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The development of the Proto-Indo-European syllabic liquids in Greek
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2. The Mycenaean reflex of *r and the numeral ‘four’

It is widely assumed that the regular reflex of interconsonantal *r in Mycenaean was -ro-. I will argue that this hypothesis is incorrect: in Linear B, the reflex of *Cr is regularly spelled <Co->, which can only represent -or- or unchanged -r-. Before we can evaluate the relevant Mycenaean evidence, the material has to be sifted. We will therefore start by reconsidering the evidence for an *a*-colored reflex, departing from García Ramón’s treatment (1985). As a second preliminary, we will consider the apparent alternation between the spellings <Co-> and <Co-ro-> in a number of Mycenaean words, from which Heubeck (1972) drew the conclusion that *r* was preserved as such in Mycenaean.

It is necessary to make some preliminary remarks on the use of onomastic evidence, which makes up a large portion of the Mycenaean material. Since anthroponyms do not have a meaning in the same way as appellatives do, they always have to be treated with caution in etymological questions. They are, however, not entirely devoid of linguistic context, because Greek inherited an Indo-European naming tradition which made abundant use of traditional poetic phraseology. It is clear, for instance, that *e-te-wo-ke-re-we-i-jo* must be interpreted as /Etewo-kleweh-io-/ ‘of Etewoklewēs’, and that the underlying name can be identified with Class. Ἐτεοκλῆς “True-Fame”. Similarly, we can be quite confident about the identification of *a-no-me-de* with class. Ἀνδρομήδης and its reconstruction as *Anṛ-mēdēs. This second example, though potentially more ambiguous, can be relied upon for two reasons. The interpretation of °*me-de* as /-mēdēs/, -μήδης is confirmed by other Mycenaean names with this second member, as well as by the *s*-stem inflection of some such names. Moreover, the interpretation of *a-no-* as /anṛ-/ is quite secure because, as Mühlestein (1958) saw, this first member provides a pendant to the second members in *-a-no* /-ānōr/ and *-a-do-ro* /-andro-/, from the stem *anṛ- ‘man, hero’. In other words, if *a-no-* does not represent /anṛ-/, the second member *-a-no* /-ānōr/ would be left without a corresponding first member.

However, only a relatively small part of the names found in the tablets can be etymologized at all. It is often assumed that names in *-e-u* (Hom. and class. -εύς) and *-o* (class. -ος) are hypocoristic or truncated forms of compounded names. Although this analysis may be correct in a number of cases, it must not be forgotten that names ending in *-e-u* were highly frequent in the substrate language (Pre-Greek), and that a large number of Mycenaean PNs ending in *-e-u* resist interpretation. Another type of uncertainty is encountered in a name like *pa-ra-to*, which has been interpreted as /Platōn/, but could theoretically also represent /Prātos/.

In conclusion, I exclude hypocoristic or truncated PNs from the evidence, and include compounded PNs with a pre-form containing *r only: (1) when they have a clear avatar in alphabetic Greek (e.g. *a-no-me-de* ~ Ἀνδρομήδης), or (2) when they contain traditional phraseology (e.g. *a-no-qo-ta* ~ *h₂nṛ- + *g^{wh}en-, a poetic syntagm for which further evidence is found in Homer, Mycenaean, and Vedic).

2.1. The color of the anaptyctic vowel in Mycenaean

In an influential contribution to the discussion, Morpurgo Davies (1968) argued that the regular outcome of *r 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 are secure in her view, such

as Myc. *wo-ze* ‘works’ < **wrgiei*, would be conditioned by the preceding *w-*.⁸⁷ But this conclusion cannot be upheld, because Morpurgo Davies left a number of crucial factors out of consideration, a fact to which García Ramón (1985) has drawn attention. He argued that the spellings <*Ca-*> and <*Ca-ra-*> may be explained in various ways, and that the unconditioned and regular outcome of PIE **C_rC* in Mycenaean was -*CorC-* or -*CroC-* (spelled <*Co-*> and <*Co-ro-*>).⁸⁸

First of all, the outcome in word-internal position must be distinguished from that in other positions. In word-final position, **-r* > -*ap* may have preceded the dialectal vocalization of word-internal **-r-*.⁸⁹ Secondly, most Mycenaean forms with <*Ca-*> or <*Ca-ra-*> were excluded from the evidence by García Ramón on other grounds. In some cases, the *a*-vocalism is due to a laryngeal development: for the pan-Greek developments **CRHV* > **CaRV-*, **HRC-* > **H₂RC-*, and **r, l* > *ap, al* | **C_ iV*, see section 1.2. In other cases, the etymology or interpretation accepted by Morpurgo Davies is too uncertain. After these reductions, García Ramón retains the following evidence for spellings with <*Ca-*> or <*Ca-ra-*> in forms with etymological **C_rC*:

