Steriade 1982, whereby onset consonant clusters are fully notated only if arranged by increasing sonority; coda consonants, instead, are omitted. The version of the sonority scale adopted by Miller is given in (50), with the noteworthy reversal of glides and liquids.

(50) Sonority scale for Mycenaean as per Miller (1994: 22–4)

obstruents < nasals < glides < liquids < vowels

As for the sequence of stop + sibilant in word-final position, Miller (1994: 25) observes that in such cases the consonant cluster, although in coda position, receives an onset treatment. However, according to his proposal, onset treatment should, strictly speaking, result in the representation of both consonantal elements, whereas in fact only the first element, if not none, is represented. Finally, Miller (1994: 26) proposes a possible explanation for coda omission as “consistent with the strategy of recognition by initials [...] as well as the relative redundancy of grammatical markers contained in endings,” thus attributing to Mycenaean scribes a high degree of metalinguistic awareness.

In an article on the notation of consonant clusters in Aegean syllabaries (1994) and a broader volume on the history of Greek writing systems (1997),⁷⁹ Woodard takes the available sonority-based models a step further and formulates a “Hierarchy of Orthographic Strength,” structured as in (51).

(51) Woodard’s (1997: 124) Hierarchy of Orthographic Strength (HOS)

{word boundary, stop} > fricative > nasal > glide > liquid

⁷⁹ Since the theory set out in the 1994 article is explicitly taken up and expanded in the subsequent 1997 volume, I only refer to the latter.

Based on this scale, Woodard (1997: 65) formulates a general orthographic principle: “[w]ithin a word, any two successive consonants will be represented with plenary spelling if, and only if, the orthographic strength of the first is greater than or equal to that of the second; otherwise, partial spelling will be used.”

Despite the macroscopic similarity to Viredaz’ (1983) *escalier*, Woodard (1997: 81) points out that his HOS refers to consonantal sounds (and word boundaries) instead of writing signs, and it captures orthographic strength as a feature opposite to sonority proper, progressively *decreasing* from stops to liquids. Woodard (1997: 90–100) then discusses at length how HOS improves Viredaz’ (1983) model, mainly by building in word boundaries to account for word-final cluster notation, as well as by consolidating sounds into natural classes instead of discreet graphemes sometimes with ad hoc rankings — thus setting up a less redundant and more minimalist algorithm overall. Woodard (1997: 76–8) also addresses a typological problem HOS shares with Viredaz’ (1983) and Miller’s (1994) models, namely the reversal in relative sonority between glides and liquids, in contrast with universal formulations of the sonority scale. To account for this peculiarity and avoid circularity, Woodard compares the language-specific sonority scale set up for Pali by Hankamer and Aissen (1974), in which /r/ is less sonorous than glides, and the evidence for word-initial /wr-/ in some Greek dialects, including Mycenaean (e.g., *wi-ri-no* /wrīnoi/ NOM.PL ‘ox-hide’; cf. Cypriot *we-re-ta-se* /wrētas/ ‘treaty’, Elean *ῥᾱτῥᾱ* ‘treaty’, Arcadian *ῥῥῆσις* ‘declaration’, Aeolic *ῥῥῆξις* ‘bursting’). Compared to syllable-based approaches, the main advantage of HOS is then that, by making no reference to syllable structure, it does not incur overgeneration of onset-maximizing syllabifications (see Woodard 1997: 78–9). Nevertheless, such a view presupposes very high metalinguistic awareness on the part of the scribes, who would have been

capable of analyzing the linguistic continuum down to individual sounds, distinguishing their articulatory features, and transferring such an analysis into orthographic practice.

3.1.4 Criticisms to the sonority-based models

Although Woodard's monograph (1997) still remains one of the most comprehensive contributions on Linear B orthography and his HOS efficiently generates most of the attested spellings, it has received a number of criticisms. Like other sonority-based models, HOS grants us a fully linear principle that focuses on which sound follows which, supposedly without referencing prosodic structure. However, this scalar procedure resembles too closely the Sonority Sequencing Principle (see below), which in fact belongs within syllabification, so that a sonority-based approach is inherently syllable-based (see Gnanadesikan 2011: 404). Moreover, model efficiency is limited by the fact that, since all proposed orthographic scales never fully match the sonority scale (or at least its standard formulations), theorizers need a "proxy scale" of some sort — be it a fully orthographic *escalier* (Viredaz 1983), or an HOS inversely proportional to sonority proper (Woodard 1997). Finally, scholars have questioned the learnability of such a fine-grained system when even late Greek grammarians never reached this level of accuracy (see, e.g., Cooper 2010: 4). In her review of Woodard 1997, Dickey (1998) points out that a hierarchical model is in fact at odds with what is otherwise known of Greek grammatical thought. She rejects Woodard's appeal to the Sanskrit grammatical tradition, since its greater sophistication and later attestation make it an unlikely parallel. Instead, the available evidence indicates that Greek scholars

understood the relevant phenomena as matters of syllable division. One might add that, as users of a syllabic script, the Mycenaean were likely to possess at least some notion of syllables as sound units.⁸⁰

The most strenuous critic of the scalar approaches is Consani (2003), who reopens the debate in light of the phonological theory concerning syllabification.⁸¹ In particular, he relies primarily on Clements' (1990: 299–302) theory of the “Core Syllabification Principle,” reproduced in (52).

(52) Clements' Core Syllabification Principle (CSP)

- a. Associate each [+ syllabic] segment to a syllable node.
- b. Given P (an unsyllabified segment) preceding Q (a syllabified segment), adjoin P to the syllable containing Q iff P has a lower sonority rank than Q (iterative).
- c. Given Q (a syllabified segment) followed by R (an unsyllabified segment), adjoin R to the syllable containing Q iff R has a lower sonority rank than Q (iterative).

A consequence of this principle is that the optimal structure of a syllable features an onset with the greatest possible increase in sonority and, conversely, a coda with minimal or no decrease. CSP subsumes common typological patterns, such as the “onset-first” principle whereby a sequence /VCV/ is universally syllabified as [V.CV] rather than as [VC.V] (cf. Clements 1990: 300), further developed as

⁸⁰ This seems to be Melena's (2014: 92) take on the matter: “It is self-evident that in a syllabic writing system, the writing routines were based on the syllable.”

⁸¹ The results of the analysis presented in the monograph are then reproduced, without substantial changes, in an article published a few years later (Consani 2008).

the “Maximal Onset Principle,” that is, the tendency to maximize syllable onsets (cf. the General Introduction). Clements’ CSP is thus a development of the Sonority Sequencing Principle, stated in (53).

(53) Sonority Sequencing Principle (SSP) as per Clements 1990: 285

Between any member of a syllable and the syllable peak, only sounds of higher sonority rank are permitted.

Consani (2003: 28) points out that Linear B spelling appears to match very closely Clements’ generalizations, whereby sensitivity to the sonority scale is a fundamental feature of syllabification itself. Beyond this point, Consani’s (2003: 30–8) critique takes the form of a rehabilitation of onset maximization as a feature of Greek syllabification. He refers to some experimental studies showing that, among the structural constituents of the syllable, the onset appears to be the one most involved in the identification of lexical units and in the segmentation of speech (see Frauenfelder and Content 1999; Dumay, Frauenfelder and Content 2002). Moreover, in cases of rapid speech, the syllable onset is the unit least subject to deletion (see Duez 2000). Consani (2003: 30) also takes the <V> or <(C)CV> structure of Linear B syllabograms — like those of all Bronze-Age Aegean scripts — as connected to the low markedness of open syllables according to the CSP. In perhaps the most “syllabist” conceptualization of Linear B orthography, Consani thus justifies taking the attested spellings at face value as reflecting onset-maximizing syllabification in Mycenaean. He then extends this claim to 1st-millennium Greek in the third chapter of his work (2003: 39–50), mostly relying on the works of Pulgram (1981) and Guion (1996), discussed in the General Introduction. Although I do not subscribe to Consani’s view on Greek syllabification, his work does uncover the main difficulties posed by scalar models of Linear B orthography: the mentioned fact that they are inherently “syllabist,” and the

learnability issues. In response to the latter, Consani's efforts to demonstrate the naturalness of syllable-based computations and his appeal to experimental evidence support the view that the syllabification operations behind Linear B spelling rules could be carried out by the scribe at an unconscious level. Without necessarily upholding his conclusions on Greek phonology, Consani's study makes a persuasive case that the mechanisms underlying Linear B orthography are "natural" and "unmarked," rather than attributable to a conscious and independent norm employed by the scribes.⁸²

3.1.5 Chapter goals

At this stage, one might conclude that further inquiry is unnecessary, since either model suffices for the practical purposes of reading and teaching Linear B. However, in either case one ought to make some concessions to theoretical soundness: if adopting a syllable-based approach, one should accept a distinction between phonological and orthographic syllables (or between normal-speech and slow-speech syllables); if opting for a scalar approach, one should acknowledge its artificial character. In the rest of the chapter, I instead make one further attempt to deduce Linear B orthography from the syllable structure of Mycenaean. Detailed descriptions of general tendencies and exceptions are by now available — most notably Melena's (2014: 89–123) — but what is still lacking is the application of a model capable of integrating multiple interacting principles while remaining consistent with

⁸² A methodological point of particular relevance is that Consani (2003: 51–80) devotes an entire chapter of his monograph to testing his theoretical assumptions against scribal errors in the Mycenaean texts. In particular, he surveys both linguistically erroneous forms and cases in which a conscious correction by the scribe can be identified in the Knossos and Pylos corpora. His theoretical premise is that the corpus he identifies can be substantially compared with corpora of spoken language and analyzed from a psycholinguistic perspective.

independently established linguistic evidence. My goal is therefore not to propose new descriptions of the facts, but rather new conceptualizations of such facts. I believe OT, as it is not theoretically bound to any specific domain of application, can be used to this end. My own analysis should also not generate or presuppose syllabifications that do not match linguistically established descriptions of Greek syllable structure. In doing so, it should avoid circularity: previous accounts have assumed that every notated segment is part of a syllabic onset to then use notation as proof that Mycenaean is onset-maximizing. In the next sections, I adapt OT to the modeling of orthography and define a core set of constraints and ranking (§3.2); I then expand the core model to generate the attested spelling strategies of Linear B (§3.3) and propose some solutions to motivate exceptional spellings and cases of variation (§3.4); finally, I summarize the results of my analysis and explore some further hypotheses (§3.5).

3.2 Setting Up an OT Model for Linear B Orthography

To structure an OT model of an orthographic system, I propose equating the input to orthographic processing with the output of syllabification. While this assumption should be implicit in any syllable-based model, the above survey has shown that previous accounts have incurred circularity. Making it explicit and founding the theoretical model on it instead ensures that phonology determines syllabic structure, including the identification of onsets and codas. With reference to the operational components of OT, schematized in (54), the GENERATOR will generate candidates by applying the attested notational strategies (defined above as OMISSION, PROGRESSIVE and REGRESSIVE NOTATION) to each segment of the syllabified sequence. A set of orthographic constraints — introduced below in (55) and (56) — then evaluates these candidates, yielding the attested Linear B spellings.

(54) General OT architecture to model orthography

- a. / Input / = [Output of syllabification]
- b. GENERator $\Rightarrow$ {omission, progressive notation, regressive notation}
- c. CONstraints $\Rightarrow$ A set of “orthographic” constraints
- d. EVALuator $\Rightarrow$ Compares all candidates and selects the optimal output
- e. [Output] = < Attested Linear B spelling >

The analysis is grounded in a core ranking of two faithfulness constraints, both motivated by the structural properties of the Linear B syllabary. The first is a DEPENDENCE constraint, which penalizes the insertion of output elements lacking a correspondent in the input. More specifically, a constraint DEPENDENCE-⟨Vowel⟩ (with angular brackets indicating a “graphic” vowel) assigns one violation for each dummy vowel used to represent a consonant cluster, but not corresponding to any underlying vowel. This constraint thus militates against such NOTATION strategies.

(55) Core faithfulness constraints (I)

DEP-⟨V⟩

Any written vowel must have a correspondent in the input. Count one violation for every output vowel (i.e. every written dummy vowel) that lacks an input correspondent.

The antagonist constraint of DEPENDENCE-⟨Vowel⟩ is a MAXIMALITY constraint, which militates against the deletion of elements in the mapping from input to output. The constraint MAXIMALITY-⟨Consonant⟩ accordingly assigns one violation for each consonant present in the input but absent from the written output. This constraint thus militates against OMISSION as a notational strategy.

(56) Core faithfulness constraints (II)

MAX-⟨C⟩

Any input consonant must have a correspondent in the written output. Count one violation for every input consonant that fails to have an output correspondent (i.e., be notated with a graphic sign).

Such a tension between faithfulness constraints is hardly unexpected in a syllabic script, which by definition does not exhibit a one-to-one correspondence with individual sounds, except in the case of purely vocalic syllabograms. Unless the inventory of signs perfectly matches the syllabic structure of the language — clearly not the case for Greek as represented in Linear B — trade-offs of this kind are inevitable. While this observation is not in itself novel, it reflects a practical principle that is often assumed rather than explicitly formulated; making it central to the analysis allows the system to be founded on a clearly defined ranking.

Notably, this model does not incorporate markedness constraints. In an orthographic system, markedness cannot be straightforwardly defined in phonological terms, since the relevant domain is not the features and interaction of sounds but that of their graphic representation. A useful point of comparison is provided by the phonology of sign languages, where markedness is tied to articulatory complexity: configurations that require greater muscular effort, less natural handshapes, or more intricate movements are typically disfavored (see, e.g., van der Hulst 1993; Sandler 1996, 2012; van der Kooij 2002; Brentari and Eccarius 2010). A notion of orthographic markedness should therefore be derived from properties of the writing act itself, such as *ductus* or sign complexity. This would in principle shift the analysis toward paleographic considerations, including number and order of strokes or graphic distinctiveness. However, I anticipate that such factors would not systematically condition

spelling strategies in Linear B, as scribes do not appear to avoid more complex or effortful signs in a way that affects orthography — save for isolated errors. For this reason, introducing orthographic markedness at this stage would add theoretical machinery without clear empirical payoff.

Returning to the OT model, two alternative rankings can be posited, each yielding a distinct strategy for adapting an open-syllable syllabary to a language such as Greek. One option is to adopt a core ranking that prioritizes NOTATION of consonants, namely $\text{MAX-}\langle\text{C}\rangle \gg \text{DEP-}\langle\text{V}\rangle$. Under such a ranking, illustrated by the tableau in (57), a form like *^xso-to-ma-ro-ko-so* would be generated, e.g., for the attested form *to-ma-ko* /Stomargos/ OX NAME. From this starting point, higher-ranked constraints could then be invoked to account for the OMISSION of signs that are not represented in writing.

(57) NOTATION prioritized

	[sto.mar.gos]	MAX-⟨C⟩	DEP-⟨V⟩
a.	⟨so-to-ma-ro-ko-so⟩		***
b.	⟨to-ma-ro-ko-so⟩	*!	**
c.	⟨to-ma-ko-so⟩	*!*	*
d.	⟨to-ma-ko⟩	*!***	

However, I adopt the opposite ranking $\text{DEP-}\langle\text{V}\rangle \gg \text{MAX-}\langle\text{C}\rangle$ illustrated in (58), not merely because it derives the spelling of *to-ma-ko*. One motivation is its elegance and economy: this core ranking requires only a small number of additional constraints to account for the majority of the attested spellings.

(58) OMISSION prioritized

[sto.mar.gos]		DEP-⟨V⟩	MAX-⟨C⟩
a.	⟨so-to-ma-ro-ko-so⟩	*!*	
b.	⟨to-ma-ro-ko-so⟩	*!*	*
c.	⟨to-ma-ko-so⟩	*!	**
d.	⟨to-ma-ko⟩		***

A further consideration is that, from a comparative point of view, OMISSION appears to be a defining characteristic of Linear B orthographic practice, whereas more consonant-faithful strategies are attested in other syllabic systems, most notably the Classical Cypriot syllabary. Although I have not focused on the Cypriot spelling rules in this chapter, they can be summarized as in (59).

(59) Summary of Classical Cypriot spelling rules (based on Egetmeyer 2010: I 47)

- a. All sounds are represented; no sound is intentionally omitted in the orthography.
- b. Owing to the structure of the syllabary ($\approx$ Linear B), dummy vowels are used.
- c. In the case of word-final consonants, the dummy vowel is *e*, written as ⟨-Ce⟩.
- d. In consonant clusters, the dummy vowel matches that of the syllable nucleus.
- (e. Preconsonantal nasals are omitted, but this is a feature of the language (vowel nasalization), not of the writing system.)

See, for example, how the string /kateworgon/ 3PL.IPF.IND.ACT ‘besiege’ is notated in Cypriot as *ka-te-wo-ro-ko-ne*; in Linear B, such a sequence would presumably be written as *^xka-te-wo-ko* (see the tableaux in (60) below). Egetmeyer (2010: I 220) comments on the different notational strategies underlying Linear B and Classical Cypriot in terms of a choice driven by the different intended audiences of the Linear B and Cypriot inscriptions: “[Les signes à syllabes ouvertes] imposent de noter ou une consonne en moins

ou une voyelle en trop. La dernière solution est celle du chypriote. [...] L'orthographe chypriote est destinée à un public large, ce qui la distingue de l'orthographe mycénienne, inventée pour un usage interne de l'administration." In OT terms, this *libre choix* can be described as a constraint ranking MAX-⟨C⟩ >> DEP-⟨V⟩ in Cypriot as opposed to DEP-⟨V⟩ >> MAX-⟨C⟩ in Linear B.

(60) a. Core ranking for Classical Cypriot

[ka.te.wor.gon]	MAX-⟨C⟩	DEP-⟨V⟩
i. ⟨ka-te-wo-ro-ko-ne⟩		**
ii. ⟨ka-te-wo-ko-ne⟩	*!	*
iii. ⟨ka-te-wo-ro-ko⟩	*!	*
iv. ⟨ka-te-wo-ko⟩	*!*	

b. Core ranking for Linear B

[ka.te.wor.gon]	DEP-⟨V⟩	MAX-⟨C⟩
i. ⟨ka-te-wo-ro-ko-ne⟩	*!*	
ii. ⟨ka-te-wo-ko-ne⟩	*!	*
iii. ⟨ka-te-wo-ro-ko⟩	*!	*
iv. ⟨ka-te-wo-ko⟩		**

Authors have suggested some historical explanations for this difference (a reranking, as it were). Viredaz (1983: 196–7) proposed that, whereas the Mycenaeans inherited their spelling strategies from the Minoans upon adapting Linear A to the notation of Greek, Cypriot Greeks borrowed theirs from the Eteocypriots. Morpurgo Davies (1987: 103), echoed by Woodard (1997: 131–2 ns. 44 and 46), envisioned that at least the notation of word-final consonants could have originated in Linear B as a sporadic practice (see (43b) *wa-na-ka*) and then been extended and regularized in Cypriot. Woodard (1997: 217–8) further developed this idea and suggested that a contingent of Mycenaeans/Achaean refugees, who settled in Cyprus around the twelfth century BCE, initiated a process of Hellenization that included the

creation of an innovative orthographic paradigm to the syllabic scripts already in use on the island (with richer distinction in the representation of consonants) based on the Linear B one (see also Palaima 1989: 54). Be that as it may, for present purposes this contrast justifies a first generalization on Linear B: NOTATION of dummy vowels is disfavored, while OMISSION of consonant signs is tolerated.

In the following section (§3.3), I expand my core analysis to include further generalizations on Linear B spelling rules, mainly informed by Melena's (2014: 89–123) exhaustive description, the latest and most influential, but also aided by the theoretical interpretations surveyed in (§3.1). The following analysis has also benefited from an unpublished manuscript by Lundquist and Yates (2014), written during their graduate years in the UCLA Program in Indo-European Studies. My own approach owes much to the insights I have found in their work.

3.2.1 Another constraint-based approach to Linear B orthography

Before proceeding to my own analysis, I present the only other attempt — at least to my knowledge — to apply OT to the orthography of syllabic scripts, including Linear B, namely Zeilfelder's (2006). Similarly to what I propose above, Zeilfelder (2006: 3–4) starts by defining the input to her OT model of orthography as the output of linguistic processing, to then define her own set of orthographic constraints. These are all listed in (61) and parallels to my own constraints are signaled when relevant.

(61) Zeilfelder's (2006: 4–9) core *Schriftconstraints*⁸³

a. SYSTEMKONSTANZ (KONSYST)

Ändere nichts an der erlernten Schriftstruktur.

(In Linear B and Cypriot, this prevents the invention of signs that do not conform to the V, CV, or CCV structure.)

b. MAXKONS and DEPVOK = MAX-⟨C⟩ and DEP-⟨V⟩ above

c. IDENTITÄT VON SILBENZAHL UND ANZAHL DER SCHRIFTZEICHEN (ISOILB)

Maintain a one-to-one correspondence between input syllables and written signs. The output should not contain fewer or more signs than syllables in the input.⁸⁴

(In Linear B, this constraint favors the selection of a “complex” sign ⟨CCV⟩, when available, instead of an “analytic” notation ⟨CV-CV⟩.)

Zeilfelder's aim is to set up an OT framework to describe typological variation among syllabic and logographic systems. For this reason, in her discussion of Linear B and the Cypriot syllabary (2006: 9–13), she focuses on deriving the macroscopic differences in spelling strategies and structural features of the two scripts. Similarly to what I illustrate in (57), (58) and (60), she constructs tableaux like the one in (62) to motivate the general architectures of these Aegean syllabaries. Beyond this point, however, she does not pursue more fine-grained descriptions of their spelling rules, which I undertake in §3.3.

⁸³ For brevity, I only list the constraints relevant to Zeilfelder's (2006) modeling of Linear B and Classical Cypriot. Other constraints she defines include: VOLLSTÄNDIGE INTERPRETIERBARKEIT (“Do not notate non-distinctive features.”), EINDEUTIGE IDENTIFIZIERBARKEIT VON LEXEMEN (“No lexical ambiguity.”), EINDEUTIGE MORPHOLOGISCHE IDENTIFIZIERBARKEIT (“No morphological ambiguity.”), CODEKONSTANZ (“No cross-system mixing.”).

⁸⁴ Zeilfelder's (2006: 6) does not explicitly state this constraint, so I define it based on her discussion.

(62) Zeilfelder's (2006: 11) tableau for Linear B

/pantes/	KONSYST	ISOILB	DEPVOK	MAXKONS
a. <pa-te>				**
b. <pa-nV-te>		*!	*	*
c. <pa-nV-te-sV>		*!*	**	
d. <pa-te-sV>		*!	*	*
e. <pa-N-te>	*!	*		*
f. <pa-N-te-S>	*!*	**		

The tableau illustrates some relatively trivial differences between Zeilfelder's approach and my own. First, she explicitly builds into the analysis something I treat as an assumption, namely the ban on introducing signs with aberrant structures. Her candidates (e) and (f) exemplify this with <C> signs, but the same point would hold for <VC> or <CVC> syllabograms. Moreover, her ISOILB constraint, ranked on the same tier as DEPVOK, in most cases is bound to incur its same number of violations (as in candidates b–d), since both militate against the insertion of dummy vowels. Once this formal noise is set aside, it becomes clear that the only meaningful interaction is between DEPVOK and MAXKONS, matching my own DEP-<V> >> MAX-<C>.

3.3 Model Application

3.3.1 A coda segment is NOTATED if it is a stop; otherwise, it is OMITTED

The core ranking outlined above is, of course, insufficient to account for the full range of Linear B spelling practices. Here, I begin by formalizing the first syllable-based spelling rule put forward in the literature (Householder 1964) informed by Sampson's (1985: 69) revised version: a coda segment is notated if it is a stop; otherwise, it is omitted. Although syllable-based models have typically focused on

onsets, adopting the coda as the point of departure considerably streamlines the description and formalization of the spelling rules. In this respect, Melena (2014: 103–4) explicitly formulates the phenomenon in terms of coda omission and offers a plausible account of this tendency, tracing it back to the adaptation of Linear B from Linear A: “[T]he first Mycenaean writers may have followed the routines learnt from their Linear A teachers. [...] [I]f Linear A was a language with a predominance of open syllables ([consonant(s)+]vowel), the Linear B tendency not to write most phonemes found in the syllabic coda may be seen as a way to preserve this feature” (2014: 92).

Compelling as Melena’s explanation may be from a historical point of view, the consistent NOTATION of stops in coda position calls for an explanation. For one thing, coda stops represent a highly marked configuration in markedness theory. In the mentioned work by Clements (1990: 303), he defines the “simplest syllable” as the “one with the maximal and most evenly-distributed rise in sonority at the beginning and the minimal drop in sonority (in the limit case, none at all) at the end. Syllables are increasingly complex to the extent that they depart from this preferred profile.” It follows from this principle that a coda stop creates the most complex configuration, as Clements (1990: 304–5) goes on to demonstrate theoretically. Similarly, Morén (1999: 31–4) establishes a Universal Moraic Markedness Hierarchy, which ranks constraints militating against moraicity of different natural classes. In his hierarchy, reproduced in (63), the constraint against moraic stops (*MORA/STOP) is ranked highest.

(63) Morén’s (1999: 32) Simplified Universal Markedness Hierarchy

*MORA/STOP >> *MORA/CONT >> *MORA/SON >>

*MORA/HIGH >> *MORA/MID >> *MORA/LOW

Moreover, in her discussion of the Syllable Contact Law (see Chapter 5), Gouskova (2004: 207–9) refers to scales such as Morén’s in the framework of harmonic alignment. Harmonic alignment (Prince and Smolensky 1993/2004: 161–3) combines pairs of unidimensional scales to describe phenomena that are sensitive to two scalar dimensions at once, such as moraicity and sonority in this case. The more prominent position within the syllable (the coda, moraic) therefore prefers the more prominent element of the sonority scale (glides); the less prominent position (the onset, non-moraic) prefers the less prominent element (stops) (see Gouskova 2004: 207). Harmonic alignment scales are not constraint scales such as Morén’s, which are stated in negative terms, but they rather rank elements from more to less harmonic. By the harmonic scale in (64), a (moraic) coda stop is ranked lowest.

(64) Coda sonority scale by harmonic alignment (cf. Gouskova 2004: 208)

Mora/glide > Mora/liquid > Mora/nasal > Mora/fricative > Mora/stop

This universal dispreference for stops in coda position might also correlate with the restriction against word-final stops in 1st-millennium Greek. As pointed out by Sampson (1985: 67–8) it may not be by chance that the sounds allowed as finals in 1st-millennium Greek, {n, r, s}, are among those not notated in Linear B when in coda position (see also Lundquist and Yates 2014: 26–7 on this point).

These considerations raise the broader question of whether and how markedness may inform orthographic practice. A few answers can be found. From a production perspective, marked structures are more likely to be perceptually salient to the scribe, as they may be associated with phonetic cues that interact with the notation of dummy vowels — a point to which I return in §3.5. From the standpoint of recoverability of textual information, readers consulting the tablets for archival purposes are more likely to supply unmarked codas in cases of defective notation. Writing systems are also known

to be highly sensitive to markedness (see Gnanadesikan 2011: 406 fn. 6). Stephens and Justeson (1978: 274–6) define Universals of Writing exactly as “constraints on the representation of marked and unmarked classes of phonemes,” following from the fact that writing presupposes an adaptation of speech to graphic representation. This representation, furthermore, is rarely completely faithful, and proceeds along the same lines of known cases of language adaptation, such as pidgins and simplified registers for speaking to infants and non-native speakers. In their article, they mostly focus on the correspondences between phoneme and sign inventories, and how the representation of phonological contrasts is sensitive to markedness. They do not however discuss how markedness may interact with the use and spelling conventions of scripts. What follows is therefore an exploration based on this idea.

To encode the coda-based generalization within my OT framework, I draw on the notion of Positional Faithfulness (Beckman 1999), which affirms the preservation of contrasts in specific structural positions. I accordingly posit a MAXIMALITY constraint that specifically protects coda stops from omission in the orthographic output, and I rank it above the core constraints introduced earlier. My constraint is stated in (65) and the proposed ranking is given in (66).

(65) MAX-⟨T⟩(coda)

Any input stop must have a correspondent in the written output if parsed in coda position. Count one violation for every input stop in coda position that fails to have an output correspondent (i.e., be notated with a graphic sign).

(66) MAX-⟨T⟩(coda) >> DEP-⟨V⟩ >> MAX-⟨C⟩

In (67) I present the tableau for /enalip̄tos/. Under the core ranking alone, the preferred output would be **e-na-ri-to* (candidate c); however, since this candidate fatally omits a coda stop, the attested form *e-na-ri-po-to* emerges as optimal.

(67) NOTATION of coda stops by Positional Faithfulness

[e.na.lip.tos]	MAX-⟨T⟩(coda)	DEP-⟨V⟩	MAX-⟨C⟩
a. ⟨e-na-ri-po-to-so⟩		**!	
b. ⟨e-na-ri-po-to⟩		*	*
c. ⟨e-na-ri-to⟩	*!		**

3.3.2 Each onset segment is NOTATED

Turning now to syllabic onsets, I adopt the familiar (and vexed) principle that each onset segment is notated, but I depart from previous accounts in how onsets are defined. In the present approach, onset parsing corresponds to phonological syllabification according to cluster heterosyllabicity, which restricts complex onsets to cases where triconsonantal clusters are attested. In such configurations, the first consonant is parsed as the coda of the preceding syllable, leaving the remaining two segments to form the onset (i.e., /VCCCV/ → [VC]_σ[CCV]_σ). My approach also departs from sonority-based accounts, in that SSP follows automatically from syllabification rather than being stipulated as an extrasyllabic factor driving orthography. Since SSP is in any case a property of Greek onsets, which are supplied by phonology to the orthography, there is no reason to assume that the writing system would fail to reflect this aspect of the language. The brief survey of Mycenaean triconsonantal clusters given in Table 1 illustrates that, once phonological syllabification is applied, the resulting biconsonantal onsets

consistently conform to SSP. Incidentally, these examples further illustrate the OMISSION of non-stop coda segments modeled above.

Table 1: Spelling of word-internal triconsonantal clusters (Woodard 1997: 112–23; Consani 2003: 84–103)

TYPE OF CLUSTER	<i>liquid</i> _σ [<i>stop+stop</i>] _σ	<i>liquid</i> _σ [<i>stop+fricative</i>] _σ	<i>stop</i> _σ [<i>fricative+nasal</i>] _σ
SPELLING	<i>po-ro-e-ke-te-ri-ja</i>	<i>a-ka-sa-no</i>	<i>a₃-ka-sa-ma</i>
SYLLABIFICATION	[pro] _σ [hel] _σ [ktē] _σ [ri] _σ [yā] _σ	[al] _σ [k ^h sā] _σ [nōr] _σ	[aīk] _σ [smans] _σ
GLOSS	‘(tool) for drawing forth’	PERSONAL NAME	‘spear point’ ACC.PL
TYPE OF CLUSTER	<i>fricative</i> _σ [<i>stop+nasal</i>] _σ	<i>liquid</i> _σ [<i>stop+nasal</i>] _σ	<i>stop</i> _σ [<i>stop+liquid</i>] _σ
SPELLING	<i>wi-ti-mi-jo</i>	<i>a-to-mo</i>	<i>a-re-ku-tu-ru-wo</i>
SYLLABIFICATION	[wis] _σ [t ^h mi] _σ [yos] _σ	[ar] _σ [t ^h mos] _σ	[a] _σ [lek] _σ [tru] _σ [wōn] _σ
GLOSS	PERSONAL NAME	‘liaison officer’	PERSONAL NAME
TYPE OF CLUSTER	<i>fricative</i> _σ [<i>stop+liquid</i>] _σ	<i>nasal</i> _σ [<i>stop+liquid</i>] _σ	<i>liquid</i> _σ [<i>stop+liquid</i>] _σ
SPELLING	<i>a-pe-ti-ra₂</i>	<i>a-di-ri-ja-pi</i>	<i>o-pe-te-re-u</i>
SYLLABIFICATION	[am] _σ [p ^h es] _σ [tri] _σ [ya] _σ	[an] _σ [dri] _σ [yam] _σ [p ^h i] _σ	[o] _σ [p ^h el] _σ [treus] _σ
GLOSS	‘with seats on either side’ (?)	‘figure of a man’ INS.PL	PERSONAL NAME

To encode this generalization in OT, I again draw on Positional Faithfulness. Specifically, I posit a constraint, stated in (68), that preserves all segments parsed in onset position by the phonology, effectively “protecting” them from OMISSION in the orthographic output. In this way, onset segments are

treated as privileged with respect to faithfulness, just as coda stops in the preceding discussion.⁸⁵ In (69), I accordingly rank this constraint on the same tier as MAX-⟨T⟩(coda), so that both onset segments and coda stops are preserved in the mapping from phonological written representation.

(68) MAX-⟨C⟩(onset)

Any input consonant must have a correspondent in the written output if parsed in onset position. Count one violation for every input consonant in onset position that fails to have an output correspondent (i.e., be notated with a graphic sign).

(69) Max-⟨C⟩(onset), MAX-⟨T⟩(coda) >> DEP-⟨V⟩ >> MAX-⟨C⟩

In (70) I present the tableau for /alektruōn/, showing that candidates which omit either element of the complex onset /tr/ (candidates c and e) are excluded, as is the candidate that omits the coda stop /k/ (candidate d). EVAL is therefore forced to select a winning candidate containing a relatively large number of dummy vowels, effectively approaching the maximum permitted by the syllabary.

⁸⁵ The association between NOTATION of onset segments and Positional Faithfulness is also suggested by Gnanadesikan (2011: 406), together with the general concept of an OT description of orthography: “In Optimality Theoretic terms, this blatant preference for onsets over codas can be considered a case of positional faithfulness as described by Beckman (1999). The domain of analysis here is the correspondence between a word and its written representation, as opposed to between the input and output forms of a word or between a word and its reduplicant, as in analyses of purely spoken language. Onsets are associated with higher faithfulness constraints, so they must be faithfully represented; but codas are given no such privilege and are therefore deleted.”

(70) NOTATION of onset segments by Positional Faithfulness

[a.lek.tru.wo:n]	MAX-⟨C⟩(onset)	MAX-⟨T⟩(coda)	DEP-⟨V⟩	MAX-⟨C⟩
a. ⟨a-re-ku-tu-ru-wo-no⟩			***!	
b. ⟨a-re-ku-tu-ru-wo⟩			**	*
c. ⟨a-re-ku-tu-wo⟩	*!		*	**
d. ⟨a-re-tu-ru-wo⟩		*!	*	**
e. ⟨a-re-tu-wo⟩	*!	*		***

Although operationally the use of Positional Faithfulness for both onset segments and coda stops achieves the same results, it admittedly creates a theoretical tension. On the one hand, the treatment of onset consonants relies on a phonetically and phonologically natural application of Positional Faithfulness, insofar as onset positions are well known to enjoy privileged perceptual status. On the other hand, the preceding analysis of coda stops has invoked Positional Faithfulness in a less conventional sense, preserving a comparatively marked structure. In pure phonological terms, the coexistence of these two constraints in my analysis appears contradictory, since the script would seem to privilege both relatively marked and relatively unmarked structures.

The tension is substantially reduced, however, if the issue is considered in functional rather than strictly phonological terms. As I have mentioned in §3.3.1, the operative principle I am following in my analysis is not the representation of hierarchies of markedness (such as the asymmetry between onset and coda position), but the maximization of recognizability and recoverability in an administrative writing system, whose primary purpose was likely the efficient storage and retrieval of information. Onset consonants are particularly salient and play a key role in word recognition and processing, making them natural targets for faithful representation (cf. my discussion of Consani's work in §3.1.4).

From this perspective, the preservation of both coda stops and onset consonants are not competing phonological preferences, but they can be seen as complementary strategies aimed at retaining orthographic cues that facilitate lexical identification.

3.3.3 /s/ is generally OMITTED, even in (apparent) onset position

With some degree of approximation, one may say that when /s/ is a member of consonant clusters, it is generally omitted in Linear B, even in onset position. This fact therefore defies the constraint MAX-⟨C⟩(onset) just included in my analysis. For phonologists concerned with syllable structure, however, /s/ is known to have a somewhat peculiar behavior: it is able to violate SSP, thus surfacing in a wider range of positions than would otherwise be expected, and it also patterns differently than other fricatives in epenthesis processes (see, e.g., Gouskova 2001; Fleischhacker 2001, 2005; Steriade 2006; Flemming 2008; Yun 2016: 75–85). Greek and Indo-European conform to this broader cross-linguistic tendency (see, e.g., Kobayashi 2004; Keydana 2012; Cooper 2014: 7; Byrd 2015: 62, 86–7, 118–34; DeLisi 2015; Zukoff 2017; Yates and Zukoff 2018; Hackstein 2022: 9–14). For Greek, Goldstein (2014) points out that /s/ is the only consonant allowed as the first member of word-initial triconsonantal clusters (e.g., σπλήν ‘spleen’, στρέφω ‘twist’, σφραγίς ‘seal’)⁸⁶ and as the last member of word-final clusters (e.g., φάλαγξ ‘line of battle’, σάρξ ‘flesh’, ἅλς ‘salt’, χρέμψ ‘kind of fish’), even though it creates sonority-defying sequences (cf. Devine and Stephens 1994: 23–4). A growing body of scholarship therefore admits the extrasyllabicity (or extrametricality, which subsumes extrasyllabicity) of /s/, especially at word edges. In other words, /s/ may not be parsed as part of the syllable proper, but is treated as external to the

⁸⁶ This is also commonly stated as a feature of PIE root structure. See, e.g., Byrd 2018: 2067.

syllabic domain, with observable consequences for sound change, synchronic processes, and meter (see Hayes 1995: 106; Green 2003; Vaux and Wolfe 2009).

Authors dealing with Linear B orthography have already addressed the special phonological status of /s/ as a potential reason for its spelling inconsistencies, as mentioned in §3.1. Particularly, Beekes (1971: 349–50) posits that in word-initial clusters /s/ would not be parsed within a complex onset $[sCV]_\sigma$ (e.g., $[sper]_\sigma[mo]_\sigma$) but would instead belong to a preceding syllable having shape $[s]_\sigma[CV]_\sigma$ (e.g., $[s]_\sigma[per]_\sigma[mo]_\sigma$) or $[ʃC]_\sigma[CV]_\sigma$ (e.g., $[ʃp]_\sigma[per]_\sigma[mo]_\sigma$). The first solution, though not stated in the same theoretical terms, may be approximated to what is currently termed a “degenerate syllable,” i.e. odd segments belonging to a syllable lacking a nucleus and/or moras (Vaux and Wolfe 2009: 104–5). The second syllabic configuration, with $[ʃ]$ as nucleus and gemination of $[p]$, implies a high degree of stipulation and violates the ban on obstruent nuclei otherwise observed in Indo-European (see Cooper 2014: 190–1). Steriade (1982: 338–9) also addresses the OMISSION of /s/ in word-initial clusters and briefly points out that it can be explained in terms of three different formulations of the basic notion of extrasyllabicity (see also Vaux and Wolfe 2009: 104–5): the mentioned degenerate syllable, appendix (segments attach directly to a higher prosodic node than σ), stray consonant (segments do not attach to any prosodic node at all) — all illustrated in **Figure 2**.

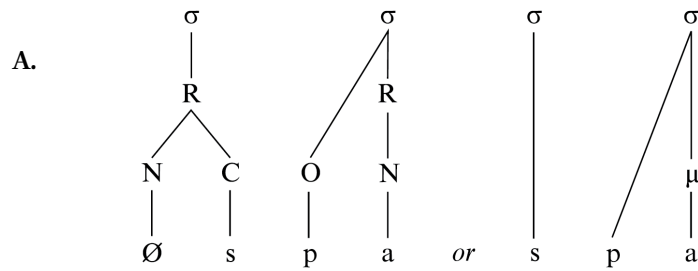
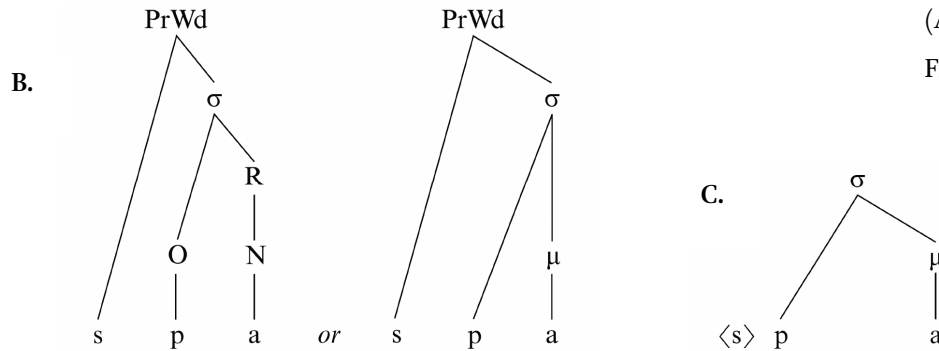


Figure 2. Different extrasyllabic configurations: degenerate syllable (A); appendix (B); stray consonant (C).
From Vaux and Wolfe 2009: 105.



Steriade (1982: 195–208) discusses at greater length another case of left-edge extrasyllabicity within Greek, evidenced by perfect reduplication in Attic — now become a standard example in syllabification studies (see Green 2003: 242–6; Vaux and Wolfe 2009: 118–9; Byrd 2015: 118–9). The pattern, exemplified in (71), can be described by appealing to extrasyllabicity: the reduplicant copies the initial consonant of the verb stem if it is syllabified, employing it as the onset of the vowel [e]; if the initial consonant is extrasyllabic, no copying takes place, and [e] is prefixed to the base.

(71) Perfect reduplication of stems with left-edge clusters in Attic

- a. Clusters with reduplication proper: {voiceless stop + sonorant, voiced stop + r}

	1SG.PRS.IND	1SG.PFR.IND	GLOSS
i.	γράφω	γέγραφα	‘write’
ii.	θνήσκω	τέθνηκα	‘die’
iii.	πνέω	πέπνευκα	‘breathe’

b. Sibilant-initial clusters with *e*-prefixation

	1SG.PRS.IND	1SG.PFR.IND	GLOSS
i.	σπεῖρω	ἔσπαρκα	‘sow’
ii.	στρέφω	ἔστροφα	‘twist’
iii.	σμύχω	ἔσμυγμαῖ	‘(make) burn slowly’

c. Other clusters with *e*-prefixation

	1SG.PRS.IND	1SG.PFR.IND	GLOSS
i.	ψάύω	ἔψαυκα	‘touch’
ii.	ἀπο-κτείνω	ἀπ-έκτονα	‘kill’
iii.	φθίνω	ἀπ-έφθικα	‘decay, perish’ ⁸⁷

Steriade (1982: 220–3) defines the conditions under which a consonant is extrasyllabic in Attic word-initial clusters in terms of Minimal Sonority Difference (MSD): adjacent tautosyllabic consonants must be at least four intervals apart on the sonority scale she adopts for Attic, reproduced in (72).

(72) Attic sonority scale according to Steriade (1982: 98)

Voiceless stops < Voiced stops < /s/ < /z/ < Nasals < Liquids

Since /s/ never meets this condition in any possible cluster shape, it follows that it is always extrasyllabic in word-initial clusters and never surfaces as its prevocalic allophone [h] in the reduplicant onset.⁸⁸

⁸⁷ A Mycenaean parallel for this form is the perfect participle *e-qi-ti-wo-e* [/(h)ek^{wh}thiwohes/ NOM.PL ‘perished’ referred to pigs registered on a nodule from Thebes. See García Ramón 1990 for treatment of the historical background and development of *e*-reduplication.

⁸⁸ For examples of right-edge extrasyllabicity and extrametricality in Greek and Indo-European, see Sandell and Byrd 2015; Sandell & Gunkel 2024; Bozzone 2025.

