CHAPTER 2

Mycenaean Reflexes of *r̥ and the Numeral ‘Four’

Introduction

It is widely assumed that the regular reflex of interconsonantal *r̥ in Mycenaean was -ro-, or that both -ro- and -or- were possible outcomes. In this chapter, I will argue that this assumption is incorrect: in Linear B, the reflex is regularly spelled with one sign of the shape ⟨Co-⟩, which can only represent an outcome -or- or unchanged -r̥-.

Before we are in a position to evaluate the Mycenaean material, the evidence must be sifted. I will start in section 2.2 by reconsidering forms in which the reflex is supposed to be spelled with signs of the a-series, evaluating the treatment by García Ramón (1985). In section 2.3, I will present what I consider to be plausible evidence for the reflex *r̥ written with signs of the o-series, and separate this from irrelevant evidence and interpretations that I consider to be less plausible or uncertain. On this basis, I will reconsider two remaining issues: the relationship between o-series spellings of the reflex and a few incidental a-series spellings (section 2.4), as well as the apparent fluctuation between spellings of the types ⟨Co-⟩ and ⟨Co-ro-⟩ (section 2.5). Three proposals by previous scholars will be reviewed: the case for an irregular liquid metathesis made by Risch and Hajnal on several occasions; the idea of Heubeck (1972) that r̥ was preserved in Mycenaean, and finally, the proposal of an accent-conditioned development, revived by Klingenschmitt (1974). In sections 2.6 and 2.7 I provide a detailed account of the Mycenaean and Alphabetic Greek reflexes of the numeral ‘four’.

2.1 Preliminary Remarks on the Use of Personal Names

Some preliminary remarks concerning the use of onomastic material, which makes up a large portion of the Mycenaean evidence, are in order.\(^1\)

Since the lexical and referential meaning of anthroponyms is usually not as clear-cut as that of appellatives, etymological interpretations of names must always be treated with caution. Nevertheless, names are not entirely devoid

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\(^1\) On Mycenaean onomastics, see generally García Ramón (2011).
of linguistic context: Greek inherited an Indo-European naming tradition that made abundant use of traditional poetic phraseology. It is clear, for instance, that e-te-wo-re-we-i-o must be interpreted as /Etewo-kleweh-i-o/, a patronymic meaning ‘son of Etewoklewēs’, and that the underlying name can be identified with Class. Ἐτεοκλῆς, which means “True-Reputation”. Similarly, we can be relatively confident about the identification of a-no-me-de with Class. Ἀνδρομήδης and its reconstruction as *Anr̥-mēdēs.2 This interpretation can be bolstered with two arguments. First, the interpretation of the second element *me-de as /-mēdēs/ corresponding to Class. -mēdēs is confirmed by other Mycenaean names with this second member, and by the s-stem inflection (dat. -me-de-i) attested for some such names. Secondly, that the first member a-no- reflects *anr̥- is virtually certain because, as Mühlestein (1958) saw, it provides a counterpart to the numerous second members in -a-no /-ānōr/ and -a-do-ro /-andro-/.

At the same time, a considerable portion of the names found in the tablets have no certain interpretation. It is often assumed that names in -e-u (alph. -εύς) and -o (alph. -ος) can be hypocoristic or truncated forms of compounded names.3 Although this analysis may be correct in many cases, it must not be forgotten that names ending in -e-u were highly frequent in the non-Indo-European substrate language (called Pre-Greek by Beekes), and that a large number of Mycenaean PNs ending in -e-u resist interpretation. Another type of uncertainty is due to the ambiguities inherent in the Linear B syllabary. For instance, the PN ta-ta-ke-u (PY Cn 655.20), which will also be discussed below, is probably derived from a compound. In theory, its first member might be /start(o)-/ (~ στρατός) or /stāt(i)-/ (~ στησι -), while the second member may have been /-ag-/ (~ ἄγω ) or /-arkh -/ (~ ἄρχω). Under such circumstances, the form cannot be admitted as secure etymological evidence.4

In what follows, existing analyses of Mycenaean proper names as hypocoristics and truncated forms will be treated with the utmost caution. In other cases, reconstructions of proper names containing *r are included only if one of the following conditions applies:

- there is a direct counterpart in alphabetic Greek (cf. a-no-me-de ~ Ἀνδρομή-δης)
- the name can be analyzed as containing traditional phraseology, e.g. a-no-qo-ta ~ *h₂nr̥- + *gwen-, a poetic syntagm for which further evidence is found in Homer, Mycenaean, and Vedic.

2 Cf. García Ramón (2011: 225).
3 Cf. Heubeck (1959), García Ramón (2011: 222–224).
4 Cf. García Ramón (1985: 201–203).
2.2 An α-colored Reflex in Mycenaean?

In an influential contribution, Morpurgo Davies (1968) argued that the regular outcome of *r̥ was normally ar/ra not only in Ionic-Attic and West Greek, but also in Mycenaean and Arcado-Cyprian. All instances of o-vocalism that she considered secure, such as Myc. wo-ze ‘works’ < *urgiei, were in her view conditioned by a preceding u̯.

As noted by García Ramón (1985), however, Morpurgo Davies left one crucial factor out of consideration. In various Mycenaean, Arcadian and Cypriot words which she considered prime evidence for a reflex ar, this reflex did not develop between two occlusives (*CrC), but it arose in specific phonological environments such as *CrHV, *Crj, *h2rC-, or word-final *-r̥. As we have seen in chapter 1, in most of these environments *r̥ may have developed to ar in all Greek dialects, and this development probably predates the vocalization of *CrC. Examples are:

- the root χαρ- may have been generalized from the present stem χαίρω ‘to feel good’ < *ǵhr̥-i̯e/o-», where *r̥ was vocalized early in the context *Crj;
- Cypr. a-u-ta-re (Hom. αὐτάρ) where -tar reflects *tr with the word-final development;
- The element -argos ‘white’ in the cow names Myc. to-ma-ko and po-da-ko, which reflects *h2r̥gré- or *h2r̥jó- rather than *r̥jó- (as assumed by Morpurgo Davies).7

In other cases, the etymology of words with ar or the interpretation accepted by Morpurgo Davies is uncertain, e.g. in the case of the PN ta-su, for which an interpretation /Tharsus/ is just one possibility. After these reductions, García Ramón retains the following evidence for spellings with ⟨Ca-⟩ or ⟨Ca-ra-⟩ in forms with etymological *CrC:

- ka-po /karpo-/ (KN F 841.5), related to class. καρπάς ‘fruit, harvest’;
- ra-pτe /hraptēr/ ‘saddler’ (KN Fh 1056+, PY An 172.1+), e-ra-pe-me-na /hrap- mena/), related to class. ῥάπτω ‘to sew, stitch’, pf. ptc. ἐρραμμένα;
- ta-pa-e-o-te (KN B 823), interpreted as /tharpha ehontes/, and related to Hom. ταρφύς ‘dense’;

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5 In the present chapter, I discuss the Mycenaean evidence; the Arcado-Cyprian material is treated in chapter 3.
6 See sections 1.2 and 9.5 for a more elaborate discussion.
7 For the developments *CRHV > *CaRV- and *HRC- > *HJC- in Proto-Greek, and also *r, *l > ar, al | *C, iV, see section 1.2.
8 Throughout this section, I use the notation ⟨Ca-⟩ instead of García Ramón’s ⟨Ta-⟩ (etc.) because the evidence does not only include examples where T = occlusive or *s, but also cases of u̯.
– *ta-ta-ke-u* (PY Cn 655.20), a PN interpreted as /Start-ageus/ or /Start-arkʰeus/ “Army-Leader”;  
– *tu-ka-ta-ṣị* /thugatarsi/ dat. pl. ‘daughters’ (MY Oe 112.2);  
– PN *wa-ra-pi-si-ro* /Wrapsilos/ (PY Cn 436.7, MY Au 102.1), interpreted following Heubeck (1959) as a short form of *’urapsi-lāu̯os*. According to García Ramón (1985: 222), this name contains the root of ἱαπτίζω, yielding a meaning “who beats the people (with a stick)”; ἱαπ- would reflect a zero grade form of ἱέπω ‘to incline’.

At the same time, García Ramón notes that the unconditioned, regular outcome of *Cr̥C* in Mycenaen was spelled either as ⟨Co⟩ or as ⟨Co-ro⟩. As he points out, the analysis of scribal hands offers no clues for supposing that the forms with ⟨Ca⟩ or ⟨Ca-ra⟩ are from a different sociolect (mycénien spécial), as opposed to ⟨Co⟩ or ⟨Co-ro⟩ from mycénien normal.9 Since it seems equally impossible to find a phonological conditioning of the a-colored outcome, García Ramón concludes that the forms with ⟨Ca⟩ or ⟨Ca-ra⟩ are due to analogical developments. Following an idea by Kuryłowicz (see section 1.4.4), he assumes that they reflect an early, Common Greek secondary zero grade, and concludes that in words deriving from a pre-form *Cr̥C*, “the spellings Ta (…) and Ta-ra (…) render /Tar/ and /Tra/ respectively, with a full a-vowel to be interpreted as morphologically conditioned” (1985: 222–223).10

As explained in section 1.4.4, Kuryłowicz’s idea of a secondary zero grade is difficult to defend. I therefore propose alternative explanations for most of the six cases of ⟨Ca⟩ or ⟨Ca-ra⟩ listed above:
– Concerning *ra-pte*, the verb ἱαπτω has no Indo-European etymology,11 and given that we are dealing with artisanal vocabulary, it could well be a loan-word that never contained *r̥*.12  
– The interpretation of the name *ta-ta-ke-u* as /Start-ageus/ or /Start-arkʰeus/ has been discussed in section 2.2. García Ramón (1985: 201–203) rightly

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9 See Risch 1966 for the distinction mycénien spécial vs. normal, and for further discussion Hajnal 1997 and Thompson 2002–2003.
10 García Ramón’s scenario has been accepted by Hajnal (1997: 145–150), but with a confusing argumentation that will not be considered in detail here.
11 See GEW, DELG, and EDG.
12 García Ramón thinks that a regularly formed middle perfect *se-sr̥bh-toi* may have yielded *hehrptai* or even *herptai* by application of the sound changes. These outcomes would have been awkward in terms of paradigmatic alternations (they “would not have fitted into the pattern of the root structure *TReT*,” 1985: 219). For this reason, he argues, a secondary zero grade *srabh*- would have been introduced in the middle perfect *he-hraph-toi*, and then also in the aorist *e-hraph*-e and the yod-present *hrap*-je/o-.
notes that it could also be interpreted as /Stāt-ageus/ or /Stāt-arkʰeus/, with /Stāt(ı)-/ corresponding to alphabetic Στησ(ι)-.

- Heubeck’s interpretation of the name wa-ra-pi-zi-ro /Wrapsilos/ is called “cogent” by García Ramón (1985: 222), but I will exclude it from the compelling evidence, as we are dealing with a hypocoristic. Even if Heubeck’s interpretation should be correct, it remains unclear whether the root of ṭ̣απιξω ‘to strike with a stick’ ever contained *r.13

- The reading tu-ka-ta-ṣi is the most widely accepted one,14 but there have been dissenting views: scholars like Mühlestein and Lejeune read tu-ka-ta-ṣi, which led Haug (2002: 59) to remark that tu-ka-ta-ṣi is a “lecture peu sûre sur laquelle il serait imprudent de fonder une théorie”. We will get back to this form in section 2.4.

The two remaining forms require a more detailed discussion. Myc. ka-po is generally interpreted as /karpó-/, the same form as alphabetic Greek καρπός ‘fruit, harvest’. Leaving aside straightforward derivatives, καρπός is etymologically isolated within Greek and derives from the ablauting PIE root *kerp‑/ *kr̥p‑, as in Lith. kir̥pti (1sg. pres. kerpu) ‘to cut off, shear’.15 The root is also attested in Hitt. karp(ie/a)-zi ‘to lift, take away; pluck’.16 The a-vocalism of Lat. carpō ‘pluck’ has not yet received a convincing explanation, but this is an inner-Italic issue.17

Following Kuryłowicz (1968: 244) in analyzing Lat. carpō as a case of secondary ablaut, García Ramón explains καρπός as an old, Pan-Greek replacement of *kṛpó-.18 However, there is no motivation whatsoever for such a replacement: there was nothing wrong with *kṛpó-, and there is no trace of the full grade root in Greek. We must therefore assume either that Ionic-Attic καρπός displays the regular outcome of PIE *kṛpó-, or (much less likely) that its vocalization was influenced by a now-lost verbal form with full grade root. This means that Mycenaean ka-po (instead of expected *ko-po) must be explained otherwise.

Let us reconsider the context in which ka-po appears. It is attested only in KN F 841, of which lines 5–6 read:19

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13 That is, it may have been borrowed as *u̯rap‑ and be unrelated to ῥέπω ‘to incline’.
14 Apart from García Ramón, cf. DMic. (with further lit.), Bartonĕk (2003, indices).
15 Cf. LIV² s.v. *’(s)kerp‑, to which dossier Hitt. karp(ie/a)-zi must be added.
16 Cf. edhil s.v., following hed.
17 According to a rule of Schrijver’s (1991: 429–430), carpō could owe its a-vocalism to forms in which a consonant follows the zero grade root. See further section 1.4.4.
18 The argument is accepted by Hajnal (1997: 146).
19 García Ramón (1985: 217 n. 82) remarks that the monogram KAPO probably has nothing to do with ka-po. Indeed, its reference cannot be established with certainty on the basis of the
The view that “ka-po e-[ra-wa is surely to be interpreted as ‘fruits of olive’” (García Ramón 1985: 217) is widely held.20 However, concerning su-za earlier in line 5, Chadwick remarked that the interpretation ‘fig-trees’ is plausible, “as the annotation [NI 75] would seem superfluous if the fruit is meant” (Docs.2 440). If this is correct, another plausible interpretation of ka-po, e-[ would be /kāpos elaiwāhōn/ ‘olive tree plantation’, in which case ka-po would have the same meaning as χῆπος ‘plantation, orchard’ in Homer.21

Another form to be mentioned in this discussion is ka-pa, attested on PY Un 138 and in the Thebes Ft-series (where it invariably stands at the beginning of the tablets in question). This form was interpreted by the editors (TOP i: 264–266) as a dat. sg. /skáphāi/ ‘pour le récipient à offrandes’, i.e. “for the sacrificial vessel”. Meier-Brügger (2006: 116) has suggested that the form could also represent /kárpa/, a neuter plural (collective) corresponding to the masculine /karpós/, of the type χέλευσα beside χέλευσός ‘way’. However, in a subsequent discussion of all the attestations of ka-pa, Varias García (2008: 784–786) has noted that it always occurs in connection with the ideogram OLIV. He concludes that ka-pa can hardly represent the generic designation ‘fruits’, and that it more likely refers to a particular kind of olives. The interpretation as a collective /kárpa/ therefore remains uncertain.

20 See e.g. DMic. s.v. ka-po, Docs.2 219, Comp. i, 341–342. As far as I have seen, the parallel with κάρπος ἐλαίας ‘yield of the olive tree’ in Pindar (Nem. 10.35) has not been noticed so far. However, this parallel should not carry too much weight, because such a phrase may have been created at any date, given the meanings of its constituents.

21 The interpretation /kāpos/ (proposed without much further argumentation in Van Beek 2013) in fact had been proposed already by Killen (1987: 174–177), as I discovered later. Killen convincingly argues that KN F 841 deals not with food rations, as was assumed up to that point, but with land holdings. He restores line 6 as ka-po e-[ra-wa-o /kāpos elaiwāōn/ ‘olive garden’, followed by an indication of its surface and the number of trees. The older meaning of χῆπος may have been ‘lot, plot of land’, as in Cyprian (cf. Masson, ICS2 217 and 316), but in the Odyssey, χῆπος refers to an ὄρχατος (a plot of land with trees on it) and probably means ‘orchard’; in Pindar κάπος refers to fertile enclosures (Ol. 3.24, Pyth. 5.24, Pyth. 9.53). The word also occurs in Arcadian and in classical Ionic-Attic prose.
The final example *ta-pa* only occurs in the form *ta-pa-e-o-te* (KN B 823). It has been interpreted as */t(h)arpʰa/* and compared with Homeric ταρφύς ‘numerous, dense’, which derives from τρέφομαι ‘to grow thick’, originally ‘to coagulate’ (on ταρφύς, cf. Lamberterie 1990: 676–682 and section 4.3.1 below). Starting out from the original interpretation by Ventris and Chadwick, Lejeune (1971: 239) proposed to read *ta-pa-e-o-te* virʰ 10 a-pe-o-te virʰ 4 as */t(h)arpʰa eʰontes ... ampʰ-eʰontes/*, with a translation “being directly attached (“aggloméré”) [to the sanctuary]: 10 MEN; being in the surroundings (“périférique”) [of the sanctuary]: 4 MEN”. This interpretation is accepted by García Ramón (1985: 199–200).