1. *ka-po* /*kapo-*/ (KN F 841.5, class. *καπός* ‘yield’)
2. *ra-pte* /^h*raptēr*/ ‘saddler’ (KN Fh 1056+, PY An 172.1+), *e-ra-pe-me-na* /^h*e^hrapmena*/ (class. *ῥάπτω* ‘to sew, stitch’, ptc. pf. *ἔρραμμένα*)
3. *ta-pa-e-o-te* (KN B 823), interpreted as /^h*arp^ha e^hontes*/ (Hom. *ταφός* ‘dense’)
4. PN *ta-ta-ke-u* (PY Cn 655.20), interpreted as /*Start-ageus*/ or /*Start-ark^heus*/ “Army-Leader”
5. *tu-ka-ṭa-ṣi* /^h*ugatarsi*/ (MY Oe 112, 134.2), Dp. ‘daughters’
6. PN *wa-ra-pi-si-ro* /*Wrapsilos*/ (PY Cn 436.7, MY Au 102.1), interpreted by Heubeck as a short form of **Wrapsi-lāwos* “who beats the people (with a stick)” containing the root of *ῥαπίζω* ‘to strike with a stick’. Heubeck and García Ramón identify the roots of *ῥαπίζω* and *ῥέπω* ‘to incline’.

As García Ramón points out, the analysis of scribal hands offers no evidence in support of Risch’s idea 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” (Risch 1966). Since there is no evidence for a phonologically conditioned change either, García Ramón concludes that the forms with <*Ca-*> or <*Ca-ra-*> are due to analogical developments. Following an idea by Kuryłowicz (see section 1.4.3), he assumes that the six forms with *a*-vocalism contain an early, pan-Greek secondary zero grade. He concludes that in words deriving from a pre-form **C_rC*, “the spellings *Ta* (...) and *Ta-ra* (...) render /*Tar*/ and /*Tra*/ respectively, with a full *a*-vowel to be interpreted as morphologically conditioned” (1985: 222-3).

Since I do not accept Kuryłowicz’s idea of a secondary zero grade, I will now propose alternative explanations for each of the six cases of <*Ca-*> or <*Ca-ra-*> listed by García Ramón. The verb *ῥάπτω* has no Indo-European etymology.⁹⁰ Given that we are dealing with artisanal vocabulary, *ῥάπτω* could well be a loanword.⁹¹ As García Ramón himself noted

⁸⁷ In this chapter, I focus on the Mycenaean evidence; the Arcado-Cyprian material is treated in chapter 3.

⁸⁸ Throughout this paragraph, 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 examples containing *w-*.

⁸⁹ Compare the distinct development of e.g. *ásrk* ‘blood’ and *áhar* ‘day’ in Indo-Aryan, where the final -*k* of *ásrk* was added before the vocalization of **-r* in *áhar*. See section 1.2.3 and 9.3 for a more elaborate discussion.

⁹⁰ See *GEW*, *DELG*, and *EDG*.

⁹¹ García Ramón thinks that regularly formed middle perfect **se-srb^h-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).

(1985: 201-3), the name *ta-ta-ke-u* could also be interpreted as /Stāt-ageus/ or /Stāt-ark^heus/. Heubeck’s interpretation of the name /Wrapsilos/ is called “cogent” by García Ramón (1985: 222). In my view, it is not compelling at all, and even if it would be correct, it cannot be excluded that the root of ῥαπίζω ‘to strike with a stick’ was borrowed as **wrap-*, and unrelated to ῥέπω ‘to incline’. As Haug remarked (2002: 59), *tu-ka-ta-si* is a “lecture peu sûre sur laquelle il serait imprudent de fonder une théorie”, especially given that other scholars have read *tu-ka-ta-si*.

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’. This word is etymologically isolated within Greek, but derives from the PIE root **kerp-*. Concrete evidence for an ablauting PIE root **kerp-* is found in Lith. *kiṛpti*, 1s. pres. *kerpù* ‘to cut off, shear’. The root is also attested in Hitt. *karp-(ije/a-)^{zi}* ‘to lift, take away; pluck’.⁹² The *a*-vocalism of Lat. *carpō* remains problematic, but that is an issue to be resolved within Italic.⁹³

Following Kuryłowicz’s explanation (1968: 244) of Lat. *carpō* as a case of secondary ablaut, García Ramón explains καρπός as an old, Proto-Greek replacement of **kypó-*. I see no motivation, however, for such a replacement. This means that the Ionic form καρπός is best interpreted as the regular outcome of PIE **kypó-*. As for Mycenaean *ka-po*, it is important to consider the context of this form. It is attested only in KN F 841, of which lines 5-6 read:⁹⁴

*su-za NI 75 ka-po e-
]wa OLIV 46 e-ra-wa[*

The view that “*ka-po e-[ra-wa* is surely to be interpreted as ‘fruits of olive’” (García Ramón 1985: 217) is widely accepted.⁹⁵ But for *su-za* earlier in the same line, 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, *ka-po e-
]* could be interpreted as /kāpo- e[*laiwās/* ‘[olive] plantation’, in which case *ka-po* would have the same meaning as κῆπος ‘plantation, orchard’ in Homer.⁹⁶ Nothing in the context of KN F 841 would rule out this interpretation.⁹⁷

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)arp^ha/ and compared with Homeric ταρφύς ‘numerous, dense’, which derives from τρέφομαι ‘to grow thick’, originally ‘to coagulate’ (cf. de Lamberterie 1990: 676-82 and section 4.3 below). Departing from the original interpretation by Ventris and

For this reason, he argues, a secondary zero grade **srab^h-* could be introduced not only in the middle perfect **he-hrap^h-toi*, but also in the intransitive aorist **e-hrap^h-ē* and the *yod*-present **hrap^h-je/o-*.