By reviving Steriade’s suggestion and admitting extrasyllabicity of /s/ for Mycenaean (see also Lundquist and Yates 2014: 19–22), my OT analysis can be maintained with minimal adjustment, namely by enriching the phonetic representations submitted to EVAL. The constraint set and ranking otherwise remain unchanged. The tableaux in (73) illustrate how extrasyllabicity interacts with the proposed constraints. If /s/ is parsed within the syllabic domain, the onset constraint would select a form such as *so-to-ma-ko* as optimal (73a). By contrast, once /s/ is treated as external to the onset, the constraint is no longer triggered, and the original ranking yields the attested outcome (73b). Although there are cases in which /s/ is notated, these (along with other types of variation) are discussed in the following section.

(73) a. Expected spelling with /s/ parsed as an onset

	[sto.mar.gos]	MAX-⟨C⟩(onset)	DEP-⟨V⟩	MAX-⟨C⟩
i.	⟨so-to-ma-ro-ko-so⟩		**!*	
⊖ ii.	⟨to-ma-ko⟩	*!		***
☛ iii.	⟨so-to-ma-ko⟩		*	**
iv.	⟨to-ma-ro-ko-so⟩	*!	**	*
v.	⟨to-ma-ko-so⟩	*!	*	**

b. Attested spelling with extrasyllabic /s/

	[<s>to.mar.gos]	MAX-⟨C⟩(onset)	DEP-⟨V⟩	MAX-⟨C⟩
i.	⟨so-to-ma-ro-ko-so⟩		*!***	
⊖ ii.	⟨to-ma-ko⟩			***
iii.	⟨so-to-ma-ko⟩		*!	**
iv.	⟨to-ma-ro-ko-so⟩		*!*	*
v.	⟨to-ma-ko-so⟩		*!	**

3.4 Addressing Variation

3.4.1 Unexpected NOTATION of /s/

The status of /s/ is more complicated than my OT model is able to represent. The restriction of NOTATION of coda segments to stops only and the treatment of cluster-initial /s/ as extrasyllabic at the left edge of the word account for the widespread OMISSION of the sibilant. However, Melena (2014: 104–7) lists some exceptions to this tendency. Besides a few contexts where /s/ is notated only sporadically (74), Melena (2014: 104) identifies one systematic exception: /s/ before /m/ is always notated (75).

(74) Sporadic NOTATION of /s/ in contexts of regular OMISSION

- a. Word-initial clusters #sp^h-, #sk-, #sw-
 - i. *sa-pa-ka-te-ri-ja* /sp^haktēria/ NOM.PL.N ‘suitable for slaughter; victim’ (KN 3×)⁸⁹
 - ii. *si-ki-ro* /skirros/ ‘gypsum’ (KN 1×)
 - iii. *su-we-ro-wi-jo* /Swe-/ (?) PERSONAL OR PLACE NAME (PY 1×)
- b. Word-medial clusters with /s/ in coda position -s.p-, -s.k^h-, -s.w-
 - i. *e-sa-pa-ke-mē[-na]* /espargmena/ NOM.PL.N ‘swaddling’ (KN 1×)
 - ii. *i-]sa-ka-ri-jo* /(I)sk^halios/ PERSONAL NAME (KN 1×)
 - iii. *i-su-ku-wo-do-to* /Isk^huodotos/ PERSONAL NAME (KN 1×)
 - iv. *wi-so-wo-pa-to* /wiswōn pantōn/ ‘of all alike’ (PY 1×)

⁸⁹ Cf. the co-radical toponym *pa-ki-ja-ne* /Sp^hagiānes/ NOM.PL ‘Place for slaughter/sacrifice’ (PY 23×, including ACC.PL *pa-ki-ja-na* /Sp^hagiānas/, INS.PL *pa-ki-ja-pi* /Sp^hagiāmp^hi/, LOC.PL *pa-ki-ja-si* /Sp^hagiānsi/). In this case, the variation in terms of s-notation would occur in two etymologically, if not synchronically, related items. The two forms, however, are attested at different sites: *sa-pa-ka-te-ri-ja* at Knossos, *pa-ki-ja-ne* at Pylos. On the possibility of a localized Knossian spelling practice behind *sa-pa-ka-te-ri-ja*, see Petrakis 2016a: 126–7.

c. Word-final cluster -k^ws#

- i. *wo-no-qo-so* /Woin-ōk^ws/ OXNAME (KN 2×, both by H 110)

Melena's generalization on /sm/ sequences also matches Woodard's (1997: 63–6, 70–1) HOS, which predicts them to be fully notated as /s/ has more orthographic strength than /m/. There is, however, at least one counterexample to their claim, namely *ke-ke-me-na* /kekesmenā/ 'communal (land)' (< **kes-* 'cut', see *LIV*² 329) largely attested across multiple sites (over 100× at Pylos, 4× at Knossos, presumably 1× at Tiryns). One could also consider the two *hapax legomena* *ka-ra-ma-to* /klasmatos/ (KN 1×) GEN.SG 'piece' (likely an error for *ka-ra-ma-ta* /klasmata/ NOM.PL) and *to-me* /to(s)mei/ (PY 1×) a DAT.SG pronominal form comparable to Vedic *tásmāi*. Woodard appeals to the etymological ambiguity of *ke-ke-me-na*, which could be read as /k^hek^hemenā/ instead (< **ǵ^heh₁-* 'leave'; cf. Piquero 2019: 277–9)⁹⁰ and to the presence of a morpheme boundary breaking the cluster in *ka-ra-ma-to* /klas+matos/. Whatever the case may be, these forms pose no problems for my own analysis, which instead predicts the OMISSION of /s/ in their spelling, while a solution must be invoked for the forms in (75).

⁹⁰ Yet another etymological interpretation for *ke-ke-me-na* is suggested by Vine (1998b: 688–9), who takes the form as a middle perfect participle from the root **kem(H)-* 'compress, condense'. In this case, the form would denote "a collection of small individual plots in a single district (owned or administered by the *damos*)" and correspond to /kekemenā/ — a reading that, like /k^hek^hemenā/, poses no problems in terms of *s*-notation.

(75) NOTATION of /s/ before /m/⁹¹

a. Word-initially

- i. *se-me-tu-ro* /Smetulos/ PERSONAL NAME (KN 1×), also spelled *me-tu-ro* (KN 1×)
- ii. *si-mi-te-u* /Smint^hēus/ PERSONAL NAME (KN 2×, TH 1×)

b. Word-medially with /s/ in coda position

- i. *i-]se-me-ni[-jo* /Ismēnios/ PERSONAL NAME (KN 1×)
- ii. *ḍa-so-mo* /damos/ ‘distribution’ (PY 1×)
- iii. *(o-pi-)de-so-mo* /((opi-)desmois/ INS.PL ‘binding’ (KN 1×, PY 2×)
- iv. *do-so-mo* /dosmos/ ‘contribution’ (PY 4×), *do-si-mi-ja* /dosmia/ NOM.PL.N (MY 1×, PY 1×) and *do-si-mi-jo* /dosmios/ NOM.SG.M (MY 1×, PY 1×) ‘contributory’

Without admitting onset maximization (*à la* Steriade 1982 and Consani 2003) or calling for an “orthographic syllabification” (with Morpurgo Davies 1987 and others), one may find a linguistic explanation for these cases of unexpected NOTATION. Hajnal and Risch (2006: 297) propose that the spelling in *ḍa-so-mo* may be due to the secondary nature of /s/, deriving historically from a /ts/ cluster (**dat-smo-*; cf. alph. Gk. ὀσμή ‘smell’ < **od-smā-*), and then be extended analogically to *de-so-mo* and *do-so-mo*. Melena (2014: 105) tentatively proposes that the notation of /sm/ might be explained in terms of inheritance from Linear A: if its language possessed a phoneme /z/ which was only an allophone in

⁹¹ More tentatively, Melena (2014: 105) proposes to include the place name *sa-ma-ra*, which could be read /Smara/, and its derivatives *sa-ma-ri-jo*, *sa-ma-ri-wa* and *sa-ma-ri-wa-ta*, as well as the personal names *ko-sa-ma-to* and *ka-ra-so-mo*, which lack secure readings. He also lists *a₃-ka-sa-ma* ‘spear point’ ACC.PL, whose spelling is not a problem for my analysis since /s/ is parsed in onset position: [aîk]_σ[smans]_σ.

Mycenaean, then the full NOTATION in (75) might reflect a pronunciation [zm]. Similarly, NOTATION of /s/ before /k^h/ or /p^h/ might go back to a stage where aspirates were still voiced.

These historical explanations, though theoretically possible, involve a large amount of stipulation and still leave some forms unaccounted for (e.g., *si-ki-ro* /skirros/ and *e-sa-pa-ke-mē[-na]* /espargmena/). I instead propose a different, synchronic generalization, that describes all sequences in (74) and (75), as well other forms presented in §3.4.2: all these problematic forms feature coronal + noncoronal sequences, a type of clusters that is known to be highly marked phonotactically and typologically dispreferred (see., e.g., Blust 1979, Wetzels 1989, Clements 1990, Jacobs 1992 and 1996; cf. Chapter 5). A standard example within Greek is the metathesis of such sequences in **ti-tk-ō* > τίτω ‘engender’ and **k^wid-k^we* > τίπτει ‘why?’. Building on the same rationale applied to the notation of coda stops, whereby the high markedness of these segments can justify a more faithful graphic representation, /s/ may defy the general preference for OMISSION in coda position and its left-edge extrasyllabicity because it is followed by noncoronals (cf. *ta-te-re* /statēres/ NOM.PL ‘debtor’ and *wa-tu* /wastu/ ‘town’ for cases where /s/ is *not* followed by a noncoronal). Since this is not an exceptionless principle but a more or less sporadic tendency, I do not formulate an additional OT constraint to describe these facts.⁹² I further articulate my argument and provide more details for the perceptual correlates of these orthographic patterns in §3.5.

⁹² Capturing variation is possible in constraint-based approaches other than Classical OT, such as Anttila’s (1997) proposal for stratified constraint ranking, or Boersma’s (1998) stochastic constraint ranking. In addition, maximum entropy models (see, e.g., Goldwater and Johnson 2003) accommodate variability by assigning constraints relative weights and candidates a positive probability.

3.4.2 Unexpected NOTATION of sonorants in coda position

Another set of forms that have complicated prior discussions of Linear B orthography and are singled out by Melena (2014: 106–10) as exceptional are listed in (76). They all feature coronal sonorants in coda position (/r/, /l/, or /n/) which are unexpectedly notated when followed by either /m/ or /w/. All these spellings have counterexamples that conform to the expected OMISSION of the first sonorant: for (76a), cf. *a-mo-ta* /ar(h)mota/ NOM.PL ‘wheel’; for (76b–c), cf. *ko-wo* /korwos/ ‘boy’; for (76d), cf. *ti-wa-ti-ja* PLACE NAME /Tinwa-/ (?).⁹³

(76) Other coronal + non-coronal sequences: -r.m-, -r.w-, -l.w-, -n.w-

- a. *a-ra-ro-mo-te-me-na* (KN 13×) ~ *a-ra-ro-mo-to-me-na* (KN 1×) PRF.PTCP.MID.NOM.SG.F ‘fit out’ /ararmotmenā/ or PL.F /ararmotmenai/, DU.F *a-ra-ro-mo-te-me-no* /ararmotmenō/ (KN 1×)
- b. *a-ra-ru-wo-a* /arārwoha/ PRF.PTCP.ACT.NOM.PL.N ‘fit’ (KN 10×)
- c. *a₂-ru-wo-te* /Halwontei/ LOC.SG PLACE NAME (?) (PY 1×)
- d. *ke-se-ni-wi-jo* [(PY 1×) NOM.SG.N /ksenwion/, *ke-se-ne-wi-ja* (KN 1×) ~ *ke-se-nu-wi-ja* (KN 3×) /ksenwia/ NOM.PL.N ‘for guests’

A much accredited solution to account for (76a–b) appeals to orthographic analogy: the unexpected NOTATION of /r/ would be marking the perfect reduplication in this two participial forms, just as it is regularly notated in the co-radical perfect participle *a-ra-ru-ja* /arāruiā/ PRF.PTCP.ACT.NOM.SG.F ‘fit’

⁹³ Cf. the spellings *ti-nwa-si-ja* and *ti-nwa-ti-ja-o*, with a complex sign for /nw/. The presence in the Linear B inventory of a complex sign <nwa>, the only one inherited directly from Linear A (see Melena 2014: 62–3), may have been a concomitant factor in the faithful spelling of other /nwV/ sequences.

(Viredaz 1983: 147 with fn. 93; Woodard 1997: 102 n. 31; Consani 2003: 113–4; Melena 2014: 103–4).

Although a similar phenomenon is observed elsewhere and discussed below in §3.4.3, the phonological explanation I put forward here appears more economical as it captures these and all remaining forms under one single generalization.

What the markedness of coronal + noncoronal sequences fails to explain are the forms listed in (77) and (78), where a noncoronal /m/ is followed by a coronal, either /r/ or /n/ respectively. With reference to the first case, however, Melena (2014: 108–10) points out that the cluster /mr/ undergoes consonant epenthesis later in Greek, e.g., Hom.+ ἄμβροτος ‘immortal’ < **h₂mr-tó-s*. This development is paralleled by that of **nr*- > -νδρ-, which crucially has already taken place in Mycenaean: e.g. *a-di-ri-ja-pi* /andriamp^{hi}/ ‘figure of a man’ INS.PL, cf. alph. Gk. ἀνδριᾶς ‘id.’, ἀνὴρ ‘man’, GEN.SG ἀνδρός (< **h₂nér*, **h₂nr-ós*). The later historical development of /mr/ and the fact that the similar cluster /nr/ has already undergone the same repair strategy in Mycenaean therefore provide internal evidence for the markedness of this cluster, which in turn may explain its NOTATION following the same reasoning as above: marked sequences tend to be notated despite the general preference for OMISSION.

(77) Medial /m/ + /r/ sequences repaired in 1st-millennium Greek

- a. *i-mi-ri-jo* /Imrios/ PERSONAL NAME (KN 1×), cf. Ἰμβριος
- b. *i-mo-ro-ne-u* /Imroneus/ PERSONAL NAME (KN 1×, PY 1×), cf. Ἰμβρασος
- c. *o-mi-ri-jo-i* /Omrioihi/ DAT.PL ‘Westerner’ (cf. Ὀμβριος) or ‘Immortal’ (< **h₂mr-yo-*; see Vine 1998a: 35) (KN 1×)
- d. *o-mi-ri-so* /Omrissos/ (?) PERSONAL NAME (KN 1×)
- e. *si-nu-mo-ro* /Sinumros/ (?) PERSONAL NAME (KN 1×)

The true *crux* for my analysis is represented by the forms in (78), which attest the exceptionless

NOTATION of /mn/ word-medially, where /m/ is parsed as a coda and yet notated.⁹⁴

(78) Medial /m/ + /n/ sequences (expanded from Consani 2003: 93)

- a. *a-mi-ni-so* /Amnīsos/ PLACE NAME (KN 12×, PY 1×), *a-mi-ni-so-de* /Amnison-de/ ALL.SG (KN 6×), *a-mi-ni-si-jo* /Amnīsios/ NOM.SG.M (KN 8×) and *a-mi-ni-si-ja* /Amnīsiā/ NOM.SG.F (KN 7×) ETHNIC/PERSONAL NAME⁹⁵
- b. *de-mi-ni-ja* /demnia/ NOM.PL ‘bed, bedding’ (PY 2×, MY 1×), *de-mi-ni-jo* /demnion/ NOM.SG (PY 1×) and /demniōn/ GEN.PL (KN 1×)
- c. *e-ru-mi-ni-ja* /elumniai/ NOM.PL ‘roof beam’ (PY 2×)
- d. *ku-mo-no* /Gumnōi/ (?) DAT.SG PERSONAL NAME (KN 1×); *ku-mo-no-so* /Gumnorsos/ PERSONAL NAME (KN 1×)
- e. *o-pi-ke-re-mi-ni-ja* /opikelemniāi/ or /opikrēmniāi/ INS.SG ‘backrest’ (PY 2×), *o-pi-ke-re-mi-ni-ja-pi* /opikelemniap^{hi}/ or /opikrēmniap^{hi}/ INS.PL (PY 3×)
- f. *o-pi-ri-mi-ni-jo* /Opilimnios/ PERSONAL NAME (KN 1×)
- g. *po-mi-ni-jo* /Poimniōn/ or /Poimnios/ PERSONAL NAME (KN 1×)
- h. *qe-re-me-ne-u* /K^wremneus/ PERSONAL NAME (?) (PY 1×)
- i. *ra-ke-da-mi-ni-jo* /Lakedaimniōi/ DAT.SG ‘Lacedaemonian’ (TH 9×)

⁹⁴ The cluster is also attested word-initially in *ma-na-si-we-ko* /Mnāsiwergos/ PERSONAL NAME but this is not problematic for my own analysis, since /mn/ is in onset position.

⁹⁵ The four fragmentary sequences *a-mi-ni-si*[are not counted here but could represent additional attestations of either *a-mi-ni-si-jo* or *a-mi-ni-si-ja*.

- j. *ra-mi-ni-jo* /Lāmnios/ NOM.SG.M (PY 3×) ETHNIC/PERSONAL NAME, *ra-mi-ni-ja*
/Lāmniai/ NOM.PL.F (PY 1×)

The solutions put forward above do not account for these forms, as /mn/ is neither a coronal + noncoronal sequence nor is it phonotactically marked or repaired in 1st-millennium Greek, as the sequence -μν- is ubiquitous. At this stage, I can only stipulate that this sequence receives the same orthographic treatment as the preceding ones and return to the problem in §3.5.

3.4.3 Cases of REGRESSIVE NOTATION in Linear B

Thus far, my analysis has made no explicit prediction about the type of NOTATION observed in Linear B, namely PROGRESSIVE NOTATION. As mentioned in the General Introduction, in syllabic Cypriot OMISSION is not attested as a spelling strategy and the alternation between PROGRESSIVE and REGRESSIVE NOTATION is traditionally taken to have distinctive function (see Meister 1894: 177; cf. Egetmeyer 2010: I 221–3): if a member of a consonant cluster is notated with PROGRESSIVE NOTATION, it means it belongs to the onset of the following syllable peak (e.g., *te-re-ki-ni-ja* [ter.k^hnia] NOM.PL ‘young shoot’); if REGRESSIVE NOTATION is used, the consonant is a coda to the preceding peak (e.g., *ne-wo-so-ta-ta-se* [ne.wos.ta.tās] GEN.SG ‘latest’). This distribution in Cypriot — which is, in any case, less uniform than can be discussed here — has been used as an argument for onset maximization in Mycenaean: since PROGRESSIVE NOTATION is dominant, all notated clusters should be parsed as onsets (see, e.g., Beekes 1971: 343–6). However, I argue that the choice of PROGRESSIVE NOTATION has no distinctive value in Linear B, where the only distinctive opposition is between OMISSION and NOTATION. The fact that PROGRESSIVE NOTATION is the one type overwhelmingly attested will then reflect a default selection in Linear B, a rule like the one in (79) that applies to all consonants regardless of their syllabic affiliation.

(79) Dummy vowel selection in Linear B

Whenever a ⟨CV⟩ sign corresponds to a single consonant [C], it copies the quality of the nearest [V] to its right. Iterative, left-to-right.

This rule generates the vast majority of attested spellings in Linear B and streamlines the interpretation of the forms discussed in the §3.4.4. Before moving on to the next section, I shall discuss the few cases of REGRESSIVE NOTATION attested in Linear B. Taken together, the forms in (80) can be treated as isolated deviations from (79), each satisfactorily explained on a case-by-case basis.

(80) REGRESSIVE NOTATION in Linear B⁹⁶

- a. *a-ra-ro-mo-to-me-na* (KN 1×) vs. *a-ra-ro-mo-te-me-na* (KN 13×) (see (76) above)
- b. *ke-se-ne-wi-ja* (KN 1×) vs. *ke-se-ni-wi-jo* (PY 1×), *ke-se-nu-wi-ja* (KN 3×) (see (76) above)
- c. *sa-pa-ka-te-ri-ja* (KN 3×) (see (74) above)
- d.]*wa-na-ka-to* GEN.SG /wanaktos/ (PY 1×), *wa-na-ka-te* DAT.SG /wanaktei/ (KN 1×, PY 6×)⁹⁷ ‘king’, vs. *wa-na-ko-to* GEN.SG /wanaktos/ (HV 1×; see Petrakis 2016b) and *wa-na-ke-te* DAT.SG /wanaktei/ (PY 1×); *wa-na-ka-te-ro* NOM.SG.M /wanakteros/ or N /wanakteron/ (KN 1×, PY 8×, TH 1×, TI 1×), *wa-na-ka-te-ra* NOM.PL.N /wanaktera/ or F /wanakterai/ (KN 1×, TH 1×) ‘of the king’; cf. *wa-na-ka* below

Unsurprisingly, much ink has been spilled on the forms in (80d). They are all inflected or derived from a key term in Mycenaean society, *wa-na-ka* /wanaks/ ‘king’; they constitute the largest set of forms

⁹⁶ Melena (2014: 113) also compares the obscure **34-ka-te-re* with *a-ke-te-re*, *a₂-ke-te-re* and *ja-ke-te-re*. He also wonders whether *e-ka-te-re-ta* might represent /ek-trēta/ or rather contain an adverb /enkas^o/ ‘deep inside’.

⁹⁷ This count includes the form *a-na-ka-te* (PY Un 219), arguably a scribal error for *wa-na-ka-te*.

attesting a spelling strategy otherwise idiosyncratic within Linear B orthography; and, crucially, they display striking consistency across Crete, the southern Peloponnese, and Boeotia (cf. the “regular” spellings attested at Ayios Vasileios, *wa-na-ko-to* GEN.SG /wanaktos/, and Pylos, *wa-na-ke-te* DAT.SG /wanaktei/). The most popular explanation for the (apparent) REGRESSIVE NOTATION in these forms, going back to the dawn of Mycenaean studies (see *Evidence* 91 and *Docs* 46), is that some sort of paradigmatic analogy or, in OT terms, base faithfulness is involved: the spelling of the NOM.SG *wa-na-ka*, where <-ka> notates a word-final cluster -ks# (see §3.4.4), is leveled in its inflectional forms and derivatives and overrides the regular pattern (see also Panagl 1971; Viredaz 1983: 167 fn. 224; Woodard 1997: 126; Consani 2003: 112; Melena 2014: 113; Petrakis 2016a: 72–7 with additional references and alternative interpretations). In an all-encompassing treatment of these spellings, Petrakis (2016a: 124–7) has put forward a different proposal, whereby the spelling *wa-na-ka* — together with the term /wanaks/ and the notion of kingship associated with it — was a borrowing from Linear A which took on a quasi-logographic function soon thereafter (cf. the Sumerogram LUGAL used in Hittite with case markers expressed with syllabograms, e.g. LUGAL-*uš* NOM.SG, LUGAL-(*w*)*aš* GEN. SG).⁹⁸ In relation to the Cretan inheritance of this spelling, Petrakis (2016a: 126–7) points out that (80c) *sa-pa-ka-te-ri-ja*, only attested at Knossos, may also reflect a local orthographic treatment of /kt/ clusters only available on the island. On the other hand, this form may well be understood in the traditional analogical terms: if one posits

⁹⁸ If one accepts Petrakis’ proposal, then the spelling *wa-na* for /wanaks/ discussed below in §3.4.4 must be taken as a scribal error.

**(sa-)pa-ka* /sp^haks/ or /sp^hagā/ as the (unattested) base for *sa-pa-ka-te-ri-ja* (cf. alph. Gk. σφάξ and σφαγή ‘slaughter’), the spelling of the derivative may be seen a preserving that of its base.

The forms in (80a–b) instead, have received less scholarly attention or elaborate explanations, at least regarding REGRESSIVE NOTATION. Given that each is attested once besides cases of regular spellings, it appears more economical to consider them scribal slips. Consani (2003: 113–4) has already commented on the vexed status of the *a-ra-ro-mo-te-me-na* dossier: in four instances — Sd 4401, 4406, 4413, 4422, all by H 128 — parts of the word are re-written *in rasura* (exactly <-te-> in Sd 4401, see KT⁶ 262), attesting to the scribe’s difficulty in notating this specific word. In his view, the spelling *a-ra-ro-mo-to-me-na* would be a failed attempt at notating a target **a-ra-mo-te-me-na*, with OMISSION of the coda liquid.

3.4.4 NOTATION of word-final clusters

Related to the notion of REGRESSIVE NOTATION is the treatment of word-final clusters. As pointed out by Melena (2014: 114), “[f]inal consonantal clusters are treated in the same way as they would be if they occupied the syllabic coda: every sonorant (except for vocalic /w/) is omitted and so is the sibilant” — see the *ā*- and *o*-stem ACC.PL ending *-ns*, e.g. *ko-to-na* /ktoinans/ ‘land parcels’, *si-a₂-ro* /sihalons/ ‘fattened pigs’. This fact is already predicted by my analysis, as the notation of coda segments is licensed only in the case of stops. As a matter of fact, the only type of word-final cluster that is ever notated in Linear B is stop + sibilant, with all cases given in (81). The more widespread pattern is the NOTATION of the stop and the concomitant OMISSION of the sibilant (81b). This again derives directly from my OT analysis as it stands, but could also attest to the extrasyllabicity of /s/ in right-edge clusters.

(81) Treatments of word-final clusters

a. Full OMISSION

- i. *o-nu* /onuks/ ‘shuttle’, ‘rim’, or ‘thread’ (KN 1×)
- ii. *to-ra* /t^hōrāks/ ‘suit of armor’ (KN 2×, PY 1×)
- iii. *to-ro-wi* /trowiks/ PERSONAL NAME (PY 2×)
- iv. *wa-na* /wanaks/ ‘king’ (PY 1×)

b. Partial OMISSION⁹⁹

- i. *ke-ni-qa* /k^hehrn^ws/ ‘hand-basin’ (KN 1×)
- ii. *o-nu-ka* (KN 3×, at least)¹⁰⁰ vs. *o-nu*
- iii. *to-ro-wi-ka* (PY 1×) vs. *to-ro-wi*
- iv. *ra-ka* /rāks/ ‘berry’ (PY 1×)
- v. *to-ra-ka* (TI 2×) vs. *to-ra*
- vi. *wa-na-ka* (KN 2×, PY 2×, TH 1×) vs. *wa-na*
- vii. *-Co-qo* /očk^ws/ ‘-faced’ PERSONAL NAMES: *a₃-ti-jo-qo* /Ait^hi-čk^ws/ ‘Burnt-faced’ (PY 6×); *e-ro₂-qo* /Ell-čk^ws/ ‘Fawn-faced’ (PY 3×); *ka-ro-qo* /K^har-čk^ws/ ‘Blue-faced’ (KN 3×, MY 1×, PY 1×); *po-ki-ro-qo* /Poikil-čk^ws/ ‘Patchy-faced’ (PY 3×)

c. Full NOTATION

- i. *wo-no-qo-so* /Woin-čk^ws/ OX NAME ‘Wine-faced’ (KN 2×, both by H 110)

⁹⁹ Melena (2014: 114–5) also mentions some forms of more difficult interpretation: the PERSONAL NAMES]*dū-ru-wo-qo* (perhaps /Dru-(w)čk^ws/ but more likely a GEN.SG /Dru-(w)čk^wos/), *ku-ru-ka* (/Gruks/ ?), *pu-ṛu-da-ka* (/P^hludaks/ ?), *ti-ri-jo-qa* (/Tri-čk^ws/ ?), *wa-ru-wo-qo* (/Wa(r/l)u-(w)čk^wos/ ?); *ki-da-pa* (a kind of wood); *sa-pa* /sāps/ ‘coil’ (?); *to-mi-ka*, which he takes as /t^hōminks/ ‘string’ (but see §1.4.1). Petrakis (2016a: 79–80) also mentions *ka-ṛu-ḱa* [/Kāruks/ (?)] PERSONAL NAME and *56-*du-nu-ka*.

¹⁰⁰ Four more instances are broken right after *o-nu*[, which can be integrated with *-ka* (if NOM.SG) or *-ke* (if NOM.PL).

Among the forms in (81b), iv–vii have been taken as additional cases of REGRESSIVE NOTATION, in that descriptively the dummy vowel associated to the stop copies the quality of the preceding vowel (see *Evidence* 91 and *Docs* 46). The forms in i–iii, however, are not amenable to this kind of explanation, as the spellings ^x*ke-ni-qi*, ^x*o-nu-ku*, and ^x*to-ro-wi-ki* would be expected instead. Meißner (2007: 106–10) thus proposes to take the <-a> in these forms as a default dummy vowel *in statu nascendi*, comparable to the default <-e> used in Cypriot. The selection of <-a> would be motivated by the pragmatic status of Linear B texts: “in a style that does not normally employ verbs, the form in -a could hardly have been mistaken as an [athematic] ACC” (2007: 110).¹⁰¹ The need for a default vowel can be seen as a direct consequence of my rule in (79): in a rightward-facing system, the scribes may have resorted to <-a> since there was no phonological vowel between the stop and the word end.

What about the forms in -*Co-qo* then? According to the proposal mentioned in §3.1 going back to Householder 1964: 75, <-o> could be the default vowel for labiovelar stops (but cf. *ke-ni-qa*), <-a> only for plain velars — which would somewhat parallel the distribution of <Q> and <K> in Old Latin inscriptions. While Householder framed this alternation as an orthographic stipulation, the articulatory nature of velars and labiovelars may in fact have played a role in the distribution of these dummy vowels (see §3.5). At any rate, based on the discussion in §3.4.3 and the forms in (81b, i–iii), the notion of REGRESSIVE NOTATION does not seem relevant here (cf. Woodard 1997: 123–8; Petrakis 2016a: 78–88).

¹⁰¹ Meißner (2007: 108) also adds *ki-to-na* for /k^hitōn/ ‘tunic’ and *ka-ra-te-ra* for /krātēr/ ‘mixing vessel’, but both can be taken as ACC.SG /k^hitōna/ and /krātēra/. Chadwick 1987: 80 proposes that the PERSONAL NAME *e-ke-ra₂-wo-ne* reflects a NOM.SG ending in /-ōn/, with the same default dummy vowel as in Cypriot.

What remain to be addressed are the cases of FULL OMISSION in (81a), unexpected under my analysis. In OT terms, they can be described as a reranking of MAX-⟨T⟩(coda) and DEP-⟨V⟩. Whereas normally MAX-⟨T⟩(coda) outranks DEP-⟨V⟩, dictating the NOTATION of stops in coda position, in these cases it seems that the ranking is instead DEP-⟨V⟩ >> MAX-⟨T⟩(coda): no coda segment of any sort is notated. It is difficult to say what may have motivated this graphic choice, beyond the sheer observation that it does follow the core preference for OMISSION at the base of the Linear B spelling practice.¹⁰² Otherwise, these could be considered scribal errors by omission of the final syllabogram, which would not be unusual in Linear B. Finally, the isolated case of an overly faithful *wo-no-qo-so* can be licensed as an idiosyncrasy of scribe 110 — unless one opts for the alternative reading /Woin-ok^w-orsos/ ‘with a wine-colored rump’.

3.5 Results and Further Suggestions

The above analysis has proposed that the preference for OMISSION observable in Linear B can be derived from a core ranking of faithfulness constraints, with DEP-⟨V⟩ ranked above MAX-⟨C⟩. This general tendency is, however, constrained by two higher-ranked Positional Faithfulness constraints, which require the NOTATION of stops in coda position and of all onset segments as determined by phonological syllabification. Finally, the basic facts concerning the OMISSION of /s/ can be accounted for by positing

¹⁰² It is at any rate remarkable that only in the case of Hand 2 notating both *wa-na* on PY Fr 1234 and *wa-na-ka* in PY Ta 711 a scribe notates both variants of the same word (see Petrakis 2016a: 83 with fn. 93): *to-ra* is attested at Knossos and Pylos, *to-ra-ka* at Tiryns; *o-nu* is recorded by Hand 103, who never notates *o-nu-ka*; *to-ro-wi* is written by Hand 1 and Hand 2, while *to-ro-wi-ka* by an unidentified Class ii hand.

its extrasyllabicity, in line with typologically common tendencies and independent evidence from Greek and Indo-European.

I have also addressed documented cases of exceptional spellings that have proven problematic for previous accounts of Linear B orthography and are still viewed as idiosyncratic in current descriptions. Under my own framework, these consisted of unexpected cases of NOTATION of segments that, given their syllabic affiliation, should have been omitted: /s/ in word-initial and word-medial position before stops and sonorants, and word-medial sonorants parsed as codas. Having refrained from making stipulations on the syllabic structure of sequences based on these spellings, I have proposed a number of solutions based, whenever possible, on the phonological markedness of the notated sequences. The general pattern that I have pointed out is that typologically or Greek-internally marked sequences, similarly to stops in coda position, tend to be notated despite the general preference for OMISSION that characterizes Linear B spelling.

Furthermore, I have presented the scant data for REGRESSIVE NOTATION in Linear B and shown that this orthographic pattern does not have any systematic function in this script; rather, it is either used in specific lexical items to mark the morphological relation between a base and its derived forms or corresponds to scribal errors. The quality of dummy vowels in Linear B is best viewed as selected by a linear principle: the vocalism of the nearest vowel to the right is copied by the dummy vowel, regardless of the syllabic affiliation of its corresponding consonant. This principle is fully compatible with the attested treatments of word-final clusters, where standard dummy vowels are used: <a> generally, <o> when the first element of the cluster is a labiovelar.

Here, I elaborate on the principle I have employed to motivate the cases of NOTATION outside the onset, be it the regular one of coda stops built into my OT analysis with my MAX-⟨T⟩(coda) constraint or the more exceptional ones. The general pattern I have inferred from these different cases is that clusters that are known to be typologically marked or repaired in 1st-millennium Greek are fully notated even if they are expected to be partially omitted. Whereas I have put forward a practical motivation for this pattern in §3.3.1, i.e. that marked sequences are less likely to be supplied by the readers of the tablets as they consult them in archival settings, I shall draw a parallel with a linguistic phenomenon known as perceptual epenthesis.

Experiments such as Dupoux et al.'s (1999) have shown that listeners exposed to clusters banned in their native phonology perceive an epenthetic vowel that is not actually present in the acoustic signal, so as to adapt sequences to their phonotactic expectations. For example, Japanese speakers exposed to artificial-language VC₁C₂V sequences,¹⁰³ generally banned in Japanese, such as [ebzo] would report that a vowel [u] was present in the stimulus (i.e., ^x[ebuzo]; see Dupoux et al. 1999: 1569–71). More recently, Yun (2016) has compared experimental results on perceptual epenthesis and typological data on epenthesis in loanword adaptation and found that they pattern in the same way in relation to the *locus* of epenthesis, i.e. inside (#CəC- or -CəC#) or outside non-native clusters (#əCC- or -CCə#).¹⁰⁴

¹⁰³ In the above notation, C₁ ≠ C₂, as geminate consonants are licit in Japanese. Also, C₁ entails all consonants except nasals, which are allowed as codas.

¹⁰⁴ See also Davidson 2006, 2007; Kabak and Idsardi 2007.

My working hypothesis, then, is to compare the use of dummy vowels in Linear B with the distribution of perceptual epenthesis and epenthetic vowels in non-native sequences. A crucial distinction between the objects of this comparison must be specified from the outset. The structures triggering the use of dummy vowels would not consist of non-native phonetic stimuli interacting with the phonotactic constraints of a given language, as is the case in perceptual epenthesis proper. Rather, I hypothesize that more or less marked sequences within Greek, a language rich in consonant clusters, would interact in a comparable way with the structural constraints of the Linear B syllabary — an “open-syllables-only” writing system. In other words, I am not suggesting that orthography directly reflects innate phonological constraints. Rather, I propose that, at the phonetic and perceptual levels, marked structures could become associated with epenthetic vowels, which would in turn be represented orthographically by means of dummy vowels.

This core idea is already suggested by Melena (2014: 110): “Originally the practice of writing consonantal clusters by means of syllabograms with ‘dummy’ vowels may have had a phonetic basis in very slow styles of delivery and syllabification, which would have led to the rise of epenthetic vowels.” Depending on one’s interpretation of his use of “originally,” Melena appears to situate this process either at the time of the adaptation of Linear A to Greek or during the earliest phases of the use of the Linear B syllabary. This scenario might add another point of similarity to the mechanism I am proposing, since, in the early stages of the “Mycenaeanization” of Crete and the adoption of Linear B, a considerable degree of bilingualism is to be expected (see, e.g., Palaima 2011: 115). Even beyond this early phase, which is not represented by the extant tablets, some scholars wonder whether the administrators of the Mycenaean palaces might have remained linguistically and culturally Minoan, using Greek as a second

language (see, e.g., Palaima 2011: 124). In this case, one may wonder whether dummy vowels reflect perceptual epenthesis under conditions of dictation, whereby scribes received an auditory stimulus and represented it accordingly. Alternatively, if this process remained confined to the times when Linear B was being adapted from Linear A, the observed distribution of dummy vowels could reflect a formalized orthographic paradigm transmitted across generations of palace officials. These questions intersect with reconstructions of scribal agency and literacy, as well as with the precise circumstances of script adaptation in the Late Bronze Age (see, e.g., Del Frego 2019: 128–30). They transcend the goals of the present dissertation but can be explored in future work.

If one then accepts that, at the perceptual level, the dummy vowels used in Linear B may correspond to “illusory” epenthetic vowels, then the mentioned cases of NOTATION outside the onset can be shown to match generalizations in loanword and perceptual epenthesis. One approach in this domain is Gouskova’s (2001), who applies the notion of SYLLABLE CONTACT (see Chapter 5) to describe the distribution of epenthetic vowels in word-initial clusters. Using data from Russian loanwords in Kyrgyz, Gouskova (2001: 176–80) proposes that in clusters with rising sonority, such as /#bl-/, epenthesis occurs internally (e.g., [bəl-]) rather than externally, because inserting a vowel at the edge would create a cross-syllabic sonority rise (i.e., [əb.l-]) in violation of SYLLABLE CONTACT.¹⁰⁵ By contrast, in clusters with flat or falling sonority, like /#st-/, external epenthesis is preferred. Gouskova’s principle alone would explain most cases of NOTATION of coda stops in Linear B: since most of the following segments would

¹⁰⁵ For alternative approaches to epenthesis instead based on faithfulness to the input cluster’s sonority profile, see Steriade 2006 and Flemming 2008.

imply a sonority rise across the syllable boundary, the cluster would be consistently broken by the dummy vowel. It would also explain other cases of unexpected NOTATION where a sonority rise is involved: e.g., [s.w] in *wi-so-wo-pa-ṭo* /wiswōn pantōn/ (74b), [s.m] in *do-so-mo* /dosmos/ (75b), [r.w] in *a-ra-ru-wo-a* /arārwoha/ (76b), [l.w] in *a₂-ru-wo-te* /Halwontei/ (76c), [n.w] in *ke-se-ni-wi-jo* /ksenwion/ (76d), [m.r] in *i-mi-ri-jo* /Imrios/ (77a). The SYLLABLE CONTACT explanation would however leave unexplained the cases of sonority plateaus or drops, such as any internal stop + stop sequence (e.g., [p.t] in *e-na-ri-po-to* /enaliptos/), the exceptional spellings of all /mn/ sequences (78), and [r.m] in *a-ra-ro-mo-te-me-na* /ararmotmenā/ (76a).

Yun's (2016: 69–118) approach is instead based on the phonetic property of intensity — the amount of acoustic energy in a speech sound, typically measured as sound pressure level in decibels — and Steriade's (2008) P-Map hypothesis, whereby an output involving a perceptually smaller change is more optimal. Yun argues that epenthetic vowels occur where an intensity rise is produced in the input cluster: e.g., if the only intensity rise is produced between silence and the first member of a word-initial cluster (# $\nearrow$ CC-), external epenthesis is observed (#əCC-); if the intensity rise occurs between the members of the cluster (#C $\nearrow$ C-), epenthesis is internal (#CəC-); if no intensity rise (#CC-) or two intensity rises are produced (# $\nearrow$ C $\nearrow$ C-), variation is observed (2016: 85).

This follows from the P-Map hypothesis in that inserting a vowel “where there is an intensity rise makes a perceptually less salient change from the original cluster than epenthesis where there is no intensity rise” (2016: 147).¹⁰⁶ Yun (2016: 25–38) also points out that, although intensity is taken as the

¹⁰⁶ For another perception-based approach to epenthesis, see Fleischhacker 2001 and 2005.

most reliable phonetic correlate of sonority, these two parameters do not correspond completely. **Table 2** lists the full typology of clusters according to their intensity profile. For present purposes, the most relevant point is that clusters featuring a sonority plateau can still contain an intensity rise in between. In the case of stop + stop and nasal + nasal sequences, the crucial factor is that they can feature an intensity rise if the first stop or nasal is released (i.e., with the articulators separating audibly before the following segment).

Table 2: Consonant clusters with or without an intensity rise (from Yun 2016: 33)

INTENSITY RISE	NO INTENSITY RISE
Stop (released)-initial clusters	Stop (unreleased)-initial clusters
Non-sibilant + sibilant fricative clusters	Sibilant + non-sibilant fricative clusters
Fricative + sonorant clusters	Fricative + stop clusters
Nasal (released)-initial clusters	Nasal (unreleased)-initial clusters
Trill-initial clusters	Lateral-initial clusters

This principle can therefore provide a rationale for the NOTATION of /mn/ sequences in Linear B, which so far I could only acknowledge as a *crux* for my theory. If, as it is expected in a slow speech rate (cf. Devine and Stephens 1994: 38–9 and Melena 2014: 110), the /m/ in the cluster was released, it would produce an intensity rise in between the cluster, which would explain the consistent presence of the dummy vowel. The same can be said for stop + stop sequences, which would feature an intensity rise if the first stop was released, despite plateauing in terms of sonority. Yun’s (2016) theory thus provides a more fitting parallel than Gouskova’s (2001) for the description of the Linear B data in this framework, as the types of clusters with an intensity rise in **Table 2** match those unexpectedly notated — especially those displaying the most consistency, /sm/ (75), /mr/ (77), and /mn/ (78). The only outlier in this case

would be fricative + stop clusters, which are listed are having no intensity rise. Nevertheless, in Linear B the /s/ in these sequences is regularly omitted, and the forms in (74) only represent sporadic exceptions.

Comparing the distribution of dummy vowels with perceptual epenthesis has some additional advantages. It explains one more tendency observed in Linear B spelling, i.e. the double quality of default dummy vowels in word-final position: ⟨a⟩ generally, ⟨o⟩ when the first element of the cluster is a labiovelar. If the scribes supplied a perceptual epenthetic vowel breaking the word-final clusters -ks# and -k^ws#, e.g. [-kəs#] and [-k^wəs#], it would not be surprising that they associated an *o*-vocalism to the labialized context provided by the labiovelar stop.

This proposal may also contribute to our understanding of a central issue raised in previous studies, namely the accessibility and learnability of any linguistics-based account of Linear B orthography. While Consani (2003) has already argued for the greater naturalness of syllable-based approaches, which may therefore be easier to acquire than an HOS-like paradigm, his argument remained grounded in the abstract notion of syllable structure — however innate and natural it may be. The advantage of factoring in perceptual epenthesis, or any process with a perceptual and/or phonetic correlate, is that the acquisition of the system need not rely exclusively on abstract intuitions but can instead be anchored in perceptible phonetic cues. Perceptual epenthesis is a well-attested experimental phenomenon arising directly from the interaction between speech perception and the phonotactic constraints of one's native language. As such, it does not presuppose any advanced metalinguistic awareness of syllable structure but follows from ordinary perceptual mechanisms rather than from conscious or innate intuitions about phonological structure.

Again, my hypothesis should be integrated with the material and archaeological aspects of the learning process of Linear B, which remain debated and poorly documented (see Palaima 2011: 113–21; Judson 2017). Although these issues cannot be fully addressed in the present dissertation, I shall nevertheless offer some tentative remarks on how a constraint-based such as the one proposed here might have been learnable by the scribes. Although OT was conceived as a model of natural language, its core mechanism of ranked preferences is not exclusively linguistic, and the relations that I describe in terms of OT constraints can be translated into practical terms. Beginning with the core ranking $\text{DEP-}\langle V \rangle \gg \text{MAX-}\langle C \rangle$ formulated for Linear B, I have already mentioned in §3.2 that this choice likely reflects the need for a succinct and efficient notational system for internal circulation in the palace — comparatively different from the purposes and intended audiences of syllabic Cypriot inscriptions. The more specific constraints that I have posited likewise express not purely linguistic preferences, but rather a mediation between syllable structure and practical requirements of writing, consultation, and archive keeping. The additional appeal to perceptual epenthesis further mitigates the abstractness of this system by anchoring some orthographic choices in a perceptually salient phenomenon.