If */t(h)arpʰa/* is the correct interpretation of *ta-pa*, the form would have the wrong vowel slot in comparison with the verb τρέφομαι, meaning that a normal analogical origin of *‑ar‑* cannot be justified. This problem, which also concerns the alphabetic form ταρφύς, is dealt with by García Ramón (1985: 219) in the following way:

As in the case of *ka-po* and *ra-pte*, and irrespective of the base form of the root (*TReT- [...] or *TeRT- [...]*, the shift *trʰus → ταρφύς (: τάρφα) may be due to a secondary apophony. This reinterpretation of τάρφα : ταρφύς (cf. also τάχα : ταχύς, θαμά : θαμύς) seems to be supported by the existence of other adverbs of a structure similar to that of τάρφα (cf. τάχα, θαμά, κάρτα, μάλα).

García Ramón’s reasoning here is not entirely clear to me. On a charitable reading, he may be taken to mean that the -a- was imported in *τάρφα* ‘dense, numerous’ from θαμά (with identical meaning), and that κάρτα ‘very’ may likewise have adopted the root vowel of μάλα ‘very’. However, even if such an analogical introduction of a-vocalism is accepted, the problem of the wrong vowel slot of */tharpʰa* compared to τρέφω cannot be so easily dismissed.

As I will argue in chapters 4 and 5, -α- in κάρτα and ταρφύς must be understood as the regular outcome of *r* in Ionic-Attic. Now, since the regular way to spell the outcome of *r* in Mycenaean was by using the o-series, at least before and after labials (to-pe-za, a-no-qa-si-ja, and others: see below), a puta-

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22 In Docs.1 (171 and 408), the pair ta-pa-e-o-te beside a-pe-o-te was interpreted as */t(h)arpʰa eʰontes/ : /ap-eʰontes/ = ‘present’: ‘absent’. But since one would expect the meaning ‘present’ to be expressed by /par-eʰontes/ (cf. alph. παρεόντες), other scholars (e.g. Ruijgh) have proposed to interpret ta-pa-e-o-te as */tāi par-eʰontes/*, where */tāi/ ‘there’ would be an adverbially used dat. sg. f. of the demonstrative pronoun. This explanation is itself subject to problems: see García Ramón (l.c.).
tive Mycenaean /tʰarpʰa/ cannot be understood from a pre-form *tʰ_rspʰa. It therefore seems unlikely to me that Lejeune’s interpretation of ta-pa-e-o-te is correct, even if I cannot offer a convincing alternative.

In conclusion, I see no compelling evidence for García Ramón’s assumption of an early, Pan-Greek secondary ablaut *TeRT : TaRT that preceded the vocalization of syllabic sonorants in *TR̥T. Of course, alternations of the type *TeRT : TaRT eventually developed on a large scale in Greek, but only in dialects where the syllabic liquids had an a-colored reflex.

On the other hand, García Ramón’s second conclusion still stands: there is little compelling evidence for a-vocalism as the regular Mycenaean reflex of PIE *Cr̥T. Nevertheless, we must keep in mind tu-ka-ta-ṣi as a relatively strong counterexample. For this form García Ramón already considered /tʰugatrsi/ (with retained r) as an alternative interpretation. Another relevant form is a-na-qa-ta (KN B 798.4), which was interpreted by Heubeck (1972: 67–69) as a variant spelling of a-no-qa-ta (KN passim), and for which he, followed by García Ramón (1985: 223), considered a synchronic interpretation /Anr̥kʰontā-. Before getting back to these forms (section 2.4), let us first focus on the evidence for reflexes of *r in words spelled ⟨Co-ro⟩ and ⟨Co⟩. Which of these spellings represents the regular reflex of *r before consonants?

2.3 Evidence for an o-colored Reflex

According to the basic spelling rules of Linear B, an onset Cro- must be spelled ⟨Co-ro⟩ (e.g. po-ro- /pro-/ ‘before’), while syllables of the structure Cor- are spelled ⟨Co⟩ (e.g. compounds in -wo-ko /-worgos/ ‘-maker’). Among words with syllabic nuclei that developed from *r, some present the spelling ⟨Co-ro⟩ (e.g. ins. pl. ge-to-ro-po-pi ‘cattle’ < *kwetr̥-pod-pʰi), but in most cases we find a spelling ⟨Co⟩ (e.g. 3sg. pres. ind. wo-ze ‘works’ < *ur̥giei). This orthographic difference in the syllabary has been related to the phonological reflex of *r in three different ways:

(a) the spelling ⟨Co-ro⟩ represents the regular reflex of *r, to be interpreted as /ro/; the spelling ⟨Co⟩ in other items is due to various causes (e.g. analogy);
(b) the spelling ⟨Co⟩ represents the regular reflex of *r, to be interpreted as /or/; the spelling ⟨Co-ro⟩ in other items is due to various causes (e.g. analogy);
(c) the spellings ⟨Co⟩ and ⟨Co-ro⟩ are different attempts to represent a preserved r.
Various previous scholars have opted for scenario (a), applying to Mycenaean the widely-held presumption that the anaptyctic vowel regularly developed after a syllabic liquid in all Greek dialects. In what follows, we will see that this scenario is contradicted by much of the Mycenaean evidence. Scenario (b) is preferred by Haug (2002: 59) and Thompson (2002–2003: 356–359); this accounts for most of the Mycenaean evidence, but leaves a few forms unaccounted for. Finally, (c) has been championed by Heubeck, who views different types of spelling fluctuations as “attempts to render spoken *f with the insufficient resources of the Mycenaean syllabary” (Heubeck 1972: 73).

In what follows I will argue, like Heubeck, that *f was preserved in Mycenaean. However, in my view the conclusions to be drawn from orthographic fluctuations are less certain than Heubeck thought. I consider it likely that the sequence /Cr/* was represented with spellings of the type ⟨Co⟩, whereas the spelling ⟨Co-ro⟩ regularly represents an onset /Cro-, with an o-vowel. On the other hand, while I do not think that the fluctuation between ⟨Co-ro⟩ and ⟨Co⟩ can be used as a cogent argument, I do agree with Heubeck that a few cases of ⟨Co⟩ alternating with ⟨Ca⟩ can be understood better if *f was preserved in Mycenaean. In addition, I agree with Heubeck that the Homeric evidence may hint at a retention of *f in Mycenaean; further arguments in this direction will be developed in section 7.4 and chapter 11.

As far as the relation between orthography, phonetics and phonology is concerned, if *f was retained at the time when an Aegean Linear script was first adapted to write Greek, no separate series of signs would have been available at that point to represent syllables with a nucleus [r]. Moreover, in view of the low frequency of *f, one would not necessarily expect a new series of signs to be developed. Under these circumstances, it would be conceivable that phonetic spellings of [r] described the position of the tongue. For instance, beside labial consonants this position may have been higher with respect to the default position; in this way the difference between a- and o-spellings could be accounted for.

I will now list and discuss the evidence for o-spellings of *f, divided into two parts. In section 2.3.1, evidence which I consider to be reliable or plausi-

23 Most notably Klingenschmitt (1974).
24 Heubeck (1972) states that option (b) is “generally assumed”; but he does not cite any predecessors, and in fact few scholars have explicitly claimed that the regular outcome of *f in Mycenaean was -or- rather than -ro-. Thompson (2010: 192) again views both -or- and -ro- (as well as -ar-) as regular outcomes.
25 Cf. Berger (1955) on the phonetics underlying the reflexes of *f in Middle Indo-Aryan.
ble is listed in alphabetical order, and each item is given a concise discussion. Section 2.3.2 contains evidence of which the interpretation is subject to various sorts of uncertainties, or which has been wrongly adduced by previous authors. The material has been collected from the treatments by Morpurgo Davies (1968), Heubeck (1972), Garcia Ramón (1985, 2016), Thompson (2002–2003), and Hajnal-Risch (2006). In anticipation of the arguments to be developed later, I will render ⟨Co–⟩ as /Cr̥/. Readers who are hesitant to accept this may read ⟨Co–⟩ as /Cor-/ in what follows; the main arguments of this chapter are not affected by this.

2.3.1 Examples Deserving Consideration

1. **PN a-no-me-de** /Anr̥-mēdēs/ (only PY Jn 706.5) and **a-no-qo-ta** /Anr̥-kw Pontā-/ (KN passim) with a possible variant **a-na-qo-ta** (KN B 798.4).

2. **a-no-qa-si-ja** /Anr̥-kwaśiā-/ ‘manslaughter’ (only PY Ea 805).

3. **TN ma-to-pu-ro** /Mātr̥-pulos/ “Mother Pylos” (only PY Mn 1412.4), assuming that the by-form **ma-to-ro-pu-ro** (only PY Cn 595.5) stands for thematized /Mātro-pulos/ or contains a spelling error.26

4. **qe-to-ro-po-pi** ins. pl. /kwxetro-pod-pʰi/ ‘cattle’ (PY Ae).

5. **to-qi-de** /str̥kwhidē/ ins. sg. ‘with a spiral’ (PY Ta), also in **to-qi-de-we-sa** /str̥kwhid-wessa/ ‘provided with spirals’ (PY Ta) and adj. **to-qi-de-jo, -ja** (PY Ta).

6. **o-pa-wo-ta** /op-āwr̥ta/ (PY, KN) ‘pads’ or ‘plates’ attached to body armor.

7. **to-pe-za** /tr̥-peddja/ ‘table’ (PY Ta passim, KN V(2) 280).

8. **PN to-st-ta** /Tʰρσtā-/ (PY Cn 719.2).

9. The toponyms **u-pa-ra-ki-ri-ja** (PY An 298.1) and **u-po-ra-ki-ri-ja** (PY Cn 45.4–7, 11) clearly refer to the same locality; they have been analyzed as compounds with a first member reflecting *upr̥*, a zero grade form corresponding to ὑπέρ, to be compared with Pamph. υπαρ.27 The second member is derived from *ἐκρίς ‘top, summit’.

10. **wo-do-we** /wr̥do-wen/ ‘rose-scented’, qualifies fragrant oil (PY Fr 1203 etc.).28

11. **wo-ne-we** /wr̥(h)nēwes/ (PY Cn 40.2, 643.1, and probably 719.12), nom. pl. m. of a noun or adjective describing flocks of male sheep, probably the precursor of ἀρνειός denoting a specific class of male sheep.

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26 On these forms, see section 2.3.1.
27 Cf. Hajnal 1997: 143–144 with.refs.
28 Probably, the word for ‘rose’ also occurs in derivatives and personal names, but not as a simplex (cf. Thompson 2002–2003: 361).
12. *wo-ze /wxddiei/ ‘works’ (PY passim) and other inflected forms of the present stem with the zero grade of this root (both PY and KN).  

Comments on the individual items:

1. Since Mühlestein (1958), the PNs *a-no-me-de and *a-no-qo-ta are compared with class. Ἀνδρομήδης and Hom. ἀνδρεἰφόντη (epithet of Enualios), respectively. An important argument in favor of this advanced by Mühlestein is that -a-do-ro /-andro-/ and -a-no /-ānor-/ which are both frequent as second members in personal names, would lack a corresponding onomastic first member if *a-no- would not reflect *anr̥-. The absence of the compositional vowel -o- in *a-no- is clearly an archaism. An overview of all Mycenaean proper names in /-kwh ontā-/ is given by Leukart (1994: 51–57); he rightly criticizes the interpretations of the first member as /anō-/ ‘up, above’ (as suggested by Ruijgh and Palmer). The form *a-na-qo-ta has been identified as referring to the same person as the frequently attested *a-no-qo-ta (Heubeck 1972: 67–69; Leukart 1994: 54 with lit.). One might argue that the hapax with *a-na- is a mistake, but alternatively, one may accept that the reflex of *Cr̥- could also be spelled with ⟨Ca⟩ signs, whether this represents retained /r̥/ (as argued by Heubeck 1972: 68–69) or /ar/ (as admitted by other scholars). This issue will be further discussed in section 2.4.

2. The abstract noun *a-no-qa-si-ja ‘manslaughter’ is attested in e-ne-ka, *a-no-qa-si-ja /eneka anr̥kwh asiās/ on account of manslaughter’ (PY Ea 805). This phrase has been convincingly compared with Class. ἕνεκα ἀνδροκτασίας ‘id.’ by García Ramón (2007a). The underlying pre-form PIE *h₂nr̥-gwhén- may reflect traditional phraseology: cf. Ved. ṇṛ-hán- ‘slaying heroes’ (which qualifies the Maruts’ deadly weapon), the compound ἀνδροφόνος ‘man-slaying; murderer’ (cf. chapter 7), and also the name *a-no-qo-ta just discussed.

3. On ma-to-ro-pu-ro ~ ma-to-pu-ro, see section 2.5.2.

4. The interpretation and etymology of *qe-to-ro-po-pi are completely transparent: the word refers to cattle and etymologically means ‘quadruped’. It has played an important role in previous discussions about the reflex of *r̥: many scholars view it as a key example of the regular reflex /ro/, one argument being that the loss of *u̯ in the pre-form *kweṭur̥- would presup-
pose such a reflex. However, as we will see in sections 2.5 to 2.7, another account is possible: the o-vowel of qe-to-ro- /kʷetro-/ could be analogical, just like the -α- of the Ionic-Attic counterpart τετρα-, and the loss of *γ in these forms may have taken place before the vocalization of *τ.

5. to-qi-de ‘with a spiral’ refers to a type of decoration used on vessels and furniture. It is normally reconstructed (see DMic. s.v. to-qi-de) as either *τρkkejd- or *στρkkejd-, but recently Jiménez Delgado (2017) has argued for an o-grade formation.32 The root ablaut grade cannot be determined from the form to-qi-de itself, because the derivational suffix -id- could be attached to any base form. It might be possible, however, to deduce the ablaut grade from the root etymology. There are three options: PIE *τρκw- or *στρκw- (the usual interpretation) and *τερκw- (assumed by Jiménez Delgado). The last option is unlikely: the reconstruction of a PIE root *τερκw- ‘turn’ is based mainly on the etymological connection between Lat. torqueō ‘to twist, turn’, Hitt. taruk-zi ‘to dance’, and Toch. B tārk- ‘turn’, the latter attested only in nominal forms. If Greek τρέπω belonged with these forms, its full grade slot would be difficult to account for.33 This leaves us with two possible reconstructions, *τρkkejd- and *στρkkejd-, both requiring a zero grade root. On both accounts, to-qi-de is an important piece of evidence against a regular development *τ > Myc. ro. A widely accepted interpretation is *τρkkejd-, with the root of τρέπω,34 but in my view a derivation from the root of στρέφω ‘to whirl, turn around’ (which mostly denotes an ongoing or repeated circular motion) is much

32 Jiménez Delgado (2017: 37) discusses to-qi-de along with the form -to-qo, found in the phrase jo-e-ke-to-qo, wo-na-si (KN Gv 863), and which he interprets as a word for ‘wine press’. He asserts that they are “best explained as o-grade formations”, i.e. /torkwo-/ and /torkw-ό-/, respectively. His sole argument for this is the o-grades found in Class. στρφίς ‘band’ and τρόπις ‘keel’, but these words were almost certainly formed independently from Myc. to-qi-de, as they have different concretized meanings. In any case they have a different vowel slot.

33 I do not find the idea of a contamination proposed by Jiménez Delgado attractive, and am therefore not inclined to follow his reconstruction *τρkkejd-. In fact, since Lat. torqueō might also reflect the zero grade of *τρκw-, I doubt whether there was a PIE root *τερκw- ‘to turn’ at all. I prefer to operate with only two roots, *τρκw- ‘to turn’ and *τερp- ‘to tread, stamp’.