⁹² This means that the Greek *a*-vocalism cannot be explained by assuming a European substrate root **karp-*.

⁹³ According to a rule of Schrijver’s (1991: 429-30), *carpō* may owe its *a*-vocalism to forms with a following consonant. See section 1.4.3.

⁹⁴ García Ramón (1985: 217 n. 82) remarks that the ligature *KA-PO* probably has nothing to do with *ka-po*. Indeed, its meaning cannot be established on the basis of the attestations (in PY Un 267, it occurs in a list together with WINE, CONDIMENT, and WOOL). Sacconi (1972) proposed to compare *KA-PO* with class. κάρφος ‘dry stalk’, esp. of cinnamon. This is only possible if κάρφος contains an old **a* and is etymologically unrelated to Lith. *skrebinti* ‘to shrivel’ (on which see section 9.4).

⁹⁵ See e.g. *DMic. s.v. ka-po*: “la interpretación más verosímil, y generalmente aceptada, es καρπός.” Similarly *Docs.*² 219. As far as I have been able to trace, the possible parallel καρπός ἐλαίας ‘yield of the olive tree’ in Pindar (*Nem.* 10.35) has not been noticed so far. But this syntagm does not carry too much weight, because it may have been created at any date, given the meanings of its constituents.

⁹⁶ It has been suggested that the older meaning of κῆπος was simply ‘lot, (uncultivated) plot of land’, as in Cyprian (cf. Masson, *ICS*² 217 and 316). But in Homer, κῆπος refers to an ὄρχατος (a plot of land with trees on it) in *Od.* 4.737 (κῆπον ... πολυδένδρεον), 7.129, 24.247 and 338. Moreover, κῆπος refers to fertile enclosures in Pindar (*Ol.* 3.24, *Pyth.* 5.24, *Pyth.* 9.53). The word also occurs in Arcadian and in classical Ionic-Attic prose.

⁹⁷ The interpretation /kāpoi/ is also mentioned as a possibility by Bartoněk (2003: 194) as an alternative to /karpoi/, but without any reference.

Chadwick, Lejeune (1971: 239) proposed to read *ta-pa-e-o-te* VIR^b 10 *a-pe-o-te* VIR^b 4 as /t^(h)arp^ha e^hontes ... amp^h-e^hontes/, to be translated as “being directly attached (“aggloméré”) [to the sanctuary]: 10 men; being in the surroundings (“périphérique”) [of the sanctuary]: 4 men”.⁹⁸ This interpretation was accepted by García Ramón (1985: 199-200).

If /t^(h)arp^ha/ is the correct interpretation of *ta-pa*^o, the form would have the wrong vowel slot in comparison with τρέφομαι, so 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 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 **t_ṛp^hús* → 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)” (1985: 219).

García Ramón’s argument is rather vague. On a charitable reading, he may be taken to mean that the *-a-* was imported in **τάρφα* ‘dense, numerous’ from θαμά (with identical meaning), just like κάρτα ‘very’ may have taken the root vocalism of μάλα ‘very’. But even if such an analogical introduction of *a*-vocalism is accepted, the problem of the wrong vowel slot of **t^harp^ha* (“irrespective of the base form of the root”, García Ramón) cannot be so easily dismissed. As I will argue in chapters 4 and 5, the *-ar-* in κάρτα and ταρφύς is to be understood as the regular outcome of **r* in Ionic-Attic.

Since I accept García Ramón’s conclusion that the regular spelling of the outcome of **r* in Mycenaean was with the *o*-series, a putative Mycenaean /t^harp^ha/ cannot be explained from a pre-form **t^hrp^ha*: that would contradict the evidence of *to-pe-za*, *a-no-qa-si-ja*, and *to-qi-de*, all of which contain a reflex of **r* after a dental consonant and before a labial stop.⁹⁹ It therefore seems unlikely to me that Lejeune’s interpretation of *ta-pa-e-o-te* is correct, even if I have no convincing alternative interpretation.

In conclusion, there is no reason to assume the existence of pan-Greek secondary ablaut *TeRT* : *TaRT*. Of course, the ablaut *TeRT* : *TaRT* did occur on a large scale in Greek, but only in dialects where the syllabic liquids developed an *a*-colored reflex. Notwithstanding this criticism, García Ramón’s conclusion that there is no compelling evidence for *a*-vocalism among the Mycenaean reflexes of PIE **C_rT* still stands firmly. From now on, we may concentrate on Mycenaean words that are spelled <Co-ro-> and <Co->. Which of these spellings writes the regular reflex of **C_r-?*

2.2 Syllabic *r* in Mycenaean?

A basic orthographic rule of Linear B tells us that /Cro-/ is regularly spelled <Co-ro-> (e.g. *po-ro-* /pro-/ ‘before, in front’), and that (preconsonantal) /Cor-/ is regularly spelled <Co-> (e.g. *-wo-ko* /-worgos/ ‘-maker’). Among the words derived from a pre-form with **r*, some present the spelling <Co-ro-> (e.g. Ip. *qe-to-ro-po-pi* ‘cattle’ < PGr. **k^wetr-pod-p^hi*), but most cases have the spelling <Co-> (e.g. 3s. pres. ind. *wo-ze* ‘works’ < PGr. **w_rg_{ie}i*). For the interpretation of this orthographic difference, there are four basic options:

- a) the spelling <Co-ro-> writes the regular reflex of **r*, to be interpreted phonologically as /Cro/; that other items are written <Co-> is due to various causes (e.g. analogy)

⁹⁸ In *Docs.*¹ (171 and 408), the opposition *ta-pa-e-o-te* : *a-pe-o-te* was interpreted as /t^(h)arp^ha e^hontes/ : /ap-e^hontes/ = ‘present’ : ‘absent’. But since one would expect the meaning ‘present’ to be expressed by /par-e^hontes/ (cf. alphab. παρέοντες), other scholars (e.g. Ruijgh) have proposed to interpret *ta-pa-e-o-te* as /tāi par-e^hontes/, where /tāi/ ‘there’ would be an adverbial use of the Ds. fem. of the demonstrative pronoun. This explanation has its own problems, see García Ramón (l.c.).

⁹⁹ For a discussion of these forms, see below.

- b) the spelling <Co-> writes the regular reflex of **r*, to be interpreted phonologically as /Cor/; that other items are written <Co-ro-> is due to various causes (e.g. analogy)
- c) the spelling <Co-> writes preserved *r*; that other items are written <Co-ro-> is due to various causes (e.g. analogy)
- d) the spellings <Co-> and <Co-ro-> are different attempts to write a preserved *r*.

Various previous scholars have opted for a), transposing to Mycenaean the broadly accepted of the difference between Ion.-Att. -ρα- and -ρρ-. In what follows, we will see that this explanation conflicts with the Mycenaean evidence. Option b) is preferred by Haug (2002: 59), but he does not explicitly take a position on the place of the anaptyctic vowel.¹⁰⁰ Option c) has not been proposed before, and d) has been championed by Heubeck (1972).

In a few lexical items like *ma-to-ro-pu-ro* ~ *ma-to-pu-ro*, the spellings <Co-ro-> and <Co-> seem to alternate. In his discussion of these examples, Heubeck argued that the orthographic variation results from attempts to represent one and the same sound *r*, the allophone of /r/ between two consonants. This view is often referred to with skepticism, and has been subjected to a detailed criticism by Haug (2002).¹⁰¹ To my knowledge, the only scholar who explicitly accepted Heubeck's thesis is García Ramón (1975: 62-63).¹⁰² A general criticism has been that Linear B does not normally display such variation when it represents a single phoneme.¹⁰³ Scholars unwilling to accept Heubeck's conclusions make various additional assumptions in order to account for the fluctuation between <Co-ro-> and <Co->: incidental spelling errors, a distribution depending on the accent, liquid metathesis, or a combination of these factors.

2.2.1 Heubeck's argument for the preservation of *r* in Mycenaean

Let us now consider the evidence adduced by Heubeck, along with Haug's criticism of it. The spelling variation between <Co-ro-> and <Co-> is attested in the following words:

1. *ma-to-ro-pu-ro* (PY Cn 595.5) ~ *ma-to-pu-ro* (PY Mn 1412.4), for /Mātro-pulos/ ~ /Mātr-pulos/ "Mother-Pylos", cf. μητρό-πολις 'metropolis (of a colony)'.
2. *qe-to-ro-po-pi* 'cattle' (PY Ae, Ip.) ~ *to-pe-za* 'table' (PY Ta *passim*, KN V). In both cases, *r* is expected on etymological grounds: PGr. **k^wetr-pod-p^hi* versus **tr-pedja*.¹⁰⁴
3. *to-no* 'ornamented chair, throne' (PY *passim*) ~ *to-ro-no-wo-ko* interpreted as 'chair-makers' (KN As 1517.11).¹⁰⁵

¹⁰⁰ "Pendant toute cette discussion, nous avons admis que TrT donne TorT en mycénien." (Haug 2002: 59). Thompson (2002-2003: 356-9) also seems to consider b) the most likely option. According to Heubeck (1972), option b) is "generally assumed", but few accounts explicitly claim that the regular outcome of **r* in Mycenaean was -or-, rather than -ro-.

¹⁰¹ While Hajnal does not accept the preservation of *r* in Mycenaean, he admits that "Heubecks Lesart strenggenommen nicht als falsch erwiesen werden kann" (Hajnal-Risch 2006: 202f., referring to García Ramón 1985: 196). Hajnal's main argument against the preservation of *r* is that it leaves the supposed alternative Mycenaean reflex -ar- unexplained. If indeed *ar* can be a reflex of **r*, we would have not only variants <Co-> ~ <Co-ro->, but also variants <Ca-> ~ <Ca-ra->, i.e. four different ways of spelling a single phoneme. But as we have just seen, none of the examples for <Ca-> or <Ca-ra-> is convincing.

¹⁰² In his discussion of the relative chronology of Proto-Thessalian developments, García Ramón dates **r* > op, po after 1200 on the basis on Heubeck's thesis for Mycenaean. Since Mycenaean is a South-Greek dialect, this is not compelling: it cannot be excluded that the elimination of the syllabic liquids in Proto-Aeolic occurred before our Mycenaean sources. In a later publication, García Ramón has remarked that "Heubeck's theory can hardly be definitively confirmed or disproved" (1985: 196).