Finally, I ought to return to the question of when exactly these processes should be situated. Is this model representative of the principles that guided the adaptation of Linear A to Linear B, and therefore confined to a brief and undocumented period of time? In that case, none of the mechanisms described in my analysis need have remained active when the extant tablets were inscribed. By then, they may simply have constituted a learned orthographic tradition, transmitted through rules and pedagogical practices that presently escape us. Alternatively, does this model reflect an active “orthographic grammar” that continued to guide palace officials in their use of Linear B? This scenario

is likewise theoretically possible, but it would constitute a stronger claim, one that currently lacks evidentiary support both in the scholarship and in my own research. The present analysis therefore aims not to adjudicate between these possibilities, but rather to outline a novel framework capable of accommodating either until further evidence permits a more precise historical reconstruction.

CHAPTER 4

The Rise of Linking *-o-* in Mycenaean and 1st-Millennium Greek:

Evidence and Distribution

4.1 Introduction

In the domain of Ancient Greek nominal compounding, a morpho-phonological process commonly referred to as “linking vowel” is observed when consonantal nominal stems serve as first constituents (FCs) in compounds (see, e.g., Lindner 2011: 45; Tribulato 2015: 20–4). While there are cases like (82), in which the bare stem appears with no modifications, the most widespread pattern is the addition of a vocalic element */-o-/* to the consonantal stem, as shown in (83).

(82) Consonantal bare stems as FCs (from Tribulato 2015: 21)

	<i>Noun</i> _____	<i>Stem</i> _____	<i>FC</i> _____	<i>Compound</i>
a.	πῦρ ‘fire’	πυρ-	πυρ-	πυρκαΐᾱ [fire-burning] > ‘funeral pyre’
b.	ῥῆπος ‘word’	ῥπ-ο/εσ-	ῥπεσ-	ῥπεσβόλος ‘word-throwing’ > ‘speaking hastily’

(83) Consonantal stems with linking *-o-* as FCs (from Tribulato 2015: 22)

	<i>Noun</i> _____	<i>Stem</i> _____	<i>FC</i> _____	<i>Compound</i>
a.	πῦρ ‘fire’	πυρ-	πυρ-ο-	πυροβόλος ‘fire-darting’
b.	ἀσπίς ‘shield’	ἀσπιδ-	ἀσπιδ-ο-	ἀσπιδοφόρος ‘shield-bearing’
c.	κύων ‘dog’	κυν-	κυν-ο-	κυνοκλόπος ‘dog-stealer’

This process is commonly described as an analogical spread of the *o*-stem thematic marker, perhaps facilitated by its formal similarity with the athematic GEN.SG ending /-os/ — e.g., πυρός (83a), ἀσπίδος (83b), κυνός (83c). Functionally, linking -*o*- only seems to respond to “needs of morphological transparency or phonological convenience” (Tribulato 2015: 22), as it expresses no semantic information such as gender, number, or case. In Modern Greek, according to Ralli (2009: 455), it has become a marker of compoundhood as opposed to other processes of word-formation, i.e. derivation and inflection. Ralli ultimately considers linking -*o*- a case of pure morphology, with no affixal status or derivational properties. Assuming that Ralli’s analysis stands for Modern Greek, linking -*o*- in 1st-millennium-BCE Greek (starting with Homer) is not only found in compounding, but also in some derivational categories, such as **went*-stem adjectives (-όεις, -όεσσα, -όεν), and local adverbs built with the -θεν (ablative), -θι (locative) and -σε (allative) suffixes (see Lejeune, *Mém.* III 173). Also, it is found before one inflectional ending, that is, Homeric instrumental/oblique marker -φι(ν) (see Goldstein 2020 for its morphological analysis).¹⁰⁷ This is illustrated in (84), with examples from Lejeune 1958: 9, Goldstein 2020: 16, and van Hes 2023: 46.

¹⁰⁷ Two potential counterexamples to this morphological analysis, Hom. (ἀπο)νόσφι(ν) ‘away from’ and ἱφι ‘vigorously’, are discussed by Goldstein (2020: 16–8), who argues that they are synchronically adverbs in Homer, but diachronically go back to inflected nominals. Although the interpretation of νόσφι is controversial, Goldstein follows Schulze (1888: 263 fn. 1) and Schwyzler (1939: 362) and takes it as a historical instrumental plural of a noun belonging with Lat. *nates* ‘buttocks’ and Gk. νῶτον ‘back’. As for ἱφι, it belongs with Gk. ἰς ‘sinew; strength’, Ved. *váyas-* ‘strength’ (an *s*-stem) and Lat. *vīs* ‘id.’ (which shows both *s*-stem and root-noun inflection, in ABL.PL *viribus* and GEN.SG *vīs*, ACC.SG *vim* respectively) and goes back to PIE **wiH-* ‘strength’ (see EDG 598, EDLIL 683, EWA II 509). Whereas ἰς ‘sinew; strength’ has been reassigned to the *n*-stem inflection (see GEN.SG ἱνός, ACC.SG ἱνά), ἱφι goes back to an earlier stage in which the stem was still **(f)ī-*, like Lat. *vīs*, *vim*.

(84) Consonantal stems with linking *-o-* outside compounding

	<i>Noun</i> _____	<i>Base Stem</i> ____	<i>Derived Stem</i> ____	<i>Adjective</i>
a.	αῖμα ‘blood’	αῖματ-	αῖματ-ο-(<i>φ</i>)εντ-	αῖματόεντα ACC.SG ‘bloody’
b.	ἀστήρ ‘star’	ἀστερ-	ἀστερ-ο-(<i>φ</i>)εντ-	ἀστερόεντα ACC.SG ‘starry’
	<i>Noun</i> _____	<i>Stem</i> _____	<i>Local Adverb</i>	
c.	ἄλς ‘sea’	άλ-	άλ-ό-θεν ‘from the sea’	
d.	κῆρ ‘heart’	κηρ-	κηρ-ό-θι ‘in the heart’	
e.	πάς ‘all’	παντ-	πάντ-ο-σε ‘in all directions’	
	<i>Noun</i> _____	<i>Stem</i> _____	<i>Inflected form</i>	
f.	κοτυληδών ‘cup hollow’	κοτυληδον-	κοτυληδον-ό-φιν OBL.PL	

In Mycenaean, linking *-o-* is not attested in **-went-*stem adjectives and preceding the *-pi* /-p^{hi}/ instrumental ending, corresponding to Hom. -φι(ν) (see Lejeune, *Mém.* III 173–5). All **-went-*derivatives are built on bare stems and *Cw*-clusters are preserved with no intervening vowel — e.g., *pe-de-we-sa* /pedwessa/ NOM.SG.F ‘with feet’ (cf. Ved. *padvánt-* ‘id’). The same applies to *-pi* /-p^{hi}/, which attaches to consonantal stems directly — e.g., *po-ni-ki-pi* /p^hoinikp^{hi}/ INS.PL ‘palm (motif)’ (cf. alph. Gk. φοῖνιξ ‘purple; date-palm’, stem φοινικ-). Of the local adverb formants, only *-te* /-t^hen/ is attested, but there are no diagnostic examples for linking *-o-* — see *a-po-te-ro-te* /amp^hoterōt^hen/ ‘from/on both sides’ (cf. alph. Gk. ἀμφοτέρωθεν ‘id.’) and *e-te* /ent^hen/ ‘thence’ (?) (cf. alph. Gk. ἐνθεν ‘id.’). The situation in compounds is substantially similar, with some old-looking material displaying no linking element —

The root-noun instrumental is also found in the Myc. personal names *wi-pi-no-o* /Wīp^hino(h)os/ and *wi-pi-o* /Wīp^hiōn/.

e.g., *ke-ni-qa* /k^hehr-nik^{ws}/ ‘hand-basin’ (cf. alph. Gk. χέρνιψ ‘water for handwashing’).¹⁰⁸ At the same time, some compounds have been argued to contain a linking vowel, but none of them is unambiguous (see Lejeune, *Mém.* III 175–7; Haug 2002: 56; Meißner and Tribulato 2002: 320–3; van Beek 2022b: 88–90; Meixner 2022: 414–7). As pointed out by Lejeune (*Mém.* III 175–6) and Meißner and Tribulato (2002: 320–3), most of the evidence meets with one of the following problems:

- i. The /-o-/ at the end of the FC may be the outcome of a vocalized syllabic sonorant rather than an independent morph — e.g., *ma-to-ro-pu-ro* /mātropulos/ ‘Pylos’ metropolis’, whose FC could reflect either **meh₂tr-* (see §2.1; cf. Sabattini 2023: 140–1, 150) or **meh₂tr-o-* (as per van Beek 2022b: 88–90).
- ii. The notation <-Co-> may represent a “dummy” vowel for cluster notation rather than segmental content (see §3.1) — e.g., *a-pu-ko-wo-ko* NOM.PL ‘headband-maker’, which could be read as either /ampukworgoi/ or /ampukoworgoi/ (cf. alph. Gk. ἄμρυξ ‘(woman’s) diadem; (horse’s) headband’).
- iii. Rather than compounds, some forms may be juxtapositions of a genitive and a noun written in *scriptio continua* — e.g., *di-wo-pu-ka-ta* ‘boxer of Zeus’, to be interpreted either as /Diwos puktās/ or /Diwo-puktās/ (cf. alph. Gk. Ζεύς, GEN.SG Διός ‘Zeus’ and πύκτης ‘boxer’).

¹⁰⁸ Hence Heubeck’s (1963a: 14; 1972: 61) and Bader’s (1969/1970: 31–4) firm rejection of the existence of linking -o- in Mycenaean.

Mycenaean and Homeric Greek therefore appear to instantiate two neatly distinct diachronic stages with respect to the rise of linking *-o-*. In this chapter and the following one, I chiefly intend to clarify the notion of “phonological convenience” (Tribulato 2015: 22) when it comes to the rise of linking *-o-*. Focusing on these two diachronic stages of Greek in which the development of linking vowels is still embryonic, I investigate what (morpho-)phonological changes occurred in Greek between the second and first millennium which could produce this pattern. In doing so, I reconsider whether linking *-o-* can be modeled as a purely phonological process or a bona fide analogical spread. The inclusion of Mycenaean material in my analysis also allows for the identification of phonological processes that may be formally compared to this vowel insertion. In the present chapter, I therefore discuss the status of linking *-o-* in Mycenaean across the abovementioned morphological classes, where linking *-o-* is arguably not yet attested (§4.2), and present its distribution in Homeric Greek (§4.3). I also examine the development of an individual item, Mycenaean *te-mi-dwe* /termidwen(t)/ ‘wedged’ ≈ Hom. *τερμιόεις* ‘edged’, which provides insights into the relative chronology of linking *-o-* and characterizes it as a later phenomenon than usually assumed (§4.4).

In the following chapter (§5), I then put forward an OT analysis to describe the changes occurred between Mycenaean and Homeric Greek and model the distribution of linking *-o-*, mainly operating with constraints sensitive to syllable structure.

4.2 The Status of Linking *-o-* in Mycenaean

4.2.1 Mycenaean compounds

The first to address the issue of linking *-o-* in Mycenaean vis-à-vis Homeric Greek is Lejeune (1965 = *Mém.* III 172–7), in the absence of a comprehensive collection or discussion of Mycenaean compounds.¹⁰⁹ As mentioned in §4.1, he points out that the evidence for compounds with consonant ending FCs is philologically problematic for a number of reasons. Whenever the FC of the compound ends in a nasal or a liquid, the observed */-o-/* may represent the outcome of vocalization (cf. Chapter 1); some spellings may be ambiguous, with *<-Co->* merely being a dummy vowel (cf. Chapter 3); in other cases, it is uncertain whether we are dealing with juxtapositions whose first element is in the genitive, or with compounds proper.¹¹⁰ The only transparent pattern identified by Lejeune involves the item *ko-*

¹⁰⁹ Various works of this kind are now available: Meißner and Tribulato 2002, Waanders 2008, and Meixner 2022, all referenced in the following discussion. Meißner and Tribulato's (2002) article is an overview of compound types and morpho-phonology in Mycenaean, which remains a key reference for any treatment of the topic. Waanders' (2008) monograph is a succinct compendium of Mycenaean compounds with the author's phonological interpretations and a terse commentary, generally with little mention of 1st-millennium comparanda. The work should be integrated with García Ramón's (2013) review, if anything because it contains some additional compounds not included in Waanders' collection. Meixner's (2022) doctoral dissertation provides extensive lexicographic commentary for each form, including etymological discussion, 1st-millennium parallels, and morphological analysis of the compounds. For these reasons, and for its more recent date, I give priority to Meixner's account whenever a form is present in both collections.

¹¹⁰ Lejeune (*Mém.* III 177) points out that “[d]ans le toponyme (loc. sg.) *patodote* (PY Jn 706), rien n'engage à voir un composé à premier terme *πάντο-*.” The reading *pa-to-ḏo-te* is now rejected in *DMic. Supl.* in favor of *pa-to-wo-te*, without any secure interpretation of the form. Cf. *ARN* II 24, *PofN* IV 423, *PT*³ 137, *PTT*² 166.

to-no-o-ko /ktoino-hok^hos/ ‘holder of a *ktoinā* parcel’ (PY 22×), where the *ā*-stem *ko-to-na* /ktoinā/ ‘estate, plot of land’ (PY 173× in various case forms, KN 3× spelled *ko-to-i-na*; cf. Rhod. *κτοίνᾱ* ‘township’) appears as an *o*-stem FC (see also Morpurgo Davies 1968: 803). To this item one could add the personal name *o-ro-do-ko* (PY 1×), if it indeed corresponds to /Hōro-dok^(h)os/ (Waanders 2008: 34), with a FC corresponding to alph. Gk. *ὥρᾱ* ‘season’ and a second constituent from *δέχομαι/δέχομαι* ‘receive, welcome’.¹¹¹

In a later paper, Meißner and Tribulato (2002) surveyed the approximately 400 compounds included in *DMic.* and likewise concluded that no unambiguous example of linking *-o-* can be identified, essentially reiterating Lejeune’s points about the formal ambiguity of most of the data (2002: 320–1). They do however put forward some additional observations about *ko-to-no-o-ko* and the nature and date of this pattern, arguing that it may well go back to a bona fide stem alternation rather than a secondary insertion of linking *-o-* (2002: 322). They mostly relied on Leukart (1994: 315): “[man könnte] den Wechsel von *ko-to(-i)-na* /ktoin-ā/ zu *ko-to-no-o-ko* /ktoino-hok^hos/ im VG verstehen [n]icht als — sekundäres — Eindringen von *-o-* als KP-Vokal analog zu den häufigen *o*-stämmigen VG [...], sondern als morphologisch fixiertes Zeugnis des ursprünglich in solchen Fällen normalen Eintretens der bloßen Stammform (hier auf **-o-*), da **-ā/*-ah₂* zu jener Zeit noch Flexions-, nicht Ableitungs-bzw. Stammbildungsmorphem war.”

¹¹¹ The item is however flagged as uncertain in *DMic.* II 49 and Nakassis 2013: 328, and it is not included in Meixner’s (2022) recent collection of Mycenaean compounds.

Leukart projects this pattern back to a time where the $\bar{a}$ -stem formant would still be a collective ending within the thematic paradigm, so that the observed alternation with the o -stem variant would be intraparadigmatic. Even without placing this morphological operation so far back chronologically, or making claims about the origin of feminine markers as collective endings, the derivational relationship between $*o$ - and $*eh_2$ -stem nouns is a feature of PNIE (see Lundquist and Yates 2018: 2095–100). Traditionally, the feminine suffix $*eh_2$ - is taken as substituting the thematic vowel of the o -stem noun or adjective it is attaching to: e.g., PNIE $*h_1ékʷos$ ‘horse’ (Ved. *ásvas*, Lat. *equus*) → $*h_1ékʷ-eh_2$ ‘mare’ (Ved. *ásvā*, Lat. *equa*, OLith. *ašvā*); PNIE $*néw-o-s$, $*néw-eh_2$, $*néw-o-m$ ‘new’ > Ved. *návas*, *náva*, *navam*, Myc. *ne-wo*, *ne-wa*, *ne-wo*, alph. Gk. νέ(φ)ος, νέ(φ)ᾶ, νέ(φ)ον; Lat. *novus*, *nova*, *novum*. Mycenaean *ko-to-no-o-ko* may therefore reflect an inherited morphological pattern, supported by the productive derivational relationship between o - and $\bar{a}$ -stems, rather than attest linking $-o$ - proper (see also van Beek 2022b: 89).

The hypothesis of linking $-o$ - in Mycenaean compounds has been revamped by Haug (2002: 55–6), also cited by van Beek (2022b: 88–90), who claims it is found in the items in (85), besides the abovementioned *ko-to-no-o-ko*.

(85) Mycenaean forms with linking $-o$ - according to Haug (2002: 55–6)

- a. *o-wo-we* /ohwo-wens/ ‘having handles’ (PY 1×) — cf. alph. Gk. οὔς ‘ear’
- b. *ke-ro-ke-re-we-o* /K^hehro-klewehos/ GEN.SG PERSONAL NAME (PY 1×) — cf. alph. Gk. χεῖρ ‘hand’
- c. *i-su-ku-wo-do-to* /(h)Isk^huo-dotōi/ DAT.SG PERSONAL NAME (KN 1×) — cf. alph. Gk. ἰσχύς ‘force’
- d. *di-wo-pu-ka-ta* /Diwo-puktās/ ‘the boxer of Zeus’ (KN 1×) — cf. alph. Gk. Ζεὺς, GEN.SG Διός
- e. *di-wo-nu-so* /Diwo-nūsōi/ DAT.SG (KH 1×, PY 1×), *di-wo-nu-so-jo* /Diwo-nūsoio/ GEN.SG (PY 1×) ‘Dionysus’ — cf. alph. Gk. Διόνυσος, Epic Διώνυσος

As for (85a) *o-wo-we*, this is one example where the supposed linking *-o-* is best taken as the outcome of a vocalized sonorant — in this case $*n$, as I discuss in §4.2.2.6. Similarly, (85b) *ke-ro-ke-re-we-o* is included by Meißner and Tribulato (2002: 321) among the forms with a vocalized liquid at the end of the FC, namely $*r$. The compound is taken since Risch 1987: 295 as combining the stems of alph. Gk. χείρ ‘hand’ and κλέος ‘fame’ to mean ‘having fame through his hands’, which makes a preform $*g^hesr-klew-es-$ > $*k^hehr-klew-eh-$ phonologically straightforward and in line with the predictions of my own analysis in §2.1 (see also Meixner 2022: 238–9).

The item in (85c), *i-su-ku-wo-do-to*, also mentioned by Morpurgo Davies (1968: 803) as a case of linking *-o-*, may be interpreted as a $^o\delta\acute{o}\tau\omicron\varsigma$ compound meaning ‘given by the Mighty One’, with its first member connected with alph. Gk. ισχύς ‘strength’ (see Meixner 2022: 222). The problem with this interpretation lies in the etymology of ισχύς. As Lejeune (*Mém.* III 177) points out, this connection can only be maintained if one rules out a derivation from PIE $*wiH-$ ‘strength’ (> alph. Gk. ἰς ‘sinew; strength’, Ved. *váyas-* ‘strength’, Latin *vīs* ‘id.’; see EDG 598, EDLIL 683, EWA II 509), since the Linear B spelling shows no initial *w*-glide.¹¹² Moreover, the Laconian glosses βίσχυν· ισχύν· σφόδρα †ὀλίγον (Hesych. β 638 L.-Cunn.) and γίσχύν· ισχύν (Hesych. γ 579 L.-Cunn.), which also point to an initial *w*-glide, would have to be regarded as secondary after PGk. $*wís$ ‘strength’. García Ramón (2008: 326) accordingly derives ισχύς and *i-su-ku-wo-do-to* from $*seĝ^h-$ ‘overpower’ through a reduplicated stem $*si-sĝ^h-$ (see LIV² 515–6), comparing alph. Gk. ἰσχω ‘hold (back)’. Whereas García Ramón explicitly argues that *i-su-ku-wo-do-to*

¹¹² The spelling of this form is also somewhat aberrant because it features an unexpected notation of the /s/ in coda position, as I discuss in §3.4.1.

contains a linking *-o-* and compares *ma-to-ro-pu-ro* (discussed in §1.4) and *ko-to-no-o-ko*, both Lejeune (*Mém.* III 177) and Meixner (2022: 222) point out that the FC may instead correspond to an ablative stem /hiskuos-/, as in alph. Gk. Διόδοτος ‘given by Zeus’.¹¹³

The last two items discussed by Haug (2002: 56) both contain the zero-grade stem of the theonym for Zeus, **diw-*, in their FC. Haug refers to Bader’s (1972: 192) reasoning for considering (85d) *di-wo-pu-ka-ta* a secure example of linking *-o-*: “si l’on veut former un composé avec un nom de divinité appartenant au thème **dyeu-* avec normalement le degré zéro en premier membre, celui-ci doit être **diw-* devant voyelle, mais **dyu-* devant consonne. Or ce dernier aurait donné **žǔ-* qui n’existe ni en composition ni en simple sous cette forme athématique; seule l’adjonction d’une voyelle telle que *-o-* laissait le thème reconnaissable devant consonne (**diwo-*).” Meißner and Tribulato (2002: 321) however point out that it is “at least equally possible” that the sequence *di-wo-pu-ka-ta* instead represents a noun phrase notated with *scriptio continua* where the first item is a GEN.SG *di-wo* /Diwos/ — attested on PY Tn 316, and in the DAT.SG *di-we* /Diwei/ on PY Tn 316, KN F 51, Fp 1, and Gq 5. This interpretation may be behind the exclusion of this item from Meixner’s (2022) recent collection of Mycenaean compounds. It may also be the case that, similarly to *i-su-ku-wo-do-to*, *di-wo-pu-ka-ta* is a univerbation of the genitive and following noun (*-puktās* ‘boxer’ = alph. Gk. πύκτης; see *DMic.* I 184 for alternative options), to be read /Diwos-puktās/, as suggested by van Beek (2022b: 89).

¹¹³ Bader (1972: 191) considers the presence of an ablative in *i-su-ku-wo-do-to* unlikely, but she crucially takes the FC as meaning ‘strength’ and reads the compound as ‘provided with strength’, which requires an instrumental rather than an ablative. If the FC instead corresponds to a ‘Mighty’ deity, this issue does not subsist.

Haug (2002: 56) is instead more hesitant to consider (85e) *di-wo-nu-so* a case of linking *-o-*, owing to some etymological difficulties posed by the theonym for Dionysus. The main problem for the identification of linking *-o-* in the compound is the length of the *-ō-* itself in Epic Greek: the theonym appears as Διώνυσος in the *Iliad* (3×), in the *Odyssey* (1×), in Hesiod’s *Theogony* (2×) and *Works and Days* (1×), against the once-attested Διώνυσος in the *Odyssey*. This fact makes Haug posit a preform **Dīwos-nūso-* for the theonym, which could correspond exactly to the Mycenaean form. This is exactly how Meixner (2022: 141–2) reads the compound: /Dīwos-nūso-/, itself another univerbation of a genitive noun phrase **dīwós suH-nu-* ‘Son of Heaven’, with metathesis and thematization in the second member (see Dunkel 1995 for this etymology).

In his recent collection and analysis of Mycenaean compounds, Meixner (2022) points out several times that “die Annahme eines unetymologischen Fugenvokals /-o-/ ist problematisch. Zwar tritt ein solcher im Alph.-gr. üblicherweise an ein athematisches Vorderglied, lässt sich aber im Myk. nicht mit Sicherheit nachweisen” (2022: 95, 239, 414). As has emerged from the present discussion, most forms that might display linking *-o-* are best taken as reflecting a vocalized sonorant or as *Kasuskomposita*. The best candidates for this pattern are, in Meixner’s opinion, two somewhat obscure personal names attested at Knossos: *wi-jo-ka-de* (KN 1×) and *wi-jo-qo-ta* (KN 2×), both lacking a secure interpretation according to *DMic.* II 431.

The form NOM.SG *wi-jo-ka-de* likely belongs to a shepherd (see Landenius Enegren 2008: 185) and is tentatively interpreted by Meixner as /Wī-o-kād-ēs/ — comparable to alph. Gk. Ἰο-καῶδης, attested once around 359 BCE (see *LGN* III.A 220) — with the meaning ‘he who exercises care with strength/power’ (cf. alph. Gk. καὶδης ‘care (for something), anxiety’). The FC would be another

instantiation of the abovementioned stem for ‘strength’ found in alph. Gk. ῥῖς ‘sinew; strength’ etc. — attested in personal names such as Ἰόλαος.

Alternatively, Meixner contemplates a reading /Wio-kādēs/ ‘one who exercises care deliberately/willingly’, in which the FC reflects a stem related to alph. Gk. ἰότης ‘will, desire’. Beekes (*EDG* 595–6) considers the etymology of ἰότης uncertain, with two available possibilities: 1) a relation to Ved. *√iṣ* ‘seek, wish’ (< **h₂eis-*; see *EWA* I 270–1, *LIV*² 260), either through a stem **h₂iso-teh₂t-* or **h₂isto-teh₂t-* (cf. Ved. *iṣṭá-*) “avec superposition syllabique” (Chantraine, *DELG* 466); 2) one to ἱεμαι ‘hasten, desire’, in turn related to Ved. *véti* ‘pursue’, Lith. *výti* ‘hunt, pursue’, and perhaps Latin *in-vī-tus* ‘unwilling’, with the initial aspiration extended from ἱημι ‘release, let go’ (see *EDG* 579). Only the second etymology would be compatible with the Mycenaean form, on account of the initial *w*-glide, but the long *ī* in ἱεμαι vis-à-vis the short one in ἰότης remains a problem. In favor of a *w*-initial preform is, according to Beekes, the Boeotian personal name Θειο-φίτοτος, which is however given as Θειοζίτοτος²/Θειοφιτοτος² in *LGPN* III.B 187, while *SEG* 19: 348 reads Θειο.ιοτ[– –] (see Scarborough 2023: 186 and fn. 208).

As for NOM.SG *wi-jo-qo-ta* (KN 2×), GEN.SG *wi-jo-qo-ta-o* (KN 2×), Meixner (2022: 415–7) offers three tentative readings for its FC: the abovementioned /Wī-o-/ ‘strength’ (~ ῥῖς ‘sinew; strength’) and /Wi-o-/ ‘will’ (~ ἰότης ‘will, desire’), both with linking *-o-*, as well as /Wīho-/, related to alph. Gk. ἰός ‘poison’ (< **wīso-*, cf. Ved. *viṣá-*, YAv. *viša-*, Lat. *vīrus* ‘id.’; see *EDG* 595), in which the *-o-* would be the thematic vowel. All three options would be compatible with a second member **k^{wh}ontās* (< **g^{wh}en-* ‘slay’; see *LIV*² 218–9), matching the alph. Gk. *Kurzname* Ἰοφῶν (*LGPN* I 235, II 236, V.A 229) and Hom.+ ἀνδρεϊφόντης ‘man-slaying’: /Wī-o-k^{wh}ontās/ ‘he who kills with strength/power’; /Wi-o-k^{wh}ontās/ ‘he who kills according to his own will’ (cf. *New Docs* 1050); /Wīho-k^{wh}ontās/ ‘he who kills with poison’. A

fourth alternative according to Meixner is /Wī-o-g^wotās/ ‘he who strides with strength/power’, related to PIE *g^wem- ‘go’ (*LIV*² 209–10), with a close match in Hes.+ Ἰοβάτης.

Even with collective works on Mycenaean compounds and multiple treatments of the issue of linking *-o-* in this material, the *status quaestionis* has not shifted dramatically from Lejeune’s assessment. The available data is at best ambiguous — be it from a graphic, phonological, or morphological standpoint — and even the “best candidates” that may attest linking *-o-* in connection to consonant-ending FCs are philologically difficult and ultimately inconclusive for attributing this feature to Mycenaean. These empirical circumstances suggest that linking *-o-* is either a non-Mycenaean feature or one *in statu nascendi*, restricted to compounding and only observed in a few forms. For the sake of completeness and transparency, in the synoptic Table 3 below I provide a list of all Mycenaean compounds that may contain linking *-o-* but at the same time be interpreted otherwise, based on the works discussed in this section. I include the forms I have already assessed individually as well as additional items that pose similar interpretative problems.

Table 3: Mycenaean compounds potentially displaying linking *-o-*, with alternative interpretations

A. FCs with final vocalized sonorant

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>a-mo-ke-re-[we]</i>	Ar(h)mo-klewēs	PERSONAL NAME	ἄρμα ‘chariot’	PY Nn 831 (H 1)
<i>a-no-me-de</i>	Anor-mēdēs	PERSONAL NAME	ἀνὴρ ‘man’	PY Jn(2) 706 (H 21)
<i>a-no-qa-si-ja</i>	anor-k ^{wh} asiās	GEN.SG manslaughter	ἀνδροφονία ‘id.’	PY Ea 805 (H 43)
<i>a-no-qo-ta</i>	Anor-k ^{wh} ontās	PERSONAL NAME	ἀνδρεϊφόντης	KN 7× (see §1.4.1)
<i>a-no-qo-ta-o</i>	Anor-k ^{wh} ontāo	NOM.SG, GEN.SG	‘man-slaying’	KN 3× (see §1.4.1)

<i>a-re-po-zo-o</i>	aleip ^h o-d ^z ohos	unguent boiler	ἄλειφαρ ‘unguent’	PY Ea 812, 820 (H 43), 374 (H 21 [?])
<i>e-ke-ro-qo-no</i> ¹¹⁴	enk ^h ehro-k ^w oinoi /-ōn	wage earner NOM.PL, GEN.PL	ἐγχειρέω ‘take in one’s hand’	PY Aa(2) 777, 854 (H 1), Ab 559, 563 (H 21), An(1) 199 (H 1), Ad 691 (H 23)
<i>e-ne-wo-pe-za</i>	e(n)newo-ped ^z a	nine-footed	ἐννέα ‘nine’	PY Ta 642 2×, 713 2×, 715 2× (H 2)
<i>e-ne-wo-pe-zo</i>	e(n)newo-ped ^z ō	NOM.SG.F, NOM.DU.F		
<i>ke-ro-ke-re-we-o</i>	K ^h ehro-klewehos	PERSONAL NAME	χείρ ‘hand’	PY Sa(1) 487 (H 26)
<i>ma-to-ro-pu-ro</i>	Mätro-pulos	PLACE NAME	μήτηρ ‘mother’	PY Cn(2) 595 (H 1)
<i>qe-to-ro-po-pi</i>	k ^w etro-popp ^h i	INS.PL quadruped	τετράπους ‘quadruped’	PY Ae(1) 27, 108, 134, 489 (H 42)

B. <o> at the end of FC is a dummy vowel

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>a-pu-ko-wo-ko</i>	ampuk-worgoi	NOM.PL headband maker	ἄμπυξ ‘headband’	PY Ab 210 (H 21), Ad 671 (H 23)

C. Phrases with *scriptio continua* or *Kasuskomposita*

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>a-ne-mo-i-je-re-ja</i>	anemōn hierēia	priestess of the winds	ἄνεμος ‘wind’	KN Fp(1) 1, ¹¹⁵ 13 2× (H 138)
<i>a₂-rō[]u-do-pi</i>	haloh-udopp ^h i	INS.PL aquamarine	ἅλς ‘salt; sea’	PY Ta 642 (H 2)
<i>di-wo-nu-so</i>	Diwos-nūsōi	Dionysus	Διώνῡσος, Διόνῡσος	KH Gq 5 (H 1KH [?]), PY Ea 102 (H 43), Xa 1419 (H 47)
<i>di-wo-nu-so-jo</i>	Diwos-nūsoio	DAT.SG, GEN.SG		

¹¹⁴ In this compound, Meixner (2022: 157–8) posits a thematic *Kompositionssuffix* -o-, distinguished from an unetymological *Fugenvokal* in his account.

¹¹⁵ On this tablet, the phrase is notated without *scriptio continua* and with the first word in larger characters — *a-ne-mo* , / *i-je-re-ja* in the edited text (see *KT*⁶ 166).

<i>di-wo-pu-ka-ta</i>	Diwos puktās	boxer of Zeus	Ζεὺς, GEN.SG Διός	KN Fp(2) 363 (H 222)
<i>e-re-wi-jo-po-ti-ni-ja</i>	Helēwiōn potniāi	Mistress of H.	————	PY Vn(1) 48 (H 48)
<i>e-to-wo-ko</i> ¹¹⁶	entos-worgoi/-ōi	inside worker	ἐντός ‘inside’	KN Fh 462 (H 141 ³), PY An
<i>e-to-wo-ko-i</i>	entos-worgoihi	NOM.PL, DAT.SG, DAT.PL		39 2× (H 9 and 10), Fn(1) 79 (H 45), Fn(2) 50 (C iii)
<i>i-su-ku-wo-do-to</i>	(h)Isk ^h uos-dotōi	DAT.SG PERSONAL NAME	ἰσχὺς ‘strength’	KN Fh 348 (H 141)
<i>po-re-no-tu-ṭe[ri-ja]</i>	p ^h orēnōn t ^h utēria	sacrifice of human offerings/offerers [?]	φορέω ‘carry’, θυτήρ ‘sacrificer’	PY Ua 1413 (H 15)
<i>po-re-no-zo-te-ri-ja</i>	p ^h orēnōn dzōstēria	binding of human offerings/offerers [?]	φορέω ‘carry’, ζωστήρ ‘belt’	PY Un(2) 443 (H 6)
<i>ru-ko-a₂-ḱe-re-u-te</i>	lunkoh-agreu-t ^h en	PLACE NAME + ABL -t ^h en	λύγξ ‘lynx’, ἀγρός ‘field’	PY Jn(1) 415 (H 2)
<i>se-re-mo-ka-ra-a-pi</i>	seirēmos-krāhapp ^h i	siren head	Σειρήν ‘Siren’,	PY Ta 707, 708, 714 (H 2)
<i>se-re-mo-ka-ra-o-re</i>	seirēmos-krāhorei	INS.PL, INS.SG	κεῖς ‘head’	
<i>tu-wo-te-to</i>	t ^h uwos t ^h ento	“they performed a sacrifice”	θύος ‘burnt sacrifice’	TH Fq 126 (H 305)

D. *ā*-stem to *o*-stem FC

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>ko-to-no-o-ko</i>	ktoino-hok ^h os /-on/-ōi	ktoinā holder NOM.SG, ACC.SG, DAT.SG	Rhod. κτοίνᾱ ‘township’	PY Eb 12×, Eo 1× (H 41), Ep 9× (H 1)
<i>o-ro-do-ko</i>	Hōro-dok ^(h) os	PERSONAL NAME	ὥρᾱ ‘season’	PY Vn(1) 865 (H 48)

¹¹⁶ This item is included in this section but is technically an adverbial compound already in Mycenaean. Historically, it features an ablative suffix **-tos* used locatively, probably extended already in PIE from its antonym **éǵʰs-tos* ‘outside’ (see *LIPP* II 206, 226 with fn. 33; cf. Myc. *e-ko-so-wo-ko* [eksō-worgoi/ NOM.PL ‘outside-worker’, alph. Gk. ἐκτός ‘outside’]).

E. “Good candidates”

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>wi-jo-ka-de</i>	Wio-kādēs	PERSONAL NAME	ἰότης ‘will, desire’	KN Db 1155 (H 117)
<i>wi-jo-qo-ta</i>	Wiho-k ^{wh} ontās	PERSONAL NAME	ἰός ‘poison’	KN Db 1305 (H 117),
<i>wi-jo-qo-ta-o</i>	Wiho-k ^{wh} ontāo	NOM.SG, GEN.SG		Dq(3) 1026, 7852 (H 217 ^(?)), Ld(1) 598 (116)

4.2.2 -C-went-stems in Mycenaean

The PIE suffix **-went-* formed qualitative possessive denominal adjectives, i.e. describing their referent as ‘provided with, full of, rich in’ the notion of their base noun (see Lundquist and Yates 2018: 2116). This suffix is mostly attested in Greek, Indo-Iranian, and Anatolian, both in primary and non-primary formations.¹¹⁷ Sanskrit also preserves traces of an allomorph **-ment-*, for whose distribution see Sandell 2016. Examples are given in (86).

(86) Primary (a) and non-primary (b–f) **-went*-formations in Indo-European

- a. Ved. *padvánt-*, Myc. *pe-de-we-sa* ‘having feet’ <(<) **ped-went-*
- b. Ved. *devávant-* ‘having gods’ (← *devá-* ‘god’) < **-o-went-*
- c. Gk. *νικήεις* ‘victorious’ (← *νίκη* ‘victory’) < **-eh₂-went-*
- d. Hitt. *ēšharwant-* ‘bloody’ (← *ēšhar* ‘blood’) < **-r/n-went-*

¹¹⁷ See Buck and Petersen 1945: 460–3, Lejeune 1958, and Risch 1974: 141–6 for Greek; Bender 1910 for Indo-Iranian; Maier 2013 and Bondi 2020 for Anatolian. Possibly, the suffix is also reflected in Latin *-ulentus* (e.g. *corpulentus* ‘corpulent’) via **-o-went-os* (see Weiss 2020: 317). For some relics of **-went-* in Thracian and Slavic onomastics, see Loma 2020.

- e. Ved. *tápasvant-* ‘having heat’ (← *tápas-* ‘heat’) < *-*e/os-went-*
- f. Ved. *mádhumant-* ‘honeyed’ (← *mádhu-* ‘honey’) < *-*u-ment-*

In Greek, the inherited alternation between full grade *-*went-* and zero grade *-*w̥nt-* was levelled out in favor of the *e*-grade both throughout inflection (e.g., NOM.SG.M *-*went-s* > -(f)εἰς, gen.sg.m *-*w̥nt-os* >> -(f)εντος, ⤴ x-(f)ατος) and across genders (e.g., NOM.SG.F *-*w̥nt-ih₂* >> *-*went-ya* > -(f)εσσα, ⤴ x-*wat-ya* > x-(f)ασσα). This analogical levelling was completed before the Mycenaean records, even though some traces of different ablaut grades can be found in conservative lexical categories. Namely, the *o*-grade *-*wont-* is reconstructed in approximately ten Mycenaean toponyms, e.g. *ne-do-wo-te* /Nedwontei/ LOC.SG (cf. alph. Gk. Νέδων, river in Messenia), while the zero-grade may be attested, at least according to Heubeck (1963b), in the ethnic adjective/personal name *ti-nwa-si-jo* /T^hinwasios/ ‘full of sand’ (< *-*w̥nt-yo-*; cf. alph. Gk. θίς ‘sand’). In what follows, I present the data for the productive *-*went-* stem adjectives whenever built on consonant stems. In this context, linking -*o-* is not attested and -*Cw-* clusters are tolerated, unlike in 1st-millennium Greek, including Homer (see Lejeune 1958: 10). In other morpho-phonological contexts, such as *o-* and *ā-* stems, *-*went-* stems behave in essentially the same way in Mycenaean and later Greek. The following material has been collected from Lejeune 1958 and Bartoněk 2003: 182–3, 236–9.

4.2.2.1 *odat-/odak-went-* ‘provided with teeth’

o-da-twe-ta /*odatwenta*/ NOM.PL.N: KN So 8561 (H –), So(1) 4430, 4432, 4436, 4440, 4441 (H 130); *o-da-tu-we-ta* /*odatwenta*/ NOM.PL.N: KN So 894 (H –)

o-da-ke-we-ta /*odakwenta*/ NOM.PL.N: KN Sf 1811 2× (H –), So(2) 4446 (H 131); *o-da-ku-we-ta* /*odakwenta*/ NOM.PL.N: KN L 870 (H 114), So 4435 (H 231)

These forms appear in tablets listing wheels and designate “those in which the spoke “bites” the hub” (Bernabé and Luján 2008: 208; cf. §4.4.1 below). Morphologically, we observe two lexically equivalent stems being used as bases: /odat-/, belonging with alph. Gk. ὀδούς ‘tooth’ (stem ὀδοντ-) but going back to a zero grade **h₁d_hnt-* (or **h₃d_hnt-*; see EDG 1049 s.v. ὀδών and 1047–8 s.v. ὀδύνη); /odak-/, belonging with alph. Gk. ὀδᾶξ ‘by biting with the teeth’.¹¹⁸

4.2.2.2 ped-went- ‘provided with feet’

pe-de-we-sa /pedwessa/ NOM.SG.F: PY Ta 709 2× (H 2)

In both its occurrences, this adjective designates a brazier (*e-ka-ra* /esk^harā/, cf. alph. Gk. ἐσχάρᾱ ‘hearth; brazier’) ‘with feet’, i.e. ‘legs’ (see Bernabé and Luján 2008: 226). Belonging with alph. Gk. πούς ‘foot’, this form matches Ved. *padvánt-* ‘having feet’, save for the abovementioned reshaping of the feminine stem.

4.2.2.3 termid-went- ‘provided with wedges’

te-mi-dwe /termidwen(t)/ NOM.SG.N: KN So 894 (H –); *te-mi-dwe-ta* /termidwenta/ NOM.PL.N: KN So 894, 1053 (H –), So(1) 4429, 4448, 4449 (H 130), So(2) 4431, 4434, 4439, 4445 (H 131); PY Sa(1) 791, 793 (H 26); *te-mi-dwe-te* /termidwente/ NOM.DU.N: KN So(1) 4437 (H 130), So(2) 4433 (H 131); *te-mi-de-we-te* /termidwente/ NOM.DU.N: PY Sa(1) 1266 (H 26), likely also on KN Sf 1811 (H –), erroneously spelled]*tē-mi-we-te*¹¹⁹

¹¹⁸ Whether ὀδούς and ὀδᾶξ are etymologically related is somewhat unclear, and openly challenged by Beekes (EDG 1046), who thinks they were only secondarily associated by speakers via folk-etymology. This question, however, is not particularly relevant for present purposes.

¹¹⁹ See §4.4.1 below for a detailed philological discussion of this attestation.

This adjective is in complementary distribution with *o-da-twe-ta+* as it designates a different type of wheels, in which “the joining of the spoke to the hub was secured through some kind of wedges or chocks” (Bernabé and Luján 2008: 208). Its base appears elsewhere in Mycenaean in the phrase *o-u-(ki-)te-mi /ou(ki) termis/* ‘without support’ with reference to tables (KN 5×). As I discuss below in §4.4, an adjective *τερμίοεις* ‘edged; fringed’ is attested in Homer, likely corresponding to this Mycenaean form.

4.2.2.4 *tork^wid-went-* ‘provided with spirals’

to-qi-de-we-sa /tork^widwessa/ NOM.SG.F: PY Ta 711 (H 2)

Referred to an ewer ‘decorated with spiral motifs’, this form is a derivative of Myc. *to-qi-de /tork^widei/* DAT.SG ‘spiral (motif)’ (cf. alph. Gk. *τροπὶς* ‘keel of a ship’; see Piquero 2021: 46, Sabattini 2023: 139–40). Already presented in §1.4.1, both forms are attested in the PY Ta series, i.e. a catalogue of furniture and ritual paraphernalia.