34 This requires that the root of τρέπω was *τρκw-, rather than *τερp-. This indeed seems likely in view of Myc. ptc. to-ro-qe-jo-me-no /trokwe(i̯)omeno- ‘making tours’ (PY Eq 213), an old iterative formation which can be compared to alphabetic τροπέω ‘turn’ (Hom., mostly in compounds, e.g. περιτροπέω). Moreover, the alleged root 2. *τερp- ‘turn’ (distinguished from 1. *τρκw- ‘tread’ in Liv2) does not have clear derivatives meaning ‘to direct’ in other languages (Hitt. τερπp-zi ‘to plough’ and epic Skt. trapat ‘feels ashamed’), and for this reason it seems doubtful to me to reconstruct such a root.
more plausible—that is, if to-qi-de indeed denotes a spiral. Note that alphabetic τρέπω ‘to direct, turn’ primarily refers to a change of direction or a single turn.

6. **o-pa-wo-ta** (KN Sk 5670.2+, PY Sh 737+) /op-āw̥ta/. Although the exact referent is unclear, it is commonly agreed that at least part of the attestations refer to something like “plates’ or ‘pads’ attached to body-armour” (Docs.2, glossary).35 A clear summary of the attestations and their contexts is given by Vine (1994: 37–39). The pre-form *op-au̯r̥-to- is a compound verbal adjective containing the zero grade root of PGr. *aüer- ‘to hang, attach’ that is continued in Homer as ἀείρω. Note, however, that an analogical reshaping of the zero grade *aüro- >> aüor- after the full grade *aüer- cannot be excluded—that is, assuming that *r̥ had already vocalized in Mycenaean.

7. The comparison between Myc. to-pe-za and alphabetic τράπεζα allows us to reconstruct the form as PGr. *tr̥-ped-ja. This is the feminine of a compound of ποδ‑ ‘foot’ (with the old weak stem *ped-, and hence a clear relic) and a first member *tr̥-. There are two alternative interpretations of the first element.

Most scholars assume that *tr̥- is a reduced form of the numeral ‘four’, with a double zero grade *k̞wτυρ‑.36 The onset simplification *k̞wτυρ‑ > *τυρ‑ was regular in Proto-Greek; on the further development of *τυρ‑ to *tr‑ see sections 2.5.3 and 2.6.37 However, this reconstruction is at odds with the fact that *k̞wτυρ‑ ‘four’- had metathesized to *kwτρu‑ in PIE, as evidenced by Av. caθru‑ ‘four’- and probably also Lat. quadru‑. This *kwτρu‑ would have yielded τρυ‑, certainly not *tr‑ in Greek.38 Thus, the form *k̞wτυρ‑ in

35 Vine (1994) suggests that a heteroclitic neuter *opā-yr̥, *opā-yn̥t‑ underlies (part of the attestations of) Myc. o-pa-wo-ta. He suggests that the tablets distinguish between two types of o-pa-wo-ta: for helmets (o-pi-ko-ru-si-ja, o-pa-wo-ta) and for corslets (plain o-pa-wo-ta). The first “may mean something like ‘helmet spikes’, continuing the same word as alphabetic Greek ὄπεαρ” (1994: 38); the second would indeed be /op-aworta/ (chest-protecting plates or pads). Thus, part of the attestations of o-pa-wo-ta would still require the traditional analysis.

36 See, for instance, the list of references in DMic. s.v. to-pe-za. Thompson (2002–2003: 357) remains skeptical of the connection with ‘four’, “both from the point of view of the realia, and because of its phonological difficulties”. On Mühlestein’s analysis of Myc. to-mi-ka, see section 2.3.2 below.

37 Note that the loss of *k‑ in Proto-Greek would be regular only in a triconsonantal onset. In the case *-y- was lost first, the labiovelar would be preserved in *k̞wτr-.

38 Indeed, the first part of Hom. τρυφάλεια ‘(a kind of) helmet’ is often analyzed as reflecting precisely this PIE *k̞wτr-u-; it is commonly compared with τετράφαλος ‘with four φάλοι’, an epithet qualifying helmets (cf. LfgE s.v.). However, the etymology of τρυφάλεια is not
the supposed pre-form of ‘table’ would have to be viewed as an analogical creation in late PIE, replacing \(^{*}k^\text{tru}\). This assumption is not economical, as we know that PIE \(^{*}k^\text{tru}\) was replaced in Greek by \(^{*}k^\text{etyr}\), which yielded Class. \(\tau\varepsilon\rho\alpha\), Myc. \(\varphi\eta\tau\omicron\varrho\alpha\), etc. It is not entirely clear either what the basis for an analogically reshaped (and productively formed) \(^{*}k^\text{tyr}\) would have been in late PIE.

An alternative idea is that the first member of \(^{*}\text{tripedia}\) was not ‘four’, but a relic form \(^{*}t\text{r}\) of ‘three’.\(^39\) There is some evidence for an older form \(^{*}t\text{r}\) ‘three’ in Ved. \(\text{tṛ}ṭ\text{yā}^\prime\) ‘third’ and perhaps in Old Prussian \(\text{tūrī}^\prime\) ‘id.’.\(^40\) Taken at face value, these forms suggest that ‘three’ was originally an \(-i\)-stem \(^{*}t\text{r}-\text{ei}\), that the original ordinal form \(^{*}t\text{r}t\text{o}\) was regularized into \(^{*}\text{trito}\) in most languages, and that the compounding element \(^{*}t\text{r}\) was preserved only in PGr. \(^{*}\text{tripedia}\). This analysis may seem far-fetched at first sight, but it is attractive from a geometrical point of view: on uneven floors, tables are stable when they have three feet, but unstable with four feet.\(^41\) More importantly, this analysis makes sense of the tables encountered in the Pylos tablets, where \(\text{to-pei-za}\) are qualified as \(\text{we-pe-za} /\text{we(k)s-pedd}^\text{ia} / \text{‘six-footed’} \) (PY Ta 713.2) or \(\text{e-ne-wo-pe-za} /\text{enewo-pedd}^\text{ia} / \text{‘nine-footed’} \) (PY Ta 713.1 and \text{passim}), both multiples of three.\(^42\) Yasur-Landau (2005) has convincingly argued that these \(\text{e-ne-wo-pe-za}\) and \(\text{we-pe-za}\) tables had legs that could be disassembled, and that were stored in disassembled state. This type of tables has parallels, as he shows, in Hittite and Akkadian inventories, and is attested in the archaeological record in Tiryns and on Cyprus. Moreover, Yasur-Landau draws attention to pictorial evidence for three-legged tables in the Aegean, on seals and frescos. As for \(\text{e-ne-wo-pe-za}\) and \(\text{we-pe-za}\), he concludes that these compounds mean ‘with nine leg-pieces’ and ‘with six leg-pieces’, respectively. In sum, there is every reason to believe that \(^{*}t\text{r}\) in ‘table’ is an old compound form of ‘three’. This makes the form \(^{*}t\text{r}-\text{ped-ih}^2\) of PIE date.

8. Being a personal name, \(\text{to-si-ta}\) must be treated with caution. It is usually seen as a formation with zero grade root, comparable to Hom. \(\Theta\varepsilon\tau\iota\varepsilon\gamma\).
Leukart (1994: 191–194) has suggested to analyze to-si-ta as a hypocoristic name derived from */Tʰr̥si-teleːs/, the second member of which he derives from τέλος in the sense ‘military unit, division’ (LSJ q.v., mg. 1.110). Thus, the compound underlying to-si-ta would mean ‘whose unit has θάρσος’. This could make sense in view of the ῥn σ Θερ-σίλοχος and Arc. Θερσύλο-χος (name of a man from Eastern Achaea), whose second member is λόχος ‘ambush, armed band’. The analysis is conceivable, but as always in Mycenaean onomastics, it requires that we make a number of assumptions. Alternatively, one could envisage to derive to-si-ta directly from an inherited adjective *dhr̥sitó-, as would be reflected in Ved. dhr̥ṣitá- ‘strong’ (e.g. of weapons) and YAv. darśita-.⁴³ Although there is no further lexical trace of this formation in Greek, this analysis would account for to-si-ta from a formal perspective. It does not, however, explain the long -ī- of Θερσίτης (Hom.+), for which Leukart’s analysis as a hypocoristic seems relatively plausible. All in all, it is best not to base any conclusions on to-si-ta, however tempting the connection with Hom. Θερσίτης may be.

9. The toponyms u-pa-ra-ki-ri-ja (PY An 298.1) and u-po-ra-ki-ri-ja (PY Cn 45.4–7, 11), which refer to the same locality, have been much discussed. They must be compared to the classical expression τὰ ὑπεράκρια ‘the high-lands’, οἱ Ὑπεράκριοι ‘the inhabitants of the poor highlands of Attica’; the adjective ὑπεράκριος literally means “what is beyond the hilltop(s)” (cf. Hom. ἄκρις ‘top, summit’). Most scholars acknowledge that the first member of the Mycenaean toponyms reflects a zero grade form *uρ̥, to be compared with Pamph. υπαρ.⁴⁴ Heubeck (1972: 67) proposed to view u-pa-ra˚ and u-po-ra˚ as variant spellings of one and the same underlying form /uρ˚-akriā/, and supposes that the prevocalic syllabic liquid is due to the “analogical effect of other compounds in which the second part had an initial consonant”.⁴⁵ Now, u-po-ra˚ would be the expected spelling of such a form u.pr˚.rak.ri.ā; Heubeck assumes that u-pa-ra˚ was written by a scribe who heard the form as u.prak.ri.ā (with rapid pronunciation).

Hajnal (1997) does not discuss Heubeck’s idea and proposes two different interpretations. On the one hand, he envisages (1997: 151) that the u-po-ra˚
spelling may represent /upor-akriā-/ in which upor- would be the pre-consonantal reflex of a proclitic form *upr-, and that the u-po-ra" spelling could represent /upar-akriā-/, in which upar- would be the regular reflex of an independently-used local adverb *upr. He then casts doubts on this very idea by noting that one and the same toponym normally does not have two different variant forms, and proposes (1997: 155) that the scribe of u-po-ra" in Cn 45 would have used the o-vowel as a hyper-Mycenaean spelling. For this idea, he compares to-si-ta beside Θεσσίτης, where the spelling would have been used “um den Namen älteres Gepräge zu geben”. In my view, such a sociolinguistic approach to Mycenaean orthography is fundamentally flawed.

Thompson (2002–2003: 363–365) extensively discusses Heubeck’s, Hajnal’s, as well as other previous interpretations. In particular, he criticizes Risch’s proposal that u-po-ra-ki-ri-ja would represent /uparakiā-/ with an anaptyctic vowel -o- identified by Risch as a feature of mycénien spécial. Thompson’s criticism of Heubeck’s analysis is that /upr-/ could only have been introduced in this compound as long as it existed as an independent word, whereas an independent local adverb *upr (with r in word-final position) should already have developed into upar or upor in Mycenaean. Moreover, Thompson casts doubts on the existence of reflexes of *upr: the only other direct piece of evidence is Pamph. νπζ, and since other Greek dialects and other Indo-European languages only have reflexes of *(s)upér (ὑπέρ, Ved. upári, Lat. super, etc.), he suspects that Pamph. νπζ also reflects *(s)upér, with a special development of word-final -er in Pamphylian.

Thompson’s criticism is to the point, and indeed one may well question the idea that *upr also existed as an independent local adverb. Nevertheless, I think Heubeck’s analysis can be reinforced by the following observations. If *upr has a linguistic reality, it will have to be viewed as a proclitic form of *upér (ὑπέρ), at least in origin. There are other cases of root ablaut in otherwise identical prepositions, such as Myc. o-pi beside class. ἐπί ‘on’, and the most plausible scenario is to view one of these variants as the proclitic, the other as the independent form. This means that in compounds and prepositional phrases, *upr- would have been found before consonants, *upr- before vowels.

The only natural interpretation of our toponym is, therefore, that its synchronic phonological shape was /uprakriā/, with the prevocalic allo-morph, and that this was spelled phonetically as u-po-ra-ki-ri-ja. The question then becomes why Hand 3 consistently uses the spelling u-po-ra-ki-ri-ja on tablet Cn 45. It would be plausible if the spelling u-po- was
normally reserved for the reflex of pre-consonantal *upr-, but in that case, the question becomes what *u-po-ra* represents phonologically and phonetically. It is conceivable that all productively formed compounds or prepositional phrases used the form [upr] independent of the following onset, while the toponym preserved the older prevocalic sandhi variant [upra-]. For this, we may compare e.g. the generalization of πρός from prevocalic position (where it originated) to pre-consonantal position, from which it ousted the older disyllabic form *prosí* (cf. Hom. προτί). If this is correct, Hand 3 may have analyzed the toponym [uprakriā] as a prepositional compound with the synchronic form [upr].

As a second option, we might suppose that the synchronic form of the preposition was /upor/, whether by contamination of the outcome *upar* with *(h)upo*, or by a regular development of *r* within a phonological word. In this case, we could assume that the scribe identified the toponym /uprakriā/ with the prepositional phrase /upor akrias/ ‘beyond the hilltops’ (vel sim.) or with a compound /upor-akriā/.

In sum, the synchronic form of the toponym was probably [uprakriā]. As far as I can see, the assumption that [upr] was the synchronic form of the preposition ‘over, beyond’ is the most straightforward way of accounting for both different spellings of this toponym, but it cannot be excluded that *upr* had already been vocalized to [upor].

10. The alphabetic Greek form of the word for ‘rose’ is ῥόδον, Aeol. βρόδον. The argument in favor of reconstructing the pre-form of wo-do-we as *yrdo-yent- (rather than *yordo-yent- or *yurdo-yent-) depends partly on the metrical behavior of formulaic phrases in hexameter poetry, which will be discussed in chapter 7. The possibility is often granted that the diverging dialectal reflexes of this word in Greek are due to borrowing from a Near-Eastern source, e.g. an Iranian *yrd-, but even in this case it is preferable to try and explain all Greek forms from *yrd-,47 as this allows us to avoid the assumption of liquid metathesis in Myc. wo-do-.

11. wo-ne-we (PY Cn 40.2, 643.1, and probably 719.12), nom. pl. m. of a noun or adjective, describing flocks of male sheep. According to various scholars (cf. DMic. s.v.), the word represents /wornēwes/ and is derived from a pre-form with *yrm- underlying ἀρήν (gen. ἀρνός) ‘lamb, sheep’. This interpretation is impossible because the root of the ‘lamb’ word was *uhrh- (cf. Beekes 1988a: 74), so that the stem ἀφν- must be analogical after the:

46 See sections 1.2.4 and especially 9.5 on the outcome of word-final *r. For an analogical final vowel in prepositions, cf. Myc. pa-ro beside class. παρά, Aeol. ἵπα beside Ion.-Att. ὑπά.
47 Cf. Morpurgo Davies (1968: 81).
nom. ἀφήν < *uṛh₁-ēn (cf. ἄφων ‘dog’, gen. ἄφως). Therefore, even if the derivation would be correct and we were to assume that *uṛh₁-ēn yielded Myc. *uorēn, *uorn-,48 the form would not display the regular reflex of *r between consonants.

In Van Beek 2013: 47 n. 131, I tentatively proposed to interpret wo-ne-we as the nom. pl. of a u-stem adjective *uḥn-ú- meaning ‘woolly, compact’ and derived from the stem of the present eἰλομαι ‘to be thronged’. While such an interpretation is conceivable for a word denoting a type of sheep as far as semantics are concerned (I compared Hom. σῦλος ‘thick, compact, woolly’ < *yolno-, qualifying animal hair and wool and derived from the same root), it is problematic that u-stem adjectives are unproductive in Greek. I had not taken into account the interpretation of Peters (1993b: 387–391), which is more plausible: since wo-ne-we is opposed to pa-ra-jo /palaioi/ on PY Cn 40, the word may well denote an age class of male sheep, just like ἀφειός, ἀφεὼς probably does in alphabetic Greek. Peters therefore assumes that wo-ne-we reflects *uṛsn-ēu- and assumes that ἀφειός < *uṛsn-ēu-ó- is a thematization of this form. The form *uṛsn-ēu- was derived from *uṛs-(e)n- ‘male animal’ with the suffix *-ēu-, which in Peters’s view denotes membership of a group.

12. The form wo-ze is etymologically clear: it represents /wrḍḍei/ from PIE *uṛǵ-i̯e/o-. However, its vowel slot could be analogical beside the full grade (as in ἔργον and ἔοργα < *uṛuorga).

### 2.3.2 Uncertain, Doubtful and Irrelevant Examples

1. The iterative compound a-mo-ra-ma ‘day by day’ was interpreted by Heubeck (1972) as representing /āmṛ-āma/, but clearly preferable is /āmōr-āmar/ reflecting PGr. *āmōr-āmr̥ (cf. Leukart 1987: 349 ff.).