¹⁰³ E.g. Ruijgh: the Mycenaean writing system "montre en général une économie rigoureuse, qui n'admet guère de graphies alternatives. C'est pourquoi l'hypothèse d'un doublet graphique *to/to-ro* pour l'expression de la syllabe *tr* nous paraît extrêmement invraisemblable." (1978: 420).

¹⁰⁴ On the origin of the first element **tr*-, see section 2.5 below.

¹⁰⁵ Perhaps also present in *to-no-e-ke-te-ri-jo*, if for /t^horno-hektērion/ (Risch 1972: 18).

We may leave aside the following forms adduced by Heubeck, for which I refer to Haug's arguments (2002: 57-8):

4. *ku-su-to-ro-qa* 'sum, total' (KN, PY *passim*) beside *ku-su-to-qa* (PY Eb 847.2)¹⁰⁶
5. *po-po-i* (MY Oi 702.3) as a variant of *po-ro-po-i* (Oi 701.4)¹⁰⁷
6. PN *o-pe-to-re-u* (PY Ep 704.1) beside *o-pe-te-re-u* (PY Ea 805, Eb 294.1)¹⁰⁸

According to the most widespread view, there are no instances of the thematic vowel *-o-* in Mycenaean compounds.¹⁰⁹ If this is correct, *ma-to-ro-pu-ro* would have to represent the direct outcome of a compound with **mātr-*. However, Haug (2002: 55ff.) has argued that the compositional vowel does appear in a limited number of cases: *ko-to-na* /ktoinā/ ~ *ko-to-no-o-ko* /ktoino^hok^hos/, *o-wo-we* /o^hwo-wens/, PN *i-su-ku-wo-do-to* /^(h)isk^huo-dotōi/ (Ds.), PN *ke-ro-ke-le-we-o* /K^he^hro-klewe^hos/ (with a first member 'hand'), *di-wo-pu-ka-ta* /Diwo-P.../. More recently, this view was also accepted by García Ramón, in a discussion of *i-su-ku-wo-do-to* (2007b: 326).

Not every single one of these cases is equally convincing in my view. The precise interpretation of *di-wo-pu-ka-ta* is uncertain (cf. *DMic.* s.v.). In the case of *ko-to-na* 'plot of land', we could be dealing with an older collective, in which case the thematic stem form in the compound is expected.¹¹⁰ Haug's interpretation of *o-wo-we* as /o^hwo-went-/ 'with handles on it' is doubtful, because the compositional vowel is not attested in other Mycenaean possessive adjectives in *-went-*.¹¹¹ I therefore prefer the traditional interpretation /oiw-o^hwes/ 'with a single ear'. We are left, then, with the compounded personal names *di-wo-pu-ka-ta*, *i-su-ku-wo-do-to*, and *ke-ro-ke-le-we-o*. The evidence is slight, but since *ma-to-ro-pu-ro* is also a name (toponym), I agree with Haug that it may well belong in the same series.

The difference between the outcomes <*to-ro-*> in *qe-to-ro-po-pi* and <*to-*> in *to-pe-za* is a long-standing problem of Mycenaean studies. Since the respective etymological relatives have *-ρα-* in Alphabetic Greek (τετράποδα, τράπεζα), most scholars have tried to explain the spelling <*to-*> as secondary in some way or another (see section 2.4). A notable exception is Haug, according to whom *to-pe-za* must contain the regular development. He suggests (2002: 57) that the scribe who wrote <*qe-to-ro-*> tried to express the morpheme boundary between /k^wetr-/ and /pod-/ more clearly by adding the extra sign <*ro-*>.¹¹² But since ⁺⁺<*qe-to-*> would have represented either /k^wetor-/ or /k^wetr-/ in an unambiguous way, this sounds slightly *ad hoc*. As an alternative, de Lamberterie suggested (*apud* Haug, l.c.) that the syllabification /k^wetropd^hi/ may have been preferred over /k^wetorpd^hi/ after the model of the prevocalic

¹⁰⁶ A restored form on the basis of a drawing. Heubeck (o.c. 64-5) regards the latter form as a scribal error, because one expects *o*-grade of the root in an *ā*-stem. As Haug remarks, PY Eb 847.2 is now generally corrected to *ku-su-qa*, so the form has to be removed from the evidence.

¹⁰⁷ The interpretation of the latter form is quite uncertain. Heubeck mentions the possibilities /pōl-opo-/ and /propo-/, and judges the latter to be more probable. If this is correct, we are dealing with an *o*-grade, in which case the form has to be eliminated from the evidence anyway.

¹⁰⁸ These are interpreted as referring to the same person, and may therefore be variants of the same name. See Thompson (2002-2003: 262-65) for a critical discussion of the supposed phenomenon of epenthesis.

¹⁰⁹ See e.g. Hajnal-Risch (2006: 103 n. 183); for a general assessment, cf. Meissner and Tribulato (2002: 320-3).

¹¹⁰ Cf. Meissner and Tribulato (2002: 322), following Leukart (1994: 315).