4.2.2.5 *Dubia*

au-de-we-sa- NOM.SG.F: PY 709 (H 2)

Of unclear interpretation, this form refers to the same brazier the above *pe-de-we-sa* describes. It seems to belong synchronically with *au-de-pi*, likely INS.PL, as both forms appear in the abovementioned PY Ta series and describe some decorations inlaid onto the surface of furniture (see Piquero 2021: 46). As is the case of *to-qi-de-we-sa* and *to-qi-de* above, the **-went*-adjective is used interchangeably with the dative/instrumental of its base to describe objects on the catalogue. Formally, the spelling of *au-de-we-sa* could theoretically represent a sequence */audwesa/ vel sim.*, but that of *au-de-pi* would maybe point to an *s*-stem */audesph^hi/* (cf. §4.2.3) — but this is pure speculation.

pe-ne-we-ta NOM.PL.N: KN L 871 (H 114), L(2) 593 (H 103), Ld(1) 571, 572 (H 116); *pe-ne-we-te* NOM.DU.N: KN L(2) 5108 (H 103)

Attested on tablets referring to textiles, this form is likely a technical term designating some sort of sleeves but lacks correspondents in 1st-millennium Greek (see Luján 1996/1997: 359). The previously proposed interpretation, in fact, is at odds with the *e*-vocalism in *pe-ne-*: /sp^hēn-wenta/ ‘with wedges’ is based on alph. Gk. σφῆν ‘wedge’, which crucially reflects *σφᾱ́ν (or *σφᾱνσ- or σφᾱ-ην; see EDG 1430) and would therefore be notated **pa-na-* in Mycenaean.

4.2.2.6 A potential case of linking -o-

o-wo-we NOM.SG.M /ohwovens/ or /oiwohwēs/: PY Ta 641 (H 2)

The traditional interpretation of this term is /oiw-ōhwēs/, an *s*-stem compound adjective of **oi-wo-* ‘one, only’ (cf. alph. Gk. οἶος ‘alone, only, single’) and **h₂ows-* ‘ear → handle’ (cf. alph. Gk. οὔς ‘ear’), meaning ‘with a single handle’ (Aura Jorro 1996: 183–4; Panagl 2007: 222; Duhoux 2008: 321; Ruijgh 2011: 262–3; van Beek 2013: 40). The term appears on the known ‘tripods tablet’, a list of vessels within the mentioned PY Ta series, whose text, transcription and translation are given in (87).

(87) Text, transcription, and translation of PY Ta 641 (after PT³ 189, Varias 2019: 555, and *New Docs* 784)

- .1a , ke-re-a₂ , **201*^{VAS} [
- .1b ti-ri-po-de , a₃-ke-u , ke-re-si-jo , we-ke **201*^{VAS} 2 ti-ri-po , e-me , po-de , o-wo-we **201*^{VAS} 1 ti-ri-po , ke-re-si-jo , we-ke , a-pu , ke-ka-u-me-ṇo[
- .2 qe-to **203*^{VAS} 3 di-pa , me-zo-e , qe-to-ro-we **202*^{VAS} 1 di-pa-e , me-zo-e , ti-ri-o-we-e **202*^{VAS} 2 di-pa , me-wi-jo , qe-to-ro-we **202*^{VAS} 1 [
- .3 di-pa , me-wi-jo , ti-ri-jo-we **202*^{VAS} 1 di-pa , me-wi-jo , a-no-we **202*^{VAS} 1

- .1a *skeleha* * $\zeta\phi$ ^{VAS} [
- .1b *tripode aigeus krēsiowergēs* * $\zeta\phi$ ^{VAS} 2 *tripōs hemei podei ohwowens/oiwōhwēs* * $\zeta\phi$ ^{VAS} 1 *tripōs krēsiowergēs apu kekaumenos* [
- .2 *k^wet^hoi* * $\zeta\phi$ ^{VAS} 3 *dipas med^zohes k^wetrōhwēs* * $\zeta\phi$ ^{VAS} 1 *dipahe med^zohe triōhwehe* * $\zeta\phi$ ^{VAS} 2 *dipas meiwios k^wetrōhwēs* * $\zeta\phi$ ^{VAS} 1 [
- .3 *dipas meiwios triōhwēs* * $\zeta\phi$ ^{VAS} 1 *dipas meiwios anōhwēs* * $\zeta\phi$ ^{VAS} 1
- .1 Two tripods of Cretan workmanship, with goat protomes; one tripod with a single foot and **with handles/one handle**; one tripod of Cretan workmanship, burnt away at the legs.
- .2 Three jars; one larger-sized *di-pa* vessel with four handles; two larger-sized *di-pa* vessels with three handles; one smaller-sized *di-pa* vessel with four handles.
- .3 One smaller-sized *di-pa* vessel with three handles; one smaller-sized *di-pa* vessel without handles.

In the traditional account, the form describes a tripod as having just one handle, matching the fact that the same vessel is also missing two feet (*e-me po-de* /hemei podei/ ‘with one foot’). Moreover, the formation of the adjective would match the other *-o-we* forms in the tablet: *a-no-we* /anōhwēs/ NOM.PL.M ‘without handles’, *ti-ri-jo-we* /triōhwēs/ NOM.PL.M ‘with three handles’, *qe-to-ro-we* /k^wetrōhwēs/ NOM.PL.M ‘with four handles’. An alternative interpretation of the form is put forward by Haug (2002: 56), whereby *o-wo-we* would correspond to /ohwowens/ NOM.SG.M ‘provided with handles’, a **-went*-stem adjective from the same stem for ‘ear; handle’ as above, with an early example of linking *-o-*. This etymology has however been refined by de Lamberterie (2009), who derives the adjective from the *n*-enlarged stem **h₂ows-n-* (**h₂owsn^h-went-*) and argues that the */-o-/* is not a linking vowel but rather the phonological outcome of PIE **h₂* in Mycenaean when adjacent to labial segments (cf. alph. Gk. οἶς ‘ear’, GEN.SG οὐατος; see also van Beek 2022b: 89). De Lamberterie (2009) points out that the traditional derivation from **oi-wo-* ‘one, only’ conflicts with the meaning of οἶος in 1st-millennium Greek, where it usually means ‘alone;

on its own’ and never has a contrastive function as a numeral ‘one’ in opposition to, e.g., ‘three’ or ‘four’ — as here in PY Ta 641. On the other hand, his proposed reading ‘with handles’ matches the content of the tablet as an antonym of *a-no-we* ‘without handles’.¹²⁰ Whereas the traditional account does not qualify this form as a **-went*-derivative, I follow de Lamberterie in taking *o-wo-we* as another case of (historical) **-C-went*-stems in Mycenaean, the only attested one where the consonant, being a sonorant, has vocalized. This aspect will be relevant for my analysis in Chapter 5.

4.2.3 Mycenaean *-pi* / *-p^{hi}* / in consonantal stems

Mycenaean *-pi* / *-p^{hi}* / is an instrumental and locative plural marker, predominantly suffixed to athematic nominal stems (see Hajnal 1995: 131–51; Thompson 1998; Goldstein 2020). Although it is generally read as /*-p^{hi}*/ (see *Docs*² 403; Hajnal 1995: 133; Miller 2014: 294; *New Docs* 238–43), some prefer to transcribe it as /*-p^{his}*/ on account of its most likely PNIE antecedent **-b^{hi}is* (see Jasanoff 2009: 143; Barnes 2016: 26). The traditional account is based on its similarity with Homeric *-φι(ν)*, ostensibly lacking a final sibilant, and the fact that the ending itself may derive from the PIE adverbial suffix **-b^{hi}i* (see, e.g., Hitt. *kuwapi* ‘when, where’, Ved. *abhi* ‘towards’, Gk. *ἀμφί* ‘on both sides (of)’). Goldstein (2020: 31–3), whose account I follow here, has convincingly argued that Mycenaean *-pi* / *-p^{hi}* / (and Homeric *-φι(ν)*) may still derive from PNIE **-b^{hi}is*, which matches its morphosyntax more closely, with *s*-loss by analogy to the athematic dative plural ending *-si* / *-si* / = Hom. *-σι(ν)* happening before or after Mycenaean.

¹²⁰ De Lamberterie’s (2009) further argument that the logogram for the *o-wo-we* tripod clearly depicts two handles is perhaps less cogent, as the scribe has also drawn three feet even though the vessel is clearly described as having just one (*e-me po-de*). See Piquero 2019: 369–70; *New Docs* 784.

Whenever *-pi* /-p^{hi}/ is attached to consonantal stems in Mycenaean, no linking *-o-* is attested. According to Hajnal (1995: 291 fn. 369), this fact is historically significant: *-p^{hi}* originally belonged in athematic stems, and only after the development of linking *-o-* in 1st-millennium Greek was it extended to the thematic declension. Since linking *-o-* had not yet developed in Mycenaean, the limitation to *ā-* and consonant stems was still active. What follows is the full conspectus of *-pi* /-p^{hi}/ attestations in consonantal stems, sourced from Hajnal 1995: 133–51, Goldstein 2020: 4–9, and the DAMOS database (see Aurora 2015). Since the material is relatively straightforward, I present it in a table format (Table 4).

Table 4: Mycenaean *-pi* /-p^{hi}/ in consonantal stems.

FORM	TRANSCRIPTION	GLOSS	ALPH. COMPARANDA	ATTESTATIONS
<i>a-di-ri-ja-pi</i>	andriam-p ^{hi}	INS.PL ‘human figure’	ἀνδριάς ‘statue of a man’	PY Ta 708, 714 (H 2)
<i>au-de-pi</i>	audes-p ^{hi} ?	INS.PL ‘?’	————	PY Ta 642, 707 2×, 708, 710, 721 5× (H 2)
<i>e-ka-ma-pi</i>	ek ^h ma(p)-p ^{hi}	INS.PL ‘table support’	ἔχμα ‘that which holds’	PY Ta 713 2×, 715 (H 2)
<i>pa-ki-ja-pi</i>	sp ^h agiam-p ^{hi}	LOC.PL ‘place for slaughter’	σφάζω ‘slaughter’, Σφακτηρία PLACE NAME	PY Eb 338 (H 41), Jn(1) 829, Ma 221 (H 2)
<i>]pa-we-pi</i>	p ^h arwes-p ^{hi}	INS.PL ‘garment’	φᾶρος ‘cloak’	KN L 104 (H 124-X)
<i>po-ni-ki-pi</i>	p ^h oinik-p ^{hi}	INS.PL ‘palm (motif)’	φοῖνιξ ‘date-palm’	PY Ta 714 2× (H 2)
<i>po-pi</i>	pop-p ^{hi}	INS.PL ‘foot’	πούς ‘foot’	PY Ta 642 (H 2)
<i>qe-to-ro-po-pi</i>	k ^w etropop-p ^{hi}	INS.PL ‘quadruped’	τετράπους ‘quadruped’	PY Ae(1) 27, 108, 134, 489 (H 42)
<i>te-u-ke-pi</i>	t ^h euk ^h es-p ^{hi}	INS.PL ‘implement’	τεῦχος ‘implement’	PY Ub 1315 (H 31)

4.3 The Status of Linking *-o-* in Homer

4.3.1 Homeric compounds

Linking *-o-* in Homeric compounds is ostensibly very frequent, but it is neither ubiquitous nor fully regularized. The evidence includes stems consistently attested with the linking element, stems consistently lacking it, and at least one instance of token-level variation within the same stem. At the same time, the distribution does not map straightforwardly onto the affiliation of bases to particular morphological classes, as stems belonging to the same class — chiefly the *s*-stems — behave differently. This already suggests that a purely morphological account is unlikely to be sufficient, and that at least part of the distribution may instead reflect phonologically conditioned outcomes.

A formal treatment of this problem is offered in Chapter 5. The purpose of the present discussion is to survey the main empirical tendencies that emerge from the material and to outline, in a preliminary and intentionally pre-theoretical way, the kinds of conditioning factors that appear to be operative in the distribution of linking *-o-*. In (88), I therefore list all the consonant-ending FCs included in my dataset. Many of these FCs are attested in multiple compounds, which I discuss selectively here and list exhaustively in the synoptic Table 5. The data are sourced from van Strien-Gerritsen's (1973) collection of Homeric compounds; for the Iliadic evidence, I could also benefit from Elisa Migliaretti's preliminary dissertation materials (Migliaretti forthcoming), which have allowed me to double check van Strien-Gerritsen's work and include some items missing from her dataset — mostly onomastic compounds.

(88) Consonant-ending FCs in Homeric compounds

a. Always with linking -o-

- | | |
|--|---|
| i. αἷμα 'blood' → αἶμο ^ο | ii. ἄκμων 'anvil' → ἄκμο ^ο |
| iii. μήτηρ 'mother' → μητρο ^ο | iv. πατήρ 'father' → πατρο ^ο |
| v. ἀνήρ 'man' → ἀνδρο ^ο | vi. εἶρος 'wool' → εἶρο ^ο |
| vii. κλέ(φ)ος 'fame' → κλε(φ)ο ^ο | viii. μένος 'spirit' → μενο ^ο |
| ix. σκῦτος 'skin, hide' → σκυτο ^ο | x. ἔλος 'marshland' → ἔλεο ^ο |
| xi. κέρας 'horn' → κεραο ^ο | xii. ἄήρ 'mist' → ἡερο ^ο |
| xiii. κύων 'dog' → κυνο ^ο | xiv. ἄρμα 'chariot' → ἄρματο ^ο |
| xv. ὕδωρ 'water' → ὕδατο ^ο | xvi. παῖς 'child' → παιδο ^ο |
| xvii. φοῖνιξ 'purple' → φοινικο ^ο | xviii. γάλα 'milk' → γλακτο ^ο |
| xix. Ζεύς 'Zeus' (*diw-) → δι(φ)ο ^ο | xx. δόρυ 'spear' (*dornw-) → δουρο ^ο |

b. Never with linking -o-

- | | |
|---|---|
| i. πάλιν 'back; again' → παλιν ^ο | ii. πᾶς 'all' → παν ^ο |
| iii. χεῖρ 'hand' → χερ ^ο | iv. πῦρ 'fire' → πυρ ^ο |
| v. πύξ 'with the fist' → πυγ ^ο | vi. ἔπος 'word' → ἐπεσ ^ο |
| vii. ἔγχος 'spear' → ἐγχεσ ^ο | viii. *d ^h h ₁ s- (cf. θεός 'god') → θεσ ^ο |
| ix. ἡώς 'dawn' → ἑωσ ^ο | x. ὄρος 'mountain' → ὄρεσ ^ο |
| xi. σάκος 'shield' → σακεσ ^ο | xii. τέλος 'end' → τελεσ ^ο |

c. Variation observed

- i. μέλας 'black' → μελαν^ο/μελανο^ο

4.3.1.1 FCs with potential syllabic sonorants

Among the forms that do attest linking *-o-* (88a), a first group can be set apart (i–v) as potentially matching a phonological context already identified in the Mycenaean material. Without linking *-o-*, the stem-final sonorant (/n/ or /r/) in these forms would surface between consonants, which historically would create the context for vocalization. This group includes the neuter **-men-*stem αἶμα in αἶμο-φόρυκτος ‘defiled with blood’, the **-mon-*stem ἄκμων in ἄκμό-θετον ‘anvil block’, and the *r-*stems μήτηρ (in μητρο-πάτωρ ‘mother’s father), πατήρ (in, e.g., πατρο-φονεύς ‘father murderer’) and ἀνὴρ (in, e.g., ἀνδρο-φόνος ‘man-slaying’). The presence of a vocalized sonorant in these compounded forms has been claimed previously by Bader (1969/1970), who explores two possible analyses.

The first is to treat the */-o-/* in these compounds as a bona fide linking vowel. Under this view, the compositional stem would have to be derived from the prevocalic counterpart of the preconsonantal FC. Such an analysis is relatively straightforward for the *r-*stems, as the prevocalic compositional form matches the zero-grade stem in the inflected forms of the bases: e.g., GEN.SG ἀνδρ-ός, μητρ-ός, πατρ-ός — matching, respectively, Homeric ἀνδρ-άγρια ‘spoils of a slain enemy’ (*Il.* 1×) and Aeschylean μητρ-αλοίας ‘matricide’ and πατρ-αδέλφεια ‘cousin on the father’s side’ (see Bader 1969/1970: 15–20). As for the *n-*stems, the sources of the extended FCs must be compounds such as ἄρμ-άμαξα ‘covered carriage’ (Hdt.+), in which the vocalized **-n > -a* is regularly elided before the following vowel. This would then be the shape of the FC to which linking *-o-* is attached, apparently “replacing” the original vowel. This analysis could explain αἶμο-φόρυκτος in my dataset, but it would require assuming an unattested prevocalic FC **αἶμ^o* or the extension of this pattern from other *-μα* action nouns (see

Bader 1969/1970: 24–7). In fact, in prevocalic position only the *t*-enlarged version of this stem, αἶματ^ο, is attested — as in αἶματ-ώδης ‘looking like blood’ (Thuc.) and αἶματ-ωπός ‘bloody to behold’ (Eur.).

The case of ἄκμό-θετον is somewhat more problematic, since **-mon*-stems in Greek generally exhibit an opposition between full and lengthened grade (*-mōn-/mon-*; e.g., ἡγεμῶν, GEN.SG ἡγεμόνος ‘leader’ and ἄκμων, GEN.SG ἄκμονος) rather than between full and zero grade (*-mon-/*-mn-*) — if not the generalization of the lengthened grade throughout the paradigm (e.g., χειμῶν, GEN.SG χειμῶνος ‘winter’). Bader’s (1969/1970: 24) solution is to posit an otherwise unattested parallel -μα formation that could have supplied the synchronic zero-grade base for compounding, comparable to cases such as χεῖμα ‘cold, frost’ ~ χειμῶν ‘winter’ or τέρμα ‘boundary’ ~ τέρμων ‘id.’.

The case of ἄκμων is especially problematic for this type of argument. As Yates (2022: 214–8) points out, a pattern of internal derivation whereby **-mon*-stems are created from cognate **-men*-stems is well established in the scholarship and supported both by attested nominal pairs (such as the Greek cases mentioned above) and by reconstructed formations — e.g., **klew-* ‘hear’ ⇒ **kléu-men-* (> YAv. *sraoman-* ‘hearing’) ⇒ **kleu-món-* (> Toch. B *klyomo* ‘noble’). PIE **h₂ék-mon-*, however, lacks a cognate neuter **-men*-stem (i.e., the ancestor of the **-μα* formation posited by Bader) in all Indo-European languages. According to Yates (2022: 222–4), this absence is unlikely to be accidental for several reasons. First, neuter **-men*-stems were chiefly derived from verbal roots, whereas **h₂ék-* ‘sharp, pointed’ lacks securely reconstructible verbal forms. Second, the semantic relationship between **h₂ék-* ‘sharp, pointed’ and **h₂ék-mon-* ‘stone; heaven’ is difficult to establish. Finally, **h₂ék-mon-* displays a different prosodic behavior from established cases of internally derived **-mon*-stems.

The alternative analysis, preferred and extensively defended by Bader (1969/1970), takes the /-o-/ not as a linking vowel but as the direct phonological reflex of a vocalized syllabic sonorant. As mentioned, the formations in question are expected to contain a zero-grade stem with the stem-final sonorant in interconsonantal position, precisely the environment in which vocalization would arise. With the exception of ἄχμο°, the FCs in this group can therefore be derived phonologically without positing analogical extensions. Bader's (1969/1970: 24) synchronic solution for ἄχμων/ἄχμο° via a parallel ^x-μα formation is however required under this analysis as well. Although zero-grade forms are reconstructed in the inflection of PIE **-mon-*stems, including the preform of ἄχμων (e.g., ACC.SG **h₂ék-mon-m̃*, GEN.SG **h₂ék-mn-os* 'stone; sky' > Ved. *ás-mān-am*, *ás-n-as* 'stone'; see EWA I 137–8, Neri 2017: 57), equating ἄχμο° with **h₂ék-m̃*° would imply that a very deep archaism is being preserved in this FC.

The main difficulty with this analysis lies elsewhere. Claiming that the /-o-/ in these compounds reflects sonorant vocalization carries significant implications for Greek historical phonology and dialectology. The expected vocalism in the majority of Greek dialects, especially for vocalized nasals, is /a/ (cf. §1.4); in addition, the *observed* vocalism in other zero-grade formations of the same stems is also /a/: e.g., DAT.PL ἀνδράσι, πατράσι, μητράσι, αἵμασι. Reconstructing vocalized sonorants at the end of these FCs therefore implies that the alternation between /a/ and /o/ as vocalization outcomes cannot be reduced to a dialectal distribution but must be admitted within individual branches. Bader (1969/1970: 59–61), drawing on dialectal evidence beyond just Mycenaean and Homeric Greek, explicitly embraces this conclusion. Within the more restricted corpus considered here, however, such a position is not as problematic. Variation in the treatment of syllabic sonorants is independently recognized within

Mycenaean itself (see §1.4) and, at least for syllabic liquids, comparable variation has also been argued for Homeric Greek (most recently by van Beek 2022b: 291–354).

An alternative version of this account, which does not carry such implications, may be derived from a brief remark by Lejeune (*Mém.* III 175) on αἶμο-φόρυκτος (boldface mine): “Lorsque le premier terme du composé est un thème à nasale ou à liquide, son élément suffixal peut se présenter au degré zéro et comporter, de ce fait, un timbre -o- en mycénien. [...] on ne doit pas le mettre en parallèle avec les formations telles que αἶμο-φόρυκτος (v 348), αἶμό-ρρυτος (Esch.), αἶμο-σταγής (Eur.), etc., qui, au même titre que αἶματο-σταγής (Esch.), αἶματό-ρρυτος (Eur.), etc., **sont des réfections de *αἶμα-** (par substitution ou addition de la «voyelle de liaison»)." Applying Lejeune's rationale to the rest of the forms under discussion, the observed *o*-vocalism may be taken as merely secondary, extended perhaps when speakers synchronically associated linking -o- with the thematic vowel — which is compatible with my own proposal put forward in Chapter 5. What matters for present purposes is that an epenthetic vowel, regardless of its precise vocalism, was inserted in these contexts, potentially owing to the same constraint ranking that triggered sonorant vocalization (cf. *PEAK/LIQUID >> DEP-IO in §2.1).

4.3.1.2 Variation among s-stems

A second pattern worth discussing concerns the behavior of *s*-stems (88a, vi–xi). When linking -o- is attested, these forms exhibit two distinct treatments. In some compounds (88a, vi–ix), the stem-forming suffix is dropped and replaced by linking -o-, as in σκῦτ-ο-τόμος ‘leather cutter’ from σκῦτος ‘skin, hide’. In others (88a, x–xi), the suffix is retained and followed by linking -o-, with loss of the now intervocalic /s/, presumably through an intermediate stage *[h] (e.g., *heles-o-*t^h*reptós > *heleh-o-*t^h*reptós >

ἐλεόθρεπτος ‘marsh-bred’ from ἔλος ‘marshland’). The available evidence suggests that these two treatments are not freely distributed. Rather, they appear to be conditioned by the phonological shape of the second constituent. Retention of the suffix is found when the second member begins with a consonant cluster (/tʰr-/ in ἐλε-ό-θρεπτος, /ks-/ in κερα-ο-ξός ‘polishing horn’), whereas suffix loss is limited to compounds whose second member begins with a single consonant (besides mentioned σκῦτ-ο-τόμος, see εἶρ-ο-κόμος ‘dressing wool’, εἶρ-ο-πόκος ‘wool-fleeced’; the personal names Κλε(φ)-ό-βουλος, Κλε(φ)-ο-πάτρη; μεν-ο-(φ)εικής ‘agreeable’). In this same context, other *s*-stem FCs instead retain the suffix and do not develop linking *-o-* (88b, vi–xii; e.g., ἐπεσ-βολία ‘hasty speech’).

The tendency of *s*-stems to drop their stem formant in derivation and compounding has often been noted in the literature and connected with the so-called “Caland system.” Since the extensive scholarship on this aspect of Indo-European morphology cannot be discussed extensively here,¹²¹ it will suffice to characterize the Caland system as a network of roots and derivational affixes often involving replacive morphology — a mechanism first identified by Caland (1892: 266–8, 1893: 592) in Indo-Iranian and by Wackernagel (1897: 8–14) in Greek. The role of *s*-stems within this system, now significantly expanded from its original formulations, is discussed in detail by Stüber (2002) and Meißner (2006) — but cf. also Rau 2009. From Meißner (2006: 18) I take the list in (89), which conservatively includes the main Greek morphological categories involved in Caland-system alternations.

(89) Greek morphological categories in the Caland system

- a. Adjectives, sometimes nominalized, in -ρός, -νός, -ύς (inherited formations)

¹²¹ See Meißner 1998, 2006: 14–26 and Rau 2009: 67–71 for overviews of the history of scholarship on this topic.

- b. Adjectives in -αλέος, -(αλ)ιμος, -εδ(α)νός (inner-Greek formations)
- c. Linking -i- in compounding
- d. Neuter s-stem nouns in -ος
- e. Compounded s-stem adjectives in -ης
- f. Adverbs in -α

Meißner also points out that some more formations are included in the system by other scholars, such as comparatives in -ίων and superlatives in -ιστος, as well as stative verbs in *-ē- (e.g., βαρέω ‘be heavy’). A particularly illustrative example of how the Caland system works in Greek is provided by the derivatives of PIE **kewHd-* ‘glorious, wonderful’ (see *IEW* 587 and Stüber 2002: 175–6): Homeric κῦδρός (and its *varia lectio* κῦδνός in Hesiod), κῦδάλιμος (and Hes. κῦδιμος) ‘glorious’, κῦδ-ι-άνειρα ‘bringing men glory’, κῦδος ‘glory’, ἐρι-κῦδής ‘very famous’ (together with many more ^οκῦδής adjectives), κῦδ-ιστος ‘noblest’ (and Eur. κῦδίων ‘nobler’).

The Homeric s-stem FCs considered here, however, should not be identified with the inherited Caland pattern. Crucially, the linking element most closely associated with Caland formations is not -o- but -i-, which regularly replaces derivational suffixes when a Caland base appears as the FC of a compound (as in κῦδ-ι-άνειρα). What this evidence may instead reflect is a secondary extension of a pre-existing morphological tendency. If the loss of the s-stem formant in compounding was already available as a morphological strategy within the Caland system, it is conceivable that this pattern was extended beyond its original domain, combining in the Homeric tradition with the innovative use of

linking *-o-*.¹²² Such an interpretation would accord with some aspects of the evidence. First, the pattern is relatively limited in scope and does not characterize all *s*-stem compounds. Second, the nouns involved (εἶρος ‘wool’, κλέ(φ)ος ‘fame’, μένος ‘spirit’, σκῦτος ‘skin, hide’) do not belong to the canonical Caland system — generally limited to adjectival roots expressing property concepts such as color, size, and dimension (see Nussbaum 1976 and Rau 2009: 77–126).

Rather than representing a direct continuation of inherited Caland morphology, the Homeric forms may therefore instantiate an analogical extension of a morphological operation that was available within the poetic grammar. Synchronically, this would imply that the deletion of the *s*-stem formant in FCs was a productive, or at least accessible, option in the repertoire of epic poets. A potentially comparable case is discussed by Meißner (2006: 50). He points out that, if ἐχθρός ‘hostile, hated’ continues **eks-tro-*, the coexistence of this adjective with the related *s*-stem noun ἔχθος ‘hatred’, the comparative ἐχθίων, and the superlative ἔχθιστος would be difficult to explain as simple inheritance. Meißner argues that once **eks-tro-* had developed into ἐχθρός (at a post-Mycenaean stage, based on the retention of interconsonantal /s/ in Myc. *a₃-ka-sa-ma* /aiksmans/ ACC.PL ‘spear point’), the form was reanalyzed as ἐχθ-ρός and a base ἐχθ- was created. This secondary base was then incorporated into the Caland system and served as the source of additional formations: ἔχθος, ἐχθίων, and ἔχθιστος. This interpretation thus suggests that a derivational pattern associated with the Caland system appears to

¹²² Linking *-i-* itself was used in Homer outside of the replacive mechanisms proper to the Caland system, thus creating the class of *-εσι-* compounds, in which the FC is an *s*-stem noun (e.g., ἐγχεσ-ί-μωρος ‘destined to the spear’, from ἔγχος ‘spear’; cf. ἐγχέσ-παλος ‘spear-wielding’ in my dataset). This evidence has been collected and analyzed with OT by Migliaretti (2025) in a recent conference paper.

have remained synchronically available and capable of incorporating new formations after the Mycenaean period. Besides this specific example, a similar mechanism can be found in a “pattern, already well-established in Homer, whereby primary comparatives (with pendant superlatives) could be built to *s*-stem abstracts: thus Hom. κέρδιον/κέρδιστος to κέρδος ‘profit’, ἀλγίων/ἄλγιστος to ἄλγος ‘grief’, ῥίγιον/ῥίγιστος to ῥίγος ‘cold’, among other such forms” (Vine 2008: 15; cf. Chantraine 1961: 112; Risch 1974: 89). This evidence combined therefore attests to the productivity of replacive derivational processes involving *s*-stem nouns in Homer, which could license the suffix loss of observed in compounding.

While the above considerations motivate how such an extent of variation is observed among *s*-stems, and among *s*-stems only, the factors orienting the choice between each variant outcome remain to be established. Part of the distribution, as mentioned above, can be explained phonologically: retention of the suffix *and* development of linking *-o-* are limited to compounds whose second member begins with a consonant cluster. The alternation between, on the one hand, suffix drop with concomitant insertion of linking *-o-* and, on the other, suffix retention without linking *-o-* is not as straightforward to capture phonologically based on the second member initial only. Both treatments are observed in the same contexts in the case of εἶρ-ο-πόκος, Κλε(φ)-ο-πάτρη vs. ἐγχέσ-παλος ‘spear-wielding’, εἶρ-ο-κόμος vs. ὄρεσ-κῶος ‘lying on mountains’, Κλε(φ)-ό-βουλος vs. ἐπεσ-βολία ‘hasty speech’. Comparable to σκῦτ-ο-τόμος instead is the form μογοσ-τόκος (*Il.* 3×), epithet of Eileithyia interpreted as ‘overseeing the pains of childbirth’. This form is not included in my dataset because it is based on the thematic noun μόγος ‘toil, distress’ and the exact status of the inserted /s/ is unclear (see fn. 124 below). At any rate, this evidence confirms that the compounds could have surfaced as *εἶρεσ-πόκος, *εἶρεσ-κόμος, *Κλε(φ)έσ-βουλος (cf., e.g., VOC.SG Πατρόκλεες for hiatus retention), and possibly *σκῦτεσ-τόμος.

The insertion of linking *-o-* in these forms, as shown in Chapter 5, becomes phonologically motivated if the suffix-less stems (εἶρ-, Κλε(Ὶ)-, σκυτ-) are taken as the input of the derivation and the arising clusters are evaluated. Otherwise, clusters comprising stem-final /s/ and a single consonant are tolerated.

The preference between suffix-less and suffixed forms may therefore be explained in terms of metrical convenience. In (90), I list the metrical contexts in which the forms with linking *-o-* are attested. The three compounds εἶροπόκος, εἶροκόμος, and σκυτοτόμος share the same metrical structure: they all begin with a dactylic sequence – ∪ ∪, so they are always naturally placed at the beginning of feet (90a–d). The alternative configuration, with the suffix retained and no linking *-o-*, would instead be unmetrical in the attested localizations: e.g., hypothetical *εἶρεσκομωι in place of εἶροκόμωι in *Il.* 3.387 would scan as – – ∪ –, an illicit sequence in dactylic hexameter. As for Κλε(Ὶ)-ό-βουλος and Κλε(Ὶ)-ο-πάτρη (90e–f), their first member always corresponds to the dactylic *biceps*, with the initial cluster “closing” the preceding syllable in (90e). Likewise, suffixed versions of these compounds would not be metrically equivalent in the attested localizations.¹²³

(90) Attestations of εἶρο^ο, σκυτο^ο and Κλε(Ὶ)ο^ο compounds in the Homeric poems

- a. *Il.* 3.387 εἶροκό¹:μωι, ἦ ²: οἱ Λακεδαίμονι ναιεταώσῃ
- b. *Il.* 5.137 ὄν ῥά τε ποιμὴν ἀγρῶι ἐπ’ εἶροπό⁴:κοις ὀϊ⁵:εσσιν
- c. *Od.* 9.443 ὥς οἱ ὑπ’ εἶροπό²:κων ὀϊ³:ων στέρνοισι δέδεντο.

¹²³ In principle, however, forms such as hypothetical *Κλε(Ὶ)έσ-βουλος could fit in the hexameter with *correptio Attica*, i.e. with the initial cluster parsed as a complex onset and not “closing” a preceding light syllable. In this scenario, the word would occupy the second element of a *biceps* and a spondaic foot (∪ : – –).

- d. *Il.* 7.221 σκυτοτό¹:μων ὄχ' ἄ²:ριστος, "Υλῆι ἐνὶ οἰκίᾳ ναίων,
- e. *Il.* 16.330 Αἴας δὲ Κλεό²:βουλον Ὀ³:ιλιάδης ἐπορούσας
- f. *Il.* 9.556 κείτο παρὰ μνηστῆ ἀλόχῳ καλῇ Κλεο⁵:πάτρῃ⁶:

Conversely, most of the compounds that retain the -εσ- suffix would feature an initial tribrach (˘ ˘ ˘), equally illicit in the hexameter, if linking -ο- was inserted instead: ^xἐποβολία/^xἐπεοβολία : ἐπεσβολία, ^xἐποβόλος/^xἐπεοβόλος : ἐπεσβόλος, ^xΟρόβιος/^xΟρεόβιος : Ὀρέσβιος, ^xσᾶκόπᾶλος/^xσᾶκεόπᾶλος : σᾶκέσπᾶλος, ^xτελοφόρος/^xτελεοφόρος : τελεσφόρος.¹²⁴

Only two forms remain that have a metrical configuration compatible in principle with the insertion of linking -ο-, ἐγχέσπᾶλος and ὀρεσκῶος. However, a look at the attested localizations, given in (91), reveals that in these cases as well the resulting sequences would be unmetrical. The initial heavy syllable of ἐγχέσπᾶλος always correspond with the *biceps* of the third foot, thus making it spondaic; the suffixal -εσ- is therefore metricaly required in order to provide a heavy syllable for the *longum* of the fourth foot. Likewise, the -εσ- in ὀρεσκῶος always corresponds to the *longum* of the second foot, and could not be replaced by -ο-, which would introduce a light syllable.

¹²⁴ Metrically similar to these forms, but crucially derived from the thematic noun μόγος 'toil, distress', is the compound μογοστόκος (*Il.* 3×), epithet of Eileithyia interpreted as 'overseeing the pains of childbirth'. In this case, etymological ^xμογοτόκος would be unmetrical (cf. Chantraine 1942: 95). The exact morphological interpretation of the attested compound is unclear, but perhaps it may be taken as a *Kasuskompositum* (see *EDG* 960–1 s.v. μογέω).

(91) Attested localizations of ἐγχέσπαλος and ὀρεσκῶος in the Homeric poems

- a. *Il.* 2.131¹²⁵ πολλέων ἐκ πολίων ἐγ³:χεσπάλοι⁴: ἄνδρες ἔνεισιν,
- d. *Il.* 1.268¹²⁶ Φηρσὶν ὀ¹:ρεσκῶι²:οισι, καὶ ³: ἐκπάγλως ἀπόλεσαν.

The remaining compound in this group, μεν-ο-(f)εικής, is more difficult to evaluate in this respect and calls for separate discussion. This form lacks a compounded counterpart that retains the -εσ- suffix in the same phonological context, i.e. before *w. This is perhaps due to the phonological outcome of intervocalic *sw. According to the standard formulation by Lejeune (1972: 135–6), in all dialects except Lesbian the cluster is lost with compensatory lengthening of the preceding vowel: e.g., Hom. εἴωθα 1SG.PRF.IND.ACT ‘be accustomed’ < PGk. *se-swōt^h- (with loss of initial aspiration due to Grassmann’s Law; see *EDG* 395); Cret. τελῆος ‘complete’ < PGk. *teles-wos; Ion. νηός ‘temple’ < PGk. *nas-wos (cf. Lesb. ναῦος, with the alternative treatment *ww < *hw for the cluster); Hom. ἰός ‘arrow’ < PGk. *iswos.

PGk. *menes-weikēs would have surfaced as *μενει-εικής or even *μενη-εικής. The latter form is based on Lejeune’s (1972: 136) analysis of the Homeric *-went-derivative τελήεις ‘complete’ as the direct phonological outcome of PGk. *teles-went-s through a stage *τελείεις (cf. εἴωθα above) and with additional vowel dissimilation to yield τελήεις (“passage de *ē* fermé, devant *ē* fermé, à *ē* ouvert”). I return to this phonological account in §4.3.2.2, but for present purposes it will suffice to note that, similar to the forms in (90), neither *μενει-εικής nor *μενη-εικής would be metrically equivalent to μεν-ο-(f)εικής in

¹²⁵ Same localization in *Il.* 14.449, 15.605.

¹²⁶ Same localization in *Od.* 9.155.

its attested localizations, summarized in (92): *μενο-* always corresponds to a *biceps*, and a word-initial sequence ^xμενει-/^xμενη- (light + heavy syllable) is incompatible with that position.¹²⁷

(92) Attested localizations of *μενοεικής* in the Homeric poems

- a. *Il.* 9.90¹²⁸ ἐς κλισίην, παρὰ δέ σφι τίθει μενο⁴:εικέα⁵: δαίτα·
- b. *Il.* 23.139¹²⁹ κάτθεσαν· αἶψα δέ οἱ μενο³:εικέα⁴: νήεον ὕλην.
- c. *Od.* 5.166¹³⁰ ἐνθήσω μενο²:εικέ', ἄ³: κέν τοι λιμὸν ἐρύκοι,

4.3.1.3 Another case of variation *metri gratia*

Whereas the above *s*-stem FCs provide examples of type variation driven by metrical convenience, one type in my dataset is subject to token variation, namely *μελαν*^ο/*μελανο*^ο ‘black’. The distribution of forms, given in (93), can be captured as follows: where the metrical environment permits it, the innovative form with linking *-o-* is attested (*μελάνοχροος*, *μελάνοχρως* ‘dark-skinned’); where it does not, the older form with no linking element is chosen (*μελαγχροινής* ‘dark-skinned’, with the same cluster /k^hr/ at the beginning of the second member; cf. *Μελάμπους* ‘Blackfoot’, *μελάνδετος* ‘bound with black’).

(93) Attestations of preconsontantal *μελαν*^ο in the Homeric poems

- a. *Il.* 13.589 θρώισκωσιν κύαμοι μελα³:νόχροε⁴:ς ἦ' ἐρέβινθοι

¹²⁷ As noted for (90e–f) in fn. 123, the word shape of ^xμενει-εικής or ^xμενη-εικής is in principle compatible with hexametric scansion as it could correspond to the second element of a *biceps* and a spondaic foot (˘ : – –).

¹²⁸ Same localization in *Il.* 9.227, 19.144, 23.29, 23.650, *Od.* 5.267, 6.76, 9.158, 16.429.

¹²⁹ Same localization in *Od.* 13.273, 13.409, 14.232.

¹³⁰ Same localization in *Od.* 20.391.

- b. *Od.* 19.246 γυρὸς ἐν ᾧμοισιν, μελα³:νόχροο⁴:ς, οὐλοκάρηνος·
- c. *Od.* 16.175 ἄψ δὲ με¹:λαγχροί²:ῆς γένε³:το, γναθμοὶ δ' ἐτάνυσθεν,
- d. *Od.* 15.225 μάντις· ἀτὰρ γενεήν γε Με³:λάμποδο⁴:ς ἔκγονος ἦεν,
- e. *Il.* 15.713 πολλὰ δὲ φάσγανα καλὰ με³:λάνδετα |^{BD} κωπήεντα

4.3.1.4 Remaining evidence

The remaining forms belong to a variety of stem classes (see **Table 5**), but unlike the groups discussed above, they do not display any immediately recognizable distributional tendencies at the level of stem morphology. What they appear to share, however, is a phonological environment in which the introduction of linking *-o-* avoids a marked consonant cluster at the compound boundary. Since both the stems involved and the resulting cluster types vary considerably from form to form, a detailed discussion of these contexts is best deferred to the formal analysis in Chapter 5.

One form nevertheless calls for brief comment. The only *nt*-stem represented in the dataset is *πάς* ‘all’. In compounding, this form does not appear to select the expected oblique stem *παντ-*. Instead, the FC is built on *παν-*, corresponding to the neuter nominative-accusative singular form *πάν*. This may reflect the fact that the FC is ultimately based on the adverbial use of the neuter, ‘entirely, altogether’, an interpretation supported by the semantics of the attested formations — e.g., *παγ-χάλκεος* ‘all-brazen’. If so, the absence of *παντ-* follows directly from the morphological and semantic status of the base selected for compounding.

An alternative possibility would be to derive *παν-* from the oblique stem *παντ-* through loss of interconsonantal /t/, motivated by the marked clusters that would otherwise arise at the compound

boundary (e.g. */pant-prōtos/ > πάμ-πρωτος ‘first of all’). This explanation, however, faces two difficulties. First, it is unclear why this stem alone should resolve the cluster by consonant deletion rather than by the insertion of linking *-o-*. Second, the absence of παντ- is not restricted to compounds with consonant-initial second constituents. The stem παντ- fails to surface even before vowels, as in παν-αίολος ‘shot with many colors’ (*Il.* 6×), where no problematic cluster would arise. The consistent selection of παν- across phonological contexts therefore favors an analysis in which this form reflects the choice of a particular compounding base rather than the repair of illicit consonant sequences.¹³¹

Table 5: Homeric compounds with underlying consonant clusters at morpheme boundaries.

A. *-men-/*-mn(-t)-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
αἷμα ‘blood’	αἶμο-φόρυκτος	defiled with blood	<i>Od.</i> 1×
ἄρμα ‘chariot’	ἄρματ-ο-πηγός	building chariots	<i>Il.</i> 1×

B. *-mon-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
ἄκμων ‘anvil’	ἄκμό-θετον	anvil block	<i>Il.</i> 2×; <i>Od.</i> 1×

C. Other *n*-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
κύων ‘dog’	κυν-ο-ραιστής	dog-tick	<i>Od.</i> 1×

¹³¹ It is worth noting that παντο° compounds are absent from the Homeric evidence but well represented in later Greek, and at least one example, παντοδαπός ‘of all sorts’, is already attested in relatively early texts (see *h.Cer.* 402, Sapph. fr. 152 Voigt, Aesch. *Sept.* 357).