2. The word for ‘unguent-boiler’ appears in two variants, a-re-pa-zo-o and a-re-po-zo-o (both PY only). The commonly accepted reconstruction of both forms is *aleipʰη(t)- (see DMic. s.v.), with the expected oblique stem of the heteroclitic neuter. The difference in vocalism, however, is not well understood. Heubeck (1972: 69) suggests that the second form derives from *aleipʰr̥-, but “only with reserve”. This suggestion is morphologically odd, as normally the weak stem is used in first compound members. It seems plausible that a-re-pa- was introduced from the simple neuter (dat. a-re-pa-te), but the exact origin of the difference is not well understood.

48 With a dialectal coloring of the PGr. shwa, as assumed by Peters 1993b: 390. However, it seems more likely to me that *uṛh₁-ēn yielded *uarrēn in all Greek dialects, including Mycenaean.
3. *do-ka-ma-i* (PY An 1282.3), a dat. pl. form of uncertain meaning, occurs on a tablet which records numbers of laborers involved in the production of chariot parts, such as wheels (*a-mo-si*) and halters (*po-qi-wa-ja-i*). The word therefore probably refers to a part of the chariot, but it is unknown to which part exactly. The following interpretations have been proposed: a comparison with δοχμή ‘hand’s breadth’; a comparison with δραχμή, the later monetary unit, as if reflecting *dr̥khmā*; and a connection with δοξός ‘beam’. As remarked by Chadwick (*Docs.* 2 522), the first two options do not yield a satisfactory sense. The third could make sense in the context of the tablet, but it is hard to see how a form *dokmā* could be derived from δοξός or from δέκμα ‘to receive’.

A fourth possibility would be that *do-ka-ma* is a substantivized feminine of the adjective δοχμός ‘oblique, slanted’. The Attic noun δοχμή ‘hand’s breadth’ probably developed from “the distance across (the hand)” (cf. *DELG* s.v. δοχμός). Likewise, it is conceivable that parts of a chariot frame were designated as ‘crosswise, oblique’ (cf. the English word cross-beam). However, as mentioned in *Docs.* 2, the group of men assigned on An 1282 to the task of producing *do-ka-ma*’s is double the size of the group working on wheels. This is problematic because the production of wheels is known to have required much more labor than that of most other chariot parts.

The nodule PY Wr 1480, which is inscribed *pa-ta-jo* / do-ka-ma, must also be taken into account. Carlier (1998: 414 n. 58) envisaged an interpretation /paltaiōn dorkʰmai/ ‘handful of javelins’ corresponding to Class. παλταίων δραχμαί, while agreeing that *do-ka-ma-i* PY An 1282 is of uncertain interpretation. This interpretation cannot be rejected out of hand, but it is not sufficiently certain, and it presupposes that δραχμή reflects a pre-form with syllabic liquid. All in all, *do-ka-ma* is merely a possible piece of evidence.

4. *do-qi-ja*, which occurs several times on a much-discussed tablet (PY An 607), has been interpreted since *Docs.* 1 167 as the nominative plural of an occupational term, /dorkʰeiai/ ‘female reapers’, the motional feminine of an agent noun δροπεύς belonging to δέκμα ‘to reap’. This requires, however, that liquid metathesis took place in the Mycenaean word (Ventris and Chadwick referred to

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49 See *Docs.* 2: 522. For other, implausible suggestions, cf. *DMic* s.v.
50 For the reconstruction of δραχμή and the question whether it contained a syllabic liquid, see chapter 9.
**chapter 2**

**5.** *mo-ro-qa* (PY, KN), a title of high-ranking persons, was compared by Mühlestein (1958) with the classical form βράβις, a variant of βραβεύς ‘arbiter’. Since βραβεύς has no convincing etymology, and since the equation of this word with *mo-ro-qa* remains uncertain, there is no reason to suppose that either of these words had *r̥*. Palmer’s alternative interpretation of *mo-ro-qa* as /mo(i)ro-kk̂ā-/ “holder of a plot” (see *DMic.* q.v. with references) is impossible because the root of class. πέπαμαι ‘to possess’ was not Proto-Greek *kyā-,* but PIE *peh₂-s- ‘to guard, pasture’ (Van Beek 2017a).

**6.** *pa-wo-ke, pa-wo-ko* (PY), appellative forms denoting female persons, have been interpreted as compounds with a root noun /-wr̥g-/ (related to the verb wo-ze) as their second member. This is not excluded, but no convincing interpretation of the first member has yet been given. Possibilities include /pan-/ (cf. class. πανοῦργος ‘wicked, cunning’), /par-/ (cf. class. πάρεργον, παρεργάτης), and /pharwo-/ (cf. Myc. pa-we-a₂ Hom. φάρεα ‘clothes’). We may safely leave the forms aside in any case, as they provide no new information about the reflex of *r̥* in addition to wo-ze.

**7.** *to-mi-ka* (KN, of clothing) was interpreted as /tor-miska/ “vierfädig, viergezwirnt” by Mühlestein (1968: 115, also *apud* Morpurgo Davies 1968: 813). He suggested that the first syllable reflects *tr̥- ‘four’, the same element found in *to-pe-za*, and compared the Pamphylian gloss τριμίσκον ἱμάτιον. Ἀσπένδιοι (Hsch.), which would contain the numeral ‘three’ and thus originally mean “dreifädig”. He compares the elements /-misko-/ and ‑μίσκον with the root of class. τρίμιτος ‘woven from three threads’, and assumes that an original *-mitisko-* was syncopated. According to Mühlestein, a direct Mycenaean counterpart of the Pamphylian gloss is found in *ti-ri*[mi-ka* (KN Ld 788 A); in his view this shows that *tr̥- developed out of *kwtu̯r̥- ‘four’. This proposal contains too many uncertainties to be used in the present discussion (as noted also by Thompson 2002–2003: 357); in any case, it would not add much to the case of *to-pe-za*.

51 However, note that the etymological connection of δρέπω with Slavic forms like SCr. dŕpati ‘to tear’, Cz. drpati ‘to pick, scratch, crumble’ would preclude a connection with Mycenaean do-qe-ja (which has a labiovelar).

52 E.g. Morpurgo Davies (1968: 812); cf. *DMic.* s.v.

53 The latter was proposed by Bader (1965: 163 ff.), followed by Morpurgo Davies (1968: 812). However, a first member /pʰarwo-/ is extremely unlikely because both Myc. pa-we-a₂ and Hom. φάρες are s-stem forms.

54 In a severely damaged context. On the B-side of this tablet, Mühlestein restores *pa-we*]-a₂.
8. *to-no* ‘throne, ornamented chair’ must be primarily compared to alphabetic θρόνος ‘throne’. A common pre-form of these words has been reconstructed as *tʰr̥no-* (cf. Lamberterie 2004). However, as we will see in chapter 7 this reconstruction is beset with difficulties, and the prosodic evidence from Homer does not necessarily favor it. Anticipating this discussion, I exclude *to-no* from the compelling evidence for *r̥* in Mycenaean.

9. *to-pa* (PY Ub 1318.3) has been interpreted as denoting a type of basket. As such, it has been compared with the alphabetic words τάρπη ‘a type of basket’ (Att. inscr., lexicographers) and ταρπός m. ‘id.’ (Poll.). This etymology has been accepted by Blanc (CEG 14 s.v. τάρπη) and Lamberterie (CEG 15 s.v. τάρπη). If the identification is correct, it would imply a reconstruction PGr. *tp̥ā*. Two arguments for it have been adduced. First, in discussions of PY Ub 1318, a tablet recording distributions of leather and hides, it has been suggested that *to-pa* in line 3 can be seen in connection with the occurrence of *ka-ne-ja* in line 2, which has been compared with Alph. Gr. κάνεον ‘basket’. The occurrence of baskets in the context of leather processing, which is odd at first sight, could then be explained with the assumption that leather straps were necessary for their production (Weilhartner 2014: 203). However, Weilhartner makes this assumption with the utmost caution, noting that there are no further indications to confirm or disprove this hypothesis. Secondly, the Myc. word also occurs in the compound *to-pa-po-ro* (TH), which has been interpreted as ‘basket-carriers’ in the context of processions, and compared with the classical κανήφοροι, of similar meaning (cf. Weilhartner 2014: 202–204). This presupposes the correctness of Killen’s argument that the Thebes Av-series records food stuffs as ratios for the participants in a religious festival (Killen 2006: 98–102). In my view, then, the interpretation of Myc. *to-pa* as referring to a type of basket is possible, but not certain.57

55 See Docs.2 490–491, and Weilhartner (2014: 202–204) with further references.
56 Lamberterie (CEG 15 s.v. τάρπη) proposes to compare *to-pa* and τάρπη with the rare Armenian words t’arp’ and t’arb (denoting various sorts of containers) and to derive them from PIE *terp-* ‘to enjoy’, noting that this verbal root may mean ‘to use’ in certain contexts. The assumed original meaning of *tp̥ā* would therefore be ‘utensil’. In my view, this root etymology is unlikely for two reasons: the meaning ‘to use’ is not attested for τέρπομαι in Greek (and is likely to be secondary with respect to ‘enjoy, get satisfaction’), and the semantic narrowing from ‘utensil’ to a specific type of basket is implausible. However, these objections do not necessarily invalidate the comparison between *to-pa* and τάρπη, which I consider to be possible but uncertain.
57 For a different interpretation of *to-pa* and the context of PY Ub 1318, see Bernabé (2012).
10. The PN *to-ti-ja* has been taken to represent /Storštā/ and connected etymologically with στρατός, Aeol. στρότος ‘army’ (cf. DMic., q.v.). This is possible, but uncertain.

11. The dat.pl. *u-do-no-o-i* (PY Fn 187.13) refers to male individuals. It is generally supposed to be a compound meaning something like ‘persons who bring in water’, with a second member /-noho-/ deriving from the root of νέομαι ‘to return’. Heubeck (1972) interpreted the form as /udŋ-nohoi/, but it is usually assumed that the first member represents the outcome of *udŋ- ‘water’, even if *ŋ normally yielded Myc. /a/, the reflex /o/ being mostly limited to labial environments (cf. section 1.3.3). This could speak in favor of Heubeck’s proposal, but we must note that no interpretation of the context has found general acceptance (see the discussion of various proposals in DMic., q.v.).

12. *wo-ro-ki-jo-ne-jo* (PY Er 312.7, 718.11) qualifies two types of land property (*ka-ma* and *e-re-mo*, respectively). Its root has been interpreted as reflecting a zero grade *u̯rg- corresponding to wo-ze ‘works’. It is probably an adjective in -e-jo derived from a noun or name in -iōn-, but the further analysis of the base form remains unclear (perhaps a PN *Wroikiōn- who was the owner of the plots in question, see Thompson 2002–2003: 362). The form can therefore be left out of consideration.

13. The interpretation of *wo-ro-ne-ja* (MY Oe 111.2), probably an adjective qualifying wool, remains unclear. The interpretation /wroneia/ ‘lamb’s’ is adopted by many scholars. However, it is impossible to derive such a form directly from *u̯rn-, because class. ἀρήν reflects a stem *u̯rh₁n- (see section 2.3.1 on wo-ne-we). The interpretation /wloneia/, assuming metathesis from *u̯olno- (> Class. οὖλος ‘woolly’) under the influence of *ulānos ‘wool’ (Docs.¹ 323), is implausible.

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58 Cf. DMic. (q.v.) and Bartoněk (2003, index).

59 Cf. the discussion by Bader (1965: 17–19, following Palmer), who shows that *wo-ro-ki-jo-ne-jo* cannot be compared with alphabetic ὀργίων, since that form probably stands for ὀργεῖων, an older form of ὀργεών < *u̯orgāon-. Bader’s assumption that *wo-ro-ki-jo-ne-jo /wrogiōne(i̯)o-/ was metathesized from earlier */worg-/ is unfounded, as there is nothing to suggest a connection with *u̯erg- ‘work’.

60 See DMic. (s.v.) and Thompson (2002–2003: 357–358).

61 Cf. DMic. (s.v.) and Hajnal-Risch 2006: 205. Peters (1993b: 390 with n. 74) suggests that /wron-/ arose from /worn-/ by metathesis, assuming that the Mycenaean word for ‘lamb’ was /worēn/, reflecting *u̯rh₁en- with a dialectal coloring of PGr. *shwa.*
2.3.3 Synopsis of the Evidence

From this overview of the evidence, it appears that the strongest candidates to contain the regular outcome of *ᵣ have the spelling ⟨Co⟩. These are:

– a-no-me-de /Anr̥-mēdēs/ PN
– a-no-qo-ta /Anr̥-kʷontā-/ PN
– a-no-qa-si-ja /anr̥-kʷasiā-/ ‘manslaughter’
– ma-to-pu-ro /Mātr̥-pulos/ TN
– to-pe-za /tṛ-педдиа/ ‘table’
– wo-do-we /wṛdo-wen/ ‘rose-scented’
– wo-ne-wei /wṛ(h)nēwes/, qualification of male sheep.

Two further forms show o-vocalism but may theoretically have an analogical vowel slot:

– o-pa-wo-ta /op-āwr̥ta/ denoting parts attached to armor
– wo-ze /wṛddlei/ ‘works’ and related forms.

There are, however, some remaining issues. The forms ma-to-ro-pu-ro and qe-to-ro-po-pi have a spelling ⟨Co-ro⟩ and have also been argued to show the regular reflex of *ᵣ. Another problem concerns the forms tu-ka-ṭa-ṣị and a-na-qo-ta, where the reflex is spelled with a sign from the a-series. Let us first consider this problem, before returning to possible solutions for the ⟨Co-ro⟩ spellings in section 2.5.

2.4 o-Series versus a-Series Spellings

As we have seen, tu-ka-ṭa-ṣị and a-na-qo-ta are the two most promising examples of an a-colored reflex. Both are attested only once, and a-na-qo-ta only as a variant of the much more frequent a-no-qo-ta. This means that caution is called for, and we must keep in mind that we are dealing with spellings, which do not necessarily provide direct access to the underlying phonological form. Nevertheless, if we take these spellings seriously and try to make sense of them (rather than dismiss them as possible mistakes), two approaches are conceivable.\(^62\)

First, we could take spellings like tu-ka-ṭa-ṣị as evidence for /ar/ as the unconditioned outcome of *ᵣ in a non-labial environment (cf. Thompson 2010: 192). In favor of this idea, one might note that there is little secure evidence for the reflex of *ᵣ being spelled with signs of the o-series between two non-labial

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\(^62\) According to Risch 1979a: 97, tu-ka-ṭa-ṣị is perhaps a special feature of the dialect of Mycenaean. Although such speculations cannot be entirely ruled out, our material is too scanty to allow for testing them.
sounds. The only cases of some plausibility are do-ka-ma (in pa-ta-jo, do-ka-ma, cf. section 2.3.2, point 3.) and the proper names to-ti-ja, to-si-ta (if these reflect *str̥tiā-, *thr̥sitā-). However, in this scenario the alternation between a-na-qo-ta and a-no-qo-ta would still require an explanation. One might assume, for instance, that the first compound member *anr- regularly developed into /anar-/ before non-labial consonants, and that this allomorph was introduced analogically in a-na-qo-ta (Hand 107), while a-no-qo-ta (other Hands) would show the regular reflex *anr- > /anor-/ before labialized sounds. This is not entirely impossible, but if a-na-qo-ta and a-no-qo-ta indeed refer to the same individual, it would not be likely that the name occurred in two different phonological forms.63

A second possible avenue, which avoids the last-mentioned problem, would be to assume that a-na-qo-ta and a-no-qo-ta are two different spellings of an underlying form /anrkwontā-/, as assumed by Heubeck.64 Heubeck’s proposal that both spellings occur as simple graphic variants has not met with much favor, because this does not explain why the a-spelling is so rare and why there is not more similar variation. An alternative scenario could run as follows. If tu-ka-ṭa-ṣị has an a-series spelling of r in a non-labial environment, it is conceivable that the aberrant spelling ⟨a-na-⟩ used by Hand 107 was introduced from other compounds with /anr-/ in which the second member did not start with a labial sound. In this case, the usual spelling a-no-qo-ta could reflect the fact that the syllabic liquid (still intact) was articulated differently before a labial sound. The same would be true of other o-series spellings: cf. a-no-me-de, a-no-qo-ta, a-no-qa-si-ja, ma-to-pu-ro, to-pe-za, wo-do-we, wo-ne-we, wo-ze.65 For the use of two variant spellings of a 1st compound member, see also 2.3.1 on u-po-ra-ki-ri-ja and u-pa-ra-ki-ri-ja.