¹¹¹ Haug objects to the commonly accepted interpretation /oiw-o^hwes-/ 'with a single ear' that οἷος does not occur as the first member of possessive compounds in alphabetic Greek. In his view, the abbreviation MO 'alone, only' would show that **monwos* is the normal word for 'single, alone' in Mycenaean. This is hardly a compelling argument. It is possible, for instance, that **oiwo-* was replaced by **monwo-* in the simplex, but retained in some compounds. Moreover, it cannot be excluded that the two forms belonged to different registers.

¹¹² The only parallel adduced by Haug is *a-ra-ro-mo-te-me-na* /ararmot-mena/ (pf. mid. ptc. of /armot-/, Class. Att. ἀρμότω): "Là aussi, ce sont sans doute des considérations morphologiques qui ont mené à une graphie plus complète" (l.c.).

allomorph /k^wetr-V-. It could be objected, however, that this syllabification was not preferred in other cases like preconsonantal *a-no-* < **anr-* beside *a-re-ka-sa-da-ra* < **aleks-anr-ā* (cf. class. ἀνδρο-). In sections 2.5 and 2.6, I will propose a new explanation for *qe-to-ro-*. Anticipating this conclusion, we may conclude that *qe-to-ro-po-pi* beside *to-pe-za* is not a convincing example of the fluctuation studied by Heubeck.

The third example, *to-no* /t^hornos/ or /t^honos/ ‘seat, throne’ (PY *passim*), is often compared with *to-ro-no-wo-ko* (hapax, KN) under the interpretation /t^hrono-worgoi/ ‘chair-makers’. Since the simplex *to-no* is not attested in Knossos, some scholars have assumed a dialectal difference between Pylian *to-no* and Knossian *to-ro-no*. However, in view of the unclear context of KN As 1517, it is impossible to establish the meaning of *to-ro-no-wo-ko* with certainty. Since the example has played such an important role in previous discussions, let us consider the tablet more extensively. It starts with]-*no re-qo-me-no*, where the last word probably represents /leik^womenoi/ ‘being left’ (*Docs.*²). This is followed by a number of masculine proper names (*to-so* MEN^b 17, line 10). After an empty line, there follows:

- | | | | |
|-----|--------------------|-------------------|-----------------------|
| 12. | <i>o-pi</i> | <i>e-sa-re-we</i> | <i>to-ro-no-wo-ko</i> |
| 13. | <i>po-to-ri-jo</i> | I | <i>pe-we-ri-jo</i> I |
| 14. | | <i>du-ni-jo</i> | I |

These lines may be translated as: “At the *e-sa-re-u* [there are the following] *t^hrono-worgoi*: *po-to-ri-jo*, *pe-we-ri-jo*, *du-ni-jo* (...).” Chadwick (*Docs.*²: 172) remarks that “*e-sa-re-u* seems to be the title of an official, but the meaning of the whole passage is unclear. *Thronoworgoi* may be makers of chairs or garlands, but notice that the form of θρόνος at Pylos is *to-no*”. As was also noted by Haug (2002: 57), it cannot be excluded that the first member contains the word for ‘embroideries’, Hom. θρόνα.¹¹³

The main reason why *to-ro-no-wo-ko* is thought to mean ‘chair-manufacturers’ seems to be that embroidering is considered an unlikely activity for male laborers.¹¹⁴ But first of all, one wonders whether it can be excluded that male laborers made embroideries, both generally speaking and in Mycenaean Greece in particular.¹¹⁵ Secondly, it is unclear whether the original meaning of θρόνα was indeed ‘embroideries’. The etymology of θρόνα is unclear.¹¹⁶ In Hellenistic poetry, it occurs in the meaning ‘medicinal herbs’, but this is clearly inappropriate in Homer. In its only Homeric attestation, Andromache is still unaware of Hektor’s death while she is weaving a two-layered purple fabric: δίπλακα πορφυρέην, ἐν δὲ θρόνα ποικίλ’ ἔπασσε ‘and she embroidered it with varicolored θρόνα’ (*Il.* 22.441). The Homeric scholia and Eustathius state that (ἐμ-)πᾶσσω in the meaning ‘to embroider, weave into’ is a Cyprian word (cf. Ruijgh 1957: 166, Bowra 1934: 70-1). But what did Andromache weave into the purple cloth? Some scholia explain the word as referring to flowers or figurines, but others (see Erbse ad *Il.* 22.441) gloss θρόνα with τὰ βαπτὰ ἔρια ‘dyed wool’ and ἄνθη ποικίλα, ἐξ ὧν βάπτουσι ‘varicolored flowers(?) used for dyeing’. This is also attested in Eustathius (1278, 46): θρόνα δὲ κυρίως μὲν τὰ ἐκ θηρίων ἢ τὰ ἐκ γῆς ἀναθορόντα ὀνήσιμα φάρμακα, νῦν δὲ κατὰ μετουσίαν θρόνα ἡγουν φάρμακα ἔφη τὰ βεβαμμένα λίνια ἢ ἔρια. In

¹¹³ This problem is stepped over in many discussions of these words (e.g. Thompson 2002-2003: 359-60).

¹¹⁴ For instance, “derivation from Hom. θρόνα ‘embroidered flowers’ seems less likely.” (*Docs.*², 587).

¹¹⁵ According to Dr. G. Vogelsang-Eastwood of the Leiden *Textile Research Centre* (p.c.), whom I asked about this matter, professional male embroiderers would even be more likely if the garments in question were destined to be exported. For domestic produce, on the other hand, female embroiderers would definitely be expected.