μέλας 'black'	μελάγ-χροιής	dark-skinned	<i>Od.</i> 1×
	μελαν-ό-χροος	“”	<i>Od.</i> 1×
	μελαν-ό-χρωσ	“”	<i>Il.</i> 1×
	Μελάμ-πους	Blackfoot (PN)	<i>Od.</i> 1×
	μελάν-δετος	bound with black	<i>Il.</i> 1×
πάλιν 'back; again'	παλίλ-λογος	collected again	<i>Il.</i> 1×
	παλιμ-πετής	falling back	<i>Il.</i> 1×; <i>Od.</i> 1×
	παλίν-τιτος	done in requital	<i>Od.</i> 2×
	παλίν-τονος	bent backward	<i>Il.</i> 3×; <i>Od.</i> 2×

D. *nt*-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
πᾶς 'all'	παγ-χάλκεος	all-brazen	<i>Il.</i> 1×; <i>Od.</i> 2×
	πάγ-χαλκος	“”	<i>Od.</i> 2×
	παγ-χρύσεος	all-golden	<i>Il.</i> 1×
	παμ-μέλας	all-black	<i>Od.</i> 3×
	πάμ-παν	wholly	<i>Il.</i> 20×; <i>Od.</i> 17×
	πάμ-ποίκιλος	all-variegated	<i>Il.</i> 1×; <i>Od.</i> 1×
	πάμ-πρωτος	first of all	<i>Il.</i> 4×; <i>Od.</i> 5×
	παν-δαμάτωρ	all-tamer	<i>Il.</i> 1×; <i>Od.</i> 1×
	παν-δήμιος	public	<i>Od.</i> 1×
	Πάν-δοκος	All-receiving (PN)	<i>Il.</i> 1×
	παν-νύχιος	all night long	<i>Il.</i> 13×; <i>Od.</i> 4×
	πάν-νυχος	“”	<i>Il.</i> 4×; <i>Od.</i> 2×
	παν-συδίη	with all speed	<i>Il.</i> 5×
	παν-τοίος	of all sorts	<i>Il.</i> 10×; <i>Od.</i> 19×

E. *-*r*-/*-*n*-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
ὕδωρ ‘water’	ὕδατ-ο-τρεφής	growing in water	<i>Od.</i> 1×

F. Kinship *-*ter*-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
μήτηρ ‘mother’	μητρ(-)ο-πάτωρ	mother’s father	<i>Il.</i> 1×
πατήρ ‘father’	πατρ(-)ο-κασίγνητος	father’s brother	<i>Il.</i> 1×; <i>Od.</i> 2×
	Πάτρ(-)ο-κλος	Father’s glory (PN)	<i>Il.</i> 157×; <i>Od.</i> 5×
	πατρ(-)ο-φονεύς	father murderer	<i>Od.</i> 3×

G. Other *r*-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
ἄῆρ ‘mist’	ἥερ-ο-(<i>φ</i>)ειδής	cloud-streaked	<i>Il.</i> 2×; <i>Od.</i> 14×
	ἥερ-ο-φοίτις	walking in mist	<i>Il.</i> 2×
	ἥερ-ό-φωνος	sounding in air	<i>Il.</i> 1×
άνήρ ‘man’	άνδρ(-)ό-κμητος	man-made	<i>Il.</i> 1×
	άνδρ(-)ο-κτασίη	slaughter of men	<i>Il.</i> 5×; <i>Od.</i> 1×
	Ἄνδρ(-)ο-μάχη	Fighting with men (PN)	<i>Il.</i> 7×
	άνδρ(-)ο-φάγος	eating men	<i>Od.</i> 1×
	άνδρ(-)ο-φόνος	man-slaying	<i>Il.</i> 15×; <i>Od.</i> 1×
πῦρ ‘fire’	πυρ-καϊά	funeral pyre	<i>Il.</i> 9×
χείρ ‘hand’	χερ-νήτις	laboring woman	<i>Il.</i> 1×
	χέρ-νιβον	basin for handwashing	<i>Il.</i> 1×
	χέρ-νιψ	water for handwashing	<i>Od.</i> 7×

H. s-stems

FC	COMPOUND	GLOSS	ATTESTATIONS
ἔγχος 'spear'	ἐγγέσ-παλος	spear-wielding	<i>Il.</i> 3×
εἶρος 'wool'	εἶρ-ο-κόμος	dressing wool	<i>Il.</i> 1×
	εἶρ-ο-πόκος	wool-fleeced	<i>Il.</i> 1×; <i>Od.</i> 1×
ἔλος 'marshland'	έλε-ό-θρεπτος	marsh-bred	<i>Il.</i> 1×
ἔπος 'word'	έπεσ-βολία	hasty speech	<i>Od.</i> 1×
	έπεσ-βόλος	speaking hastily	<i>Il.</i> 1×
ἡώς 'dawn'	Ἑωσ-φόρος	Lucifer	<i>Il.</i> 1×
* <i>d^hh₁s-</i> (cf. θεός 'god')	θέσ-κελος	wondrous	<i>Il.</i> 2×; <i>Od.</i> 2×
	θεσ-πέσιος	divine-sounding	<i>Il.</i> 19×; <i>Od.</i> 16×
	θέσ-φατος	god-spoken	<i>Il.</i> 2×; <i>Od.</i> 8×
	ἄ-θέσ-φατος	unutterable	<i>Il.</i> 2×; <i>Od.</i> 6×
κέρας 'horn'	κερα-ο-ξός	polishing horn	<i>Il.</i> 1×
κλέ(φ)ος 'fame'	Κλε(φ)-ό-βουλος	With glorious counsel (PN)	<i>Il.</i> 1×
	Κλε(φ)-ο-πάτρη	Father's glory (PN)	<i>Il.</i> 1×
μένος 'spirit'	μεν-ο-(φ)εικής	agreeable	<i>Il.</i> 6×; <i>Od.</i> 9×
ὄρος 'mountain'	Ὀρέσ-βιος	Living on mountains (PN)	<i>Il.</i> 1×
	ὄρεσ-κῶος	lying on mountains	<i>Il.</i> 1×; <i>Od.</i> 1×
σάκος 'shield'	σακέσ-παλος	shield-wielding	<i>Il.</i> 1×
σκῦτος 'skin, hide'	σκῦτ-ο-τόμος	leather-cutter	<i>Il.</i> 1×
τέλος 'end'	τελεσ-φόρος	able to fulfil	<i>Il.</i> 1×; <i>Od.</i> 4×

I. Stop-ending stems

FC	COMPOUND	GLOSS	ATTESTATIONS
γάλα 'milk'	γλακτ-ο-φάγος	living on milk	<i>Il.</i> 1×
παῖς 'child'	παιδ-ο-φόνος	child-slaying	<i>Il.</i> 1×

πύξ ‘with the fist’	πυγ-μαχίη	boxing	<i>Il.</i> 2×
	πυγ-μάχος	boxer	<i>Od.</i> 1×
φοίνιξ ‘purple’	φοινικ-ο-πάρηος	purple-cheeked	<i>Od.</i> 2×

J. Stems ending in *w

FC	COMPOUND	GLOSS	ATTESTATIONS
δόρυ ‘spear’ (* <i>dorw-</i>)	δορυ-ο-δόκη	case for spears	<i>Od.</i> 1×
Ζεύς ‘Zeus’ (* <i>diw-</i>)	δι(φ)-ο-γενής	sprung from Zeus	<i>Il.</i> 23×; <i>Od.</i> 19×
	Δι(φ)-ο-κλής	Glory of Zeus (PN)	<i>Il.</i> 3×; <i>Od.</i> 2×
	Δι(φ)-ο-μήδης	Zeus-counseled (PN)	<i>Il.</i> 82×; <i>Od.</i> 1×
	Δι(φ)-ο-μήδη	“”	<i>Il.</i> 1×
	δι(φ)-ο-τρεφής	fostered by Zeus	<i>Il.</i> 34×; <i>Od.</i> 22×

4.3.2 *-C-went-stems in Homer

Moving beyond compounding, the Homeric poems preserve six *-*went*-formations clearly built on consonantal stems, all of which display an inserted linking -o-. As in Mycenaean, attested bases include stems ending in /t/ and /k/, but Homer also attests one form built on a bilabial aspirate stem, namely νιφόεις ‘snowy’, as well as two forms built on stems ending in /r/: ἀστερόεις ‘starry’ and ἡερόεις ‘misty’. In addition to these six formations, I include in my dataset the adjective τερμύεις ‘fringed; edged’. As I discuss in greater detail in §4.4, this form is likely an artificial creation replacing earlier **termid-went-*, which qualifies as a further consonantal base associated with the rise of linking -o-. This Homeric material is presented in **Table 6** below, based on Buck and Petersen 1945: 460–63, Risch 1974: 151–56, and Forssman 2020 I: 68–69.

Table 6: *-went-stems with consonantal bases in Homeric Greek.

NOUN	BASE STEM	DERIVED STEM	GLOSS	INFLECTED FORMS
αἷμα 'blood'	αἱματ-	αἱματ-ο-(f)εντ-	'bloody'	NOM.SG.M αἱματόεις (<i>Il.</i> 2×)
				ACC.SG.M αἱματόεντα (<i>Il.</i> 5×)
				GEN.SG.M αἱματόεντος (<i>Il.</i> 2×)
				NOM.PL.N αἱματόεντα (<i>Il.</i> 1×; <i>Od.</i> 1×)
				ACC.PL.N αἱματόεντα (<i>Il.</i> 3×)
				NOM.SG.F αἱματόεσσα (<i>Il.</i> 2×)
				GEN.SG.F αἱματοέσσης (<i>Il.</i> 2×)
				ACC.PL.F αἱματοέσσας (<i>Il.</i> 1×)
ἀστήρ 'star'	ἀστερ-	ἀστερ-ο-(f)εντ-	'starry'	ACC.SG.M ἀστερόεντα (<i>Il.</i> 4×; <i>Od.</i> 3×)
				GEN.SG.M ἀστερόεντος (<i>Il.</i> 4×; <i>Od.</i> 1×)
				DAT.SG.M ἀστερόεντι (<i>Il.</i> 1×)
ἄήρ 'mist'	ἡερ-	ἡερ-ο-(f)εντ-	'misty'	ACC.SG.M ἡερόεντα (<i>Il.</i> 4×; <i>Od.</i> 3×)
				GEN.SG.M ἡερόεντος (<i>Il.</i> 1×)
				ACC.PL.N ἡερόεντα (<i>Od.</i> 1×)
κλῶμαξ (post-Hom.) 'heap of stones'	κλωμακ-	κλωμακ-ο-(f)εντ-	'stony'	ACC.SG.F κλωμακόεσσαν (<i>Il.</i> 1×)
νίφα (ACC.SG.F) 'snow'	νιφ-	νιφ-ο-(f)εντ-	'snowy'	GEN.SG.M νιφόεντος (<i>Il.</i> 1×)
				DAT.SG.M νιφόεντι (<i>Il.</i> 1×)
				DAT.SG.N νιφόεντι (<i>Il.</i> 1×)
				ACC.PL.N νιφόεντα (<i>Il.</i> 1×; <i>Od.</i> 1×)
Myc. <i>te-mi</i> 'support' Hesych. †τερμῖς† πούς	τερμι(δ)-	τερμι(δ)-ο-(f)εντ-	'fringed; edged'	ACC.SG.M τερμιόεντα (<i>Od.</i> 1×) NOM.SG.F τερμιόεσσα (<i>Il.</i> 1×)

φοῖνῖξ				ACC.SG.F φοινῖχόεσσον (Il. 1×; Od. 2×)
‘purple; date palm’	φοινῖκ-	φοινῖκ-ο-(φ)εντ-	‘purple’	NOM.PL.F φοινῖχόεσσαι (Il. 1×)

4.3.2.1 Other athematic bases with linking -o-

Among *-*went*-formations, linking -o- is not limited to consonantal stems, but is extended to other athematic bases, especially *ǎ*-, *i*-, and *u*-stems. In the case of *ǎ*-stems, they display a variable behavior, as the derivational suffix either attaches to the unaltered stem or takes a linking -o- that “replaces” the *ǎ*-suffix — even though their inflectional stem synchronically ends in a vowel: e.g., σκι-ό-εις ‘shady’ ← σκιά ‘shade, shadow’ (cf. Lejeune 1958: 8). This “replacement” is also observed in compounds (e.g., ὕλ-ο-τόμος ‘wood-cutter’ ← ὕλη ‘forest; wood cut down’; cf. Tribulato 2015: 22), and marginally in local adverbs (only in Κυθηρ-ό-θεν ‘from Cythera’ ← Κύθηρα ‘Cythera’; cf. van Hes 2023: 55) and with the -φι(ν) ending (only in ἐσχάρ-ό-φιν OBL.SG ← ἐσχάρᾱ ‘hearth’; cf. Goldstein 2020: 16). To account for this pattern — and to justify its exclusion from the present analysis — the considerations put forward in §4.2.1 about Myc. *ko-to-no-o-ko* will suffice: this alternation may well reflect an inherited morphological pattern, so I shall not attempt to model it phonologically in what follows.

Limited to *-*went*-derivatives, by contrast, is the extension of linking -o- to *i*- and *u*-stems: e.g., μητι-ό-εις ‘wise’ ← μῆτις ‘wisdom’, ὄκρι-ό-εις ‘rugged’ ← ὄκρις ‘jagged point’; similarly, ἰχθ-υ-ό-εις ‘full of fish’ ← ἰχθύς ‘fish’ and ὄφρυ-ό-εις ‘on the brow of a steep rock’ ← ὄφρυς ‘brow’. Unlike *ǎ*-stems, this pattern does not involve any suffix “replacement” but rather the insertion of linking -o- between the full stem and the

derivational suffix. It also appears to lack a straightforward phonological motivation,¹³² but rather be due to metrical constraints, at least in some cases. For example, the word shape of most forms built on *u*-stems would be incompatible with hexametric scansion if linking *-o-* was not inserted: ἰχθυόεις, attested as ACC.SG ἰχθυόεντα and DAT.SG ἰχθυόεντι, features an initial dactyl – ◡ ◡, which would instead be a cretic – ◡ – in hypothetical *ἰχθυόεντα/*ἰχθυόεντι.¹³³ The same applies to ὄξύεις ‘made of beech wood’ or ‘sharp pointed’ and mentioned ὄφρυόεις ‘on the brow of a steep rock’ (although the *muta-cum-liquida* cluster *-φρ-* might have allowed some flexibility in this form via *correptio Attica*).¹³⁴ I present a similar pattern with reference to τερμιόεις ‘fringed; edged’ in §4.4, where I also tangentially discuss **-i-o-went-* formations. I however exclude *i-* and *u-*stem bases from the upcoming phonological analysis and focus instead on consonantal stems. Ideally, a fuller treatment would also include stems ending in syllabic segments; however, this inclusion would introduce additional variables that risk obscuring the narrower question pursued there, namely whether the distribution of linking *-o-* may reflect an originally phonologically conditioned development, perhaps a form of epenthesis.

¹³² The development of linking *-o-* in *u*-stems might tentatively be explained through the Obligatory Contour Principle, insofar as adjacent segments sharing identical features are disfavored — the stem-final /u/ and the suffix-initial /w/ in this case.

¹³³ But cf. Lejeune 1958: 9 with fn. 21. He posits preforms with *ū*, i.e. *ἰχθῦ-φεντ-, *ὄφρυ-φεντ-, which “n’auraient pas été amétriques pour les poètes dactyliques.” In this case, the forms with linking *-o-* would be metrically equivalent innovations, changing a spondee-initial word shape into a dactyl-initial one.

¹³⁴ The case of δακρυόεις is somewhat more complex. Besides the metrical considerations mentioned above, the existence of the *o*-stem noun δάκρυον ‘tear’ next to δάκρυ ‘id.’ may have provided a bona fide thematic base for the adjective (perhaps found also in δακρυόφι; see §4.2.3 and §4.3.3).

4.3.2.2 *-went-derivatives built on s-stems and the treatment of intervocalic *sw

As already pointed out for compounds (§4.3.1.2), s-stems stand out among athematic nominals in their behavior with respect to the development of linking -o- in *-went-derivatives. Two patterns are observed, i.e. the retention of the -es- suffix (cf. (88b, vi–xii) above) with further phonological development, and the loss of the s-stem formant and its replacement with linking -o- (cf. (88a, vi–ix) above).

The first pattern is found in the majority of s-stem-based derivatives, which lack linking -o-. All the relevant forms, listed in (94), do not however retain the suffix as such but display what is taken as the phonological development of intervocalic *sw (see, e.g., Lejeune 1972: 135–6; Risch 1974: 152): loss of the consonant cluster with compensatory lengthening of the preceding vowel — e.g. *teles-went-s > τελήεις ‘complete’ (cf. §4.3.1.2 above), *kētos-went-s > κητώεις ‘full of hollows’.

(94) Homeric *-went-derivatives built on s-stems

- a. αἰπήεις ‘high, lofty’ (*Il.* 1×) ← αἶπος ‘height’
- b. θυήεις ‘smoking with incense’ (*Il.* 2×; *Od.* 1×) ← θύος ‘burnt sacrifice’
- c. τειχήεις, *varia lectio* for τειχιόεις ‘high-walled’ (*Il.* 2×) ← τεῖχος ‘city wall’¹³⁵
- d. τελήεις ‘perfect, complete’ (*Il.* 2×; *Od.* 5×) ← τέλος ‘end’
- e. εὐρώεις ‘mouldy, dank’ (*Il.* 1×; *Od.* 3×) ← εὐρώς ‘mould’¹³⁶

¹³⁵ See Strabo, *Geography* 10.4.11: καθάπερ καὶ Ὅμηρος εἴρηκε· Γόρτυνὰ τε τειχέεσσαν (= *Il.* 2.646). I thank Claire Le Feuvre for pointing out this form to me.

¹³⁶ εὐρώς, GEN.SG εὐρώτος is synchronically a *t*-stem in Greek, but it likely goes back to an *s*-stem — though no secure etymology is available for the form. The same morphological innovation is in ἰδρώς ‘sweat’, γέλως ‘laughter’, ἔρως ‘love’ (see *EDG* 484 s.v. εὐρώς), as well as in the active perfect participle suffix *-wos- / *-us-,

f. κητῶεις ‘full of hollows’ (*Il.* 1×; *Od.* 1×) ← κῆτος ‘crevice, abyss’¹³⁷

g. κηῶεις ‘smelling of incense’ (*Il.* 3×; *Od.* 1×) ← PGk. **kāwos* ‘fire’¹³⁸

One complication of this phonological interpretation is the quality of the lengthened vowels: as a result of compensatory lengthening, one would expect <ει> /ε:/ instead of <η> /ε:/ and <ου> /ο:/ instead of <ω> /ο:/ . These outcomes can therefore be understood either phonologically as a vowel dissimilation (*à la* Lejeune 1972: 136; cf. §4.3.1.2 above) or dialectally as “Achaean” treatments (*à la* Ruijgh 1970: 320 and 1971/1972: 172–3). Ruijgh (1970: 320) points out that in Arcadian (one of the Achaean dialects together with Cypriot and Mycenaean), open long vowels are the regular outcomes of compensatory lengthening — as illustrated by Arc. φθήρω vis-à-vis Att.-Ion. φθείρω ‘destroy’ — since this dialect does not have a contrast between open and closed mid long vowels (see also Dubois 1986: 28). He therefore describes the forms in (13) as “hérités tels quels des aèdes mycéniens” (1971/1972: 173), which would also explain why *-went-stems become restricted to poetic language in the first millennium, while in Mycenaean they are still highly productive.

changed to *-wot- in the masculine and neuter oblique forms: e.g., NOM.SG εἰδῶς, (ε)ἰδυῖα (< *-us-ih₂), εἰδός, GEN.SG εἰδότος, (ε)ἰδυίας ‘knowing’. Mycenaean preserves the s-stem inflection throughout: e.g., *a-ra-ru-wo-a* /arārwoha/ NOM.PL.N ‘fitted’, *te-tu-ko-wo-a* /tetuk^hwoha/ NOM.PL.N ‘fully worked’ (with intervocalic *s > h).

¹³⁷ This interpretation is based on Ruijgh’s (1971/1972: 172–3) reconstruction of κητῶεις as **kētos-went-s* and Bechtel’s (1914: 194–5) interpretation of κῆτος as originally meaning ‘abyss’, although it usually refers to sea creatures. Alternatively, Ruijgh suggests that a parallel formation *κητῶς or *κήτως might be the base of the adjective. The form remains etymologically obscure (see also *EDG* 691).

¹³⁸ Cf. καίω ‘burn’ < **keh₂w-* ‘id’ (see *LIV*² 345; *EDG* 692 s.v. κηῶδης).

One problem with Ruijgh's account, however, is that such forms would display two dialectally distinct outcomes of compensatory lengthening: e.g., τελέεις, with Achaean -η- from *-esw- (First Compensatory Lengthening, 1CL) next to Ionic -ει- from *-ens- < *-ent-s (Second Compensatory Lengthening, 2CL). Although this may perhaps be explained in terms of relative chronology (i.e., the Achaean forms might be introduced in the Homeric *Kunstsprache* after 1CL but before 2CL), Lejeune's dissimilation hypothesis appears more economical.

Be that as it may, the most relevant aspect for present purposes is that most *-went-derivatives built on s-stems lack linking -o-. Instead of building this fact into my OT analysis in Chapter 5, I believe this peculiarity is indeed best explained in terms of relative chronology. As I argue further in the following section and in §4.4, linking -o- should be taken as a relatively late development in *-went-stems and we ought to posit an early stage of the Homeric *Kunstsprache* in which the *-went- suffix attached to bare consonantal stems (as in Mycenaean). Together with χαρίεις just below, I therefore take the s-stem-based adjectives in (94) as direct witnesses of such a stage. With the loss of intervocalic *-sw- and the concomitant operation of 1CL (the earliest Greek compensatory lengthening, preceding the change $\bar{a} > \bar{e}$ in Attic-Ionic; see Lejeune 1972: 222), these forms were changed to -ήεις/-ώεις and therefore no longer provided a suitable phonological context for linking -o- to arise — despite being originally *-es-went-/*os-went- formations. This therefore represents a *terminus post quem* for linking -o- to expand to *-went-stems, which complements my considerations in the following section.

The second, more marginal pattern is only observed in θυόεις ‘fragrant’ (*Il.* 1×) ← θύος ‘burnt sacrifice’, variant of θυήεις in (94b), and κρυόεις ‘chilling’ (*Il.* 4×) ← κρύος ‘icy cold’,¹³⁹ which both replace the stem formant with linking *-o-*. Lejeune (1958: 8–9) describes κρυόεις as a reshaping of *κρυήεις required by metrical constraints, in order to avoid cretic sequences (cf. the various parallels discussed in §4.3.1.2). As for θυόεις, he points out that this doublet is not required in the same way, but rather licensed by forms such as in κρυόεις, where the reshaping is metrically necessary. The crucial difference is that κρυόεις begins with a consonant cluster that “closes” the preceding syllable (assuming *correptio Attica* would not be a viable option), thus favoring a word shape with two initial light syllables (κρυο-, not *κρυή-). By contrast, the initial single consonant of θυόεις does not create the same metrical constraint. Even so, the formation may still be viewed as motivated by metrical convenience, albeit not required by it. In its only Homeric occurrence (*Il.* 15.153 ἤμενον· ἀμφὶ δέ μιν θυό³:εν νέφο⁴:ς ἔστεφάνωτο), this variant allows for a localization that would not have been available to θυήεις.

4.3.2.3 Further metrical evidence for the lateness of linking *-o-* in *-went-stems

In his discussion of *-went-stems, Lejeune (1958: 9 with fnn.) discusses some metrical constraints dictated by hexametric poetry in relation to the rise of linking *-o-*. The following examples demonstrate that *-went-derivatives entered the *Kunstsprache* without any linking vowel and that linking *-o-* in this derivational class, particularly prone to remodeling, arose secondarily.

¹³⁹ The pseudo-form ὀκρυόεις ‘chilling’ is generally regarded as the result of resegmentation from κρυόεις in genitive phrases such as ἐπιδημίου κρυόεντος (*Il.* 9.64) and κακομηχάνου κρυόεσσης (*Il.* 6.344). The similar ὀκριόεις ‘rugged’ may have reinforced this formation (see *EDG* 1066 with refs.).

One first case is φοινῖκέεις, attested as ACC.SG.F φοινῖκέεσσαν (*Il.* 1×, *Od.* 2×) and NOM.PL.F φοινῖκέεσαι (*Il.* 1×), which has undergone Metrical Shortening (MS). The length of the $\bar{\iota}$ in its base φοινῖκ- is in fact secured by its occurrences in Homer, such as *Il.* 6.219 Οἶνεϛ ¹: μὲν ζῶσ²:τῆρα δῖ³:δοῦ φοί⁴:νικι φα⁵:εινόν⁶:, where the open syllable -νι- corresponds to the *longum* of the fifth dactylic foot. The MS in φοινῖκέεις is needed to avoid a cretic (– ∪ –) in φοι:νῖκόςε:σαν, under no conditions allowed in hexametric poetry. Therefore, one can posit a stage of oral composition in which linking -o- had not yet developed, and the adjective had shape *φοινῖκφεσσαν (as also argued in Ruijgh 2011: 278 and Le Feuvre 2015: 469 fn. 77). As shown in (95), such a form would scan in both the metrical positions in which we find φοινῖκέεις, namely after the bucolic diaeresis (95a) and after the first dactylic foot (95b).

(95) Attested localizations of φοινῖκέεις in Homer with proposed reconstruction

- a. *Il.* 10.133¹⁴⁰ ἀμφὶ δ' ἄ:ρα χαί:ναν περο:νήσατο |^{BD} φοινῖκό:εσσαν
 – ∪ ∪: – –: – ∪ ∪: – ∪ ∪ |^{BD} φοινῖκ:φεσσαν
- b. *Il.* 23.717 αἶματι ¹: φοινῖκό:εσσαι ἀ:νέδραμο:ν· οἱ δὲ μά:λ' αἰεῖ
 – ∪ ∪ ¹: φοινῖκ:φεσσαι ∪: – ∪ ∪: – ∪ ∪: – ×

I take this as evidence that the form entered the Homeric *Kunstsprache* with no linking -o- nor cretic sequence, and with the original length of the $\bar{\iota}$ - intact. It was then adapted via MS so that it might still fit its metrical position. Moreover, this argument can be expanded to all *-went-stems with consonantal bases in Homer, given in Table 6 above and repeated in (96) for convenience. In most of them, in fact, linking -o- counts as the second short element of a dactylic *biceps*, e.g. (96a) αἶματοεντ- (– ∪ ∪: –). This

¹⁴⁰ Same localization in *Od.* 14.500, 21.118.

word-initial metrical structure would therefore be spondaic if we posited a stage in which linking *-o-* had not yet developed and /w/ was preserved, e.g. *αίματφεντ- (– – : –).

(96) Other **-went*-stems with consonantal bases in Homeric Greek

- | | | | |
|----|--------------------------------------|----|--|
| a. | αίματόεις ‘bloody’ ← αίμα ‘blood’ | b. | άστερόεις ‘starry’ ← άστήρ ‘star’ |
| c. | ήερόεις ‘misty’ ← άήρ ‘mist’ | d. | κλωμακόεις ‘stony’ ← κλωμαξ ‘heap of stones’ |
| e. | νιφόεις ‘snowy’ ← νίφα ACC.SG ‘snow’ | | |

The only non-dactylic stem in the Homeric material, namely (96e) νιφοεντ-, also patterns in the same way metrically. Since its base goes back to a preform **snig^{wñ}-* (see *DELG* 740–1 s.v. νείφει), this form causes even a preceding light syllable to scan heavy “by position” (see, e.g., *Il.* 13.754 ἦ ρά, καὶ ¹: ὀρμή²:θῆ ὄρε³:ῖ νιφό⁴:εντι ἐ⁵:οικῶς⁶:). This implies that, whichever its position in the line, the sequence νιφο- always corresponds to the dactylic *biceps*. It follows, then, that a hypothetical form **snip^hwent-* would be always metrically equivalent to νιφοεντ-.

These metrical patterns, whereby the forms could scan in all attested localizations even in the absence of linking *-o-*, differ from those highlighted in §4.3.1.2–3 with reference to compounds. In those cases, forms with and without linking *-o-* have been seen to be bound to their localizations in the hexameter and not to be interchangeable. That distribution therefore reflects a stage in which forms with linking *-o-* were already available to bards and used selectively to accommodate metrical convenience — a case in point being the token variation in μελανόχροος ~ μελαγχροῖς ‘dark-skinned’. What instead the metrical behavior of **-went*-stems suggests is that only forms without linking *-o-* were available to the epic poets at that same stage of composition, and that they were reshaped only later.

One form mentioned by Lejeune (1958: 9 with fn. 19), i.e. *χαρίεις* ‘graceful’ (*Il.* 8×, *Od.* 8×), does instead respond to metrical convenience in a comparable way to the compounds discussed in §4.3.1. This is the only **went*-derivative built on an athematic stem that does not display linking *-o-*.¹⁴¹ Although a version of this form with linking *-o-*, i.e. *χαριτόεις*, is attested in a fragment of Anacreon (6th c. BCE, fr. 142 *PMG*), Lejeune comments that it is not admitted in hexametric poetry as it would contain a tribrach (e.g., *χα.ρι.το.εν* ~ ~ ~) and could not scan. This then characterizes *χαρίεις* as direct evidence of a stage in which linking *-o-* had not developed, a relic that could not be replaced by its innovative variant *metri gratia* (cf. Peters 1989: 214–55 on *χάρις* ‘grace’ as an old *i*-stem, only secondarily a *t*-stem). One can also add that, in this case, all attested instances of *χαρίεις* in Homer cannot be traced back to a hypothetical form **χαριτφεντ-*. Although this word shape as such would be unproblematic for hexametric scansion, it would introduce cretics in the attested localizations: since *χαρίεις* begins with two light syllables, it is always placed in the *biceps* of a dactylic foot (e.g., *Il.* 5.905 τὸν δ’ ἥβη λοῦ²:σεν, *χαρί*³:εντα δὲ ⁴: εἴματα ⁵: ἔσσε⁶:); in all cases, a form such as **χαριτφεντα* would feature a light syllable too few and could not scan. On the other hand, no version of *χαρίεις* with linking *-o-* (either attested *χαριτόεις* or hypothetical **χαριόεις*) could be used in hexametric poetry—at least without Metrical Lengthening of the first *brevis* of a tribrach (cf. West 2018: 363–5).

A final form worth mentioning, discussed by Le Feuvre (2016: 192–5), is *τροφόεις* ‘well-fed’ or ‘crystallized’ (hence ‘rich in salt crystals’), attested in the phrase *κύματά τε τροφόντα* (*Il.* 1×, *Od.* 1×). Based

¹⁴¹ The crystallized vocative *μητίετα* ‘full of wisdom’ (found 19× in the line-end formula *μητίετα Ζεύς*) might be considered another such case, at least according to Meier-Brügger’s (1989) analysis of the form as **mēti-wet-* *ā-* (with a reshaped zero-grade suffix **wet-* **wat-* < **wnt-*).

on the relationship between κύματά τε τροφόντα and the phrase τροφί κύμα (*Il.* 1×), Le Feuvre takes the adjective τροφόμεναι as a derivative of a noun τροφίς meaning ‘coagulation, crystallization’. This adjective originally would have the shape *τροφίεις and only later would be changed to attested τροφόμεναι to match the innovative and productive version of the *-went-suffix with linking -o-. Since a form *τροφίεις would have featured an initial tribach, the only acceptable form for it was then τροφόμεναι.

4.3.3 Homeric -φι(ν) in consonantal stems

As far as one can tell from the available evidence, the distribution of Homeric -φι(ν) is strikingly consistent, even if the number of relevant forms is limited (see **Table 7**). Only a single example of linking -o- is observed in the one attested nasal-stem base, while it is absent from all five attested s-stems. Ventris and Chadwick (*Docs*² 82–83) take this pattern to suggest that -φι(ν) could not attach directly to stems ending in stops or liquids, and Goldstein (2020: 16) similarly considers the possibility that the distribution reflects a phonotactic constraint. Given the limited number of examples, it is difficult to determine whether this distribution reflects a phonotactic restriction specific to -φι(ν) itself. At the same time, the pattern becomes somewhat less surprising when viewed against the broader behavior of linking -o- in its other morphological contexts: s-stems sometimes preserve the bare stem in compounding (e.g., ἐπεσ-βολία ‘hasty speech’; see §4.3.1), whereas n-stems are elsewhere associated with the development of linking -o- (e.g., λειμῶν-όθεν ‘from a meadow’; see §4.3.4).

Table 7: Homeric -φι(ν) in consonantal stems.

NOUN	STEM	INFLECTED FORM	ATTESTATIONS
Ἔρεβος ‘Erebus, Darkness’	Ἔρεβες-	Ἐρέβες-φι	<i>Il.</i> 1×
κοτυληδών ‘cup hollow’	κοτυληδον-	κοτυληδον-ό-φιν	<i>Od.</i> 1×
κράτος ‘strength’	κράτες-	κράτες-φι	<i>Il.</i> 1×
ὄρος ‘mountain’	ὄρες-	ὄρες-φι(ν)	<i>Il.</i> 7×
ὄχος ‘carriage’	ὄχες-	ὄχες-φι(ν)	<i>Il.</i> 22×; <i>Od.</i> 1×
στήθος ‘breast’	στήθεσ-	στήθεσ-φι(ν)	<i>Il.</i> 8×; <i>Od.</i> 1×

4.3.4 Homeric local adverbs (-θεν, -θι, -σε) with consonantal stems

The three adverbial local suffixes -θεν, -θι, -σε pattern synchronically as a group in alphabetic Greek, both in terms of semantics and of word-formation. As pointed out by van Hes (2023: 43–4) in a recent re-evaluation of the Archaic Greek data, they are built on nominal, pronominal and adverbial stems and express the place or time at which (locative -θι), towards which (allative or directive -σε), or from which (ablative or separative -θεν) an action occurs — e.g., ἄλλοθι ‘elsewhere’, ἄλλοσε ‘to another place’, ἄλλοθεν ‘from somewhere else’. Moreover, they are generally preceded by linking -ο- whenever built on consonantal stems. Distinguished from this group is the suffix -θε(ν), which never patterns with linking -ο- and is functionally an extension to prepositions that does not fundamentally alter their basic semantics (e.g., πρόσθε(ν) ‘before, in front’). Etymologically, the four Greek suffixes stem from two PIE sources (see van Hes 2023: 50–4): *-dʰe (> -θε with ν *ephekkystikon*; cf. Ved. -ha, OAv. -dā, OCS -de, Umbr.

-fe), which extended with an ablative **-m* gives $-\theta\varepsilon\nu$;¹⁴² **-dʰi* (> $-\theta i$; cf. MWelsh *cwdd* ‘there’, Lyd. *kud* ‘id.’), which extended with $-h_l$ can explain $-\sigma\varepsilon < *t^hye$.¹⁴³

As van Hes (2023: 45–6) remarks, the distinction between $-\theta\varepsilon\nu$ and $-\theta\varepsilon(\nu)$ is sometimes difficult to capture, but can be assessed through a number of criteria, beyond the mentioned presence/absence of linking $-o-$: if a form is ever attested without final $-\nu$ next to forms with ν *ephekkystikon*, expresses location rather than source, is built on prepositional bases, and/or lacks parallel $-\sigma\varepsilon$ and $-\theta i$ adverbs, one can safely regard it as carrying the suffix $-\theta\varepsilon(\nu)$. Following van Hes’ discussion and data collection, I therefore exclude forms such as $\varepsilon\nu\epsilon\rho\theta\varepsilon(\nu)$ ‘(from) beneath’, $\theta\pi\iota\sigma\theta\varepsilon(\nu)$ ‘behind’, $\pi\rho\acute{o}\sigma\theta\varepsilon(\nu)$ ‘before’, $\upsilon\pi\epsilon\rho\theta\varepsilon(\nu)$ ‘(from) above’, etc. from my analysis. My own dataset is presented in Table 8.

Table 8: Local adverbs with consonantal bases in Homeric Greek.

A. Nominal bases

BASE	STEM	ADVERBS	GLOSS	ATTESTATIONS
ἄλς ‘sea’	άλ-	άλ-ό-θεν	‘from the sea’	<i>Il.</i> 1×
Ζεύς ‘Zeus’	* <i>diw-</i>	Δι(φ)-ό-θεν	‘sent from Zeus’	<i>Il.</i> 3×

¹⁴² To reconstruct this ablative element, Dunkel (*LIPP* II 125) compares Lat. *illim* ‘thence’ and HLuw. *zin* ‘from this side’, *apin* ‘from that side’. Melchert (*apud* van Hes 2023: 53) points out that the absence of *i*-mutation elsewhere in the paradigms of *za-* and *apa-* suggests that the preform was instead **-im* and the Latin form should be segmented as *ill-im*. The **-m* observed in Greek is then either the product of reanalysis or the same **-m* found in the comparatives Lat. *quam* and OArm. *k’an* ‘than’. See also Vine 2009: 6–10 for further discussion of ablative **-(i)m* and his etymological interpretation of Myc. *pe-ru-si-nu-wo* /perusinwon/ NOM.SG.N ‘last year’s’ as **perutim-wó-* ‘from last year’.

¹⁴³ Dunkel (*LIPP* II 216) is uncertain of what function or cognates this extension might have.

ἡώς ‘dawn’	ἦοσ-	ἦῶ-θεν	‘from dawn’	<i>Il.</i> 7×; <i>Od.</i> 15×
	or ἦωσ-	ἦῶ-θι	‘at dawn’	<i>Il.</i> 1×; <i>Od.</i> 2×
κῆρ ‘heart’	κηρ-	κηρ-ό-θι	‘in the heart’	<i>Il.</i> 2×; <i>Od.</i> 7×
λειμών ‘meadow’	λειμων-	λειμων-ό-θεν	‘from a meadow’	<i>Il.</i> 1×
πατήρ ‘father’	πατρ-	πατρ(-)ό-θεν	‘from a father’	<i>Il.</i> 1×

B. Adverbial and pronominal bases

BASE	STEM	ADVERBS	GLOSS	ATTESTATIONS
ἄγχι/ἄγχου ‘near’	ἄγχ(ο)-	ἄγχ-ό-θι	‘near’	<i>Il.</i> 2×; <i>Od.</i> 1×
ἐκτός ‘outside’	ἐκτο(σ)-	ἔκτ(-)ο-θεν	‘from outside’	<i>Od.</i> 2×
		ἔκτ(-)ο-θι	‘outside (from)’	<i>Il.</i> 2×
		ἔκτ(-)ο-σε	‘outwards’	<i>Od.</i> 1×
* <i>h₁eno</i> - ‘that one’ or * <i>én</i> ‘in, inside’	ἐν(ο)-	ἐν-θεν	‘from there’	<i>Il.</i> 12×; <i>Od.</i> 33×
πάντη ¹⁴⁴ ‘on every side’	παντ-	πάντ-ο-θεν	‘from all directions’	<i>Il.</i> 6×; <i>Od.</i> 4×
		πάντ-ο-σε	‘in all directions’	<i>Il.</i> 24×; <i>Od.</i> 5×
τῆλε/τῆλοῦ ‘afar’	τηλ(ο)-	τηλ(-)ό-θεν	‘from a distance’	<i>Il.</i> 8×; <i>Od.</i> 8×
		τηλ(-)ό-θι	‘at a distance’	<i>Il.</i> 9×; <i>Od.</i> 5×
		τηλ(-)ό-σε	‘to a distance’	<i>Il.</i> 2×; <i>Od.</i> 1×

¹⁴⁴ Here I follow van Hes (2023: 56), who considers these items to be built on an adverbial base, although he does not specify which one. I take the adverb πάντη ‘on every side’ (*Il.* 25×; *Od.* 8×) as the base — a dative in appearance but perhaps reflecting an old instrumental in -η (cf. West 1998: xxii on printing instrumental τῶ instead of dative τῶ(ι) ‘therefore’). Theoretically, one could also derive these local adverbs directly from πᾶς ‘all’ (oblique stem παντ-), but this nominal stem is only attested as παν^ο in compounding (see the discussion in §4.3.1 and Table 5 above).

		ὑψ-ό-θεν	‘from above’	<i>Il.</i> 4×; <i>Od.</i> 4×
ὑψι ‘up, above’	ὑψ-	ὑψ-ό-θι	‘on high’	<i>Il.</i> 3×
		ὑψ-ό-σε	‘upwards’	<i>Il.</i> 14×; <i>Od.</i> 9×

Most of the adverbs built on nominal bases are of straightforward interpretation, except for two items that call for additional comments. First, I should note that the form *πατρόθεν* is amenable to the same formal analyses discussed in §4.3.1.1 with reference to compounds: the form can either be derived from the pre-consonantal zero-grade stem *πατρ-* or taken as reflecting the outcome of liquid vocalization — either *πατρο-* directly or **πατρα-* with later refashioning.

Deserving of some more discussion is the one nominal *s*-stem in this subset, ἥως ‘dawn’. This base forms an ablatival ἥωθεν and a locative ἥωθι, in which van Hes (2023: 46) identifies covert cases of linking *-o-*. While I find his basic claim perfectly reasonable, the details of his argument should be reconsidered. He projects a preform **ausos-o-t^{hen}* back to Proto-Greek and argues that the circumflex in ἥωθεν (vis-à-vis NOM.SG ἥως) betrays the presence of a contracted linking *-o-* (presumably via **auhóh-o-t^{hen}* > **awô-t^{hen}*). The assumption that linking *-o-* would be a Proto-Greek feature, however, is complicated by the Mycenaean data and Homeric material discussed so far.

I believe it is preferable to posit PGk. **auhos-t^{hen}*, with the stem-final */-s-/* preserved in preconsonantal position (cf. the compound Ἑωσ-φόρος ‘Lucifer’ mentioned above), with later development of linking *-o-* (**auhos-o-t^{hen}*) and subsequent intervocalic debuccalization of **s* > **h* (**auhoh-o-t^{hen}*). Incidentally, the circumflex in ἥωθεν may not be itself a diagnostic for contraction on the penult, but rather be due to the *σωτῆρα* rule, i.e. triggered by the sequence of long and short vowel in the penultimate and final syllable respectively (cf., e.g., Attic δῆ ‘in fact’ and δῆθεν ‘really’). Building

on this last point, one could also take ἡῶθεν and ἡῶθι to be formed directly on the lengthened-grade stem ἡῶσ- without linking -o-, comparing ἐκός ‘afar’, ἐκαθεν ‘from afar’ for the apparent s-loss.

The majority of items built on pronominal and adverbial stems, on the other hand, are somewhat difficult to analyze. As for ἔκτοθεν ‘from outside’, van Hes (2023: 45) points out that one also finds the synonym ἔκτοσθε(ν), which illustrates the different behavior of -θεν and -θε(ν) in term of linking -o-: -θε(ν) attaches directly to the full stem of ἐκτός ‘outside’, whereas -θεν is preceded by linking -o-. To analyze the form as ἔκτ-o-θεν, one would have to admit a similar mechanism to that observed in some compounded nominal s-stems above, whereby the suffix is “dropped” and “replaced” by linking -o-. This substitution, however, would not match the morphological structure of this adverb, which is etymologized by Dunkel (*LIPP* II 206) as **éǵʰs-tos*, with an ablative suffix **-tos*. Perhaps this is not an issue if one admits that this segmentation was no longer perceived as such synchronically in Greek. Alternatively, ἔκτοθεν (as well as ἔκτοθι and ἔκτοσε) might be a bona fide case of analogy, influenced by its antonym ἐνδοθεν ‘from inside’ (*Il.* 2×; *Od.* 7×; see also ἐνδοθι ‘within’), in which the -o- is etymological (cf. ἐνδον ‘inside’ < **en dó* according to *LIPP* II 227).

Van Hes (2023: 46) also takes the forms τηλόθεν+ and ἀγχόθι as displaying linking -o-. Similarly to my last observation on ἐνδοθεν+, considering the -o- in these forms as a linking vowel proper implies a somewhat ad hoc segmentation of the adverbial bases for these forms: τηλε/τηλοῦ ‘at a distance, far off’ and ἀγχι/ἀγχοῦ ‘near’. Both bases would have to “drop” their original adverbial endings (-ε, -ι, -οῦ), input -θεν in the derivation (**τηλ-θεν*, **ἀγχ-θεν*) and undergo insertion of linking -o-.

I therefore wonder whether it would be more economical to see the *-o-* as a thematic vowel, either etymological or analogical. Etymologically, both τῆλε and ἄλλοι have been interpreted as locatives of root nouns, with the *-oû* forms being secondary: **k^wēlh₁ < *k^welh₁-* ‘turn’ (around)’ (see Harðarson 1995: 205–6; *LIV*² 386–8) and **h₂emġ^h-i < *h₂emġ^h-* ‘fasten tightly → restrict, constrict’ (see *EDG* 17; *LIV*² 264–5). Only the etymology of ἄλλοι would therefore support a segmentation compatible with the linking *-o-* analysis, but only at a very early diachronic stage — as no corresponding root noun is attested synchronically in Greek. Both formations do have, instead, co-radical thematic verbs attested in Homer, πέλω/πέλομαι ‘be, become’ (*Il.* 61×; *Od.* 48×) and ἄλλω ‘squeeze’ (*Il.* 1×), besides the alternative forms τηλοῦ and ἄλλοῦ. All these parallel formations might therefore support reanalysis of the adverbial base stems as thematic **τηλο-* and **ἄλλο-*, whereby the *-o-* in the derived local adverbs would not be a linking vowel but another case of analogy proper.