Obviously, all this remains quite uncertain because of the limited amount of evidence. Nevertheless, if tu-ka-ṭa-ṣị and a-na-qo-ta are indeed reliable instances of the reflex of *r being spelled with the a-series, it is possible to view the more frequent spelling ⟨Co-⟩ as conditioned by a preceding or following labial consonant, and expressing some phonetic feature of the nucleus, such as lip-rounding or a higher position of the tongue. Alternatively, if we dismiss

63 When different linguistic forms of the same name exist (e.g. John, Jean, Jan, …), speakers of different dialects or languages will normally use one specific form of that name (e.g. John) to refer to the same individual.
64 Heubeck 1972: 67–69 and also García Ramón 1985: 223, but both without the idea that the spelling a-no- could be conditioned by following labial sounds.
65 Note that this conclusion would be different from the one reached by Morpurgo Davies (1968), who proposed that the development to ar was regular, that to or conditioned by a preceding /w/.
tu-ka-ta-ši and a-na-qo-ta from our reliable evidence, the spelling ⟨Co-⟩ can be viewed as the only regular reflex of *Cr̥.

2.5 Explaining the Orthographic Variation between ⟨Co-⟩ and ⟨Co-ro-⟩

The main candidates to display an orthographic variation between ⟨Co-ro-⟩ and ⟨Co-⟩ in the same word are the following:66

1. ma-to-ro-pu-ro (PY Cn 595.5) ~ ma-to-pu-ro (PY Mn 1412.4), which stands for /Mātro-pulos/ or /Māṭ-pulos/ (or both), “Mother-Pylos”.
2. to-no ‘(ornamented) chair’ (PY passim) ~ to-ro-no-wo-ko (KN As 1517.11), interpreted as ‘chair-makers’.67
3. to-qa beside to-ro-qa (both KN Fh-series), perhaps a technical term referring to the use of oil in the perfume industry, or a personal name denoting the recipient of oil.

Besides, qe-ro-po-pi (ins. pl.) ‘cattle’ (PY Ae-series) beside to-pe-za ‘table’ (PY Ta-series; KN V 280) has been adduced in this context, as both words have a pre-form with *r̥; PGr. *kʷet₄-pod- versus *ṭ₄-ped-ja.68

These fluctuations have been interpreted in many different ways, e.g. as reflecting sociolinguistic differences, evidence for irregular liquid metathesis, a twofold conditioned reflex of *r̥, as attempts to represent a retained syllabic liquid, incidental spelling errors, or a combination of two or more of these factors. I will first briefly reconsider the evidence for liquid metathesis in Mycenaean, then consider arguments for the idea that the orthographic variation represents retained r̥ (Heubeck 1972), and finally discuss the idea of a conditioned development of *r̥ (Klingenschmitt 1974).

66 See Heubeck 1972, Haug 2002: 57–58, Thompson 2002–2003: 356–362. Heubeck (o.c. 64–65) regarded ku-su-to-qa (PY Ed 847.2) as a scribal error for ku-su-to-ro-qa /ksustrokʰá/ ‘sum, total’ (KN, PY passim); nowadays ku-su-to-qa is generally corrected to ku-su-qa (cf. Haug 2002: 57–58). Another case is po-po-i (MY Oi 702.3) which Heubeck (o.c. 65) considered as a variant of po-ro-po-i (dat. pl., MY Oi 701.4), which refers to recipients of the commodity denoted by *ŋo. The interpretation /propo-/ ‘augur’ has some plausibility, and the form po-po-i might be an error (Heubeck l.c., Thompson 2002–2003: 361).

67 The interpretation of to-no-e-ke-te-rí-jo is unclear: perhaps /tʰorno-hektérion/ (Risch 1972: 18; see also Lamberterie 2004: 242 n. 18), but Hodot (2012) makes a case for /tʰorno-helktérios/, a festival name corresponding to a phrase ‘drawing the robe’ (cf. ἑλκεσίπε-πιλάς), with /tʰorno-/ denoting a garment (Hom. δρόνα).

68 For the further reconstruction of the first element *ṭ₄-, see section 2.3.1 above.
2.5.1  **Liquid Metathesis in Mycenaean?**

The idea that liquid metathesis took place in Mycenaean was first proposed by Risch (1966: 156) as an offshoot of his attempt to use vowel anaptyxis between stop and liquid as a means to distinguish between *mycénien spécial* and *mycénien normal*.\(^69\) As examples of o-anaptyxis he cited two cases: the man’s name *o-pe-to-re-u* (PY Ep 704.1), a variant of *o-pe-te-re-u* (PY Ea 805, Eb 294.1), both referring to the same individual (probably /Opheltreus/),\(^70\) and the toponym *u-po-ra-ki-ri-ja* (PY Cn 45.4–7, 11) with a variant *u-pa-ra-ki-ri-ja* (only PY An 298.1) that was discussed in section 2.3.1.\(^71\) Risch thought that this anaptyxis was due to the avoidance of plosive plus liquid onsets. For this, he compared *ku-su-to-qa*,\(^72\) the form supposed to have been erased by the scribe in PY Ed 847.2, which he interpreted as a metathesized form of *ku-su-to-ro-qa* /ksuntrokʷā/ ‘sum, total’ that is securely attested in comparable contexts. In a later article (Risch 1979a: 98), he stated more explicitly that *to-pe-za* /torpeddja/ and *to-no* /thornos/ were due to liquid metathesis, while forms without metathesis would be retained in *qe-to-ro-po-pi* /kwetro-pod-/ , *to-ro-no-wo-ko* /tʰrono-worgo-/.\(^73\) Risch supported this view with the argument that liquid metathesis is typologically common and that it may apply irregularly.\(^74\)

Hajnal (in Hajnal-Risch 2006: 102–103) subsequently proposed to account for the fluctuation in Mycenaean reflexes of *tľ* by means of liquid metathesis. This is based in part on his reconstructions of the words *wo-do* ‘rose’ and

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\(^{69}\) Cf. also Risch 1979a: 98–99.

\(^{70}\) Hajnal 1997: 155 n. 290.

\(^{71}\) Heubeck (1972) discusses the forms *o-pe-to-re-u* beside *o-pe-te-re-u* and *u-pa-ra-ki-ri-ja* beside *u-po-ra-ki-ri-ja* as possible evidence for a synchronic syllabic liquid. For a discussion of the latter pair, see section 2.3.1 as well as 2.5.2 below. The spelling *o-pe-to-re-u* may either be a mistake (‘was für ⟨to⟩ und ⟨te⟩ grundsätzlich denkbar wäre’, Hajnal 1997: 155 n. 290), or it may point to the development of an anaptyctic vowel in a cluster /ltr/, due to a Sievers-like development.

\(^{72}\) Nowadays, the erased form at the beginning of Ed 847.2 is read as [[ku-su-qa]].

\(^{73}\) To these examples, Hajnal (in Hajnal-Risch 2006: 102) adds *to-qi-de* /torkʷidei/ beside *to-ro-qa-me-no* /trokʷe(i)omenos/, but this is not compelling: *to-qi-de* may reflect a zero grade of *streqʷh* ‘twist’, while *to-ro-qa-me-no* probably has an old o-grade of *strekʷ* ‘turn’. Hajnal’s suggestion to analyze *qe-to-ro-* as a metathesized form, and to view *to-za* as showing the regular reflex (Hajnal-Risch 2006: 102–103), does not seem to reflect the original views of Risch.

\(^{74}\) “… die Liquidenmetathese ist auch in späteren griechischen Dialekten, aber auch in anderen Sprachen häufig, z.B. Homer χραιθη und χραιθη, vgl. auch dtsch. Brunnen–Born. Für eine Dialektklassifizierung eignet sie sich nur selten, so im Slavischen, wo z.B. gród fürs Polnische, görod fürs Ostslavische und gravid fürs Südslavische charakteristisch sind (…)” (Risch 1979a: 99). This point is reiterated by Thompson (2002–2003: 362), Hajnal-Risch (2006: 203).
to-no ‘chair’ as containing *r̥. However, the reconstruction to-no < *tʰr̥no- is quite uncertain, and in fact the evidence for liquid metathesis generally is rather weak. It was subjected to close scrutiny by Thompson (2002–2003: 355–362). Thompson’s general conclusion is that “liquid metathesis is restricted to a handful of words, and so does not provide evidence of dialect diversity—certainly not that mycénien normal underwent metathesis of ro generally.” (o.c. 366). Nevertheless, in Thompson’s view an irregular metathesis may have operated in some cases, affecting instances of /ro/ with an original o-vowel: he mentions to-no < /tʰrono-/, to-qa < /tɾokʷa/ as well as wo-do < */wrodo-/. These doublets are to be viewed, according to Thompson, not as proof of dialect differences within the Linear B archives, but as evidence for language change in progress. The classical language would preserve the older forms (ὅρος, ῥόδος), while the dialect of the tablets is supposed to be undergoing metathesis. Whether this analysis of to-no and wo-do is correct or not need not be decided here; the relevant point is that there is no evidence for liquid metathesis in Mycenaean words that originally contained *r̥.75

The main problem remains that invoking an irregularly operating metathesis has no real explanatory power.76 If the Mycenaean evidence for *r̥ can be accounted for by regularly operating principles of linguistic change—and I am convinced that they can—then we need not take refuge in this asylum ignorantiae.

2.5.2 Heubeck’s Argument for Preserved r in Mycenaean

Heubeck argued that the orthographic variation in cases like ma-to-ro-pu-ro ~ ma-to-pu-ro does not reflect a phonological difference, but results from attempts by scribes to represent a syllabic liquid, the allophone of /r/ between two consonants. This proposal is often viewed with skepticism and has been subjected to a detailed criticism by Haug (2002). To my knowledge, the only scholar to have explicitly accepted Heubeck’s analysis is García Ramón (e.g. 1975: 62–63).77

75 Thompson (2002–2003: 356) ironically remarks that “the reflexes of *r provide a fertile ground for looking for examples of liquid metathesis”.

76 The following remarks by Hajnal are illustrative for the embarrassment: “Im Einzelnen bleibt es allerdings schwierig zu entscheiden, in welchen Fällen wirklich Metathese vorliegt, oder wo /or/ bzw. /ro/ lautgesetzlich sind, da ersteres akzentuiertes */ʃr/; letzteres unakzentuiertes */r̥/ bzw. */r̥ʷ/ fortsetzt” (Hajnal-Risch 2006: 102), and: “Im Einzelfall wird die Entscheidung, ob Liquidametathese vorliegt, noch zusätzlich durch mögliche analogische Einflüsse (etwa seitens vollstufiger Formen) erschwert, welche für alle die oben genannten Lautungen verantwortlich sein könnten.” (o.c. 103).

77 In a later publication, García Ramón remarked that “Heubeck’s theory can hardly be
A widely encountered objection to Heubeck is that Linear B does not normally display orthographic variation when representing a single phoneme.\(^78\) This is not entirely to the point: there is fluctuation, for instance, in the representation of word-final occlusive plus /s/.\(^79\) However, before judging such arguments of a more abstract nature, we have to consider the spelling variations as they are actually attested, and ask whether they are really suggestive of a preserved \(r\).

A first point is that the forms to-qa and to-ro-qa are of unclear interpretation, and therefore must be excluded from the evidence for \(^*\gamma\); how the variation is to be explained, is a different issue (as we have seen, Thompson 2002–2003: 360 assumes that torkʷā arose by metathesis from an original o-grade form trokʷā). Secondly, the difference between qe-to-ro-po-pi and to-pe-za is not an example of orthographic fluctuation in the same word. As we have seen (section 2.3.1), it is even quite uncertain that their first members are etymologically related. Moreover, the fact that both seem to contain a reflex of \(^*\gamma r\) does not ensure that they treated this sequence in an identical way. This leaves us with two cases of alleged orthographic fluctuation that I will now discuss in more detail: ma-to-ro-pu-ro \~\~ ma-to-pu-ro and to-no \~\~ to-ro-no-wo-ko.

The widespread term to-no ‘ornamented chair’ (PY) is often compared with the hapax to-ro-no-wo-ko /tʰrono-worgoi/ (KN As 1517) under the assumption that the latter means ‘chair-makers’. This is a rash conclusion, however, as it appears to be very difficult to establish the meaning of to-ro-no-wo-ko. Let us consider the context in more detail. The first line contains the word re-qo-me-no /leikwomenoi/ ‘being left’. This is followed by a list of men’s names that is concluded by a totaling formula in line 10. After an empty line, there follow the words o-pi, e-sa-re-we, to-ro-no-wo-ko “At (the) e-sa-re-u [there are the following] /tʰronoworgoi/\(^80\) and these are followed by the names of three male workers in lines 13 and 14.

Now, it was observed early on (cf. e.g. Docs.\(^1\) 172) that the first part of to-ro-no-wo-ko could refer not to chairs, but to a Mycenaean counterpart of the Homeric \(\thetaρόνα\), which is taken to mean something like ‘embroideries’. This possibility is glossed over without much further ado in most discussions definitively confirmed or disproved” (1985: 196), but recently he still mentions Heubeck’s analysis as a distinct possibility: “Tuttavia, non è escluso che notassero entrambe \(\gamma /\), suono per il quale non esisteva un segno specifico in linea B.” (García Ramón 2016: 216).

\(^78\) For instance, Ruijgh (1978: 423) commented that Linear B “montre en général une économie rigoureuse, qui n’admet guère de graphies alternatives.”

\(^79\) As argued by Meissner 2007.

\(^80\) The meaning of e-sa-re-u is unclear, cf. DMic. s.v.
of these words (e.g. Thompson 2002–2003: 359–360), but I agree with Haug (2002: 57) that it must be taken into serious consideration. Against it, scholars have objected that embroidering is an unlikely activity for male laborers. In reality, it cannot be excluded that male laborers made embroideries—neither generally speaking, nor specifically in Mycenaean Greece. Indeed, 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. There is nothing in the context that excludes either interpretation of to-ro-no-wo-ko.

In fact, it is quite unclear whether the original meaning of θρόνα was really ‘embroideries’. An important discussion of the attestations and semantics of this word is Risch (1972: 19–20). In Hellenistic poetry (e.g. Theoc. 2.59, Nic. Ther. 99), θρόνα is used with the meaning ‘medicinal herbs’, but as argued by Risch, this may have been secondarily derived from the Homeric attestation, where Andromache, still unaware of Hector’s death, is weaving a two-layered purple fabric:

δίπλακα πορφυρέην, ἐν δὲ θρόνα ποικίλ’ ἔπασσε
II. 22.441

a purple mantle, and she embroidered it with varicolored θρόνα.

The point is that the verb πάσσω ‘to sprinkle; apply’ is frequently used with φάρμακα as an object. This may have led to a learned reinterpretation of θρόνα as an epic variant of φάρμακα, a common meaning of which is ‘drugs, medicinal herbs’.

Examining the Homeric passage more closely, what did Andromache ‘apply’ to the purple cloth? Hesychius and certain scholia on Theocritus explain θρόνα

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81 In the second edition of Documents (Docs. 2 587), Chadwick stated that “derivation from Hom. θρόνα ‘embroidered flowers’ seems less likely”.
82 Cf. Heubeck (1972: 63): “in Mycenaean times, as today, embroidering may have been a task of women”.
83 According to Dr. G. Vogelsang-Eastwood of the Leiden Textile Research Centre (p.c.), whom I asked about this matter, professional male embroiderers would actually be more likely if the garments in question were destined to be exported. For domestic production, on the other hand, female embroiderers would be more likely.
84 The etymology is unclear. The connection of θρόνα with Alb. drēri ‘deer’, assuming that this is from *d’hroni ‘varicolored’ (CEW s.v.), cannot be further substantiated. Various scholars (Furnée 1972: 189, but already Lawler 1948: 81) have suggested that θρόνα is a Pre-Greek word because of the variant τρόνα: ἀγάλματα, ἡ ῥάμματα ἄνθινα ‘ornaments, or stitched flowers’ (Hsch.).
as referring to flowers or figurines.\textsuperscript{85} The older Homeric scholia, however, have the glosses \textit{θρόνα· τὰ βαπτα ἔρια} ‘dyed wool’ (\textit{sch. vet. AbT Erbse}) and \textit{θρόνα ποικίλα· ἄνθη ποικίλα}, \textit{ἐξ ἂν βάπτουσι} “varicolored flowers used for dyeing” (\textit{sch. vet. A Erbse}).\textsuperscript{86} This sense is also presupposed by the interpretation of our passage by Eustathius (1278, 46):

θρόνα δὲ κυρίως μὲν τὰ ἐκ θηρίων ἢ τὰ ἐκ γῆς ἀναθορόντα ὀνήσιμα φάρμακα, νῦν δὲ κατὰ μετουσίαν θρόνα ἠγοντα φάρμακα ἔφη τὰ βεβαμμένα λίνα ἢ ἔρια. ἐπεὶ καὶ φαρμακῶνες τὰ βαφεῖα ἐκαλοῦντο, καὶ φαρμάσσειν τὸ βάπτειν ἐλέγετο παρὰ τοῖς παλαιοῖς, ...