¹¹⁶ The connection of θρόνα with Alb. *drëri* ‘deer’, if < **d^hroni-* ‘varicolored’ (Frisk s.v.), cannot be further substantiated. Various scholars (Furnée 1972: 189, but already Lawler 1948: 81) have proposed that θρόνα is a Pre-Greek word because of the variant τρόνα: ἀγάλματα, ἢ ράμματα ἄνθια ‘ornaments, or stitchings of flowers’ (Hsch.).

other words, both the herbs or plants (φάρμακα) from which the dyes were obtained and the dyed products themselves (λίνα ἢ ἔρια) could be called θρόνα.

The interpretation of θρόνα as ‘embroidered flowers or figurines’ would make good sense in the Homeric passage, but so would ‘dyed wool, colored threads’.¹¹⁷ In my view, the interpretation as ‘threads of dyed wool’ is preferable, because it is a *lectio difficilior*.¹¹⁸ If this is correct, the Mycenaean *to-ro-no-wo-ko* could be workers who produced colored threads by dyeing wool, which is definitely an occupation of men, not of women.

Thus, it cannot be excluded that *to-ro-no-wo-ko* contains not ‘throne’, but a cognate of Hom. θρόνα as its first member. The consistent spelling of *to-no* ‘ornamented chair’ in Pylos favors this interpretation. Since there is no evidence for **r* in θρόνα, *to-no* ~ *to-ro-no-wo-ko* is not a compelling example of the orthographic variation <Co-> ~ <Co-ro-> studied by Heubeck. As for *to-no*, it could theoretically be the outcome of a pre-form **t^hyno-*. But as we will see in chapter 7, the reconstruction of this word is beset with difficulties. For this reason, I exclude *to-no* from the compelling evidence for **r* in Mycenaean.

Haug (2002: 59) concludes his criticism of Heubeck’s argument with the following words: “Les meilleurs exemples disparaissent lorsqu’on se rend compte que la thématization dans les composés et les dérivés est un processus qui est déjà amorcé en mycénien. Les autres exemples se heurtent à des difficultés diverses; souvent, les données dialectales ou la structure morphologique du mot empêchent de poser un *r* voyelle original, et parfois, les données philologiques ne sont pas assez sûres pour que l’on puisse y faire confiance.”

It is indeed difficult to give one firm instance of the orthographic fluctuations on which Heubeck bases his argument for the preservation of *r*.¹¹⁹ I agree with Haug that the introduction of a compositional thematic vowel cannot be excluded for *ma-to-ro-pu-ro*, and that the lexeme underlying *to-ro-no*° may be related to Hom. θρόνα rather than to *to-no* ‘chair’. It only remains to explain *qe-to-ro-po-pi* versus *to-pe-za*, to which we shall return in section 2.4. I do not agree with Haug, however, that **r* had already vocalized to *-or-* prior to Mycenaean. The case made by Heubeck for the preservation of *r* is not only based on the fluctuations within Mycenaean, but also on the idea that certain Epic words with *-po-* or *-pa-* would scan properly only if we restore a pre-form with **r*. This argument is not accepted by Haug, but can in my view be bolstered with new arguments. The matter is taken up in chapters 7 and 11, where I will defend option c) mentioned above.

2.3. The Mycenaean evidence

The evidence is divided into two parts. In section 2.3.1, the reliable and probable evidence for **r* is listed in alphabetical order, and each item is given a brief discussion. Section 2.3.2 contains evidence of which the interpretation contains too many uncertainties, or which has been wrongly adduced by previous authors. The material has been collected from the evidence listed by Morpurgo Davies (1968), Heubeck (1972), García Ramón (1985), Thompson (2002-03), and Hajnal-Risch (2006). Anticipating the probable conclusion that **r* was preserved in Mycenaean (see chapter 11), my phonological interpretation of the reflex

¹¹⁷ The meaning ‘(threads of) dyed wool’ would also fit the Homeric compounds in *-θρονος* quite well: see the discussion in section 7.3.6.

¹¹⁸ The first interpretation may have been based on the scholiasts’ interpretation of the context of the Homeric passage. Similarly, Risch (1972: 19) judged that “aus dem Zusammenhang [sich] am ehesten die Bedeutung ‘Stickereien, Figuren irgendwelcher Art’, evtl. ‘bestimmte Figuren oder Ornamente’ [ergibt]”. But did he perhaps take this information from the scholiast on Theoc. 2.59, who wrote that θρόνα means τὰ ἀνθινὰ ἱματια ‘clothes decorated with flowers’ in Cyprian, and τὰ πεποικιλμένα ζῶα ‘embroidered figures’ in Thessalian? Hsch. also has an entry θρόνα: ἄνθη. καὶ τὰ ἐκ χρωμάτων ποικίλματα ‘embroideries consisting of ornaments’.

¹¹⁹ Cf. also Thompson’s remark that if Heubeck would be correct, “it is surprising that we do not see more variation of this sort” (2002-03: 358).

<Co-> is /C_r-/, and that of <Co-ro-> is /Cro-/. Those who disagree with this conclusion may prefer to read <Co-> as /Cor-/ instead.