The very opposite problem is posed by ἐνθεν ‘from there’, associated with Hom.+ ἐνθα ‘there; where’ and Hes.+ ἐν (sc. ἡμέρα) ‘the day after tomorrow’. The etymological dictionaries connect the forms to a pronominal stem **h₁eno-* ‘that one’, also found in Hom.+ (ἐ)κεῖνος ‘id.’ < (ἐ-)κε-ενος (cf. Hitt. *aš-i-, uni-*, OCS *onъ* ‘id.’, Lat. *enim* ‘for, indeed’; see *DELG* 329, 348 and *EDG* 397, 424–5 s.vv. ἐκεῖνος, ἐν, and ἐνθα). In this adverbial formation, the stem would surface without the *-o-*, which would be etymological. Van Hes (2023: 46, 49) takes this as an archaism on account of the absence of linking (?) *-o-* and the potential match with Mycenaean *e-te* /ent^hen/.

The Mycenaean form is attested on two documents recording male personnel sent from Knossos (KN Am(1) 600) and Amnisos (KN Am(1) 601), probably connected with the textile industry, and is read as ‘from there’ (see Bichlmeier 2014: 35; Killen 2015: 755–8). While it is not surprising that

Mycenaean would not attest a linking *-o-* in this item — which may indeed qualify the Homeric form as archaic — it remains puzzling how the pronominal stem would lose its thematic element in the derivation. For this reason, the etymology found in *LIPP* II 224 and Bichlmeier 2014: 35 appears preferable: **én-dʰe-m*, where the first element is the PIE particle **én* > alph. Gk. ἐν ‘in’. This preform is easier to reconcile with the absence of linking *-o-* in Mycenaean, but it still qualifies the Homeric form as an outlier within this derivational category.¹⁴⁵

4.4 From Mycenaean *te-mi-dwe* to Homeric *τερμίοις*¹⁴⁶

In §4.3.2, I have included Homeric *τερμίοις* ‘fringed, hemmed; edged’ in my collection of **-went-* derivatives originally built on consonantal stems. In this section, I substantiate this claim by comparing its Mycenaean correspondent, *te-mi-dwe* /termidwen(t)/ ‘wedged’, and by offering some metrical observations on the Homeric attestations of *τερμίοις*. Essentially, I argue that the adjective could only be admitted in hexametric poetry in the shape **termid-went-*, which I ascribe to an early stage of the Homeric *Kunstsprache*, in line with my discussion in §4.3.2.3 above. Attested *τερμίοις*, with an initial dactyl, can only scan in the hexameter due to the presence of the linking vowel. If *τερμίοις* was based on a bona fide *i*-stem, it should go back to a preform **termi-went-*. This form would however feature an initial cretic and not be metrically licit, while an *id*-stem variant **termidwent-* (essentially identical to

¹⁴⁵ An implication of this etymology is that ἐνθεν and ἐνθα must be unrelated, as per *LIPP* II 41 with fn. 2. Dunkel’s argument is that PIE **ándʰe* ‘there; then’ > PGk. **ántʰe* developed into ἐνθα via metathesis, triggered by analogy to ἐν ‘in’. Other cases of metathesis involving Greek particles are mentioned by Dunkel: e.g., Arcadian οπυ ~ Attic-Ionic ὑπό ‘under’, Attic ἐνταῦθα ~ Ionic ἐνθαῦτα ‘here, there; then’, **kati* > **kait* > καί ‘and’.

¹⁴⁶ This section largely reproduces the discussion in Sabattini 2025.

Mycenaean *te-mi-dwe*), would scan. The transmitted *i*-stem form of the adjective is therefore not archaic but rather an innovation facilitated by the emergence of linking *-o-* in **-went*-formations, which allowed *τερμιόεις* to achieve dactylic scansion and supersede its *id*-stem predecessor. I explain the preference for *τερμιόεις* as paralleling the creation of artificial *i*-stems elsewhere in Homer, ultimately driven by lexical contamination with other *-ιόεις* adjectives.

4.4.1 The problem

The equation of Mycenaean *te-mi-dwe* with Homeric *τερμιόεις* is well established in the scholarship, despite some formal and semantic mismatch between the two forms. Both **-went*-derivatives, the Mycenaean form is built on an *id*-stem *termid-* while the Homeric one displays an *i*-stem base *termi-*. Later *τερμιόεις* also features a linking vowel *-o-* in its formation (*termi-o-(w)ent-*), which is absent in the 2nd-millennium antecedent (*termid-went-*). As seen in §4.2.2 and §4.3.2, this difference is regularly observed in all **-went*-derivatives built on athematic stems: there are no attested forms in Mycenaean with a linking vowel, whereas it has become the norm in Homeric and later Greek — with the sole exception of *χαρίεις* ‘graceful’, discussed above in §4.3.2.3.

The etymological dictionaries connect *te-mi-dwe* and *τερμιόεις* with *τέρμα* ‘end, boundary’ (cf. Latin *termin* ‘boundary’ and Vedic *su-tárman-* ‘(a ship) providing a good crossing’), itself a **-men*-stem action noun from either PIE **terh₁-* ‘rub’ (*GEW* 880 and *DELG* 1107; cf. *LIV*² 632–3) or **terh₂-* ‘cross’ (*EDG* 1469; cf. *LIV*² 633–4). The semantic interpretation of both **-went*-adjectives is mostly contextual and aided by lexicographers and scholiasts. In the Linear B records, *te-mi-dwe* is a technical designation for a type of chariot wheels featuring wedges or chocks to secure the spokes to the hub or the rim (see

below §4.4.2). On the other hand, *τερμίοεις* in the Homeric epics describes an *ἀσπίς* ‘shield’ and a *χιτῶν* ‘tunic’, perhaps qualifying them as having some sort of outer rim and lower hem respectively (see below §4.4.3). Both interpretations are held together by the basic meaning of *τέρμα* as an ‘endpoint’ and still follow the same reasoning of ancient lexicographers, whereby *τερμίοεις* is generally something ‘that reaches down to one’s feet’ (see, e.g., Hesych. τ 539 H.-Cunn. *τερμίοεσσα· μέχρι τῶν ποδῶν ἀποτερματιζομένη*). This extends to the derivational bases for the two adjectives: in Mycenaean, *te-mi* /*termis*/ (5× on KN V 280) is taken to designate a ‘foot’ or ‘support’ for tables (see *DMic.* II 327–8), while *τερμής* (or *τέρμις*) is glossed as *πούς* ‘foot’ by Hesychius, its only attestation (Hesych. τ 542 H.-Cunn.). Both forms, attested in the nominative singular in all instances, are uninformative about their inflectional class (*i*- or *id*-stem), and the Hesychian *glossa* may rather stand for τ’ *έρμης* (cf. *ἔρμα* ‘prop, support’; see fn. 161 below).

In this section, I focus on one point of dissimilarity between the two forms, namely the different stems of their bases, *-id-* in Mycenaean *te-mi-dwe* and *-i-* in Homeric *τερμίοεις*. Changes of inflectional class between *i*- and *id*-stems are abundantly observed in Greek, and they are easily explained in terms of morphological reanalysis driven by the opaque NOM.SG, VOC.SG, and DAT.PL, which surface as *-ις*, *-ι*, and *-ισι* respectively in both formations. What is puzzling about the *te-mi-dwe*/*τερμίοεις* pair is the directionality of this reanalysis, with an earlier *id*-stem resurfacing as an *i*-stem in later times. In 1st-millennium Greek, in fact, this phenomenon crucially proceeds in the opposite direction: for example, *μῆτις* ‘wisdom, skill’ inflects as an *i*-stem in Homer (see, e.g., *Il.* 2.169 ACC.SG *μῆτιν*) while *id*-stem forms are attested in post-Homeric authors (see, e.g., Aesch. *Cho.* 626 ACC.PL *μῆτιδας*, Hdt. 7.141.13

DAT.SG μήτιδι). According to Buck and Petersen (1945: 14), this is a general tendency due to the unproductivity of *i*-stems vis-à-vis the “continuous encroachment of the -ις, -ιδος declension.”

In his monograph on *id*-stems, Meier (1975: 11–6) reaffirms this tendency and further specifies its historical circumstances. Old *i*-stems can develop *id*-inflection on the model of barytone *id*-stems,¹⁴⁷ as in the case of ὄπις ‘glance’, hence ‘divine regard or vengeance’ (cf. Lith. *akis* ‘eye’), which next to the expected ACC.SG ὄπιν displays innovative ACC.SG ὄπιδα and GEN.SG ὄπιδος. This tendency is attested, according to Meier (1975: 12–4), since Mycenaean times and continues in Homeric and post-Homeric Greek. At the same time, he observes the opposite pattern, whereby some barytone *id*-stems develop a secondary *i*-stem ACC.SG -ιν, as in ἔρις ‘strife’ (ἔριδ-, cf. ἐρείδω ‘prop, support’).¹⁴⁸ In Meier’s (1975: 75) account, Mycenaean *te-mi-dwe* is then one early example of this *i*- to *id*-stem change. He assumes an original *i*-stem formation with a *-*mi*- suffix, which would be corroborated by an alternative spelling of the form on KN Sf 1811.3, *te-mi-we-te*. Meier reads this form as /termiwente/ NOM.DU.N and takes it as a

¹⁴⁷ Meier (1975: 11, 16–7) distinguishes between oxytone and barytone *id*-stems, such as πατρίς ‘fatherland’, GEN.SG πατρίδος, vs. ἰκέτις ‘female suppliant’, GEN.SG ἰκέτιδος, respectively. Oxytone *id*-stems express a variety of meanings and/or functions: they form toponyms, ethnics, patronymics, *Motionsfeminina*, names of objects, as well as adjectives and diminutives (see, more recently, Balles 2008: 205, 215–6, 229, 245, 304). Barytone *id*-stems, on the other hand, are essentially feminine counterparts to masculine agent nouns in -ᾱς/-ης, such as ἰκέτης ‘suppliant’ (cf. Balles 2008: 233–4).

¹⁴⁸ The etymological connection between ἔρις and ἐρείδω, assumed by Meier, is now rejected by Beekes (*EDG* 459), who believes the form must be originally an *i*-stem. But see also van Beek (2022a: 262 fn. 38), who upholds Meier’s proposal.

relic of the old *i*-stem formation beside the already normalized *id*-stem in all other Mycenaean occurrences of the lexeme. It follows that Homeric *τερμίδεις* preserves the archaic *i*-stem formation.¹⁴⁹

While this solution is attractive in principle, I contend that it lacks empirical support. The Mycenaean evidence for an archaic *i*-stem formation boils down to a single token which is better explained as a scribal error, as I show in §4.4.2. Additionally, the archaic status of Homeric *τερμίδεις* hinges on the assumption that linking *-o-* is also an early phenomenon in the history of Greek. As I argue in §4.4.3, however, this feature more likely developed relatively late in the Homeric *Kunstsprache*. Without the presence of linking *-o-* from the outset, an *i*-stem-derived **termi-went-* would be at odds with hexametric scansion while an original **termid-went-* would not incur such a problem. I therefore characterize the base of Homeric *τερμίδεις* as an innovative *i*-stem based on an earlier *id*-stem. Recent scholarship, such as van Beek 2022a and Lundquist 2023, has recognized this directionality of change in some Homeric *i*-stems, thereby challenging textbook examples of the *i*- to *id*-stem trajectory. I present these comparanda in §4.4.3.3.

4.4.2 The Mycenaean evidence

4.4.2.1 *te-mi-dwe* in the Linear B corpus

The adjective *te-mi-dwe* /termidwen(t)/ ‘wedged’ is attested, in different inflectional forms, sixteen times on fifteen different Linear B tablets (twelve from Knossos, three from Pylos), all dealing with chariot wheels (series S-). The complete dossier, including find spots and scribal hands, is given in Table 9.

¹⁴⁹ This account is also in Lejeune 1958: 20, Bader 1974: 15–6, and Ruijgh 1976: 12, 1979: 211.

Table 9: Occurrences of *te-mi-dwe*+ on Linear B tablets (after *KT*⁶ and *PT*³).

PARSING	TRANSCRIPTION	SPELLING	TABLET	SCRIBE	FIND SPOT
NOM.SG.N	termidwen(t)	<i>te-mi-dwe</i>	KN So 894	—	Bull Relief Area
			KN So 894	—	Bull Relief Area
			KN So 4429	130	Arsenal
			KN So 4448	130	Arsenal
			KN So 4449	130	Arsenal
			KN So 4431	131 [?]	Arsenal
NOM.PL.N	termidwenta	<i>te-mi-dwe-ta</i>	KN So 4434	131	Arsenal
			KN So 4439	131	Arsenal
			KN So 4445	131	Arsenal
			PY Sa 791	26	Room 7 + Chasm
			PY Sa 793	26	Room 7
		<i>te-]mī-ḍwe-ta</i>	KN So 1053	—	Bull Relief Area
		<i>te-mi-dwe-te</i>	KN So 4437	130	Arsenal
NOM.DU.N	termidwente		KN So 4433	131	Arsenal
		<i>te-mi-de-we-te</i>	PY Sa 1266	26	Room 7 + Chasm
	termi(d)wente	<i>]tē-mi-we-te</i>	KN Sf 1811	—	Arsenal

Always attested in the neuter, *te-mi-dwe* is a specifier of the Mycenaean word for ‘wheel’, a neuter **-men-* stem *a-mo* /ar(h)mo/ (see *DMic.* I 57–8; cf. alph. Gk. ἄρμα ‘chariot’), mostly expressed through the logogram ROTA in the dossier. The adjective is in complementary distribution with another **-went-* derivative, *o-da-twe-ta* ~ *o-da-tu-we-ta* /odatwenta/, *o-da-ke-we-ta* ~ *o-da-ku-we-ta* /odakwenta/ NOM.PL.N (cf. §4.2.2.1 above). The interpretation of these designations goes back to Crouwel (1981: 87–

8),¹⁵⁰ who argues that they describe two different ways in which the spokes of wooden wheels were attached to the felloes. The adjective *o-da-twe-ta* would then indicate “spokes morticed into the felloe like ‘teeth’, in the same way as on actual, contemporary Egyptian chariot wheels.” As for *te-mi-dwe*, it would designate “spokes with wedges on either side where they meet the felloe,” with archaeological parallels in Iron-Age mainland Greece. This account is still essentially accepted in more recent treatments, such as Bernabé and Luján 2008: 208, with the alternative suggestion that the wedges would secure the spokes to the hub of the wheel instead (see also Bernabé 2019: 516).

4.4.2.2 *ṭe-mi-we-te and its relationship with the KN So tablets*

Let us now consider the morphology of *te-mi-dwe*. As shown in **Table 9**, the attested spellings would all support a reading *termidwent-*, presupposing an *id*-formation, except for one. The spelling *ṭe-mi-we-te* on KN Sf 1811, given in (97), features the notation *-we-* instead of expected *-dwe-* or *-de-we-*.

(97) Text of KN Sf 1811 (*recto*), after *KT*⁶

.1	]	CAPS	12	[
.2	]	CAPS	214	[
.3		]ṭe-mi-we-te	ROTA ZE	21
.4		]	ROTA ZE	8
.5	o-da-]	kṭe-we-ta	ROTA ZE	7 a-mo 1[
.6	]o-da-ke-we-ta		ROTA ZE	172
.7		] <i>vacat</i>		

¹⁵⁰ Crouwel's suggestion first circulated *apud* Ruijgh 1976: 12–4, 1979: 211–3.

Since stops in coda position are always notated in Linear B (see §3.3.1) and one would expect both elements of the cluster to be represented (cf., e.g., the personal name *wi-do-wo-i-jo* /Wid.wohios/), this spelling has been interpreted in two different ways:

- i. As evidence for a morphological variant of the form, /termi-wente/, which would derive from an *i*-stem base **termi-*, rather than *termid-*.¹⁵¹
- ii. As a scribal error, specifically an omission of *-de-* from the target sequence *te-mi-de-we-te* (1× on PY Sa 1266).¹⁵²

As mentioned in §4.4.1, the validity of option (i) is crucial to Meier's (1975: 75) reconstruction of an original *i*-stem **termi-* behind the *te-mi-dwe*/τερμίδεις pair and it would feed into his overarching argument for an early *i-* to *id*-stem change in the history of Greek. This hypothesis qualifies *te-mi-we-te* as an archaic outlier within an otherwise innovative dataset.

Although in Mycenaean one can find changes in progress and variation between archaic and innovative forms,¹⁵³ I contend that this is not such a case. The tablet KN Sf 1811, on which *te-mi-we-te* is attested, belongs to the same macro-context of discovery as most So tablets in the dataset, the Arsenal,

¹⁵¹ See Lejeune 1958: 20 and 1968: 35 fn. 62; *Docs*² 584 (= *New Docs* 1036); Meier 1975: 75; Ruijgh 1976: 12 and 1979: 211; Viredaz 1983: 149–50; *DMic.* II 328 s.v. *te-mi-dwe*; Bernabé 2019: 516 fn. 27.

¹⁵² See *Docs*² 584 (= *New Docs* 1036); *DMic.* II 328 s.v. *te-mi-dwe*; Bernabé 2019: 516 fn. 27.

¹⁵³ To mention but a few examples, although each is to some extent debated: unassibilated vs. assibilated **t^(h)i*; the outcomes of **ŋ* in a labial environment, with <ɔ> [ɒ] being archaic and <a> [a] innovative; the archaic athematic DAT.SG ending *-ei* being replaced by the inherited LOC.SG *-i*. See Thompson 2021 for a recent discussion with additional references.

i.e. an external building to the Knossos palace proper possibly connected with the storage of chariots and weaponry (see Driessen 1996). The common find spot suggests that the recording and/or storage of these tablets happened in close relationship. Such a relationship is reflected by their content as well, as KN Sf 1811 is a so-called “totaling” tablet, i.e., it lists the total numbers of *te-mi-dwe* and *o-da-twe*- wheels, whereas the So tablets describe the material, typology, and decoration of wheels (see Crouwel 1981: 87; Bernabé 2019: 513–5). KN Sf 1811 is the only tablet outside of the KN So series to use such terminology, and the only feature that grants this document being assigned to a separate series is that its first two entries record chariot frames (logogram *CAPSus*) before listing wheels. Although a specific scribal hand for KN Sf 1811 has not been identified, one could add that all scribal hands found to be active in the Arsenal area seem to form a coherent cluster in terms of paleographic features (see Driessen 2000: 151; Firth and Skelton 2016: 173–5). Finally, Driessen (1996: 487) has identified quantitative correspondences between the number of chariot frames and wheels listed on KN Sf 1811 and of those listed in the other Arsenal tablets, suggesting that this document might be “the totalling tablet inventorying the chariot bodies and wheels in the palatial stores.” All these elements combined would indicate that KN Sf 1811 and the spelling *te-mi-we-te* should rather be assessed in terms of linguistic homogeneity and continuity with the rest of the dataset. To explain the form as bearing witness of an archaic *i*-stem, one could perhaps imagine that the unidentified scribe of KN Sf 1811 was one or two generations older than the rest of the Arsenal scribes, and that their idiolects differed precisely in this feature, with the shift of *i*- to *id*-stem becoming generalized in that exact span of time. Though theoretically possible, this scenario is at the very least hard to support independently.

I therefore argue that option (ii) provides a more solid explanation for the spelling *te-mi-we-te*. The omission hypothesis, whereby the scribe failed to notate a syllabogram <de> in the target sequence *te-mi-de-we-te* is appealing for two reasons. First, the spelling *te-mi-de-we-te* instead of *te-mi-dwe-te* with a “complex” sign is indeed attested — though at Pylos instead of Knossos.¹⁵⁴ Second, KN Sf 1811 is the only one of the Arsenal tablets in which both *te-mi-dwe* and *o-da-twe* wheels are recorded.¹⁵⁵ The scribal choice to deviate from the consistent use at Knossos of the “complex” syllabogram <dwe> and opt for the “analytic” notation <de-we> may then be influenced by this fact. The document attests twice the variant of the adjective with a base *odak-*, spelled *o-da-ke-we-ta* (cf. *o-da-ku-we-ta* mentioned above), and in this case an “analytic” spelling is likely the only option available to the scribe.

Linear B, as far as we know (see Del Frego 2019: 134), did not have a “complex” sign <kwe>, while it did have <dwe> (hence *te-mi-dwe*) and <twe> (hence *o-da-twe-ta*).¹⁵⁶ Therefore, the scribe might have

¹⁵⁴ Syllabograms are defined as “complex” when they have a <CCV> structure, thus representing consonant clusters with a single grapheme (see §3.1).

¹⁵⁵ The only other example, outside of the Arsenal area, is KN So 984, found in the area of the Bull Relief, i.e. inside the Knossos palace proper. On this document, a spelling *o-da-tu-we-ta* is found together with *te-mi-dwe* and *te-mi-dwe-ta*. According to Bernabé (2019:517–8), this document should be ascribed to a separate registration than the other So tablets, based on its peculiar terminology and scribal hand.

¹⁵⁶ More precisely, the Linear B inventory already contained a series of syllabograms, the *q*-series, that could be used to represent a cluster /kw/ instead of a putative *kw*-series. The *q*-series was generally used for sequences with labiovelar stops, within which *-qe-* [k^we]. Sometimes, it was also used for etymological **kw/*k^w* (as opposed to **k^w*), the most prominent example being *i-qo* /ikkwoi/ NOM.PL ‘horse’ < **h₁ekwo-*. Nonetheless, **o-da-qe-ta* is nowhere attested in Linear B, which might suggest it would not be a suitable spelling for more recent *kw*-clusters, or when a syllable or morpheme boundary was in between the two sounds (cf., e.g. *a-pu-ko-wo-ko* /ampuk-worgoi/ NOM.PL ‘headband-maker’, mentioned in §4.2.1; see Melena 2014: 40–1).

intended to notate *o-da-ke-we-ta* and *te-mi-de-we-ta*, both with an “analytic” notation and a <Ce-we> sequence, for the sake of uniformity, but incurred an omission slip in the process. Additionally, the Pylian evidence included in **Table 9** is again useful because it shows, in the case of Hand 26, that even the same scribe might use both a spelling with the complex sign (*te-mi-dwe-ta* on PY Sa 791 and 793) and the “analytic” one (*te-mi-de-we-te* on PY Sa 1266). The scribal error hypothesis therefore explains how and why intended /termidwente/ could surface as *te-mi-we-te* while also accommodating the archaeological, paleographic and textual relationship between KN Sf 1811 and the rest of the Arsenal tablets.

4.4.2.3 A parallel formation in the Pylos Ta series

To conclude the discussion of the Mycenaean material, it is worth mentioning a morphological parallel in the Pylos Ta series. In the context of a registration of furniture and paraphernalia for ritual banquets, the unambiguous *id*-stem *to-qi-de* /tork^widei/ DAT.SG.F (3×) is used to describe tables and is taken to designate carved decorations ‘with spiral (motifs)’ (see §1.4.1). Within the same series of tablets, all recorded by the same scribe (Hand 2), a **-went*-derivative of this very *id*-stem is attested, namely *to-qi-de-we-sa* /tork^widwessa/ NOM.SG.F, with reference to a vessel (*qe-ra-na* /g^welanā/ ‘vessel for pouring’ or /g^wheranā/ ‘vessel for hot water’; see *DMic.* II 195) again ‘with spiral (motifs)’. Functionally and semantically, the dative of the base with instrumental value and this **-went*-derivative are therefore equivalent and interchangeable within the idiolect of one scribe.¹⁵⁷

¹⁵⁷ This is also visible, within the same PY Ta Series, in the alternation between *po-pi* /popp^{hi}/ INS.PL (1×) and *pe-de-we-sa* /pedwessa/ NOM.SG.F (2×), both meaning ‘with feet’, and between *au-de-pi* INS.PL (10×) and *au-de-we-sa* NOM.SG.F (1×), of obscure interpretation but with clear morphology (see §4.2.2–3).

Not only does this attest to the vitality and productivity of **-went*-stems in Mycenaean, compared to a more crystallized and poetic usage in 1st-millennium Greek (as already pointed out by Lejeune 1958: 6–8), but more specifically of **-id-went*-stems, as it were. I take this as additional evidence that, especially in the context of a **-went*-derivative like *te-mi-dwe*, it is uneconomical to posit two parallel formations in Mycenaean, one with an *i*-stem and one with an *id*-stem base. The examination of the Homeric evidence, coming up in the following section, corroborates this claim.

4.4.3 The evidence from epic poetry

4.4.3.1 *τερμίδεις* in the Homeric poems and Hesiod's *Works and Days*

After Mycenaean, *te-mi-dwe* resurfaces in the Homeric poems as *τερμίδεις*. The adjective is attested once in the NOM.SG.F *τερμίδεσσα* in *Iliad* 16.803, where it describes the shield (*ἀσπίς*) of Patroclus as he is struck by Apollo, moments before he is killed by Hector. It also appears in the ACC.SG.M *τερμίδεντα* in *Odyssey* 19.242 with reference to a cloak (*χιτῶνα*) that Odysseus, in disguise as Aethon, mentions to Penelope as part of his mendacious tale. The line end *καὶ τερμίδεντα χιτῶνα* of the *Odyssey* is also found in Hesiod's *Works and Days* 537 in the context of advice on how to face the winter cold. All these occurrences are given in (98) with text and translation.

(98) Occurrences of *τερμιόεις* in Homer and Hesiod¹⁵⁸

a. Hom. *Il.* 16.802–3: αὐτὰρ ἄπ’ ὤμων

ἄσπις σὺν τελαμῶνι χαμαὶ πέσε τερμιόεσσα·

and from his shoulders

the edged shield with its strap fell to the ground.

b. Hom. *Od.* 19.241–3: καὶ οἱ ἐγὼ χάλκειον ἄορ καὶ δίπλακα δῶκα

καλὴν πορφυρέην καὶ τερμιόεντα χιτῶνα,

αἰδοίως δ’ ἀπέπεμπον ἐϋσσέλμου ἐπὶ νηός.

I, too, gave him a sword of bronze, and a beautiful

purple cloak of double fold, and a fringed tunic,

and with all honor sent him off on his benched ship.

c. Hes. *Op.* 536–7: καὶ τότε ἔσασθαι ἔρυμα χροός, ὥς σε κελεύω,

χλαῖνάν τε μαλακὴν καὶ τερμιόεντα χιτῶνα·

And that is when you should put on a defense for your skin, as I bid you:

a soft cloak and a tunic that reaches your feet.

Commentators, ancient and modern alike, have sought a semantic interpretation for the adjective that would match the sense of *τέρμα* as ‘endpoint’ and the materiality of both shields and tunics. The task is perhaps easier in the case of a tunic, in which one can imagine a fringe or hem that extends at the

¹⁵⁸ The edition for the Homeric text is West’s (2000 and 2017), with a translation minimally adapted from Murray’s (1995 and 1999). As for Hesiod, the text follows Solmsen’s (1990) edition while the translation is Most’s (2018).

bottom of the garment (see already Helbig 1887: 174–5 with drawings).¹⁵⁹ As for the ἀσπίς, which refers to both round and oblong shields, one could imagine an edge extending outwards around the shield or a “long” shield that reaches down to the ground (see Trümper 1950: 24).¹⁶⁰ More recent lexica still echo these interpretations (*BrDAG* 2101: ‘fringed, hemmed’; *CGL* 1371: ‘edged, bordered’), though not without some caution (see O’Sullivan in *LfgreE* IV 402).

As for commentaries, the *Basel Commentary* (Brügger 2018: 348–9) offers a comprehensive but largely conservative overview of Iliadic *τερμίοεσσα*. It leans toward an interpretation as ‘furnished with a rim’ and concludes that the Mycenaean evidence is suggestive but ultimately inconclusive for understanding the Homeric usage, mentioning comparanda like *μητιόεις* ‘wise in counsel’ for morphological parallels. No strong claim is made about the form’s diachronic development. By contrast, Janko (1994: 413) explicitly supports a historical connection between *τερμίοεσσα* — which he translates as ‘edged’ — and Mycenaean *te-mi-dwe*, remarking on the metrical reshaping of the form and

¹⁵⁹ See also the *D-scholia* on Hom. *Od.* 19.242 (after Ernst 2006: 355): *τερμίοεντα· οἱ μὲν “τέλειον, συναποτερματιζόμενον ὅλῳ τῷ σώματι, ποδῆρῃ”, οἱ δὲ “σύμμετρον, καὶ μήτε ἐνδέοντα μήτε ὑπέρμετρον”* (“According to some, ‘complete’, ‘covering the body in full, up to the end’, ‘reaching to the feet’; according to others, ‘well-fitted’, as in ‘neither falling short nor exceeding the measure’”). Cf. Hesych. τ 538 H.-Cunn. *τερμίοεντα· ποδῆρῃ, καὶ εὖμετρον, τὸν μέχρι τῶν ποδῶν τερματιζόμενον* (“Reaching down to the feet, and also well-fitted, ending neatly at the feet”).

¹⁶⁰ See also the *D-scholia* on Hom. *Il.* 16.803 (after van Thiel 2014: 495): *τερμίοεσσα· ποδῆρης, ἢ ὅλον τὸν ἄνθρωπον σκέπουσα, μεγάλη* (“Reaching to the feet, guarding the man all over, large in size”). Cf. Hesych. τ 539 H.-Cunn. *τερμίοεσσα· μέχρι τῶν ποδῶν ἀποτερματιζομένη* (“Reaching down neatly to the feet”).

characterizing it as an archaic term whose meaning was reinterpreted in epic performance. The following sections further clarify the conditions and motivations behind such refashioning.

4.4.3.2 *The shape of τερμίοις in the early Kunstsprache*

The Epic occurrences of τερμίοις — which in this case correspond to the total occurrences in alphabetic Greek, excluding commentators and lexicographers — all solidly display an *i*-stem base for the *-went-derivative.¹⁶¹ This fact, if taken at face value, feeds into the reconstruction of an *i*-stem form *termi-, which would be preserved as an archaism, vis-à-vis the already innovative Mycenaean evidence, which displays *termid*-. I, however, argue that the adjective τερμίοις could only surface with an *i*-stem base in a relatively late phase of the evolution of the Homeric *Kunstsprache*. The form as we have it is metrically acceptable in the dactylic hexameter because it features a linking -o- between the *i*-stem base and the derivational suffix *-went-.

This ensures that the word always begins with a dactyl, e.g. τερ.μι.ό.εν.τα, – ∪ ∪ ∶ – ∪. As the evidence discussed in §4.3.2.3 shows, linking -o- in *-went-stems is arguably a late development in the

¹⁶¹ The base of the adjective is only attested once as a *glossa* in Hesychius, but it is printed between *cruces* by Hansen and Cunningham: †τερμίζ†· πούς (Hesych. τ 542 H.-Cunn.). The editors now consider this form an interpolation of contextual material into the apograph and suggest, in their apparatus, the segmentation τ' έρμίζ based on Hesych. ε 5958 L.-Cunn. έρμίζ· τόρνος. πούς κλίνης (cf. έρμα 'prop, support'). Even if one took the entry at face value, in the absence of any oblique form it would still be impossible to establish whether this was an *id*-stem (with oxytone accentuation in the NOM.SG, as printed by the editors) or an *i*-stem (with a barytone NOM.SG τέρμις, as per Meier 1975: 75). Moreover, already Meier (1975: 75) admits that τερμίζ (or τέρμις) could be a back formation from the *-went-derivative τερμίοις. Be that as it may, the form has no heuristic value in deciding this matter.

Homeric diction, which implies the existence of earlier forms without such linking vowel. It follows that, if the adjective featured an *i*-stem base since before the development of linking *-o-*, it would have the shape **termiwenta* (with the *w*-glide restored). Such a form, though, would result in a cretic (**ter.mi.wen.ta*, – ◡ – ◡) and would never scan in a dactylic hexameter. If instead we posited an *id*-stem form **termidwenta*, i.e. just as in Mycenaean, this one would scan, since it would contain a spondee: **ter.mid.wen.ta*, – – ÷ – ◡. It is then this last form, with an *id*-stem rather than an *i*-stem base, that would be metrically close enough to the attested $\tau\epsilon\rho\mu\acute{\iota}\omicron\epsilon\nu\tau\alpha$, with dactylic structure, to be its precursor.¹⁶² As illustrated in (99), in both metrical positions in which $\tau\epsilon\rho\mu\acute{\iota}\omicron\epsilon\iota\varsigma$ is attested, an *id*-stem precursor would offer a metrically viable alternative to the transmitted forms.¹⁶³

(99) Occurrences of *τερμύοις* in Homer with proposed reconstruction

- a. *Il.* 16.803 ἄσπις : σὺν τελα:μῶνι χα:μαι πέσε |^{BD}τερμιό:εσσα
 — — : — ∪ ∪ : — ∪ ∪ : — ∪ ∪ |^{BD}τερμιδ:φεσσα

¹⁶² The two shapes, C – ◡ – xǞ (as in *termio(w)enta*) and C – – – xǞ (as in **termidwenta*), are similar in both metrical structure and localization within the hexameter—but they are not identical. According to Hagel’s (2004) tables, both shapes occur in the same four positions in the Homeric poems — ending in the 7th, 11th (= trochaic caesura), 19th, or 24th (=verse end) mora — though words shaped like *termidwenta* also display a few marginal occurrences at the 18th mora (restricted to the *Iliad*). The main difference lies in the relative frequency with which they are localized in two of these slots: C – ◡ – xǞ is found verse-finally in about 75 % of cases across the Homeric poems and, secondarily, at the trochaic caesura (~16%, with a peak of ~25% in the *Iliad*), whereas C – – – xǞ shows the reverse preference (~34% at verse end, ~50% at the trochaic caesura).

¹⁶³ This preform is also posited by Le Feuvre (2016: 194), who mentions it in passing when discussing the relative lateness of the allomorph -όφεντ- as opposed to -φεντ- (cf. §4.4.4 below). Attested *τερμίεις*, she comments, would be “refait et remplaçant la forme étymologique *τερμίδ-φεντ-.”

- b. *Od.* 19.242 καλὴν : πορφυρέην καὶ : τερμιόεντα χιτῶνα
 – – : – ∪ ∪ : – – : τερμιδῖ:φεντα ∪ : – ×

I therefore envision an original adjective essentially equivalent in form with Mycenaean *te-mi-dwe*, i.e. a shared archaism with an *id*-stem base and without linking vowel, belonging to the earlier stage of the Homeric *Kunstsprache*. This form would be the only one metrically acceptable. Only after the development of linking *-o-*, the *id*-stem version of the adjective and an *i*-stem variant would become metrically equivalent and a potential substitution possible. This is when a form like attested τερμιόεις could first appear in the Homeric *Kunstsprache* and ultimately be the only surviving variant in the textual tradition. This proposal, summarized in **Table 10**, characterizes the *id*-stem variant as archaic, thus reversing Meier's (1975: 75) account and providing further confirmation to my conclusion on the Mycenaean evidence in §4.4.2.

Table 10: Proposed trajectory of changes from Homeric **termidwent-* to *termioent-*

Early <i>Kunstsprache</i>	<i>*ter.mid.wen.ta</i> – – – ∪	[†] <i>ter.mi.wen.ta</i> – ∪ – ∪
Linking <i>-o-</i> develops	<i>*ter.mi.do.wen.ta</i> – ∪ ∪ – ∪	<i>*ter.mi.o.wen.ta</i> – ∪ ∪ – ∪
Transmitted text	<i>*ter.mi.do.en.ta</i> – ∪ ∪ – ∪	<i>ter.mi.o.en.ta</i> – ∪ ∪ – ∪

A few points remain to be established: first, the motivation for this directionality of changes, i.e. from *id-* to *i-*stem, and whether it is an isolated example in the development of epic diction or reflects a more general tendency; second, why there is no trace in the textual tradition of a variant **termidoenta*, albeit metrically well-formed. I address these questions in the following section.

4.4.3.3 Homeric *τερμιόεις* and artificial *i*-stems

The observations put forward above describe a historical development whereby an original stem **termidwent-*, the only one possible *metri gratia*, became metrically equivalent to an innovative *i*-stem variant only after the rise of linking *-o-*. At this stage, my proposal implies the presence of two alternative stems, **termidowent-* and **termiowent-*, of which only the latter survives in the extant tradition. One question remains to be addressed, namely what justifies the creation and rise to prominence of an *i*-stem alternant **termiowent-* if **termidowent-* was still metrically licit. Beyond the abovementioned proneness to reshaping that **-went*-stems display, at least part of the answer lies in the behavior of *i*- and *id*-stem nouns. I have already mentioned in §4.4.1 how Meier (1975: 13) recognizes that some original *id*-stems build secondary *i*-stem ACC.SG *-iv* in Homer. He mentions the examples listed in (100).

(100) Homeric *id*-stems with secondary ACC.SG *-iv* according to Meier (1975: 13)

- a. γλαυκῶπις ‘bright-eyed’: γλαυκῶπιδ- (*Il.* 6×, *Od.* 4×), γλαυκῶπιν (*Od.* 1×)
- b. ἔρις ‘strife’: ἔριδ- (*Il.* 31×, *Od.* 4×), ἔριν (*Od.* 4×)
- c. θούρις ‘fierce, tough’: θούριδος (*Il.* 21×, *Od.* 1×), θούριν (*Il.* 6×)
- d. Κύπρις, epithet of Aphrodite: Κύπριδα (*Il.* 2×), Κύπριν (*Il.* 1×)

The form θούρις (100c) was also recently re-examined by van Beek (2022a, esp. 260–1), who provided a more detailed account of the creation of the accusative θούριν. This *i*-stem form would be a replacement of an older form, either **θούρον* or **θούρην*, under the influence of the formulaic phrase θούριδος ἀλκῆς GEN.SG ‘fierce fighting spirit’. Van Beek (2022a: 265–71) also takes θούριδος as an artificial form, created on the basis of **θούρου* or **θούρης* by contamination with the antonym ἀναλκίς ‘cowardly, without

strength'. Van Beek, in line with Meier (1975: 12), believes that ἄναλκίς, unlike θοῦρις, was originally an *i*-stem. Lundquist (2023: 92), however, argued that ἄναλκίς itself was born “as a bona fide *-iδ*-stem.” The adjective is attested 17 times with an oblique stem ἀνάλκιδ- in the Homeric poems (*Il.* 13×, *Od.* 4×) and only once as an ACC.SG ἄναλκιν in the *Odyssey*. Beyond this purely quantitative datum, Lundquist is able to show how ἄναλκιν results from the adaptation of formulaic material originally containing ἀνάλκιδα to match the syntax of its specific context.

We can therefore add ἄναλκίς to the forms in (100) as another example of an *id*- to *i*-stem change in Homer. These comparanda show that a shift from *id*- to *i*-stem morphology is a functioning feature of epic diction. But is such alternation, and the optionality it implies, sufficient to account for the eventual predominance of the *i*-stem variant in *τερμίοις*? It does render the change I am proposing possible, and one could argue that the survival of only one version of the adjective is just an accident of tradition. But rather than attributing this outcome to chance, I shall consider whether other linguistic or stylistic pressures made the *i*-stem preferable within oral composition.

When discussing artificial formations in the epic language, van Beek (2022a: 264) remarks that such mechanisms, whose linguistic motivations are often unarticulated, can be seen as contaminations. In the domain of epic oral composition, contaminations would be driven by the co-occurrence of similar words in the same metrical positions. In this perspective, original **termidowent*- and especially its projected development **termidoent*- would be an outlier within Homeric **-went*-adjectives, as the only **-idoent*-stem, as it were. On the other hand, many forms match attested *τερμίοις* in both shape and metrical position. Examples are given in (101), but it should be noted that the formal similarity in most of them only holds at a surface level, due to a stem ending in *-ιόεντ*-, and is not etymological.

(101) Forms with -ιόεντ-/-ιόεσσαν occurring in the same positions as *τερμίοις*

a. *τειχιόεις* ‘walled’, cf. *τείχος* ‘(city) wall’:

Il. 2.559 οἱ δ’ Ἄργός τ’ εἶχον Τίρυνθά τε τειχιόεσσαν (cf. *Il.* 2.646)¹⁶⁴

b. *ὄκριόεις* ‘rugged’, cf. *ὄκρις* ‘jagged point’:

Il. 4.518 χερμαδίῳ γὰρ βλήτο παρὰ σφυρὸν ὄκριόεντι (cf. *Il.* 8.327)¹⁶⁵

c. *μητιόεις* ‘wise in counsel’, cf. *μήτις* ‘skill, wisdom’:

Od. 4.227 τοῖα Διὸς θυγάτηρ ἔχε φάρμακα μητιόεντα

d. *λειριόεις* ‘like a lily’, cf. *λείριον* ‘lily’:

Il. 13.830 μέναι ἐμὸν δόρυ μακρόν, ὃ τοι χροά λειριόεντα

Il. 3.152 δενδρέῳ ἐφεζόμενοι ὅπα λειριόεσσαν ἰείσιν

e. *σκιόεις* ‘shadowy’, cf. *σκιά* ‘shadow’:

Il. 5.525 ζαχρειῶν ἀνέμων, οἳ τε νέφεα σκίοεντα¹⁶⁶

Il. 12.157 ἄς τ’ ἄνεμος ζαῆς, νέφεα σκίοεντα δονήσας

f. *ῥιόεις* ‘rich in crops’, cf. *ῥῖα* ‘provisions for a journey’:

Il. 5.36 τὸν μὲν ἔπειτα καθείσεν ἐπ’ ῥιόεντι Σκαμάνδρῳ

g. *ίοεις* ‘violet-colored, dark’, cf. *ῖον* ‘violet’:

Il. 23.850 αὐτὰρ ὃ τοξευτῆσι τίθει ἰόεντα σίδηρον

¹⁶⁴ A connection between *τερμίοις* and *τειχιόεις* ‘walled’ is already in *GEW* 880 s.v. *τέρμα*.

¹⁶⁵ Although *ὄκριόεις* is taken by Lejeune (1958: 9) as built on an *i*-stem, its base *ὄκρις* is only attested after Homer as an *id*-stem (see Aesch. *PV* 1016 *ὄκριδα*). Additionally, an *id*-stem formation would again be preferable *metri gratia*, if we posit a preform **okrid-went-* instead of **okri-went-*. The presence of the *muta-cum-liquida* cluster in the form, at any rate, would have allowed for more metrical flexibility.

¹⁶⁶ Cf. *Il.* 11.63, *Od.* 1.365 (= 4.768 = 18.399), 5.279 (= 7.268), 8.374, 10.479, 11.334 (= 13.2), 11.592, 23.299.

There seem to be grounds to imagine that aberrant **termidoent-* was replaced over time by *τερμιόεις* by lexical contamination with these other **-went-*adjectives. These forms were formally equivalent at a synchronic level (i.e. once linking *-o-* had developed), and since the shift from *id-* to *i-*stems was independently active in the poetic grammar of the bards, these factors could co-operate in favoring an artificial *i-*stem formation such as *τερμιόεις*, instead of a more marked **termidoent-*.

CHAPTER 5

An Optimality-Theoretic Account of the Rise of Linking -o-

The data reviewed in the preceding sections point to an ostensible difference between Mycenaean and Homeric Greek in the treatment of consonant clusters at morphological boundaries. In Mycenaean, consonant clusters may arise in compounding, derivation and inflection without requiring the insertion of a linking vowel. In Homeric Greek, by contrast, at least a subset of these sequences surface with linking -o-. The primary task of the analysis is therefore to account for the distribution of these repaired and unrepaired configurations and to identify the factors driving the insertion of linking -o-.

A second issue concerns the interpretation of the surface segment [-o-]. As argued in connection with the Mycenaean material, in some cases this segment reflects the vocalization of historical syllabic sonorants rather than genuine linking vowels. Since both processes yield identical surface outputs, the formal overlap between them must also be taken into consideration in the analysis of the Homeric evidence (cf. my discussion of Bader's proposal in §4.3.1.1). The discussion that follows therefore addresses both the conditions under which linking -o- is introduced and the extent to which individual forms may instead continue earlier vocalization processes.

After introducing the OT constraints employed in the analysis, the final section addresses a fundamental question concerning the status of linking -o-. Specifically, the issue is whether linking -o- should be analyzed as thematization, that is, as a morphological operation whereby consonant-final stems are recharacterized as thematic when serving as inputs to morphological operations, or rather as

vowel epenthesis, albeit one potentially restricted to the stem level. The answer to this question will refine the general configuration of the OT model developed below.