θρόνα properly denotes useful dyes that sprout [ἀναθορόντα] from animals or from the earth, but here by a particular usage he [Homer] has given the name θρόνα (that is, φάρμακα [in the sense ‘dyes’]) to dyed linen or wool. For a dyer’s workshop was called φαρμακών, and dyeing [or: dipping] was called φαρμάσσειν by the ancients (...).

According to Eustathius, then, the referent of θρόνα are dyed threads of linen or wool (τὰ βεβαμμένα λίνα ἢ ἔρια), but he thinks that the lexical meaning of θρόνα is φάρμακα in its technical sense ‘dye’. Indeed, an interpretation of θρόνα as ‘dyed threads of wool or linen’ would make good sense in the Homeric passage. At the same time, if the proper meaning of θρόνα was ‘dye’, this explains how the Hellenistic reinterpretation of θρόνα as ‘medicinal herbs’ could take place: θρόνα came to be viewed as an equivalent of φάρμακα in all senses of the latter word.\textsuperscript{87}

The interpretation of θρόνα as referring to a fabric or to dyed threads of wool or linen also throws light on the possessive compounds χρυσόθρονος and

\textsuperscript{85} According to a scholiast on Theoc. 2.59, θρόνα means τὰ ἀνθινὰ ἱμάτια ‘clothes decorated with flowers’ in Cyprian, and τὰ πεποικιλμένα ζῶα ‘embroidered figures’ in Thessalian. Hsch. (θ 774) has θρόνα ἄνθη, καὶ τὰ ἐκ χρωμάτων ποικίλματα ‘... embroideries made of χρώματα’. These are probably the sources for Risch’s judgment, concerning the Homeric passage, that “aus dem Zusammenhang [sich] am ehesten die Bedeutung ‘Stickereien, Figuren irgendwelcher Art’, evtl. ‘bestimmte Figuren oder Ornamente’ [ergibt]” (Risch 1972: 19). However, note that in the Hsch. gloss, χρώματα might well refer to colored threads (as it also occurs as a technical term denoting ‘pigments’ in the context of dyeing: χρώματα βάπτειν Pl. Resp. 429e).

\textsuperscript{86} See Erbse ad II. 22.441.

\textsuperscript{87} Note, finally, that Eustathius uses a folk-etymology (connecting θρόνα with the epic verb ἀναθορέων) in order to account for the identification θρόνα = φάρμακα. Apparently, he thinks that the primary meaning of φάρμακα is ‘useful herbs’.
Mycenaean reflexes of $\gamma$ and the numeral ‘four’

εὐθρόνος, which occur in epic formulae. Their second member is traditionally identified with θρόνος ‘throne’, but incorrectly: as has long been seen, the Homeric phrase θρόνα ποικίλα has a counterpart in ποικιλόθρονος, epithet of Aphrodite in Sappho (fr. 1.1), for which an interpretation ‘with varicolored dress’ would fit well.88 Lawler (1948) argued that the epic epithets χρυσόθρονος and εὐθρόνος are to be analyzed in the same way, and she already drew attention to the fact that χρυσόθρονος is an exclusively feminine epithet, whereas the throne was originally a symbol of masculine power and authority.89 She was followed in this analysis by the etymological dictionaries (gew, delg) and by West (2007),90 but not by Risch (1972), Jouanna (1999), and Kölligan (2007b), who maintain the traditional identification of the second member with θρόνος ‘throne’.91

The image of the sisters Dawn and Night wearing resplendent clothes is also widespread in Vedic poetry, and may well be inherited. In my view, the correctness of Lawler’s idea is proven by the formulaic occurrences of these compounds.92 In Homer, εὐθρόνος is an exclusive epithet of Dawn,93 while χρυσόθρονος mostly qualifies Dawn (10 ×), but also Hera (3 ×)94 and Artemis (2 ×). Since Artemis and Hera also have other traditional epithets, it is likely that χρυσόθρονος was in origin primarily an epithet of Dawn.95 Indeed, in early Greek Epic

88 The traditional and most widely accepted interpretation is ‘on richly-worked throne’ (lsj s.v. ποικιλόθρονος), adopted e.g. by Page (1955: 4).
89 Cf. Lawler 1948: 82.
90 “it is conceivable that χρυσόθρονος originally meant ‘gold-patterned’ (from θρόνα), referring to Dawn’s robe, and that after reinterpretation as ‘gold-throned’, the epithet was then extended to other goddesses, such as Hera” (West 2007: 221 n. 90).
91 Risch (1972) wants to derive θρόνα secondarily from a misunderstanding of ποικιλόθρονος. This is problematic because that compound is not attested in Homer, but first in Sappho. The LfgrE (s.v. χρυσόθρονος) does not make a decision and gives both ‘mit goldenem Thron’ and ‘mit goldenem Gewand / Verzierungen’ as possible interpretations. Intermediate positions, deriving some of the θρονος-compounds from θρόνος and others from θρόνα, have also been defended (cf. the literature in Jouanna 1999: 103).
92 While finishing the final draft of this book, I discovered that this point has also been made forcefully by Hodot (2012) in a highly lucid article discussing the philological and pictorial evidence for Eos wearing a robe.
93 In Pindar, εὐθρόνος is also an epithet of the Horae, the Charites, Cleo, and Aphrodite.
94 Only χρυσόθρονος "Ηρη (Il. 1.611), "Ηρη ... χρυσόθρονος (Il. 14.153), and gen. παρὰ χρυσοθρόνου "Ηρης (Il. 15.5). Two further examples are found in the Hymns.
95 Cf. the formulaic verse-final nominatives (θεά) λευκώλενος "Ηρη (Il., very frequent) and (βοώπις) πότνια "Ηρη (Il., also very frequent): both remain current in Hesiod and the hymns. For Artemis, cf. verse-final nom. sg. "Αρτεμις ἰσχέαρα (g × Hom., 2 × hymn.) and "Αρτεμις ἄνγκη (3 × Od.). The antiquity of the formulaic system of Dawn follows from the fact that the case forms Ἡώ, Ἡώς, Ἡώ, in which contraction has taken place, are banned from verse-final position. This means that the entire system developed before contrac-
Ἠώς is characterized as χρυσόθρονος, έυθρόνος, ῥοδοδάκτυλος, χροκόπεπλος, and she also receives the generic epithet δῖα. Of these, χροκόπεπλος ‘with saffron-colored dress’ strongly suggests that χρυσόθρονος had a similar meaning.\(^{96}\) It is also relevant that most other Homeric compounds with a first member χρυσο- denote attributes that are worn on the body.\(^{97}\)

Against this analysis, one could object (with Jouanna 1999: 114) that Hera is represented as seated on a throne already in Homer, and that the same is true of female deities in later poetry.\(^{98}\) However, given that βρόνα was an obsolescent technical term, the meaning of -θρονος in these compounds may have become opaque, and a secondary identification with ‘throne’ would be easy to understand.\(^{99}\) Only in Lawler’s scenario can we understand why the compounds in -θρονος never characterize a male deity, and why they are primarily applied to Dawn in Homer.

Thus, Homeric βρόνα is an old word probably referring to dyed threads. This means that the Mycenaean to-ro-no-wo-ko could be dyers of threads, or even producers of dyes; as argued above, the consistent spelling to-no for ‘chair’ at Pylos actually favors an interpretation along these lines.\(^{100}\) This means that to-no ~ to-ro-no-wo-ko ceases to be a compelling example for Heubeck’s claim, and for the spelling variation ⟨Co-⟩ ~ ⟨Co-ro-⟩ at large.

The other remaining instance of variation ⟨Co-⟩ ~ ⟨Co-ro-⟩ is ma-to-ro-pu-ro ~ ma-to-pu-ro. Both forms are attested just once, but let us—for the sake of argument—consider how the variation could be explained.

According to a widespread view, there are no instances of the thematic vowel -o- in Mycenaean compounds.\(^{101}\) If this is correct, ma-to-ro-pu-ro would have to represent the direct outcome of a compound with *māt̥r̥-. However, Morpurgo...
Davies (1968: 803) argued that the compositional vowel is in fact used in compounds. Haug (2002: 55 ff.) adduces the following cases:

- \( \text{ko-to-no-o-ko} /\text{ktoino-hok}^b\text{hos/} \) ‘holder of a \( \text{ko-to-na} \) (a type of land-holding);
- \( \text{o-wo-we} /\text{o}^b\text{wo-wens/} \) ‘having a handle’;
- \( \text{PN i-su-ku-wo-do-to} /\text{(h)lsk}^{h\text{uo-dotői/}} \) (dat.sg.), cf. alph. \( \iota\chi\upsilon\varsigma \) ‘force’;\(^{102}\)
- \( \text{PN ke-ro-ke-re-we-o} /\text{K}^{b\text{ro}}\text{ro-klewehos/}, \) cf. \( \chi\xi\rho\varsigma \) ‘hand’ < *\( k^b\text{ehr-}; \)
- \( \text{PN di-wo-pu-ka-ta} /\text{Diwo-P}^\circ/, \) cf. Δ\( \iota\delta\varsigma \) (gen.) ‘Zeus’.

In my view, not all these examples are equally convincing. The precise interpretation of the second member of \( \text{di-wo-pu-ka-ta} \) remains uncertain (cf. DMic. s.v.), and the same holds for the first member, which could also represent an actual genitive form /Diwos-/ (as in e.g. Δ\( \iota\phi\delta\sigma\tau\varsigma\)). In the case of \( \text{ko-to-na} \), its substitution by the 2nd declension form \( \text{ko-to-no}^* \) in a compound is completely regular.\(^{103}\) Haug’s interpretation of \( \text{o-wo-we} \) as /\text{ohwo-wen/} ‘with handles on it’ is accepted and defended with further arguments by Lamberterie (2009), but it is implausible that this form contains a thematic vowel, as no similar case is known from among the other Mycenaean adjectives in /-went-/. Rather, the first part */\text{o}^\text{who-}/ might reflect *\( \upsilon\o\varsigma\eta\eta- \) with a syllabic nasal, as argued by Lamberterie.\(^{104}\)

We are left, then, with the compounded personal names \( \text{i-su-ku-wo-do-to} \) and \( \text{ke-ro-ke-re-we-o} \). The evidence is slight, but since \( \text{ma-to-ro-pu-ro} \) is also a name (a toponym), I agree with Morpurgo Davies and Haug that it may well belong under the same header. If so, \( \text{ma-to-ro-pu-ro} \) would be an instance of a morphological replacement in progress; \( \text{ma-to-pu-ro} \) would be the more archaic spelling.

In conclusion, it is difficult to cite one firm instance of the orthographic fluctuation ⟨\( \text{Co-} \rangle \sim ⟨\( \text{Co-ro-} \rangle \) on which Heubeck bases his argument for the preservation of \( r \). To this, we may add another point: as Thompson (2002–2003: 358) remarks, “it is surprising that we do not see more variation of this sort” if Heubeck’s analysis is correct. Indeed, words occur frequently in the tablets

\(^{102}\) This interpretation is accepted also by García Ramón (2007b: 326).

\(^{103}\) Cf. Meissner and Tribulato (2002: 322), following Leukart (1994: 315).

\(^{104}\) In Van Beek 2013: 40 I still defended the other traditional interpretation /\text{oiw-ōhwe-}/ ‘with a single handle’. However, in view of the compelling arguments provided by Lamberterie (2009: 82–87; cf. also the summary by P. Ragot, CEG 15, 149–150), I now reject this. The main arguments are as follows. First, as was long seen, \( \text{o-wo-we} \) ‘with handles’ qualifies a tripod whose ideogram has two handles, not one; secondly, as Lamberterie stresses, \( \delta\acute{o}\varsigma \) never functions as a numeral in Homer (i.e. ‘one’ in opposition to ‘two’), but means ‘alone, on its own’; and finally, within Mycenaean \( \text{o-wo-we} \) clearly pairs with the privative compound \( \text{a-no-wo-to} \) ‘without handles’.
such as to-no, to-pe-za, and wo-ze are never subject to this type of variation.\footnote{90}

This does not necessarily mean, however, that \(^r\) had already developed to
- or - in the language of the tablets. First of all, the alternative a-vowel spellings of
the reflexes of \(^r\) (section 2.4) might be viewed, with all due reserve, as an
argument for the retention of this sound. Secondly, as argued in section 2.3.1, the
variation between the Pylian place-names u-pa-ra-ki-ri-ja and u-po-ra-ki-ri-ja
is understood most easily if they represent /uprakriā/ and /upr̥akriā/, respectively. And finally, the claim is based not only on spelling fluctuations within
Mycenaean, but also on the idea (cf. Heubeck 1972: 74–79) that certain epic
words with -ρο- or -ρα- scan properly only if we restore a pre-form with \(^r\). This
part of his argument has been widely criticized, but as I will show in chapters
7 and 11, it is in fact attractive and can be bolstered with new arguments.

For these reasons, I hold that the regular Mycenaean reflex of \(^r\) was consist-
ently rendered with spellings of the type \(C\) (rather than \(C-\)), at least
if one of the neighboring sounds was labial, and that this spelling represents a
retained syllabic liquid.

\section*{2.5.3 Previous Accounts of qe-to-ro-po-pi and to-pe-za}

We still need to account for the twofold reflex of \(^r\) in qe-to-ro-po-pi as opposed
to to-pe-za. Scholars who accept that Myc. -ro- is the regular outcome of \(^r\) are
forced to give a special explanation for to-pe-za ‘table’. As a lexicalized form,
however, to-pe-za ‘table’ is an eminent candidate to present the undisturbed
outcome of \(^r\); there is no particular reason to assume that its first syllable was
analogically reshaped. To illustrate the embarrassment, let us consider the sce-
nario proposed by Ruijgh (1978: 420).

Ruijgh supposes that to-pe-za represents /torpeddja/ and that its /or/ was
introduced analogically from the cardinal \(k^w\)etortos (unattested in Myce-
naean). However, given that qe-to-ro- /kwetro-\( is in his view the regular reflex
of \(k^w\)et\(u\)r\(\)-
, the outcome \(k^w\)etortos itself requires an explanation. Ruijgh
assumes that the vowel slot of the second syllable in \(k^w\)etortos was influenced
by yet another unattested form, \(\tauυ\tauο\zeta\zeta\zeta\), allegedly the oldest form of the ordinal
that would underlie the PN Τυρταῖος.\footnote{106}

The \textit{ad hoc} character of this solution is apparent. The existence of an older
form \(\tauυ\tauο\zeta\zeta\zeta\) is uncertain, and at any rate it seems highly unlikely that the vocal-
ization of \(k^w\)et\(r\)tos could have been influenced by such a form: wouldn’t one
expect e.g. \(k^w\)et\(u\)rtos as a result of such contamination? Moreover, if a mor-

\footnote{90} Cf. also the criticism of Heubeck’s argument in Haug (2002: 59).
\footnote{106} Cf. Ruijgh 1992: 87 (with n. 32) and 1996: 117.
phologically opaque first compound member *tro- was replaced, one would expect the result to be *kwetř-pedia, rather than another opaque form *torpedja. Finally, as we have seen there are strong arguments for deriving *tř- in ‘table’ from the numeral ‘three’: see section 2.3.1.

Another attempt to save a regular development *ř > Myc. -ro- was made by Klingenschmitt (1974: 275–276). Extending Kretschmer’s rule for alphabetic Greek to Mycenaean,107 Klingenschmitt accounts for to-pe-za by assuming that already in Proto-Greek or Common Greek, the lexical accent influenced the place where an anaptyctic vowel emerged beside word-medial *ř. He posits a change *-ř- > *-rə-, but *-ar- when accented or by analogy, followed by a merger of a with a or o, depending on the dialect group. He uses this rule to explain the divergence between to-pe-za and alphabetic τράπεζα. The latter form has a recessive accentuation, but originally this was true only for the strong case forms, as the weak stem had an accented suffix (PIE *-ih₂ versus *-iéh₂-, cf. ὄργυια, gen. ὀργυιᾶς). This allows Klingenschmitt to account for Mycenaean to-pe-za by assuming the following paradigmatic levelings:

nom. *tu̯órpedja > *tu̯órpedja >> tórpedja = tórpedja
gen. *tu̯arpedi̯ãs > *tropedi̯ãs = *tropedi̯ãs >> torpedi̯ãs

For classical Ionic-Attic, on the other hand, he posits the following developments:

nom. *tu̯órpedja > *tu̯árpedja >> tǎ̯pedja
ngen. *tu̯arpedi̯ãs > *trapedi̯ãs = *trapedi̯ãs

A key argument for Klingenschmitt, as for many scholars discussing these forms,108 is the claim that the labial glide could be lost only after *ř had vocalized as rə.

This account has been followed in a considerable number of subsequent discussions,109 but it is highly problematic for several reasons. First of all, assuming a partial analogical reshaping *tu̯órpedja >> tórpedja after *tropedi̯ãs is unsatisfactory, as this introduces a new root shape into an already irregular paradigm. Why not generalize either *tu̯órpedja or *trôpedja? Secondly, it is not true that the loss of the labial glide presupposes a development *ř > *rə: as I will argue in the next section, *u must have been lost when *ř was still in place,

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107 For this, see section 1.4.2.
108 Cf. already Szemerényi (1960: 20).
109 See e.g. Leukart (1994: 54 n. 23), Thompson (2010: 190).
in Proto-Greek. Thirdly, Klingenschmitt’s scenario presupposes that there was indeed a Common Greek reflex $^*r > ^*r_0$ in unaccented position. As discussed in section 1.4.2, however, assuming an accent-conditioned double reflex for alphabetic Greek is subject to various problems. And finally, again we must note that the pre-form of ‘table’ may well have contained a relic form $^*tr$ of the numeral ‘three’ (see section 2.3.1).

As a matter of fact, the rest of the Mycenaean evidence does not speak for Klingenschmitt’s rule. He adduces Myc. wo-ze < PIE $^*\text{urǵ}-je/o$- as an example in favor, but without remarking that its vowel slot may have been influenced by related forms of the root $^*\text{uerǵ}-$. Furthermore, the following Mycenaean words are compelling counterevidence:\footnote{For more potentially relevant material, see Hajnal-Risch (2006: 102–103, 202–205). Myc. wo-do-we /wr̥dówen/ ‘rose-scented’ is not a counterexample, because it may contain the form of the simplex wo-do, where -ór- would be the expected reflex if one accepts Klingenschmitt’s rule. In o-pa-wo-ta /op-ǎw̥ta/ ‘pads or plates attached to armor’ and the $\text{VN to-si-ta} < ^*\text{Tʰyɾsītā}$, influence of the respective full grades $^*\text{aurer}$- and $^*\text{ters}$- may have played a role.}

\begin{itemize}
\item a first member $^*\text{anr}-$ ‘man; strength’ is reflected in the abstract a-no-qa-si-ja $< ^*\text{anr-kʰwəsǐ́ə}$ ‘manslaughter’ and in the names a-no-me-de $< ^*\text{Anr-médès}$, a-no-qa-ta $< ^*\text{Anr-kʰwɔntā}$. All three had unaccented $^*t$ on any account. It is hard to believe that their first member a-no- was analogically reshaped from earlier /andro-/ (e.g. after compounds in -ῃνωφ), given that names with a second member in /-andro-, -andrā-/ are frequent in the tablets (e.g. a-re-kə-sa-da-ra /Aleksandrā/) and that /andr-/ was no doubt also the oblique stem of the simplex. Moreover, we have corresponding classical forms with ἀνδρο-, ἀνδρό-.\footnote{As Mühlestein (1958) already saw, the outcome of $^*\text{anr-kʰwəsǐ́ə}$- may have been replaced by Hom. ἀνδροκτασίη for metrical reasons; for details, see section 7.3.3.}
\item $\text{qe-to-ro-po-pi} < ^*\text{kʷeɾ(t)ʰ-pd̥-}$, and compounds with a first member qe-to-ro- generally: possessive compounds have a recessive accent in alphabetic Greek, and most compounds with ‘four-’ would therefore have had an accented first member $^*\text{kʷeɾtf}-$.\footnote{In view of such counterexamples, Hajnal (in Hajnal-Risch 2006: 102–103, 202–225) concludes that the distribution between the spellings Co-ro- and Co- representing the reflex of $^*r$ cannot be accounted for by the accent rule alone. In order to save this rule, Hajnal then assumes that an irregular liquid metathesis was operative in forms like a-no-me-de and qe-to-ro-po-pi. This is clearly ad hoc.}
\end{itemize}

It seems as if Klingenschmitt’s account of the reflexes of $^*t$ in Mycenaean was devised specifically in order to explain to-pe-za, an important countereexample
against a regular sound-change *r > Myc. -ro-. However, his set of assumptions does not account for other crucial pieces of evidence (e.g. a-no-me-de, qe-to-ro-po-pi) and, contrary to his claims, these assumptions are not needed to explain the lack of a reflex of *u in to-pe-za. Furthermore, there is no real basis for ascribing the different vowel slots of alphabetic τράπεζα and Myc. to-pe-za to an original difference in accentuation between the strong and weak stems. The analogical leveling posited by Klingenschmitt is a remote possibility at best, and his scenario is contradicted by other evidence.

It follows that to-pe-za displays the regular reflex of *r. This means that qe-to-ro- must be analogical, a conclusion also reached by Haug (2002: 57). Haug suggests that the scribe tried to express the morpheme boundary between /kʷetor-/ and /pod-/ more clearly by adding the sign ⟨ro⟩.113 In my view, this account is not entirely satisfactory, given that a spelling ⟨qe-to-⟩ of the first member would have been relatively unambiguous. Alternatively, Lamberterie (apud Haug, I.c.) and Thompson (2002–2003: 359) independently suggest that the vocalization /kʷetoro-pod-/ may have been influenced by the prevocalic allomorph /kʷetr-V-/ as in e.g. qe-to-ro-we /kʷetr-ohwēs/ ‘with four ears/handles’. Indeed, this cannot be excluded.

However, I suspect that something else may be going on. The reflex in qe-to-ro-po-pi is not an isolated problem: in Ionic-Attic we also find τετρα- (rather than *τεταρ-) as the compositional form of ‘four’. Another possible scenario for the genesis of qe-to-ro- and τετρα- would be that both acquired their final vowel from the first compound members of higher numerals (cf. Myc. e-ne-wo, Hom. πεντα-, etc.). Before making the details of this scenario explicit, I will now first consider the phonological prehistory of qe-to-ro- and other forms of the numeral ‘four’. The key question is: how can the loss of -u- be explained?

2.6 Ion.-Att. τέταρτος and an Early Simplification of *-tu- before *r

Among the reflexes of PIE *kʷetμores ‘four’ and derived formations, there are three forms without a trace of the labial glide *u-.114

113 As a parallel Haug adduces the use of <ro> in a-ra-ro-mo-te-me-na /ararmot-mena/ (pf. mid. ptc. of /armot-/ cf. Att. ἁρμόττω), which seems to mark the reduplicated root more clearly.

114 A noun ταρτημόριον ‘a coin worth a fourth part of an obol’ is known from Photius, Lexicon (τ 70): ταρτημόριον δίχαλκον· δίσχαλκος τοῦ δβολοῦ· καὶ ταρτημοριαῖον τινα καλοῦσιν, οἷον δίχαλκου ἀξίων “ταρτημόριον: a double χαλκοῦς. For the χαλκοῦς is an eighth of an obol. They also call something ταρτημοριαῖον, as being worth a double χαλκοῦς”. The word is also attested epigraphically in Delphi: τα]ρτημόριον (CID 2: 110), ταρτ]χμοριον (CID
– The first compound member *kʷeṯyɾ- > *kʷet- (cf. Ion.-Att. τετρα-, Myc. qe-
to-ro-po-pi, Thess. πετρο-);
– The dative form *kʷeṯyɾ-si > *kʷedɾsi > τέτρασι (Hes.);
– The ordinal *kʷeṯyɾ-to- > *kʷetɾto- (epic τέταρτος, epic and Ion.-Att. τέταρτος,
Arc. τετορτός, Thess. πετροτός, etc.).

In addition, loss of *u has been assumed for the word for ‘table’, starting
from the reconstruction *kʷeṯyɾ-ped-i₂ “(object) with four legs” > *tyrпедία > *tyrpedίa > Ion.-Att. τράπεζα, Myc. to-pe-za ‘table’. However, as we have seen in
section 2.3.1, the reconstruction of ‘table’ may well have been PIE *tr-пед-i₂
(with *tr- an old allomorph of ‘three’) rather than *kʷeṯyɾ-ped-i₂.

Most treatments of these forms for ‘four’ claim that the loss of the labial glide
can only be explained by positing an intermediate stage *tυρ-, i.e. a regular
vocalization *r > -ɾə-. However, a regular development *r > -ɾə- is contra-
dicted by Mycenaean forms like to-pe-za and a-no-qa-si-ja, as well as by alpha-
betlic Greek forms like the ordinal τέταρτος.

It is usually assumed that Ion.-Att. τέταρτος and Arc. τετορτός were secondar-
ily reshaped under the influence of the cardinal, and that the regular outcome
of the ordinal form is seen in τέτρασι. This is problematic for three reasons.
First, there would have been no motive to replace τέταρτος, because this form
was protected by the first member τετρα-. Secondly, there is no clear model for
the replacement: a proportional analogy with the cardinal (Att. τέτταρες, etc.)
would normally have yielded Att. *téταρτος (etc.). A stem τεταρ- is not found
elsewhere, and a contamination which eliminates a perspicuous stem form
(τετρα-) and introduces a novel one (xτεταρ-) is hard to motivate. Thirdly, the a-
vocalism of τέταρτος cannot have been taken from the cardinal form (as in Att.
tέτταρες, Hom. τέσσαρες) because τέσσερες, with a more original e-vowel, occurs
beside the ordinal τέταρτος in Eastern Ionic. The same point is valid for Arca-

2: 112B), both from the last quarter of the 4th c. BCE. Lejeune (1929: 111) suggested that *ταρτην ‘fourth’ arose by re-vocalization of *τυρτ- < *kʷτυρτ-. Oddly, the main etymol-
gical dictionaries do not mention ταρτημόριον. Unfortunately, it cannot be excluded that
the word, being a frequently-used coin name, arose from *ταταρτημόριον by haplology. Cf.
Szemerényi (1960: 79); Schwzyzer (1939: 590 n. 2) with further literature.

Szemerényi (1960: 20), Morpurgo Davies (1968: 795), Klingenschmitt (1974: 275–276),
Leukart (1994: 54 n. 23), Thompson (2010: 190).

For this idea, see e.g. Szemerényi (1960: 20 n. 87), Waanders (1992: 372).

Cf. also Hirt (1930: 235): “Nach Brugmann (…) hat τέταρτος sein einfaches τ von τετρα
bezogen (…). [Aber h]ätte es ein *τετηταρτος gegeben, so wäre es wohl durch τεταρτος gehal-
ten.” Influence of a hypothetical *τυρτος on τέταρτος (proposed by Ruijgh, e.g. 1996: 117) is
equally unlikely.

The regular form in Herodotus and in Ionic inscriptions is τέταρτος. The Magnesian form
Mycenaean reflexes of *₉ and the numeral ‘four’

dian, which has τέσσερες beside τέτορτος. It is therefore highly implausible that τέτρατος was replaced by τέταρτος under influence of the cardinal. Rather, we must conclude that Ion.-Att. τέταρτος and Arc. τετορτος are the uninterrupted phonological reflexes of the Proto-Greek ordinal form *₉₇τετο‑, in which the glide *‑u‑ had been lost early on.

Which phonetic factor caused the loss of *‑u‑ in such forms? Since PIE *₉tu followed by a consonant does not normally surface as *₉tu, the usual formulation of the conditioning (“*₉tu > *t before a consonant”) is misleading. In reality, all relevant examples of *₉tu > *t are found in the position before *r. I therefore propose that a syllabic *r, already prior to its vocalization, caused the loss of the preceding labial glide in the cluster *‑tu‑. Phonetically, two factors may have played a role. First, it is relatively difficult to coarticulate labialization with a rhotic.¹¹⁹ Secondly, labialization frequently occurs together with velarization, and is much less compatible with preceding alveolar segments. Therefore, realizing an onset *₉tu (or monosegmental *₉t) must have been more difficult before *t than before full vowels (as in the cardinal form *₉₉τετυρη‑es > Ion. Arc. τέσσερες).¹²⁰

Is it possible to assume an unconditioned simplification *₉₉tu‑r > *₉₉tr‑? This seems to be contradicted by the different reflexes of *₉₉tu‑r in the following forms:

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¹¹⁹ Note that *₉₉k‑ may have developed into *₉₉kur‑ early on in certain varieties of Greek, before the elimination of the labiovelars and the regular vocalization of *r (cf. section 1.3.2 on the etymology of κυρτός). This would be phonetically similar to the simplification of *₉₉tu‑ proposed here. However, it cannot have been part of the same development, as in that case one would expect *₉₉tu‑r to surface as τυρ. Note, moreover, that onsets labiovelars were preserved before consonantal /r/ in Mycenaean, cf. qi-ri-ja-to /kwriato/ ‘bought’ (> Hom. πρίατο).

¹²⁰ This scenario also allows us to account for the West Greek cardinal form τέτορες. The loss of *‑u‑ in this form has also been ascribed to a dissimilation against the initial *₉‑ (e.g. Szemerényi 1960: 148), but a similar dissimilation did not take place in the cardinal form in other Greek dialects. In the Grundriss (11, 2: 13), Brugmann already assumed that WGr. τέτορες was influenced by τετρα‑ and τέταρτος, which seems much more logical. Of course, Brugmann also started from the assumption that the vocalization *r > ‑ra‑ preceded the elimination of *‑u‑ in such forms. Within the present scenario, we may simply assume that the remodeling of WGr. *₉₉κτετο‑es to *₉₉κτε‑to‑es took place under pressure of the ordinal form *₉₉κ‑ε‑το‑, the first member *₉₉κ‑ε‑τ‑, and the gen. *₉₉κ‑ε‑το‑m (cf. Lillo 1990: 15–16) and dat. *₉₉κ‑ε‑τ‑si, leading to a single ‑t‑ in all case forms.
– Ion.-Att. σάρξ ‘meat’ < PGr. *tu̯rk-, cf. also σύρξ, mentioned as the Aeolic and Doric form of σάρξ ‘meat’ in the *Etymologicum Magnum*121 (cf. also e.g. σύρκες: σαρξίν. Αἰολεῖς Hsch.);
– Att. and Cret. σαίρω ‘to sweep’ < PGr. *tu̯r̥-ie/o-, related to Ion.-Att. σύρω ‘to draw, drag’ (PIE *tu̯er- ‘to sweep, rush’);
– Τυρταῖος, supposed to derive from a noun *τυρτή ‘fourth day’ reflecting a relic form of the ordinal *kwturtó- ‘fourth’ (with re-vocalization of *u̯r̥).

What can be deduced from these forms? In section 1.3.2, I have discussed the possibility that σύρξ and σύρω developed directly from *tu̯r̥-, but on the other hand I argued that a reconstruction of these forms as o-grades is not excluded. The vocalism of σαίρω < *tu̯r̥-ie/o- may be ascribed to an early, Pan-Greek vocalization due to the following yod, and for this reason the word may have escaped the simplification of *tu̯r. As for Τυρταῖος, I have argued that its etymology is not sufficiently certain.

Therefore, we are left only with the fact that σάρξ appears to reflect *tu̯rk-directly, in which case it would constitute counterevidence to a general simplification *tu̯r > *tr (as in *kwetr-). With this in mind, I see at least three possible ways to reconstruct the phonetics of the simplification *kwetr- > *k̯wetr-:

– *tu̯rk- ‘meat’ did undergo regular phonetic simplification to *tk̯r-, but it was reconstituted as *tu̯rk- on the basis of the o-grade *twork- elsewhere in the paradigm. In this case, the simplification in *kwetr- may have been unconditioned. This option crucially depends on the presence and preservation of ablaut *twork- / *t̯u̯rk- within the paradigm of ‘meat’.