5.1 Syllable-Based Markedness Constraints

In this section, I set out to demonstrate that at least part of the distribution of linking *-o-* can be described by appealing to constraints sensitive to syllable structure. Since I defer discussion and modeling of the exact status of linking *-o-* to §5.3, the faithfulness constraint that I use in this section as opposing its insertion is DEP-IO, already employed in my analysis of liquid vocalization in Mycenaean (see §2.1) and restated in (102) below. This constraint generally refers to segments, without stating a dispreference for specific kinds of segments or morphological material (see DEP-V and DEP-MORPH, discussed in §5.3). This choice aims to focus, for the moment, on the markedness constraints violating DEP-IO and triggering the insertion of linking *-o-*, regardless of whether it corresponds to vowel epenthesis or thematization.

(102) DEP-IO

Any output segment must have a correspondent in the input.

Count one violation for each inserted segment in the output.

5.1.1 Overlap with sonorant vocalization: *PEAK/LIQUID and *PEAK/NASAL

As seen in §4.2.1–2, a number of Mycenaean compounds (see **Table 5.A**) as well as a **-went*-derivative (*o-wo-we* /ohwowens/ ‘with handles’) can be interpreted as displaying the phonological outcomes of vocalized sonorants at the end of their FCs, rather than instances of linking *-o-*. The development of these forms is generated by the OT model I devised in §2.1 for the Mycenaean reflexes of **ŕ*, which I

recapitulate below. In (103), I repeat the two core constraints that, together with DEP-IO, generate cases of word-medial ʔ vocalization, namely *PEAK/LIQUID and ALIGN-Left(μ , Prosodic Word), while (104) is their ranking as established in §2.1.3.

(103) Core constraints for Liquid Vocalization in Mycenaean

a. *PEAK/LIQUID

No liquids as syllable peaks. Count one violation for each syllable peak consisting of a liquid in the output.

b. ALIGN-Left(μ , Prosodic Word)

Align every mora with the left edge of the prosodic word.

Count one violation for each segment between a mora and the left edge of the prosodic word in the output.

(104) *PEAK/LIQUID >> DEP-IO >> ALIGN-Left(μ , Prosodic Word)

The form I selected in §2.1.3 to illustrate this constraint interaction, also part of my dataset in this chapter, is the compound *qe-to-ro-po-pi* /k^wetropopp^{hi}/ INS.PL ‘quadruped’. In (105), I reproduce the tableau for this item in a slightly simplified form, to focus on the constraints relevant here. The high ranking of *PEAK/LIQUID is fatal for candidate (105a), which retains the syllabic liquid. The alignment constraint ALIGN-Left(μ , Prosodic Word) then adjudicates between the remaining candidates, both violating DEP-IO, and ultimately selects (105b) with postvocalization. This analysis, together with its expansion presented in §2.2, generates all the cases of compounds with ʔ at the end of their FCs.

(105)

	/k ^w etrpopp ^{hi} /	*PK/LIQ	DEP-IO	ALIGN-L(μ, PrWd)
a.	k ^w e.tɾ.pɒp.p ^{hi}	*!		23 (1 e, 3 ɾ, 5 o, 6 p, 8 i)
b.	k ^w et.rə.pɒp.p ^{hi}		*	29 (1 e, 2 t, 4 ə, 6 o, 7 p, 9 i)
c.	k ^w e.təɾ.pɒp.p ^{hi}		*	30! (1 e, 3 ə, 4 ɾ, 6 o, 7 p, 9 i)

What the current set of constraints alone does not generate is the vocalization of syllabic nasals, mentioned in passing in §1.4 but not modeled in detail. Since some forms in the present dataset, listed in (106), display **ŋ* either at the end of their FCs (106a–c) or stem-finally before the *-went- suffix (106d), I present a slightly expanded version of the OT analysis in §2.1 to also account for these cases.

(106) Mycenaean compounds and derivatives with **ŋ* at morpheme boundaries

- a. *a-mo-ke-re-[we /Ar(h)mo-klewēs/* PERSONAL NAME < **h₂er-(s)mŋ-*
- b. *a-re-po-zo-o /aleip^ho-dʒohos/* ‘unguent boiler’ < **h₂leyb^hŋ-*
- c. *e-ne-wo-pe-za /e(n)newo-pedʒa/* ‘nine-footed’ < **h₁newŋ-*
- d. *o-wo-we /ohwovens/* ‘with handles’ < **h₂owsŋ-*

Syllabic nasals (**m̥* and **n̥*) are changed to /a/ in all Greek dialects, but /o/ in Mycenaean when adjacent to labials (see van Beek 2022b: 27–30). Similarly to the reflexes of syllabic liquids, vocalized nasals in Mycenaean show some variation in terms of vocalism, as *a*-outcomes are also found in labial contexts: e.g., *e-ka-ma-pi /hek^hma(p)p^{hi}/* INS.PL ‘support (for tables)’ < **seġ^hmŋ-* (see §1.4). Given this variation and the “full” vocalization of nasals (i.e., the concomitant loss of the nasal consonant in the

epenthesized forms), attested /a/ and /o/ likely presuppose an intermediate stage *[ǣ] as part of their development from **ṛ*/*ṛ̥* (cf. van Beek 2022b: 27; Rau 2025: 11).

In order to model this version of sonorant vocalization, I introduce in my analysis the constraints listed in (107), ranked as in (108). The highest ranked *PEAK/NASAL (107a), equivalent to *PEAK/LIQUID, encodes the ban on nasal consonants to serve as syllable nuclei in Greek (as well as elsewhere in the attested Indo-European languages). Since the nasal consonant is effectively lost in the vocalization process, I add the faithfulness constraints MAX-C (107b), ranked lowest to allow for nasal loss. To generate the intermediate stage with a nasalized epenthetic vowel retaining the nasal feature of the input consonant, I finally introduce a more specific MAXIMALITY constraint targeting the [+nasal] feature as an autosegment. The category of faithfulness constraints generally used to refer to autosegmental features is IDENTITY (see McCarthy and Prince 1995), but authors have employed MAX-[±feature] constraints as a development of this basic theory (see LaMontagne and Rice 1995; Causley 1997; Walker 1997; Lombardi 2001). The constraint MAX-[+nasal] therefore penalizes any version of vocalization that does not preserve the [+nasal] feature of **ṛ*, and it is therefore ranked above MAX-C to ensure the selection of *[ǣ] over *[ə] as the outcome of *[ṛ].

(107) Additional constraints for Nasal Vocalization in Mycenaean

a. *PEAK/NASAL

No nasals as syllable peaks. Count one violation for each syllable peak consisting of a nasal consonant in the output.

b. MAX-C

Any input consonant must have a correspondent in the output.
Count one violation for each deleted consonant in the output.

c. MAX-[+nasal]

Any occurrence of a feature specification [+nasal] in the input must have a correspondent in the output. Count one violation for each deleted [+nasal] in the output.

(108) *PEAK/NASAL >> DEP-IO >> ALIGN-L(μ , PrWd), MAX-[+nasal] >> MAX-C

The tableau in (109) illustrates the analysis using the *-went-derivative *o-wo-we* /ohwovens/. The input reflects a preform *ows $\tilde{n}$ wens in which the syllabic nasal is still present, so as to make the context for its vocalization explicit. Given some chronological indeterminacies, this input form is somewhat artificial. The reconstruction assumes the initial laryngeal loss and the pan-Greek simplification of word-final -ts to -s (see Lejeune 1972: 109). Since this development is shared by all Greek dialects, likely including Mycenaean, reconstructing the preform with final -s is preferable. It is however unclear whether such a form ever existed at any stage of Greek, since attested /ohwovens/ further reflects the change of prevocalic *s to h (*ows $\tilde{s}$ wens > *owh $\tilde{s}$ wens) and the metathesis *wh > hw (see Kiparsky 1967: 623–4; de Lamberterie 2009: 93), neither of which is directly relevant to the issues addressed here.

The evaluation of candidates is substantially equivalent to the one in (105). Candidate (109a), with a surface syllabic nasal is ruled out by *PEAK/NASAL. ALIGN-L(μ , PrWd) rules out the candidate with the input nasal parsed as a coda (109c), as it features one more moraic segment than the other forms. Between the two remaining candidates, both violating MAX-C, (109b) [ow.s $\tilde{s}$.wens] is selected as the winner since it still preserves the input [+nasal] feature and does not violate MAX-[+nasal].

(109)

	/owsnwens/	*PK/NAS	DEP-IO	ALIGN-L(μ , PrWd)	MAX-[+nas]	MAX-C
a.	ow.s η .wens	*!		22 (1 <i>w</i> , 3 <i>n</i> , 5 <i>e</i> , 6 <i>n</i> , 7 <i>s</i>)		
b.	ow.s $\tilde{a}$.wens		*	22 (1 <i>w</i> , 3 $\tilde{a}$, 5 <i>e</i> , 6 <i>n</i> , 7 <i>s</i>)		*
c.	ow.s α n.wens		*	29! (1 <i>w</i> , 3 <i>a</i> , 4 <i>n</i> , 6 <i>e</i> , 7 <i>n</i> , 8 <i>s</i>)		
d.	ow.s α .wens		*	22 (1 <i>w</i> , 3 <i>a</i> , 5 <i>e</i> , 6 <i>n</i> , 7 <i>s</i>)	*!	*

In §4.3.1.1, I discussed a proposal by Bader (1969/1970) whereby some 1st-millennium FCs would, as in Mycenaean, show the phonological outcomes of stem-final vocalized sonorants rather than instances of linking *-o-*. All such forms in my dataset are recapitulated in (110). I have already pointed out some philological and etymological difficulties posed by Bader's account and her claims about Greek phonology and dialectology. Nevertheless, the OT model developed for Mycenaean syllabic sonorants also derives the Homeric forms without substantial modification.

(110) Homeric compounds and derivatives with potential syllabic sonorants

Noun → *FC/Stem* _____ *Compound/Derivative*

- a. αἷμα 'blood' → αἶμο^o αἶμο-φόρυκτος 'defiled with blood'
- b. ἄκμων 'anvil' → ἄκμο^o ἄκμό-θετον 'anvil block'
- c. ἀνὴρ 'man' → ἀνδρο^o ἀνδρ(-)ό-κμητος 'man-made'
- ἀνδρ(-)ο-κτασίη 'slaughter of men'
- Ἀνδρ(-)ο-μάχη 'Fighting with men' (PN)
- ἀνδρ(-)ο-φάγος 'eating men'
- ἀνδρ(-)ο-φόνος 'man-slaying'

- d. μήτηρ ‘mother’ → μητρο^ο μητρ(-)ο-πάτωρ ‘mother’s father’
- e. πατήρ ‘father’ → πατρο^ο πατρ(-)ό-θεν ‘from a father’
πατρ(-)ο-κασίγνητος ‘mother’s father’
Πάτρ(-)ο-κλος ‘Father’s glory’ (PN)
πατρ(-)ο-φονεύς ‘father murderer’

By way of example, the tableaux in (111) illustrate how the constraint ranking developed for Mycenaean generates the attested outcomes for the forms in (110). The tableau in (111a) derives the compound πατροφονεύς assuming the zero-grade stem πατρ- as the input for the FC. Since the liquid occurs in interconsonantal position, i.e. a vocalization context, the grammar repairs the cluster with epenthesis, just as in (105) for Myc. *qe-to-ro-po-pi* /k^wetrpopp^{hi}/. In (111b), I present the derivation for αίμοφόρυκτος, in this case assuming the historical zero-grade stem **m̥-* as the input for the FC. An interconsonantal nasal is likewise subject to epenthesis, with the additional loss of the nasal segment itself but the retention of its [+nasal] feature on the epenthetic vowel. This outcome parallels that of Myc. *o-wo-we* /ohwovens/ illustrated in (109).

(111) a.

/patrp ^h onews/	*PK/LIQ	DEP-IO	ALIGN-L(μ, PrWd)
i. pa.t̪r.p ^h o.nēus	*!		32 (1 a, 3 ʃ, 5 o, 14 ēu, 9 s)
ii. pat.rə.p ^h o.nēus		*	39 (1 a, 2 t, 4 ə, 6 o, 16 ēu, 10 s)
iii. pa.t̪r.p ^h o.nēus		*	40! (1 a, 3 ə, 4 r, 6 o, 16 ēu, 10 s)

b.

/haymnp ^h oruktos/	*PK/NAS	DEP-IO	ALIGN-L(μ, PrWd)	MAX-[+nas]	MAX-C
i. hāī.mṇ.p ^h o.ruk.tos	*!		5 ² (2 <i>āī</i> , 2 <i>y</i> , 4 <i>ṇ</i> , 6 <i>o</i> , 8 <i>u</i> , 9 <i>k</i> , 11 <i>o</i> , 12 <i>s</i>)		
ii. hāī.m̃.p ^h o.ruk.tos		*	5 ² (2 <i>āī</i> , 4 <i>ṣ</i> , 6 <i>o</i> , 8 <i>u</i> , 9 <i>k</i> , 11 <i>o</i> , 12 <i>s</i>)		*
iii. hāī.mən.p ^h o.ruk.tos		*	6 ² ! (2 <i>āī</i> , 4 <i>ə</i> , 5 <i>n</i> , 7 <i>o</i> , 9 <i>u</i> , 10 <i>k</i> , 12 <i>o</i> , 13 <i>s</i>)		
iv. hāī.mə.p ^h o.ruk.tos			5 ² (2 <i>āī</i> , 4 <i>ə</i> , 6 <i>o</i> , 8 <i>u</i> , 9 <i>k</i> , 11 <i>o</i> , 12 <i>s</i>)	*!	

This analysis requires some caveats concerning the chronology of these developments and the synchronic availability of the reconstructed input stems. In the case of the *r*-stems, assuming inputs such as ἀν(δ)ρ-, μητρ-, and πατρ- is relatively unproblematic. As discussed in §4.3.1.1, these stems could not only continue historical zero grades (**h₂nṛ-*, **meh₂tṛ-*, **ph₂tṛ-*) but would also be synchronically accessible to speakers in the prevocalic alternants of FCs (e.g., ἀνδρ-άγρια ‘spoils of a slain enemy’, μητρ-αλοίας ‘matricide’, πατρ-αδέλφεια ‘cousin on the father’s side’) and the inflectional paradigm itself (e.g., GEN.SG ἀνδρ-ός, μητρ-ός, πατρ-ός). Therefore, the compounds in (110c–e) could either reflect very old formations that underwent sonorant vocalization — cf. the perennial crux of Homeric ἀνδροτήτα ACC.SG ‘manhood; virile strength’ and the preform **anṛtāta*, defended by some (see, most recently, van Beek 2022b: 321–30 with detailed discussion and further references) — or even be more recent. If the constraint ranking responsible for the vocalization of syllabic sonorants remained essentially unchanged into the post-Mycenaean period, these synchronic sequences would be expected to yield exactly these outcomes.

The situation is less straightforward for the *n*-stems. The vocalization of $*n$ leaves no intraparadigmatic traces of a stem $*mn$ - in either $-\mu\alpha$ formations, where the zero-grade nasal has fully vocalized (e.g., GEN.SG $-\mu\alpha\tau\omicron\varsigma$; < $*mn(t)$ -) or $-\mu\omega\upsilon\upsilon$ ones, where no zero grade at all is retained in the oblique inflection (e.g., GEN.SG $-\mu\omicron\nu\omicron\varsigma$; < $*mon$ -). As a result, the zero-grade inputs assumed in the analysis would not be synchronically available stem alternants in the same way as for the *r*-stems. One context, however, in which the morphological zero grade of $*men$ -formations preserves traces of the inherited nasal is in verbal denominatives in $*mn$ - $\gamma\acute{\epsilon}/\acute{o}$ - such as $\acute{o}\nu\omicron\mu\alpha\acute{\iota}\nu\omega$ ‘name’ : $\acute{o}\nu\omicron\mu\alpha$ ‘name’, $\pi\omicron\iota\mu\alpha\acute{\iota}\nu\omega$ ‘herd’ : $\pi\omicron\iota\mu\acute{\eta}\nu$ ‘shepherd’, $\sigma\eta\mu\alpha\acute{\iota}\nu\omega$ ‘signal’ : $\sigma\acute{\eta}\mu\alpha$ ‘sign’. The FCs $\acute{\alpha}\iota\mu\omicron^{\circ}$ and $\acute{\alpha}\chi\mu\omicron^{\circ}$ could therefore represent archaic formations, as pointed out in §4.3.1.1. Alternatively, under Lejeune’s (*Mém.* III 175) analysis of $\acute{\alpha}\iota\mu\omicron\phi\acute{o}\rho\upsilon\kappa\tau\omicron\varsigma$, the simplex could have acquired its vocalism through regular sound change and subsequently undergone a reshaping from $*\acute{\alpha}\iota\mu\alpha^{\circ}$ to $\acute{\alpha}\iota\mu\omicron^{\circ}$. This solution implies a later formation for the compound but does not falsify the OT analysis put forward above, which likewise derives the vocalization outcomes found in simplicia. More importantly for the purposes of this chapter, Lejeune’s analysis takes the observed $[-o-]$ not as a genuine instance of linking $-o-$, but rather a stem-final vowel belonging to an otherwise consonant-final stem. This observation will become relevant in §5.3.

The most problematic form in this subset is $\acute{\alpha}\chi\mu\acute{o}\theta\epsilon\tau\omicron\nu$ ‘anvil block’. To analyze this form in the same terms as $\acute{\alpha}\iota\mu\omicron\phi\acute{o}\rho\upsilon\kappa\tau\omicron\varsigma$, one should follow Bader (1969/1970: 24) and posit an unattested $*\acute{\alpha}\chi\mu\alpha$ as the base of this compound (see §4.3.1.1). An alternative solution would be taking the stem surfacing in the DAT.PL of $-\mu\omega\upsilon\upsilon$ stems, i.e. $-\mu\omicron\sigma\iota(\nu)$, as the base for the FC $\acute{\alpha}\chi\mu\omicron^{\circ}$. Bader (1969/1970) briefly considers this possibility, citing the DAT.PL $\acute{\alpha}\chi\mu\omicron\sigma\iota$, which is indeed attested, though only once and in a 4th-century CE text (Greg. Naz. *Contra Iulianum* 35.656.7). While this evidence is admittedly late, Homeric $\delta\acute{\alpha}\iota\mu\omicron\sigma\iota\nu$

(*Il.* 2×), the DAT.PL of δαίμων ‘god’, shows that this inflectional pattern is already represented in the epic language. With a synchronic segmentation -μο-σι, speakers might have created -μο^o FCs based on the pattern observed in DAT.PL αἶμασι : FC αἶμο^o and also ἀνδράσι : ἀνδρο^o, πατράσι : πατρο^o, μητράσι : μητρο^o.¹⁶⁷

5.1.2 Dispreference for complex margins: *COMPLEX

The vocalization of syllabic sonorants is the only context in which the Mycenaean evidence points to epenthesis in compounds and *-*went*-stems. In all other contexts and across morphological classes, Mycenaean attests no secure cases of inserted material, whereas a subset of the Homeric evidence displays the insertion of linking -*o*- to repair consonant clusters. I address the factors governing its distribution in the present and following sections.

The first constraint required to account for the development of linking -*o*- in Homer is *COMPLEX, stated in (112), which prohibits syllable margins, whether onsets or codas, containing more than one segment — cf. *COMPLEXONSET, employed in §2.1 and in previous analyses of PIE syllabification (Keydana 2004; Cooper 2014; Byrd 2015). As illustrated in the tableau in (113), *COMPLEX must outrank DEP-IO in order for candidate (113c) to emerge as optimal. By inserting linking -*o*-, this candidate avoids both a complex onset, as in candidate (113a), and a complex coda, as in candidate (113b). Candidate (113d) is, in OT terms, harmonically bounded by candidate (113c): it incurs the same DEP-IO violation assigned to (113c), plus an additional violation of *COMPLEX. It is therefore suboptimal under any ranking of the constraints. The forms accounted for by this ranking are listed in (114).

¹⁶⁷ The argument would be more compelling if *δαίμασι (as expected from *-*mḡ-si*) were attested instead of δαίμοσι, since this would allow the four-part analogy DAT.PL *ἀκμάσι : FC ἀκμο^o = DAT.PL αἶμασι : FC αἶμο^o.

(112) *COMPLEX

Syllables may not have more than one margin segment.

Count one violation for each complex margin in the output.

(113)

	/hudattrep ^h ɛ:s/	*COMPLEX	DEP-IO
a.	hu.dat.tre.p ^h ɛ:s	*!	
b.	hu.datt.re.p ^h ɛ:s	*!	
c.	hu.da.tot.re.p ^h ɛ:s		*
d.	hu.da.to.tre.p ^h ɛ:s	*!	*

(114) Forms accounted for by *COMPLEX >> DEP-IO

Attested form _____ *Losing candidate* _____ *Optimal candidate*

a.	ἄγχ-ό-θι	x[an ^h k ^h .t ^h i]	[an ^h .k ^h o.t ^h i]
b.	γλακτ-ο-φάγος	x[glakt.p ^h a.gos]	[glak.to.p ^h a.gos]
c.	Δι(ϝ)-ο-κλής	x[diw.klɛ:s]	[di.wok.lɛ:s]
d.	δι(ϝ)-ο-τρεφής	x[diw.tre.p ^h ɛ:s]	[di.wot.re.p ^h ɛ:s]
e.	ἔκτ(-)ο-θεν	x[ekt.t ^h en]	[ek.to.t ^h en]
	ἔκτ(-)ο-θι	x[ekt.t ^h i]	[ek.to.t ^h i]
	ἔκτ(-)ο-σε	x[ekt.se]	[ek.to.se]
f.	ἑλε-ό-θρεπτος	x[he.les.t ^h rep.tos]	[he.le.ho ^h .rep.tos]
g.	κερα-ο-ξός	x[ke.ras.kso.os] ¹⁶⁸	[ke.ra.hok.so.os]

¹⁶⁸ For assuming preconsonantal [s] instead of [h] in the derivation of (114f–g), cf. the -εσ^o FCs in §4.3.1.2.

h.	μελαν-ό-χροος	x[me.laŋ.k ^h ro.os] ¹⁶⁹	[me.la.nok ^h .ro.os]
	μελαν-ό-χρως	x[me.laŋ.k ^h rɔ:s]	[me.la.nok ^h .rɔ:s]
i.	πάντ-ο-θεν	x[pant.t ^h en]	[pan.to.t ^h en]
	πάντ-ο-σε	x[pant.se]	[pan.to.se]
j.	ύδατ-ο-τρεφής	x[hu.dat.tre.p ^h ɛ:s]	[hu.da.tot.re.p ^h ɛ:s]
k.	ύψ-ό-θεν	x[hups.t ^h en]	[hup.so.t ^h en]
	ύψ-ό-θι	x[hups.t ^h i]	[hup.so.t ^h i]
	ύψ-ό-σε	x[hups.se]	[hup.so.se]

It is worth noting that some of the complex margins repaired by linking *-o-* constitute *muta-cum-liquida* sequences (114c, d, f, h, j) and are therefore, at least in principle, amenable to *correptio Attica* — although this pattern is itself marginal in the Homeric hexameter. None of these forms, however, is ever attested in the Homeric poems with such a scansion. In every case, the syllabification generated by the present analysis is precisely that implied by the metrical evidence. For reasons of space, it is impossible to reproduce all attestations and/or metrical localizations here. By way of example, see *Il.* 1.176 ἔχθιστος δέ μοί ἐσσι δι³:οτρεφέ⁴:ων βασιλήων, where the heterosyllabic parsing of the cluster [-t.r-] in διοτρεφέων ensures that the word fits the meter.

One final note concerns (114f–g) ἐλεόθρεπτος and κεραόξος. As discussed in §4.3.1.2, these are the only two compounds with *s*-stem FCs that retain their stem formant while also developing linking *-o-*. There I also informally defined a phonological context conditioning this behavior, namely the presence of a consonant cluster at the beginning of second compound members. The OT analysis

¹⁶⁹ Cf. attested μελαγχροής, discussed in §4.3.1.3 and §5.2.3 as a case of underapplication *metri gratia*.

developed here refines this generalization and describes this pattern as the reflex of a more general phonological constraint against complex syllable margins, which is repaired through the insertion of linking *-o-*, rather than as a peculiarity of *s*-stem bases.

5.1.3 Dispreference for trimoraic syllables: $*_3\mu$

Not all forms in the dataset that develop linking *-o-* incur a violation of $*\text{COMPLEX}$. A second group instead produces output forms containing trimoraic, or superheavy, syllables. The marked status of such syllables is well established for Greek, Vedic, and PIE (see §2.1), and accordingly I adopt the constraint $*_3\mu$, stated in (115), in the present analysis. The tableau in (116) illustrates the relevant ranking: candidate (116b) with linking *-o-* is selected because it avoids a superheavy syllable $[\text{m}\text{ɔ}:\mu\text{μ}\text{n}\mu]_{\sigma}$, as in (116a). At the same time, the concurrent action of $*\text{COMPLEX}$ excludes candidate (116c), in which linking *-o-* is not inserted and */n/* is parsed as an onset rather than as part of the preceding coda. The forms instantiating this ranking are listed in (117).

(115) $*_3\mu$

Syllables may not be trimoraic.

Count one violation for each trimoraic syllable in the output.

(116)

	/leymɔ:ntʰɛn/	$*_3\mu$	$*\text{COMPLEX}$	DEP-IO
a.	leɪ.mɔ:μμnμ.tʰɛn	*!		
b.	leɪ.mɔ:μμ.noμ.tʰɛn			*
c.	leɪ.mɔ:μμ.ntʰɛn		*!	

(117) Forms accounted for by *₃μ >> DEP-IO

	<i>Attested form</i> _____	<i>Losing candidate</i> _____	<i>Optimal candidate</i>
a.	κηρ-ό-θι	^x [kɛ:r.t ^h i]	[kɛ:ro.t ^h i]
b.	λειμων-ό-θεν	^x [lɛ̃i.mɔ:n.t ^h en]	[lɛ̃i.mɔ:~no.t ^h en]
c.	παιδ-ο-φόνος	^x [pāid.p ^h o.nos]	[pāi.do.p ^h o.nos]
d.	σκῦτ-ο-τόμος	^x [sku:t.to.mos]	[sku:.to.to.mos]
e.	τηλ-ό-θεν	^x [tɛ:l.t ^h en]	[tɛ:~lo.t ^h en]
	τηλ-ό-θι	^x [tɛ:l.t ^h i]	[tɛ:~lo.t ^h i]
	τηλ-ό-σε	^x [tɛ:l.se]	[tɛ:~lo.se]
f.	φοινῖκ-ο-πάρηος	^x [p ^h ɔ̃i.ni:k.pa.rɛ:~os]	[p ^h ɔ̃i.ni:ko.pa.rɛ:~os]
	φοινῖκ-ό-(Ϝ)εις	^x [p ^h ɔ̃i.ni:k.we:s]	*[p ^h ɔ̃i.ni:~ko.we:s] ¹⁷⁰

Three additional compounds may be added to the forms in (117): δουρ-ο-δόκη ‘case for spears’, εἶρ-ο-κόμος ‘dressing wool’, and εἶρ-ο-πόκος ‘wool-fleeced’. These forms all share a somewhat special status in that their FCs reflect the outcome of the Third Compensatory Lengthening (3CL). In the case of δουρ-, the stem attested both in the compound and in the oblique cases of the simplex (e.g., Hom. GEN.SG δουρ-ός, DAT.SG δουρ-ί, alongside the *nt*-enlarged versions δούρατος, δούρατι) presupposes a preform **dorw*-, directly reflected by the NOM/ACC.SG δόρυ ‘spear’, with stem-final *-u* instead of the *w*-glide. Likewise, the *s*-stem εἶρος ‘wool’ continues **werw-es/-os-* (see *EDG* 392). The historical *rw*-cluster is still directly

¹⁷⁰ The underlying length of the vowel in ^x[ni:k]_σ, which causes the syllable to be trimoraic, is confirmed by the other form in (117f), φοινῖκοπάρηος, as well as other instances of the same stem discussed in §4.3.2.3. The vowel in φοινῖκό(Ϝ)εις is then shortened via MS only after the development of linking *-o-*. This form could also technically reflect the action of SYLLABLE CONTACT, presented in the following section.

attested in Myc. *we-we-e-a* /werweheha/ NOM.PL.N ‘woolen’, in the personal name *we-we-si-jo* /Werwesios/ and its NOM.PL.F derivative *we-we-si-je-ja* /Werwesieiai/ (see *New Docs* 1050).

The historical background of these forms is relevant because it leaves two possible choices for the input to the analysis — each with different implications in terms of relative chronology. If the compounds are derived from the post-3CL stems *δουρ-* and *εἶρ-*, readily extended from the corresponding simplicia, they trigger the constraint $*_3\mu$, as illustrated for *δουροδόκη* in (118a). If, instead, the $*dorw-$ and $*werw-$ stems are taken as inputs, the compounds are effectively assigned to a stage preceding 3CL. Under this assumption, the analysis predicts an optimal output in which the *w*-glide becomes syllabic, as shown by the tableau in (118b).

(118) a.

	/do:rdokɛ:/	$*_3\mu$	$*_{\text{COMPLEX}}$	DEP-IO
i.	do: _{μμ} r _μ .do.kɛ:	*!		
ii.	do: _{μμ} .ro _μ .do.kɛ:			*
iii.	do: _{μμ} .rdo.kɛ:		*!	

b.

	/dorwdokɛ:/	$*_3\mu$	$*_{\text{COMPLEX}}$	DEP-IO
i.	do _μ r _μ w _μ .do.kɛ:	*!	*	
ii.	do _μ r _μ .wo _μ .do.kɛ:			*!
iii.	do.ru.do.kɛ:			
iv.	do _μ r _μ .wdo.kɛ:		*!	

In the case of *δόρυ*, an FC with precisely this shape is attested in the Homeric personal name *Δόρυ-κλος* (*Il.* 1×). This form may likewise reflect either the phonological development of an earlier $*dorw-$ or a later formation based on the NOM/ACC.SG stem *δόρυ*. Hypothetical $*\delta\omicron\rho\upsilon$ -*δόκη*, however, would feature an

initial tribrach (◡ ◡ ◡) and would therefore be ruled out *metri gratia* in hexametric composition. The same consideration applies to the hypothetical forms **weru-komos* and **weru-pokos*, but notably the only attested FC for εἶπος is εἶπο°. Regardless of which input is assumed, therefore, the attested versions of the FCs would be the only ones allowed in the Homeric *Kunstsprache*. For the moment, however, the analysis in (118a) remains preferable. I return to the relationship between 3CL and linking -o- in 5.3.

5.1.4 SYLLABLE CONTACT effects

The final syllable-based constraint adopted in the analysis is the SYLLABLE CONTACT LAW (SCL), defined in (119). This constraint expresses the preference, observed in a variety of Indo-European languages,¹⁷¹ for sonority to decrease, rather than increase, across syllable boundaries (cf. 3.3.1, §3.5). Its relevance is most clearly illustrated by the **-went*-adjectives in my dataset, which produce consonant clusters whose second member is the glide /w/, the most sonorous consonantal segment. Such clusters involve a maximal sonority rise across the syllable boundary and incur a violation of SCL. As shown in the tableau in (120) with the ACC.SG.M ἄσπερό(ν)εντα ‘starry’, the insertion of linking -o- in candidate (120b) avoids an SCL violation, unlike the faithful candidate (120a). As in the previous analyses, the ranking of *COMPLEX prevents an alternative syllabification in which /w/ is parsed differently, as in (120c).

(119) SYLLABLE CONTACT LAW (SCL), as per Cooper 2014: 76

A syllable contact A.B is the more preferred, the higher the sonority
of the offset A and the lower the sonority of the onset B.

¹⁷¹ For a typological survey of this type of change with data from Germanic and Latin, see Murray and Venneman 1983, Venneman 1988: 40–55.

(120)

/asterwenta/	SCL	*COMPLEX	DEP-IO
a. as.ter.wen.ta	*!		
b. as.te.ro.wen.ta			*
c. as.te.rwen.ta		*!	

A more fine-grained theoretical formulation is Gouskova's (2004) treatment of SCL as a hierarchy of relational constraints. SCL, in fact, expresses a relational requirement, whereby it is the *relative* sonority between a coda segment and a following onset segment that matters, not the nature of the individual segments. Different languages therefore vary in terms of thresholds, as SCL in some languages may only require a sonority drop across syllable boundaries, while in others it may require a particularly sharp one. Moreover, SCL evaluates sequences in terms of strata, i.e. groups of sequences which are equivalent in terms of the sonority distance between the two segments.

To model these characteristics in OT, Gouskova (2004: 209–11) creates the relational scale reproduced in Table 11. This scale captures the interaction between two different properties, namely moraicity and sonority. Moraicity is a binary prominence scale that distinguishes between a more prominent moraic (i.e. coda) position and a less prominent non-moraic (i.e. onset) position (cf. the discussion in §3.3.1). Sonority is a multivalued scale that organizes segments between a more prominent sonorant end (i.e. glides) and a less prominent non-sonorant end (i.e. voiceless stops). The interaction between these two properties produces SCL, whereby “[t]he best coda (a glide) followed by the best onset (a voiceless stop onset) will form the most harmonic relation. The second-best set of coda-onset sequences consists of the sequence rhotic coda–voiceless stop onset and the sequence glide coda–voiceless fricative onset, which are equally well formed, and so on” (Gouskova 2004: 210).

Table 11: Gouskova's (2004: 211) SYLLABLE CONTACT scale.¹⁷²

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
w.t > w.s > w.d > w.z > w.n > w.l > w.r > w.w > r.w > l.w > n.w > z.w > d.w > s.w > t.w														
	r.t	r.s	r.d	r.z	r.n	r.l	r.r	l.r	n.r	z.r	d.r	s.r	t.r	
		lt.	l.s	l.d	l.z	l.n	l.l	n.l	z.l	d.l	s.l	t.l		
			n.t	n.s	n.d	n.z	n.n	z.n	d.n	s.n	t.n			
				z.t	z.s	z.d	z.z	d.z	s.z	t.z				
					d.t	d.s	d.d	s.d	t.d					
						s.t	s.s	t.s						
							t.t							
-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7

The scale in Table 11, therefore, is to be read as follows:

- i. The top row indicates the harmony index of each coda-onset sequence, on a scale from 1 to 15; the higher the index, the less harmonic the sequence.
- ii. Columns correspond to strata of equivalent sequences in terms of sonority distance.
- iii. The bottom row indicates the sonority rise (+) or drop (−) associated with each stratum.

The SYLLABLE CONTACT scale then maps onto a constraint ranking in which each constraint, named

*DISTANCE, refers to an individual stratum in the scale and bans all the sequences in it. For example, a

¹⁷² In the table, w = any glide, r = any rhotic, l = any lateral, n = any nasal, z = any voiced fricative, d = any voiced stop, s = any voiceless fricative, t = any voiceless stop.

constraint *DIST+3 bans the sequences {n.w, z.r, d.l, s.n, t.z} equally, as they feature the same sonority rise, and computes one violation for any sequence in this set. As *DISTANCE constraints are universally ranked as in (121), variation across languages boils down to different cut-off points along this hierarchy.

(121) SYLLABLE CONTACT constraint hierarchy, as per Gouskova (2004: 211, 215)

*DIST+7 >> *DIST+6 >> *DIST+5 >> *DIST+4 >> *DIST+3 >> *DIST+2 >> *DIST+1 >> *DIST 0
 >> *DIST-1 >> *DIST-2 >> *DIST-3 >> *DIST-4 >> *DIST-5 >> *DIST-6 >> *DIST-7

Based on Gouskova's (2004) model, the facts observed in §4.2.2 and §4.3.2 can be described as reflecting two different thresholds in the SYLLABLE CONTACT hierarchy in Mycenaean and Homeric Greek:

- i. In Mycenaean, clusters of the shape /tw/ [t.w], /kw/ [k.w], /dw/ [d.w] and, perhaps, /nw/ [n.w] are attested and tolerated in all cases.
- ii. In Homeric Greek, whenever clusters of the shape */tw/ *[t.w], */kw/ *[k.w], */p^hw/ *[p^h.w], */d.w/ → *[d.w], */rw/ → *[r.w] would have arisen via stem concatenation, linking -o- is observed.

It seems, therefore, that Mycenaean has the highest possible SYLLABLE CONTACT threshold, since it even tolerates clusters featuring a +7 sonority rise, namely [t.w]. This would translate in so low a ranking of *DIST+7 in the phonology of Mycenaean that no SYLLABLE CONTACT effect is observed. This fact is comparatively interesting in light of Cooper's (2014: 77–80) OT analysis of medial cluster syllabification in Vedic. Although Cooper does not adopt Gouskova's (2004) model but rather treats SCL as a unique constraint, he does observe that it is constantly unsatisfied in Vedic syllabification. Moreover, Cooper

(2014: 78) points out that epenthesis is not deployed to improve syllable structure. This situation seems to match that of Mycenaean and may be taken as a common archaism.

On the other hand, Homeric Greek repairs sequences with a sonority rise up to +1, namely *[r.w], which suggests a much lower SYLLABLE CONTACT threshold. In terms of constraint ranking, *DIST+1 would then be ranked high enough to allow the insertion of linking -o-. In this respect, Homeric Greek would reflect an innovation in terms of SYLLABLE CONTACT threshold from the Mycenaean stage.

In order to model this phenomenon, DEP-IO must outrank *DIST+7 in Mycenaean, but leading up to the attested stage of Homeric Greek it must have become outranked by *DIST+1, so as to insert linking -o- in the output. This is illustrated by the tableaux in (122).

- (122) a. DEP-IO >> *DIST+7 in Mycenaean: *o-da-twe-ta* /odatwenta/ NOM.PL.N ‘with teeth’

/odatwenta/		DEP-IO	*DIST+7
i.	o.dat.wen.ta		*
ii.	o.da.to.wen.ta	*!	

- b. *DIST+1 >> DEP-IO after Mycenaean *ἄστερ-φεντ-α > ἄστερό(φ)εντα ACC.SG.M ‘starry’

/asterwenta/		*DIST+1	DEP-IO
i.	as.ter.wen.ta	*!	
ii.	as.te.ro.wen.ta		*

The form in (122b) also illustrates the threshold effect Gouskova’s (2004) model allows to generate, as the two other heterosyllabic clusters in [as.te.ro.wen.ta], namely [s.t] (with a –1 sonority drop) and [n.t] (with a –4 sonority drop) are tolerated. This is spelled out by the tableau in (123).

(123) *DIST+1 >> DEP-IO >> *DIST-1 >> ... *DIST-4 after Mycenaean

/asterwenta/	*DIST+1	DEP-IO	*DIST-1	*DIST-4
i. as.ter.wen.ta	*!		*	*
ii. as.te.ro.wen.ta		*	*	*

In addition to *-went-stems, some Homeric compounds with linking -o- can be analyzed as responding to SYLLABLE CONTACT: ἡερο(φ)ειδής ‘cloud-streaked’, κυνοραιστής ‘dog tick’, μενο(φ)εικής ‘agreeable’. The cluster reconstructed in ἡερο(φ)ειδής, */rw/ → *[r.w], is the same as in ἀστερόεις (122–3). The two clusters reflected by κυνοραιστής and μενο(φ)εικής, */nr/ → *[n.r] and */nw/ → *[n.w] respectively, are not found in *-went-stems but their treatment still follows from the posited SYLLABLE CONTACT threshold: *[n.r] corresponds to a +2 sonority rise, *[n.w] to a +3 one (see Table 11), and hence their repair via linking -o- is generated by the ranking *DIST+1 >> DEP-IO. The full list of form generated by this ranking is in (124).

(124) Forms accounted for by *DIST+1 >> DEP-IO

<i>Attested form</i>	<i>Losing candidate</i>	<i>Optimal candidate</i>
a. αἶματ-ό-(φ)εις	^x [haĩ.mat.we:s]	[haĩ.ma.to.we:s]
b. ἀστερ-ό-(φ)εις	^x [as.ter.we:s]	[as.te.ro.we:s]
c. ἡερ-ο-(φ)ειδής	^x [ɛ:.er.wēl.de:s]	[ɛ:.e.ro.wēl.de:s]
ἡερ-ό-(φ)εις	^x [ɛ:.er.we:s]	[ɛ:.e.ro.we:s]
d. κλωμακ-ό-(φ)εις	^x [klo:.mak.we:s]	[klo:.ma.ko.we:s]
e. κυν-ο-ραιστής	^x [kun.raĩs.te:s]	[ku.no.raĩs.te:s]
f. μεν-ο-(φ)εικής	^x [men.wēl.ke:s]	[me.no.wēl.ke:s]
g. νιφ-ό-(φ)εις	^x [nip ^h .we:s]	[ni.p ^h o.we:s]
h. τερμι(δ)-ό-εις	^x [ter.mid.we:s]	[ter.mi.do.we:s]

5.1.5 Defining the constraint ranking

To complete the analysis, it remains to establish the relative ranking of the proposed markedness constraints. So far, I have left their ranking with respect to one another unspecified, requiring only that *COMPLEX, *₃μ, and *DIST+1 dominate DEP-IO. Some items in the dataset, however, suggest some more specific ranking arguments. These include κυνοραϊστής [ku.no.raĩs.te:s] ‘dog-tick’, with a *₃μ violation in [raĩ_μs_μ]_σ, and forms displaying heterosyllabic parsing of a *muta-cum-liquida* cluster, which imply a SYLLABLE CONTACT violation (e.g., ύδατοτρεφής [hu.da.tot.re.p^hɛ:s] ‘growing in water’, used in the tableau in (113) above). As illustrated by the tableaux in (125), these forms motivate the ranking *COMPLEX >> *₃μ, *DIST+1 >> DEP-IO.

(125) a.

/kunrayste:s/	*COMPLEX	* ₃ μ	*DIST+1	DEP-IO
i. kun.raĩ.ste:s	*!		*	
ii. kun.raĩs.te:s		*	*!	
iii. ku.no.raĩs.te:s		*		*
iv. ku.no.raĩ.ste:s	*!			*

b.

/hudattrep ^h ɛ:s/	*COMPLEX	* ₃ μ	*DIST+1	DEP-IO
i. hu.dat.tre.p ^h ɛ:s	*!			
ii. hu.datt.re.p ^h ɛ:s	*!	*	*	
iii. hu.da.tot.re.p ^h ɛ:s			*	*
iv. hu.da.to.tre.p ^h ɛ:s	*!			*

With reference to (125a), *COMPLEX must outrank *₃μ for candidate (iii) [ku.no.raĩs.te:s] to emerge as the winner despite containing a trimoraic syllable. Crucially, candidates (ii) and (iii) both violate *₃μ,

but candidate (ii) incurs an additional, fatal violation of *DIST+1. Tableau (125b), in turn, shows that *COMPLEX must also outrank *DIST+1: the reverse ranking would favor sequences with complex onsets, as in candidates (i) and (iv), to avoid a cross-syllabic sonority rise.¹⁷³

5.2 Residual Cases

Although the constraints introduced so far account for the majority of the data, a number of forms, listed in (126), require further discussion. Within the present dataset, some items develop linking -o- even though the analysis predicts no insertion (126a). Conversely, other forms fail to develop linking -o- despite being predicted to do so (126b). The following sections examine these apparent cases of over- and underapplication.

(126)	a. Cases of overapplication	b. Cases of underapplication
	i. ἄρματ-ο-πηγός	i. μελαγ-χροιής
	ii. ἄλ-ό-θεν	ii. παγ-χρύσεος, πάμ-πρωτος
	iii. ἡερ-ο-φοίτις, ἡερ-ό-φωνος	iii. ἐπες-βολία, ἐπες-βόλος
	iv. κοτυληδον-ό-φιν	iv. Ὀρέσ-βιος
	v. Κλε(φ)-ό-βουλος, Κλε(φ)-ο-πάτρη	v. παλίλ-λογος
	vi. δι(φ)-ο-γενής, δι(φ)-ό-θεν δι(φ)-ο-μήδης, δι(φ)-ο-μήδη	vi. πυγ-μαχίη, πυγ-μάχος

¹⁷³ A ranking *DIST+1 >> *COMPLEX could instead explain the Attic syllabification of *muta-cum-liquida* clusters as complex onsets in terms of an avoidance of SYLLABLE CONTACT violations.