– *tu̯ developed differently in word-initial and word-internal position.122 An earlier date for the word-initial development is supported to some extent by the fact that word-internal *-tu̯- yields -ττ- in Attic (τέτταρες) but -σσ- in Ionic (τέσσερες, Hom. τέσσαρες), whereas word-initial *tu̯- yields σ- in both Attic and Ionic. We might then assume that the word-initial development *tu̯- > *t̯u̯- > *t̯s took place in Proto-Ionic or even Proto-Greek.123

– In *k̯wetr- the labialized cluster tu̯ underwent dissimilation against the initial labiovelar. This dissimilation took place only in forms of ‘four’ containing

121 EM s.v. σαρκάζω (Kallierges 708): Ετυμώτερον δὲ λέγουσιν οἱ Αἰολεῖς σύρκα, παρὰ τὸ ἄποσύρεσθαι τὸ δέρμα ἀπ’ αὐτῆς· τὰς γὰρ σάρκας σύρκας οἱ Δωριεῖς λέγουσι· παρὰ τὸ σύρω σύρξω, σὺρξ καὶ σάρξ.
122 For such a scenario, see Van Beek 2013: 53.
123 Both σάρξ and σαίρω occur in Attic; cf. also Att. σάττω ‘to stuff, coerce’ < PGr. *tu̯nk-je/o- (Cret. σαδδω) and probably σάος ‘safe and sound’ < PGr. *tu̯áu̯o-. If the name Zαο[τ]ύχ[αι(?)] (Crotona, 500–475 BCE, see SEG 4.75 and Arena 1996, No 53.6) contains a first member related to σάος, it shows that *ts- of this origin was retained relatively long in West Greek.
the sequence *tuฎ, but not in forms where *tu was followed by a full vowel. This explains why all ascertained cases of the simplification of *tuฎ- are found in forms of ‘four’. In this scenario the word for ‘table’ can no longer contain ‘four’ as a 1st compound member, but this is not a big loss (see section 2.3.1).

Some final remarks about the prehistory of the ordinal ‘fourth’. The oldest PIE form had *kwetru-, as reflected in Ved. turya- ‘fourth’, YAv. tuṟiia- (cf. also Av. āxtuṟīm ‘four times’, preserving the onset cluster). The full-grade form *kwetru- had developed into *kwetu率为- by metathesis already before PIE; cf. the first compound member Av. caṣru-, Lat. quadrus-. Against this background, it is questionable whether a pre-consonantal first compound member *kwu率为- (usually assumed to be reflected in τράπεζα and/or τρυφάλεια) or an ordinal *kwu率为to- (assumed to be reflected in Τυρταῖος) could still be productively made in PIE. It is far more economical to assume that the original ordinal *kwu率为(H)o- (vel sim.) was replaced by Proto-Greek *kwetu率为to- straightaway.

In sum, positing a Pan-Greek simplification *tuฎ > *tr in forms with *kwetru- (either as an unconditioned change, or by dissimilation against the initial *kw-) is the only straightforward way of accounting for the single -τ- in Ionic-Attic τέταρτος, Arc. τετορτος, as these forms cannot be explained by analogy. This also explains the occurrence of *kwetra- in other forms of this numeral, including the dat. *kwetras > τέτρασι, and it may account for the generalization of the form without *u in West Greek τέτορες (cf. footnote 120).

It now remains to account for the reflexes -ρα- (Ion.-Att. τετρα-, τέτρατος, τέτρασι) and -ro- (Myc. ὑπ-πο-πο-πί) in forms reflecting *kwetra-.

2.7 A New Account of Myc. ὑπ-πο-πο-πί and Ion.-Att. τετρα-, τέτρατος

The numeral first members of several possessive compounds derive from a pre-form ending in a syllabic nasal: ἑπτα-, εἰνα- (< *uṇa-), and δεκά-. In Epic Greek, this -α- has been extended analogically to ‘five’, ‘six’ and ‘eight’:

– πενταέτηρος ‘five years old’ (Il. 2.403 et passim), πεντάετες ‘five years long’ (Od. 3.115);
– ἥξαετος ‘six years long’ (Od. 3.115), replacing the outcome of *suuments- (cf. Myc. we-pe-za);

124 The suffix of turya- may be secondary after trtya- ‘third’, cf. Szemerényi (1960: 81).
125 Cf. e.g. ἑπτάπιλος ‘seven-gated’ (Il. 4.406, etc.), εἰνάετος ‘nine years long’ (Il. 18.400), δεκά-χλος ‘ten thousand’ (Il. 5.860, 14.148), etc.
In Epic Greek, there are no exceptions to this analogical spread of -α-. The picture is confirmed by later sources: even if there are some forms with ὀκτω- (e.g. ὀκτώται), the first members in πεντα-, ἑξα- and ὀκτα- are normal in the classical language. We may therefore assume that τετρα- could arise due to the influence of these higher numerals, especially when πεντα- had come into being.

We may now explain Myc. qe-to-ro-po-pi as follows. The compositional form of the numeral ‘nine’ is attested as e-ne-wo /e(n)newo/, probably with the reflex of a syllabic nasal in a labial environment (section 1.3.3). It may therefore be assumed that Mycenaean carried out a levelling similar to the one just described for Ionic-Attic, but generalizing -o- rather than -α-. A spread of -o- through the numerals is indeed found in several other dialects, including Arcadian, where δεκοτος ‘tenth’ and thence πεμποτος ‘fifth’ are attested (cf. Morpurgo Davies 1968: 795); recently the form ενϝοτος has also been discovered in an archaic Arcadian festival calendar. It is therefore likely that Mycenaean had /deko-/ ‘ten-’ and /dekotos/ ‘tenth’ and we may plausibly assume that the o-vowel had also spread to /kwetro-/ ‘four-’.

One could object that not all Mycenaean numerals between four and ten were affected by this spread, for we do find the form we-pe-za /w(e)k)s-peddja/ ‘with six feet’. However, taken by itself this preservation of /(h)we(k)s-/ does not exclude the possibility that a vowel was introduced in /kwetro-/: along-
side ἑξα‑ ‘six-’ before consonants, alphabetic Greek preserves the older form ἑκ‑, e.g. in ἕκπους, ἑκδάκτυλος ‘measuring six feet/fingers’ (Att. inscr.); furthermore, the ordinal remains ἕκτος ‘sixth’ throughout classical Greek. What could have been the reason to remodel ‘four-’, but not ‘six-’? One answer could be that the Proto-Greek form of ‘four-’ was perhaps *kwetr̥-, an archaism that had arisen from *kwetu̯r̥- already in PIE (cf. Av. caθru-). In this case, ‘four-’ would have been influenced by ‘nine-’ and ‘ten-’ because it ended in a vowel, while *(h)u̯eks- was left untouched because it did not have a final vowel.132 This would imply that ‘five’ and ‘seven’ also received an -o- in Mycenaean. Future finds may corroborate or disprove this scenario.

We now have to consider whether a similar explanation is possible for the ordinal τέταρτος. While this form is normally viewed as the regular outcome of *kwetr̥to‑, it must not be forgotten that τέταρτος is restricted to Homer and a few occurrences in later poets, and that the only regular prose form in Ionic and Attic is τέταρτος.133 In the previous section, several objections have been made against an analogical account of τέταρτος. In my view, the opposite possibility must be considered: that τέταρτος was analogically created within Epic Greek, under the influence of δέκατος and εἴνατος. The variation between τέταρτος (14 × in Homer) and τετράτος (8 ×) is metrically useful, and metrically-induced by-forms in -ατος are also found for some of the other ordinals in Epic Greek: ὀγδόατος ‘eighth’ beside ὀγδόος, ἑβδόματος ‘seventh’ beside ἑβδόμος, and τρίτα‑τος ‘third’ beside τρίτος. Occurrences of these forms in -ατος are all but limited to hexameter poetry, and they were clearly created in order to facilitate the use of certain case forms in the hexameter (forms like ὀγδόην, ἑβδόμην were unfit, while τρίτην required the use of muta cum liquida).134

132 An objection to this could be the McI. scansion in the line-end τετράκυκλον ἀπήνην ‘four-wheeled wagon’ (Il. 24.324), with its word-internal McI. suggestive of a reconstruction *kwetr‑ (chapter 6). On the other hand, no other case of McI. is attested for τετρα‑: cf. in particular the traditional verse-ends κυνέην θέτο τετραφάληρον (Il. 5.743 and 11.41), σάκος θέτο τετράθελυμνον (Il. 15.479, Od. 22.122), and the epithets τετράκυκλος, τετράγυος. We might therefore be inclined to view the phrase τετράκυκλον ἀπήνην as a one-off creation, noting that τετράκυκλον would contain a cretic sequence without applying McI., and that the only other instance of τετράκυκλος (Od. 9.242) has an irregular metrical lengthening of -α-. The issue is difficult to decide.

133 The only post-Homeric attestations of τέταρτος until the end of the classical period are: B. 4.11, Simon. 14.131-5, Alcm. 20.1.3, Pi. Pyth. 4.47 and fr. 135.2 (both Pindaric attestations have a metrically long first syllable, implying that they could be epicisms).

134 Cf. also Waanders (1992: 379–380). The forms ὀγδόατος and ἑβδόματος are restricted to Homer and Hesiod. In 5th c. poetry, τρίτα‑τος is only found in B. Epin. 1.112 and E. Hipp. 135. If τρίτα‑τος ‘third’ is correctly restored for the ms. form τετρά‑τος in Pi. Ol. 8.46, it must have been taken from Lesbian poetry (see von der Mühll 1964: 50–51), but the basis for this
It is not self-evident, however, that a metrically unproblematic pre-form *kwetρ̥to-, scanned as an anapest, would have been extended to yield a dactylic form *kwetρato-. An analogical spread of -ατος to τέτρατος would have been well-motivated if the pre-form already had a dactylic shape. However, it would be *ad hoc* to posit a pre-form *kwetρuto- (with the metathesis also found in the first compound member *kw(e)tru-) only in order to account for Hom. τέτρατος.\footnote{The ordinal form reconstructed as *kwetρ̥to- (cf. also OCS četvrьtъ, Lith. ketvi̯t̄as, Lat. quārtus < *k*adjorto-) is probably a reshaping of post-PIE date, in view of the Indo-Iranian evidence (Skt. tur̥y̯a-, YAv. tūri̯i̯a- ‘fourth’, axtūrīm ‘four times’) reflecting PIE *kwtur-.} An alternative scenario is that Hom. τέτρατος before vowels reflects a metrically lengthened form of the tribrach *kwetr̥tos. Indeed, in Homer τέτρατος only occurs as a nom. sg. m. (I. 23.615) and acc. sg. n. τέτρατον (7 ×), whereas τέταρτος is found in various different case forms. This suggests that τέτρατος is a formulaic remnant, while τέταρτος is the productive form. The assumedmetrical lengthening may have occurred in a phrase like τέτρατον ἥμαρ ἐὴν “it was the fourth day” (2 × Od.) or τὸ δὲ τέτρατον ἵκετο τέκμωρ “and at his fourth try he reached his goal” (I. 13.20). I will further elaborate this suggestion in section 6.8.4.

In conclusion, Ionic-Attic τέταρτος and Arcadian τετορτος must be the regular outcomes of *kwetρ̥to- in these dialects because they cannot be explained by analogy. The compounding first member τετρα- may have analogically acquired its -α- from higher numeral first members; it perhaps replaces the outcome of inherited *kwetru- or else reflects a reshaping *kwetra- based on the prevocalic allomorph *kwetr-. Returning to Mycenaean, we may conclude that `qe-to-ro-po-pi /kwetro-pod-pʰi/ may have analogically introduced -o- from enewo- and *deko-, whereas to-pe-za < *tr̥ped̄ja has the regular reflex of *τρ̥.

### 2.8 Conclusions on Mycenaean

Having sifted the evidence for word-internal *τρ̥ in Mycenaean, I conclude that its outcome was certainly not *ro, but either *or (perhaps as a conditioned outcome beside -ar-) or preserved *τρ̥. The following material conclusively proves that the reflex of *Cr̥ was spelled in Linear B as ⟨Co-⟩ (or perhaps ⟨Ca-⟩), and thus that *τρ̥ was not regularly reflected as *ro (or ra):

restoration is rather shaky. It is evident why artificial epic forms in -ατος are not found for ‘fifth’ and ‘sixth’: the metrical structure of πέμπτος and ἕκτος was unproblematic.
- PN a-no-me-de /Anr̥-mēdēs/ and PN a-no-qo-ta /Anr̥-kwhontās/;
- a-no-qa-si-ja /anr̥-kwhasiā/ ‘manslaughter’;
- to-pe-za /tṛpeddā/ ‘table’;
- to-qi-de /str̥kwhidē/ or /tr̥kwhidē/ ‘with a spiral’;
- wo-ne-we /wr̥hnēwes/ denoting a class of male sheep.

The spelling with an o-vowel is corroborated by further evidence, such as the inherited present stem of wo-ze ‘works’, the noun o-pa-wo-ta ‘plates attached to armor’ < *op-au̯r̥ta (with the root *au̯er‑ of Homeric ἀείρω ‘to connect; hang’). Moreover, the difference between wo-do-we /wr̥do-wen/ ‘rose-scented’ and its direct Homeric cognate ῥοδόεντι can be understood much easier if their common pre-form contained a syllabic liquid.136

There are no cases of a spelling ⟨Co-ro⟩ that must have developed from a form with *r by regular sound change. Among the few potential examples discussed in section 2.7, the first compound member qe-to-ro- can be explained by analogy with higher numerals such as e-no-wo; ma-to-ro-pu-ro ‘Mother Pylos’ may contain a linking vowel -o-; and the first member of to-ro-no-wo-ko /tr̥ronoworgoi/ may well be a counterpart of Hom. ῥόνωνα ‘dyed threads’ (vel sim.) rather than of Myc. to-no ‘ornamented chair’. The philological analysis of the alphabetic form ῥόνωνα provided in section 2.5.2 helps us understand how these products could be produced by male to-ro-no-wo-ko in Knossos. Another conclusion to be drawn from our discussion of to-ro-no-wo-ko beside to-no and similar cases is that there is no compelling reason to assume liquid metathesis on a large scale.

An open question remains whether Mycenaean also regularly used a-spellings to write the reflex of *r. In section 2.2, I have argued that a morphologically conditioned secondary a-grade, as assumed by García Ramón (1985) for forms like ka-po and e-ra-pe-me-na, is not an acceptable scenario. In the process, we have seen that the forms ka-po and ka-pa are not to be identified with Alph. καρπός ‘fruit; yield’. While most forms with a-spellings can be accounted for in a different manner, two stubborn pieces of evidence for a-vocalism remain: tu-ka-ta-ṣi and a-na-qo-ta. In section 2.4 it was tentatively suggested to view these not as reflecting an a-colored outcome of *r in a non-labial environment, but to interpret the interchange between a-na-qo-ta and a-no-qo-ta as reflecting a synchronically underlying [r], as Heubeck (1972) had already proposed. I have suggested that the choice between a-na- and a-no- (both representing anr-) may have depended on the initial consonant of the second compound member (labial or not). Likewise, I follow Heubeck’s idea that the spelling of the

136 For this point concerning ‘rose’, see also section 7.2.9.
toponym *u-po-ra-ki-ri-ja reflects underlying *upr-, and propose that this form had been generalized from preconsonantal to prevocalic position.

When discussing the prosodic evidence for Homeric forms with -ρο- in chapter 7, we will return to the question whether Mycenaean may have preserved *r. For now, I note that nothing in Mycenaean itself cogently speaks against such an assumption. The lack of a reflex of *u in *qe-to-ro- ‘four’ should no longer play a role in the discussion, as a new conditioning factor for its loss has been proposed in section 2.6. *kwetur was regularly simplified to *kwetr already in Proto-Greek. Phonetically, we may be dealing with the combined effect of the phonotactically awkward sequence *tu and a dissimilation of -tu- against the initial *kw-. The word for ‘table’ (*trpedja > Myc. to-pe-za, τράπεζα) is probably not an instance of the simplification *tu > *tr, as there are linguistic and archaeological reasons to believe that Mycenaean tables had three feet. My linguistic reconstruction of this word as a relic adjective PIE *tr-ped-h₂ ‘having three legs’ suggests that the Proto-Indo-Europeans were also familiar with three-legged objects.