5.2.1 Other markedness constraints

The case in (126a, i) is relatively straightforward. The compound ἀρματοπηγός ‘building chariots’ satisfies all the syllable-based constraints discussed above, yet still develops linking *-o-*. Without its insertion, however, the compound would contain the cluster *[tp], a sequence independently known to be highly marked in Greek. In fact, the cluster is unattested in Greek, as the only licit types of stop + stop clusters are those involving a coronal second element, i.e., /pt/, /kt/, /bd/, /gd/, /p^ht^h/, /k^ht^h/ (see Lejeune 1972: 69–70). This is likely connected to the typologically widespread dispreference for clusters in which a coronal consonant is followed by a non-coronal one (see §3.4.1 for further discussion). I therefore introduce the constraint *tp, which specifically prohibits this cluster, and rules out any candidate without linking *-o-*, as shown by the tableau in (127).

(127)

	/harmatpɛ:gos/	*tp	*COMPLEX	DEP-IO
a.	har.mat.pɛ:.gos	*!		
Ⓢ b.	har.ma.to.pɛ:.gos			*
c.	har.ma.tpɛ:.gos	*!	*	

A more problematic pattern is presented by the forms in (126a, ii–iv). Descriptively, the cluster arising at the morpheme boundary and repaired by linking *-o-* features a sonorant followed by a voiceless aspirate. Unlike the sequence discussed just above, sonorant + voiceless aspirate clusters are elsewhere licit in Greek: (126a, ii) [lt^h] in ἀλθαίνω ‘heal’, τέλθος ‘debt’, etc.; (126a, iii) [rp^h] is in πορφύρεος ‘purple’, τάρφος ‘thicket’, etc. A cluster */np^h/ (126a, iv) is not attested as it is always assimilated to [mp^h], following the general tendency of nasals to assimilate to the place of articulation of the following obstruent: e.g., συμφέρω ‘bring together’ from συν-φέρω (see Lejeune 1972: 145–6). Provided that a

specific constraint banning this type of sequence could be adopted, its action should also be restricted to the domain of stem formation rather than reflect an across-the-board dispreference (cf. §5.3.3). Otherwise, a secondary spread of linking *-o-* should be admitted to account for these forms.

5.2.2 Remaining forms with linking *-o-*: $\Delta\iota(\mathcal{F})\sigma^\circ$ and $K\lambda\epsilon(\mathcal{F})\sigma^\circ$

The forms in (126a, v–vi) likewise resist a straightforward phonological account. Like the cases discussed above, the reconstructed morpheme-boundary clusters ($*[wp]$, $*[wb]$, $*[wm]$, $*[wg]$, $*[wth]$) do not, in themselves, motivate the insertion of linking *-o-*. If syllable well-formedness were the only relevant factor, alternative stem shapes such as $^x[dju-]$ and $^x[kl\acute{e}u-]$ would in principle be expected.

As for $^x[dju-]$, this sequence would likely have undergone further phonological development to $[d^hju]$ ($> [d^hzu]/[zdu]$) and ultimately yielded a stem $^x\zeta\acute{u}-$ (see Lejeune 1972: 164). Such a stem is nowhere attested in Greek. As noted in §4.2.1, Bader (1972: 192), followed by Haug (2002: 56), argues that the insertion of linking *-o-* blocks this development and preserves the formal transparency of the compound, allowing the FC $\Delta\iota(\mathcal{F})\sigma^\circ$ to remain synchronically identifiable as the stem of $Z\acute{\epsilon}\upsilon\varsigma$, GEN.SG $\Delta\iota\acute{o}\varsigma$. One could compare the Aeolic compounds in $\zeta\alpha^\circ$ corresponding to $\delta\iota\alpha^\circ$ — e.g., Hom. $\zeta\acute{\alpha}\theta\epsilon\omicron\varsigma$ ‘very divine’ (*Il.* 7×), $\zeta\alpha\tau\rho\epsilon\phi\acute{\eta}\varsigma$ ‘well-fed’ (*Il.* 1×; *Od.* 3×) — which attest that this phonological development was available in a similar context. One form in (126a, vi), $\delta\bar{\iota}(\mathcal{F})\text{-}\sigma\text{-}\gamma\epsilon\nu\acute{\eta}\varsigma$, may, however, call for a different explanation. The $\bar{\iota}$ in this compound scans long in all Homeric attestations and could therefore reflect Metrical Lengthening. Alternatively, the form may have been built on $^*diw-(i)yo-$ (cf. Hom.+ $\delta\acute{\iota}\omicron\varsigma$

‘heavenly; divine’), in which case the long $\bar{\iota}$ would result from contraction.¹⁷⁴ Under this analysis, the form would not constitute an instance of linking $-o-$, as it would be built on a genuine thematic stem.

The situation is somewhat different for $\text{K}\lambda\epsilon(\text{f})\text{o}^\circ$. The alternative stem $\text{K}\lambda\epsilon\upsilon^\circ$ is in fact attested, albeit only in Ionic personal names (e.g., the *lectio tradita* $\text{K}\lambda\epsilon\upsilon\beta\omicron\upsilon\lambda\omega\iota$ in Anacr. fr. 357 *PMG*, emended to $\text{K}\lambda\epsilon\omicron\beta\omicron\upsilon\lambda\omega\iota$). This vocalism is traditionally attributed to the East Ionic change $eo > eu$ (see, e.g., del Barrio Vega 2014: 263), which is independently attested in forms where no historical $*w$ can be reconstructed (e.g. $\Theta\epsilon\upsilon\gamma\acute{\epsilon}\nu\eta\varsigma$ beside $\Theta\epsilon\omicron\gamma\acute{\epsilon}\nu\eta\varsigma$, cf. $\theta\epsilon\acute{\omicron}\varsigma$). Here too, then, the possibility of a secondary extension of the pattern may be entertained. As Nussbaum (2000: 2–3) points out in an unpublished conference handout on “mutilated” second compound members in Greek onomastics, the FC $\text{K}\lambda\epsilon\omicron^\circ$ could reflect a tendency of s -stems to “imitate $*-o-$ masculines” in derivation, yielding this exceptionless pattern in the formation of personal names. The tendency of s -stems to drop their stem formant and “replace” it with linking $-o-$, discussed in §4.3.1.2, would provide a natural basis for such an extension. Although I have sought to account for these formations phonologically, $\text{K}\lambda\epsilon\omicron^\circ$ may therefore require an analogical explanation.

5.2.3 Underapplication *metri gratia*

As for the cases of underapplication in (126b), all these forms can be accounted for as retentions of bare-stem FCs motivated by metrical constraints. The items in (126b, i–ii) both violate $*\text{COMPLEX}$ by surfacing as $[\text{me.la}\eta.\text{k}^{\text{h}}\text{r}\acute{\omicron}\iota.\epsilon\iota\varsigma]$, $[\text{pa}\eta.\text{k}^{\text{h}}\text{ru}:\text{se.os}]$, and $[\text{pam.pr}\acute{\omicron}:\text{tos}]$ respectively. Those in (126b, iii–vi) instead

¹⁷⁴ A similar case is $\delta\iota\acute{\iota}\phi\iota\lambda\omicron\varsigma$ ‘dear to Zeus’ (*Il.* 17×), in which the second ι scans long as if with Metrical Lengthening but likely reflects contraction from earlier $*\text{diweí}\text{phílos}$ (see West 1998: xxviii).

contain cross-syllabic clusters that should be repaired by the posited SYLLABLE CONTACT threshold: [s.b] in (126b, iii–iv) and *[n.l], assimilated to [l.l] (126b, v), feature a +1 sonority rise, whereas [g.m] (126b, vi) corresponds to a steeper +2 rise (cf. **Table 11**).

As for the sequences violating *COMPLEX, whose localizations are given in (128), I have already addressed the alternation between archaic μελαγχροίης and innovative μελάνχροος/-χρως in §4.3.1.3 and motivated it in terms of metrical convenience. The same metrical explanation may apply to παγχρύσεος and πάμπρωτος, since hypothetical forms in *πανο^ο would be incompatible with their attested localizations. An alternative possibility concerns the morphological status of παν^ο compounds more generally. Unlike post-Homeric formations in παντο^ο, Homeric παν^ο compounds never display linking -o- and are likely based on the adverbial neuter of the adjective (see §4.3.1.4). If παν^ο remained synchronically identifiable with the inflected neuter πᾶν, rather than being represented as an independent stem-level base, it may have fallen outside the domain of linking -o-, assuming that the process was restricted to stem formation (see §5.3).

(128) Attested localizations for μελαγχροίης, παγ-χρύσεος, πάμ-πρωτος

- a. *Od.* 16.175 ἄψ δὲ με¹:λαγχροί²:ῆς γένε³:το, γναθμοὶ δ' ἐτάνυσθεν,
- b. *Il.* 2.448 τῆς ἑκατὸν θύσανοι παγ³:χρύσει⁴: ἠερέθοντο,
- c. *Il.* 4.97¹⁷⁵ τοῦ κεν δὴ πάμ²:πρωτα πά³:ρ' ἄγλα δῶρα φέροιο,

¹⁷⁵ Same localization in *Il.* 7.324, 9.93, 17.568; *Od.* 4.577, 4.780, 10.403, 10.423, 11.2.

Turning to the forms that violate SYLLABLE CONTACT, I pointed out in §4.1.3.2 that the *s*-stem based compounds ἐπεσβολία, ἐπεσβόλος, and Ὀρέσβιος (126b, iii–iv) would be unmetrical in any other shape with linking *-o-* attested elsewhere in this stem-class, since the resulting forms would contain an initial tribrach (– – –): *ἐποβολία/*ἐπεοβολία, *ἐποβόλος/*ἐπεοβόλος, *Ὀρόβιος/*Ορεόβιος. The remaining forms in this group are subject to the same metrical restriction (126b, v–vi): πᾶλῖλλογος : *πᾶλῖνόλογος, πῦγμαῖχη : *πῦγομάχος. πῦγμαῖχος : *πῦγομάχος.

5.3 Specifying Faithfulness

5.3.1 Phonology, morphology, or both?

My analysis as it stands makes no explicit claim about the nature of linking *-o-*, namely whether this involves the insertion of morphological material, that is, the thematic vowel, or is rather a case of vowel epenthesis. Formally, either option can be encoded more explicitly in the analysis by replacing DEP-IO with either DEP-V (129a), which would qualify linking *-o-* as vowel epenthesis, or DEP-MORPH (129b), which would describe it as a thematization.

(129) a. Linking *-o-* is epenthesis: DEP-V

Any output vowel must have a correspondent in the input.

Count one violation for each inserted vowel in the output.

b. Linking *-o-* is thematization: DEP-MORPH

Any output morph must have a correspondent in the input.

Count one violation for each inserted morph in the output.

Although either option is theoretically possible, each has different implications about Greek morphophonology. The epenthesis hypothesis captures the fact that the distribution of linking *-o-* appears to be

sensitive to phonological factors, largely related to syllable well-formedness, as I argued in §5.1. Its main difficulty is formal, as it would imply that [o] may serve as epenthetic vowel in Greek when this is not exactly a default vocalism elsewhere in the language. Other phenomena in the history of Greek that can be described as vowel epenthesis in fact display other vocalisms — e.g., the epenthetic vowel involved in the so-called *schwa secundum* is [i].¹⁷⁶ The one type of vowel epenthesis that, at least in some dialects and/or phonological contexts, features epenthetic [o] is the vocalization of syllabic liquids, for which I summarize the results of van Beek’s (2022b: 502) treatment in **Table 12** (cf. §1.4).

Table 12: Vocalism of epenthetic vowel in reflexes of interconsonantal **r* by dialect.

DIALECT GROUP	SUB-DIALECT	VOCALISM
‘Achaean’	Mycenaean	/o/, possibly also /a/
	Arcadian	/o/
	Cypriot	/o/
Aeolic	All varieties	/o/
Attic-Ionic	All varieties	/a/
West Greek	Cretan	/o/ after C _[+labial] , /a/ elsewhere
	Other varieties	/a/
Epic Greek	Homer	/o/ after C _[+labial] , /a/ elsewhere

¹⁷⁶ This type of epenthesis repairs consonant clusters in sequences **(s)TTRV-* > **(s)TiTRV-* (e.g., **ptnā-* > πτήνημι ‘spread out’, **skdna-* > σκίδναμαι ‘be scattered’), **sTRV* > **siTRV* (e.g., **sdrū-* > ἰδρῶν ‘seat’) and, according to Vine (1999a), also **wrTRV* > **wriTRV* (e.g., **wrdya* > ῥίζα ‘root’).

As discussed in §5.1, syllabic nasals display a similar behavior, as **ŋ* and **m*, through an intermediary stage **[ã]*, changed to /a/ in all Greek dialects, but /o/ in Mycenaean when adjacent to labials — which may not be the only point of formal overlap between linking *-o-* and sonorant vocalization.

The thematization hypothesis avoids this formal difficulty regarding vocalism and aligns with the traditional interpretation of linking *-o-* as the analogical extension of the thematic vowel from *o*-stems, whether functioning as FCs in compounds or base stems in derivational and inflectional processes. This traditional formulation however raises some difficulties once one moves beyond the purely formal description of the process. If linking *-o-* genuinely reflects the creation of “proxy” thematic stems from originally athematic bases, one might expect at least some of these bases to have corresponding thematic simplicia. The closest case to this scenario is the coexistence of $\theta\epsilon\sigma^{\circ}$ and $\theta\epsilon\omicron^{\circ}$ compounds: $\theta\acute{\epsilon}\sigma\text{-}\kappa\epsilon\lambda\omicron\varsigma$, $\theta\epsilon\sigma\text{-}\pi\acute{\epsilon}\sigma\iota\omicron\varsigma$, ($\acute{\alpha}$ -) $\theta\acute{\epsilon}\sigma\text{-}\phi\alpha\tau\omicron\varsigma$ (see Table 5.H in Chapter 4) next to $\theta\epsilon\acute{\omicron}\text{-}\delta\mu\eta\tau\omicron\varsigma$ ‘god-built’ (*Il.* 1×), $\theta\epsilon\omicron\text{-}(\text{f})\epsilon\iota\delta\acute{\eta}\varsigma$ ‘godlike’ (*Il.* 27×; *Od.* 17×), $\theta\epsilon\omicron\text{-}(\text{f})\epsilon\iota\kappa\epsilon\lambda\omicron\varsigma$ ‘godlike’ (*Il.* 2×; *Od.* 3×), $\Theta\epsilon\omicron\text{-}\kappa\lambda\acute{\upsilon}\mu\epsilon\nu\omicron\varsigma$ PERSONAL NAME (*Od.* 8×), $\theta\epsilon\omicron\text{-}\pi\rho\omicron\pi\acute{\iota}\alpha$ ‘prophecy’ (5×; *Od.* 2×), $\theta\epsilon\omicron\text{-}\pi\rho\acute{\omicron}\pi\omicron\varsigma$ ‘prophetic’ (*Il.* 2×; *Od.* 1×). Since the simplex $\theta\epsilon\acute{\omicron}\varsigma$ ‘god’ is heavily attested in Homer (over 700×), it clearly cannot be a back-formation from the compounds. Rather, $\theta\epsilon\omicron^{\circ}$ compounds are formed on the thematic stem (hence their exclusion from my dataset in Chapter 4), whereas $\theta\epsilon\sigma^{\circ}$ preserves the more archaic athematic base. Notably, the distribution of $\theta\epsilon\sigma^{\circ}$ and $\theta\epsilon\omicron^{\circ}$ compounds mirrors the phonologically conditioned distribution observed for other *s*-stem FCs: $\theta\epsilon\sigma^{\circ}$ occurs whenever the second constituent begins with a single stop, whereas $\theta\epsilon\omicron^{\circ}$ appears before consonant clusters or **w*. Although a bona fide thematic base is available in this case, the choice between the thematic and athematic stems appears to follow the same phonological principles captured by the present analysis.

Elsewhere, thematization would be confined to the derivational process itself and would not correspond to an otherwise productive or independently attested morphological operation. A related issue concerns the function of the added thematic element. In the formations under discussion, the insertion of *-o-* contributes no discernible semantic content and does not alter the lexical meaning of the base. The traditional description of the process should therefore be reframed as the addition of an empty morph with no morphological or semantic effect beyond licensing further word formation. The assumption that thematization could operate here as a purely formal and meaning-free mechanism therefore requires further historical justification.

The solution I put forward here is, in a sense, a compromise between the epenthesis and the thematization hypotheses. Historically, I propose identifying a precursor of linking *-o-* in the epenthesis process associated with the vocalization of syllabic sonorants. This idea is sketched out by Meißner and Tribulato (2002: 321), when discussing the Mycenaean compounds that reflect vocalization outcomes at the end of their FCs: “This situation may well have been one of the starting points for the spread of *o* as the most common compositional vowel in Greek.” At a subsequent stage, this process, originally restricted to vocalized sonorants, was extended to non-sonorant stems, as well as to sonorant stems that did not themselves meet the conditions for vocalization — likely as a result of a higher ranking of the syllable-structure constraints discussed in §5.1. Linking *-o-* thus became a property of all consonantal stems, which could likewise insert a stem-final vowel in order to repair marked sequences. At this stage, the *o*-vocalism can be explained as triggered by labial contexts or taken over altogether from forms with genuine vocalization outcomes. Finally, the inserted [o] was secondarily reanalyzed by speakers as a thematic vowel, given the pervasiveness of the stem formant in other contexts. This would explain why

linking *-o-* is restricted to morphological operations but is an empty element in morpho-semantic terms, with a phonologically conditioned distribution.

5.3.2 Linking *-o-* and the chronology of Greek sound changes

The above historical account implies that an originally postlexical phenomenon — i.e., one applying irrespective of morphological category, such as sonorant vocalization (cf. §5.3.3) — became specialized as a stem-level one, since speakers mainly encountered it at derivational morpheme boundaries created by phonologically transparent operations, above all in compounding and only subsequently in other domains of word formation. This scenario is consistent with Tribulato's (2015: 18–20) description of Greek compounding as stem compounding, unlike English but similar to Sanskrit (see Lühr 2004: 109–10; Ralli 2009: 457). As for the chronology of individual morphological categories, **-went-* stems provide the clearest indications that linking *-o-* is a relatively late development, as their metrical behavior preserves traces of its secondary introduction. The chronology of the remaining categories is less readily recoverable from the Homeric evidence. Nevertheless, none of them displays linking *-o-* in the Mycenaean material, a fact that is at least compatible with a post-Mycenaean expansion of the pattern.

Restricting linking *-o-* to the domain of stem phonology has a further empirical advantage. Clusters of the same type as those repaired by linking *-o-* in word formation undergo different repair processes when they are attested outside the morphological contexts affected by its insertion. A list with some illustrative examples, adapted from Lejeune (1972: 69–70, 80–4, 105, 154, 158–9, 219–20, 313), is given in (130). These developments provide independent evidence for the markedness of the relevant sequences in Greek. Most are post-Mycenaean and are therefore also consistent with the broader

diachronic pattern identified above, whereby Mycenaean displays greater tolerance for consonant clusters than later Greek. At the same time, the coexistence of different repairs for comparable sequences may indicate that linking *-o-* was not an across-the-board repair strategy for marked sequences, but rather one embedded in morphology.

(130) Alternative repair strategies for sequences targeted by linking *-o-*

- a. **Vnw* > Hom. $\bar{V}n$ / ___V | **monwos* > Hom. μόνος, but cf. μενο(φ)εικής
- b. **Vrw* > Hom. $\bar{V}r$ / ___V | **b^hrwos* > Hom. φᾶρος ‘cloth’, but cf. ἤερ-ο-(φ)ειδής
- c. **Vdw* > Hom. $\bar{V}d$ / ___V | **de-dwoy-a* > Hom. δίδω ‘fear’, but cf. **termid-o-went-*
- d. **kw* > Gk. *pp* / V___V | **h₁ekwos* > Gk. ἵππος, but cf. κλωμακ-ό-(φ)εις
- e. **tw* > Hom. *ss* / V___V | **k^wetw^h-* > Hom. τέσσαρες ‘four’, but cf. αίματ-ό-(φ)εις
- f. i. **nr* > Myc., Hom. *ndr* | **h₂nr-os* > Hom. ἀνδρός GEN.SG ‘man’, see also Myc. *a-di-ri-a-pi*
| /andriamp^{hi}/ ‘figure of a man’ INS.PL; but cf. κυν-ο-ραιστής
- ii. Gk. *nr* → *rr* | Hes.+ συρράπτω ‘stitch together’
- g. Gk. *nl* → Hom. *ll* | Hom.+ συλλέγω (συν^o) ‘gather’, cf. also παλίλ-λογος (παλιν^o)
- h. **tp* > Hom. *pt* | Hom. τίπτε ‘why?’, if < **tit-pe* (cf. Lillo 1992: 15–9 for **k^wid-k^we*);
| cf. assimilation in Myc. *po-pi* /popp^{hi}/ INS.PL ‘foot’ < **pod-p^{hi}*
- i. **V̄* > Gk. *V* / ___RC | **gnō-nt-es* > Gk. γνόντες AOR.PTCP.ACT.NOM.PL.M ‘know’;
(Osthoff’s Law) | but cf. λειμων-ό-θεν

These double (or triple) treatments, at least in some cases, may boil down to differences in relative chronology. The cases in (130d–g) are explicitly assessed in these terms by Lejeune (1972: 81–3, 154, 313), who distinguishes between the behaviors of ancient and recent clusters: the changes in (130d–e) only

affect ancient **kw-* and **tw-*clusters, while the treatment of recent clusters, i.e. arising at morpheme boundaries, is obscured by morphological and analogical mechanisms — such as, in Lejeune's conception of the phenomenon, the development of linking *-o-* in **went-*stems (1972: 81). Interestingly, Lejeune points out that, in the case of ancient vs. recent *kw*-clusters, this distinction was captured graphically in Linear B. Only ancient */kw/* sequences were notated with the *q*-series (e.g., *i-qo* */ikk^woi/* NOM.PL 'horse') as if they were inherited labiovelar stops; conversely, the analytical notations *<kV-wV>* or *<ku-wV>* belonged to recent */kw/* clusters (cf. my discussion of *o-da-ke-we-ta/o-da-ku-we-ta* in §4.4.2.2, with fn. 156). This split was represented, in 1st-millennium Greek, by the opposition between labialized (and, if intervocalic, geminated) ancient **kw*-clusters and recent clusters with linking *-o-*.

The cases in (130f–g) instead display two phonologically distinct treatments, besides the insertion of linking *-o-*. Ancient **nr*-clusters develop an epenthetic stop homorganic with the nasal, [d] (cf. the epenthetic [b] in ancient **mr*-clusters, e.g. ἄμβροτος 'immortal' < **ṇ-mṛ-tó-s*; see §3.4.2), already in Mycenaean (see Lejeune 1972: 154). Recent *nr*-clusters instead undergo regressive assimilation. The recent treatment is also the only one observable for *nl*-clusters, as no ancient **nl*-sequence is attested.

The same logic could be extended to the remaining phonological contexts, thus assessing variation in terms of relative chronology. Linking *-o-* would be so late a development that sound changes such as Osthoff's Law (130i), found in other Indo-European branches and arguably early (see, e.g., Fortson 2010: 70–1; Byrd 2015: 193), and 3CL (130a–b)¹⁷⁷ — but, according to some formulations (see, e.g., Rix 1976: 93; cf. Batisti 2014: 269–75 for further discussion), also (130c) — had already ceased to operate

¹⁷⁷ Notably, 3CL has been analyzed as a SYLLABLE CONTACT effect by Rialland (1993) and Méndez Dosuna (1994).

when those same clusters arose at morpheme boundaries. Placing the rise of linking *-o-* after 3CL would also incidentally streamline the analysis of those forms that show both the outcome of compensatory lengthening and linking *-o-*, i.e. *δουροδόκη*, *εἰροκόμος*, and *εἰροπόκος*, discussed in §5.1.3. In a “wave” model of sound change, linking *-o-* could thus be treated as a further phonological process, arising after the ancient cluster repairs in (130) but before at least some of the more recent ones.¹⁷⁸

5.3.3 Implementing the analysis in Stratal OT

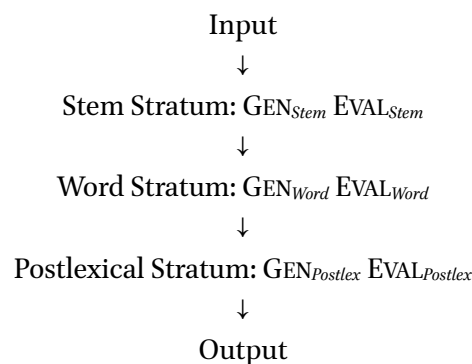
One way to interpret the above diachronic considerations would be to treat the emergence of linking *-o-* simply as a sound change. On this view, the new repair strategy could be modeled in parallel OT through a reranking of the relevant constraints, potentially involving DEP-V if linking *-o-* is analyzed as vowel epenthesis. Such an analysis, however, faces two problems. First, unless its domain is independently restricted, it risks overgenerating epenthetic vowels elsewhere in Greek whenever syllabification would otherwise be suboptimal. Second, linking *-o-* remained synchronically productive well beyond the period of its emergence, ultimately continuing into Modern Greek (see Ralli 2009), and therefore cannot be reduced to a sound change operating within a limited chronological window. At some point, the pattern must have been incorporated into the synchronic phonology of stem formation. The same diachronic considerations may nevertheless help explain how this restriction arose: once the earlier sound changes illustrated in (130) had ceased to operate, the relevant clusters could still arise in

¹⁷⁸ The latter qualification is required by *παλίλλογος* (*παλιν*^ο). As discussed in §5.2.3, linking *-o-* is blocked in this form by the avoidance of cretic-initial word shapes. The resulting *nl*-cluster would nevertheless violate *DIST+1 and be subsequently repaired through regressive assimilation.

newly formed words through morpheme concatenation, and their resulting concentration in morphologically derived environments may have favored the restriction of the new repair strategy to stem-level phonology.

To conclude this chapter, I therefore build the limitation of linking *-o-* to stem phonology by means of Stratal OT (see Kiparsky 2000, 2003, 2008, 2010, 2011; Bermúdez-Otero 2011, 2017; cf. also Inkelas 2008). Stratal OT is a serial version of OT in which phonological evaluation proceeds through a sequence of ordered strata, typically the Stem, Word, and Postlexical (or Phrasal) levels. The output of each stratum serves as the input to the next, with morphological structure internal to the preceding stratum becoming inaccessible at subsequent levels. Unlike classical parallel OT, Stratal OT allows constraints to be ranked differently across strata. A schematic representation of a Stratal OT grammar, based on Byrd 2015: 157, is given in (131).

(131) Components of Stratal OT



A Stratal OT analysis captures the restriction of linking *-o-* to stem phonology by distinguishing DEP-V from DEP-MORPH and ranking the two constraints differently across strata. DEP-MORPH effectively replaces the more general DEP -IO used above and is likewise dominated by the relevant markedness

constraints. Crucially, this ranking operates at the stem level, where it triggers the insertion of linking -o- as morphological material at the stem boundary in response to the syllable well-formedness conditions discussed above. The tableaux in (132) illustrate the stratal implementation of the analysis. Processes plausibly assigned to the stem level, namely compounding, *-went-derivation, and local adverb formation, are represented by (132a) ὕδατοτρεφής ‘growing in water’, (132b) κλωμακό(φ)εις ‘stony’, and (132c) λειμωνόθεν ‘from a meadow’, respectively. The ranking that licenses linking -o- is thus confined to stem-level phonology.

(132)

Stem Level		*COMPLEX	* ₃ μ	*DIST+1	DEP-MORPH
a. /hudat + trep ^h /					
i.	hu.dat.trep ^h	*!			
ii.	hu.datt.trep ^h	*!	*	*	
iii.	hu.da.tot.trep ^h			*	*
iv.	hu.da.to.trep ^h	*!			*
b. /klɔːmak + went/					
i.	klɔːmak.went		*	*!	
ii.	klɔːma.ko.went		*		*
iii.	klɔːma.kwent	*!	*		
c. /leymɔːn + t ^h en/					
i.	leɪ̯.mɔːn.t ^h en		*!		
ii.	leɪ̯.mɔː.no.t ^h en				*
iii.	leɪ̯.mɔː.nt ^h en	*!			

At the postlexical level, DEP-V instead outranks the relevant markedness constraints, preventing suboptimal syllabification elsewhere in Greek from triggering vowel epenthesis. The postlexical ranking DEP-V >> *COMPLEX is also coherent with the analysis developed in §2.1, in that it matches the DEP-IO

>> *COMPLEXONSET ranking posited there to account for sonorant vocalization in Mycenaean. The two analyses can therefore be reconciled without assuming any historical reranking. As discussed in §2.1.2, the behavior of word-initial complex onsets provides a parallel argument. Tableau (30), based on Myc. *ti-ri-po* /tripōs/, showed that epenthesis is not an available repair strategy for a word-initial cluster because DEP-IO outranks *COMPLEXONSET. The same logic applies here: structures penalized by *COMPLEX, such as word-initial complex onsets, cannot be repaired postlexically through epenthesis.

The scope of this chapter also includes the ending $-\varphi(\nu)$, which, at least under Goldstein's (2020) analysis, is inflectional and should therefore belong to the domain of word-level phonology. The only form displaying linking $-o-$ before this ending, $\kappa\omicron\tau\upsilon\lambda\eta\delta\omicron\nu\acute{o}\varphi\iota\nu$, has already been identified as exceptional in §5.2.1, since no straightforward phonological context motivates the insertion of the linking vowel. As discussed there, unless an ad hoc constraint against sequences of sonorant + voiceless aspirate is posited, the most plausible alternative is a secondary extension of linking $-o-$. The stratal analysis provides an additional argument in this direction: if $-\varphi(\nu)$ is an inflectional ending, the linking vowel is not expected to arise at the word level in the first place.

CONCLUSION

This dissertation set out to revisit the diverse body of evidence bearing on the prehistory and early history of Greek syllabification through a novel methodological perspective, applying OT to a set of problems that have long resisted a unified treatment. More specifically, it sought to resolve, or at least mitigate, two longstanding tensions in the literature: the apparent contradiction between linguistic and orthographic evidence, and the competition between alternative models of Greek and Indo-European syllabification. One of the aims of the dissertation has therefore been not only to revisit these problems individually, but to bring them together within a common analytical framework.

The breadth of the evidential basis considered here necessarily called for an equally broad methodological approach. The dissertation examined the evidence for a sound change, i.e. sonorant vocalization, and proposed its reinterpretation in OT terms and with reference to principles of syllable well-formedness; it reconsidered Linear B orthographic practices and their relationship to phonological syllabification, extending the application of OT beyond its canonical domain; and it investigated the phonology–morphology interface through a case study of linking *-o-* in Mycenaean and Homeric Greek, a further phenomenon shown to be sensitive to syllable structure. Throughout, philological analysis and theoretical modeling were treated as complementary modes of inquiry. New philological evidence was brought to bear on longstanding questions of Greek syllabification and assessed against existing models of PIE syllable structure, highlighting both continuities and points of divergence.

Taken together, the analyses developed in this dissertation substantially strengthen the case for Hermann's (1923) account of cluster heterosyllabicity by showing that it finds support beyond the

original body of evidence on which it was formulated. At the same time, the dissertation reconsiders the Linear B orthographic evidence, often regarded as incompatible with Hermann's model, and argues that it can be derived from the same principles of syllabification established independently from the linguistic evidence, without abandoning the notion of cluster heterosyllabicity.

More specifically, the dissertation addressed a series of interconnected questions concerning the history of Greek syllabification. Chapters 1 and 2 considered whether Liquid Metathesis is attested in Mycenaean and, if so, whether it may be conditioned by syllable structure; whether the directionality of epenthesis arising from sonorant vocalization is truly free or instead reflects principles of syllable well-formedness; and what this evidence reveals about the preservation of PIE syllabification principles in Mycenaean. Chapter 3 turned to the spelling rules of Linear B and their relationship to phonological syllabification, asking whether orthography can be derived from an independently established model of Mycenaean syllable structure. Chapters 4 and 5 investigated what the two earliest attested stages of Greek reveal about the diachronic development of syllable structure between the second and first millennia BCE. A case study on linking *-o-* in Mycenaean and Homeric Greek served to determine whether a phenomenon traditionally analyzed in morphological or analogical terms might instead be sensitive to syllable structure, and what this analysis reveals about its relationship to sonorant vocalization and other phonological tendencies observed in Greek.

Main Findings

The main findings of the dissertation, presented in the order in which they were established in the preceding chapters, may be summarized as follows.

The first finding is that Liquid Metathesis was not a feature of Mycenaean phonology. A re-examination of the evidence traditionally cited in support of this phenomenon, together with additional candidates considered here for the first time, shows that the apparent alternations do not reflect a productive pattern, let alone one driven by constraints on syllable well-formedness. Several of the key forms prove to be philologically unreliable, while the remaining cases are more plausibly explained as scribal errors or instances of lexical interference than as outcomes of a regular phonological process. Consequently, the alternations previously attributed to Liquid Metathesis cannot be regarded as evidence for an active phonological mechanism, whether at the level of the language as a whole or of an alleged sociolect within Mycenaean.

The second finding is that the directionality of Liquid Vocalization in Mycenaean was governed by syllable structure. The evidence indicates that the epenthetic vowels arising next to historical syllabic liquids had already been phonologized by the time of the Linear B tablets, rather than arising synchronically or varying freely in pronunciation. Their distribution is also systematically conditioned by syllable well-formedness: the epenthetic vowel precedes the liquid in word-initial syllables, thereby avoiding a complex onset, but follows it in medial syllables. This asymmetry is captured by the OT analysis proposed in Chapter 2, which calls into question the descriptions of Mycenaean as an onset-maximizing dialect. This OT analysis is also methodologically significant in that it explicitly describes

the vocalization of syllabic sonorants as a case of vowel epenthesis driven by syllable structure rather than as a segmental change affecting the sonorants themselves (cf. traditional representations of this sound change as, e.g., PIE **r̥, *l̥* > Greek *ar/ra, al/la*). Such a development cannot be adequately described by traditional segment-to-segment correspondences alone, as its conditioning depends on the syllabic structure of the output, thus requiring historical accounts to incorporate prosodic structure in the treatment of sound change.

The analysis developed in Chapter 3 further shows that the Linear B orthographic evidence is compatible with a reconstruction of PIE and Greek syllable structure based on cluster heterosyllabicity. Linear B spelling is modeled in OT terms as the outcome of the interaction between phonology and the practical constraints imposed by an open-syllable writing system, without abandoning independently motivated assumptions about Greek syllabification. The chapter formulates a model that avoids equating notated consonants to onset segments by default. Rather, a core ranking of orthographic faithfulness constraints generates the script's general preference for consonant omission. By positing some higher-ranked Positional Faithfulness constraints, as well as by appealing to phonological markedness and perceptual factors, the model then accounts for the systematic notation of consonants that would otherwise be expected to remain unwritten. Under this analysis, both the regular spelling conventions of Linear B and their apparent exceptions are explained without requiring stipulations on syllable structure or a distinct conception of Mycenaean phonology. The analysis also clarifies the status of exceptional cases of consonant notation, which are shown to follow from general phonological tendencies rather than constituting idiosyncratic spellings.

A further finding concerns the emergence of linking *-o-* in Greek word formation. The comparison between the Mycenaean and Homeric evidence, carried out in Chapter 4, shows that the distribution of linking *-o-* cannot safely be projected back to the second millennium BCE. While Mycenaean provides no secure evidence for the productive insertion of a linking vowel across the relevant morphological categories, Homeric Greek displays a systematic expansion of the pattern from compounds to **-went-*stem adjectives and other stem-level formations. The metrical behavior of **-went-*derivatives as well as the development of Myc. *te-mi-dwe* /termidwen(t)/ and its Homeric counterpart *τερμιόεις*, object of a case study, further indicate that linking *-o-* arose later than is commonly assumed.

Chapter 5 finally argues that this development is best understood as arising at the interface between phonology and morphology rather than reflecting either a purely phonological epenthesis process or a straightforward analogical extension of the thematic vowel. The earliest precursor of linking *-o-* is identified in the vowel inserted through the vocalization of syllabic sonorants, whose distribution was itself governed by syllable structure. As markedness constraints targeting consonant clusters achieved a higher ranking between the Mycenaean and Homeric stages, this repair strategy spread beyond its original environment and was generalized to additional consonantal stems. Only at a subsequent stage was the inserted vowel reanalyzed as a thematic element and incorporated into stem-level phonology, thereby accounting for both its restriction to processes of word formation and its continued synchronic productivity. A Stratal OT analysis captures this development by confining the insertion of linking *-o-* to stem phonology while maintaining the independently motivated constraint ranking at the postlexical level, thereby reconciling the rise of the linking vowel with the broader account of Greek syllable structure developed throughout the dissertation.

The examination of linking *-o-* also provides broader insights into the diachronic development of Greek syllable structure. The comparison between Mycenaean and 1st-millennium Greek indicates that Mycenaean preserves an earlier stage characterized by greater tolerance for syllable structures that later became increasingly restricted. The markedness constraints found to govern the distribution of linking *-o-* in Homeric Greek not only account for its absence in Mycenaean and its subsequent, phonologically conditioned emergence, but also converge with a range of independent diachronic developments targeting the same consonant clusters created through morpheme concatenation. In addition to the dispreference for complex syllable margins already observed in the analysis of Liquid Vocalization, Homeric Greek displays a stronger avoidance of superheavy syllables and cross-syllabic sonority rises. Together, these developments point to a gradual “Promotion of the Unmarked” (see Green 1997: 12–5), whereby constraints against marked structures are “promoted up the constraint hierarchy, passing other constraints and playing an increasingly surface-true role in the grammar of the language.”

This historical trajectory also clarifies the significance of the Mycenaean evidence for the reconstruction of PIE syllable structure. From this perspective, Mycenaean preserves several archaisms that closely match the syllabification principles reconstructed for PIE. The restriction on word-initial complex onsets, emerging as a TETU effect in the vocalization of syllabic liquids, reflects an equivalent constraint hierarchy proposed by Byrd (2015: 250–2) to account for word-initial complex onsets in PIE without resorting to Positional Markedness (see Cooper 2014: 186). Similarly, the highest SYLLABLE CONTACT threshold established for Mycenaean matches the comparative evidence from Vedic discussed by Cooper (2014: 77–80), whereby medial cluster syllabification likewise tolerates cross-syllabic sonority rises without any observed repair strategy.

Mycenaean therefore emerges as preserving a stage of Greek syllable structure remarkably close to the inherited Indo-European system. This conclusion is particularly significant because Mycenaean has long been regarded as the principal obstacle to reconstructions of PIE syllabification following Hermann (1923). Once the apparent contradictions created by Linear B orthography are resolved, the Mycenaean evidence instead becomes one of the strongest sources of support for that reconstruction.

Limitations and Future Research

The evidence examined in this dissertation is drawn primarily from Mycenaean and Homeric Greek, the two earliest attested varieties of the language. This chronological focus reflects the reconstructive aims of the study, since these corpora provide the earliest available evidence for investigating the historical development of Greek. At the same time, both varieties present characteristics that should be considered when assessing the broader applicability of the analyses developed here. Mycenaean is the only attested Greek dialect of the second millennium BCE. While this makes it indispensable for the reconstruction of early Greek phonology, its dialectal relationship to 1st-millennium dialects remains uncertain (see, e.g., Rau 2025). It therefore cannot be excluded that some features observed in Mycenaean reflect developments specific to that dialect rather than the common Proto-Greek state.

Homeric Greek likewise occupies a special position within the history of the language. Although it preserves some of the earliest evidence for post-Mycenaean Greek, it is a poetic language characterized by chronological and dialectal stratification rather than a direct record of natural language. Moreover, because Homeric Greek is composed in dactylic hexameter, the phonological evidence preserved in the poems is conditioned not only by phonological factors but also by metrical

ones. As the analyses developed here have shown, this interaction is itself informative, but it limits the extent to which the Homeric evidence can be interpreted independently of its poetic character.

A natural continuation of the present research is therefore the incorporation of evidence from other 1st-millennium Greek dialects, preferably archaic varieties represented by inscriptional as well as literary sources. Besides extending the chronological and dialectal coverage of the present dataset, such material would provide additional evidence for both the linguistic and the orthographic treatment of segmental sequences. In particular, the OT analyses proposed here for sonorant vocalization and linking *-o-* should be tested against a broader dialectal corpus in order to evaluate how the proposed constraints can generate dialectal differentiation. Such a comparison would make it possible to reconstruct the development of Greek syllable structure across both the second and first millennia BCE within a more explicitly phylogenetic framework and, ultimately, to refine the reconstruction of Proto-Greek.

The analyses presented in this dissertation necessarily touched upon several aspects of Greek syllable structure that could only be addressed in part because they fell outside the primary scope of the present investigation. One concerns the conditions governing consonant extrasyllabicity. The discussion in Chapter 3 examined only the left-edge extrasyllabicity of /s/, insofar as it is required for the analysis of Linear B orthography. The behavior of /s/ in larger medial clusters, however, as well as word-final extrasyllabicity, remains to be investigated systematically. Likewise, the broader phenomenon of final-consonant extrametricality, extending beyond sibilants and described for other Greek dialects (see, e.g., Sandell 2023), should be incorporated into a more comprehensive account of Greek syllable structure.

A second topic concerns diphthong formation in Mycenaean. Although mentioned only briefly in the context of consonant-cluster spelling, the inconsistent notation of the second element of diphthongs may provide evidence for the conditions under which a glide is parsed as the second element of a branching nucleus rather than as the onset of the following syllable. Such evidence may also contribute to the reconstruction of PIE diphthongs.

The orthographic model proposed for Linear B also lends itself to further applications. The same framework could be extended, primarily, to the Classical Cypriot syllabary. Although the reversal of the core faithfulness ranking proposed in Chapter 3 derives the Cypriot tendency to notate all consonants within clusters, a dedicated analysis would be required to account for the selection of dummy vowels, whose directionality in Cypriot is taken to reflect syllabic affiliation more directly than in Linear B.

More ambitiously, the same framework could be explored in relation to undeciphered Aegean scripts. Since the phonetic values of many Linear A signs can be approximated through comparison with Linear B (see Steele and Meißner 2017), it would be possible to investigate which segmental sequences are compatible with different rankings of orthographic constraints. Such an approach would not, by itself, resolve the problem of decipherment, but could provide an additional method for evaluating competing analyses. As Dickey (1998) observed, “Linear A is not, as is often claimed, an undeciphered script. It has been deciphered dozens of times, and new solutions appear almost every year. It is even possible that one of the decipherments already proposed is largely correct, but given the scanty data available, it is almost impossible to prove that a given solution is the right one.”

Finally, the examination of scribal practices undertaken in this dissertation may be extended to the systematic study of scribal errors in the Linear B corpus. The present analysis has focused primarily on orthographic variation that can be explained as the result of regular writing practices. A substantial body of evidence, however, consists of forms that are more plausibly interpreted as genuine production errors. As argued elsewhere (Sabattini 2022), many of these may be understood as performance slips arising from cognitive factors such as memory load, distraction, or divided attention during writing. Such an approach is compatible with the administrative context in which the tablets were produced: the officials responsible for the Linear B records were not professional copyists but administrators engaged in economic and bureaucratic activities who composed records in real time, often under conditions that favored interruption and rapid production.

From this perspective, Linear B tablets resemble spontaneous language production more closely than the products of a literary manuscript tradition. Consequently, the collection and interpretation of scribal errors may benefit from methods developed in psycholinguistics and phonological theory, which model the cognitive processes underlying production errors, alongside the more traditional approaches of Classical textual criticism (cf. Consani 2003: 51–80). Beyond the interpretation of individual texts, such work would also contribute to broader discussions of the linguistic status of Mycenaean and the social context of its use. In particular, it may provide independent linguistic evidence bearing on the role of Greek in Late Bronze Age administration and on the linguistic background of the officials responsible for the Linear B records.

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