2.3.1 Examples deserving consideration

1. PNs *a-no-me-de* /An_r-mēdēs/ (only PY Jn 706.5) and *a-no-qo-ta* /An_r-k^{wh}ontās/ (KN *passim*).
2. *a-no-qa-si-ja* /an_r-k^{wh}asiā-/ ‘manslaughter’ (only PY Ea 805).
3. TN *ma-to-pu-ro* /Māt_r-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 thematicized /Mātro-pulos/ (see section 2.2).
4. *qe-to-ro-po-pi* /k^wetro-pod-p^{hi}/ ‘cattle’ (PY Ae, Ip.).
5. *to-qi-de* /st_rk^{wh}idei/ ‘with a spiral’ (PY Ta 642.3+), also in *to-qi-de-we-sa* /st_rk^{wh}id-wessa/ ‘provided with spirals’ (PY Ta) and *to-qi-de-jo, -ja* (PY Ta).
6. *o-pa-wo-ta* /op-āw_rta/ (PY, KN) ‘pads’ or ‘plates’ attached to body armour
7. *to-pe-za* /t_r-pedd^ya/ ‘table’ (PY Ta *passim*, KN V).
8. PN *To-si-ta* /T^h_rsītās/ (PY Cn 719.2).
9. *wo-do-we* /w_rdo-wen/ ‘rose-scented’, qualifies fragrant oil (PY Fr 1203 etc.).¹²⁰
10. *wo-ze* /w_rdd^yei/ ‘works’ (PY *passim*) and many other inflected forms of the present stem with the zero grade of this root (both PY and KN, for attestations, see *DMic.* s.v. *wo-ze*).

Comments on the individual items:

1. Since Mühlestein (1958), the PNs *A-no-me-de* /An_r-mēdēs/ (PY Jn 706.5) and *A-no-qo-ta* /An_r-k^{wh}ontās/ (KN, frequent) are compared with class. Ἄνδρομήδης and Hom. ἀνδρεϊφόντης (epithet of Ares Eualios). An important argument in favor of Mühlestein’s interpretation (1958: 224) 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 be from *an_r-. A clear overview of all Mycenaean PNs in /-k^{wh}ontās/ is given by Leukart (1994: 51ff.), who criticizes the interpretations with first member /Anō-/ ‘up, above’ suggested by Ruijgh and Palmer. The absence of the compositional vowel *-o-* in Mycenaean is an archaism.¹²¹

The form *a-na-qo-ta* (KN B 798.4) is sometimes identified as the same person as *a-no-qo-ta* (Leukart 1994: 54 with lit.). If this is correct, the form with *a-na-* may be a mistake for the otherwise frequent name with *a-no-*, unless one wants to follow Heubeck (1972: 68-9) in the assumption that *C_r- could also be spelled with the *Ca*-series.

2. The abstract noun *a-no-qa-si-ja* ‘manslaughter’ is attested in the syntagm *e-ne-ka a-no-qa-si-ja* /eneka an_rk^{wh}asiās/ ‘on account of manslaughter’ (PY Ea 805). This syntagm has been convincingly compared with Class. ἔνεκα ἀνδροκτασίας ‘id.’ by García Ramón (2007a).¹²² The underlying pre-form PIE *h₂nr₁-g^{wh}n₁-t- may reflect traditional phraseology: cf. Ved. nr₁-hán- ‘slaying heroes’, which qualifies the Maruts’ deadly weapon.

4. A long-standing problem of Mycenaean philology is how to interpret the difference between the outcomes <to-ro-> in *qe-to-ro-po-pi* and <to-> in *to-pe-za*. Most accounts try to explain <to-> in *to-pe-za* as secondary; a number of them will be discussed in the following section. It deserves attention that Haug proposes to explain the outcome <to-ro-> in *qe-to-ro-*

¹²⁰ Probably, the word for ‘rose’ also occurs in derivatives and personal names, but not as a simplex (cf. Thompson 2002-03: 361).

¹²¹ On the collective ἀνδράποδα ‘slaves’ and ἀνδρακάς ‘man by man’ (both Hom.+), which do not seem to have a trace of the compositional vowel either, see section 7.3.3.

¹²² That the root κτα- replaced φα- < *k^{wh}a- is probably due to metrical reasons: see section 7.3.2.

as secondary. In sections 2.5 and 2.6, I will propose a different analogical model to explain /k^wetro-/.

5. *to-qi-de* ‘with a spiral’ refers to a kind of decoration used on vessels and furniture. It is generally reconstructed as **trk^wid-* or **strk^wid-*. In the first interpretation, which is the most widely accepted one (see *DMic.* s.v. *to-qi-de*), the word would be related to τρέπω. Within Mycenaean, the *o*-grade attested in *to-ro-qe-jo-me-no* /trok^wejomeno-/ ‘making tours’ (PY Eq 213) has been compared. For the *i*-stem formation, Hom. τροπὶς ‘keel’ has been cited as a parallel, but a rather incomplete one because that word has an *o*-grade. The second interpretation, proposed by Palmer, is semantically much more plausible: to derive *to-qi-de* from the root of στρέφω ‘to whirl, turn around’. Note that in alphabetic Greek, τρέπω primarily means ‘to direct’ rather than ‘to turn’, whereas στρέφω mostly denotes circular motion around a vertical axis. But however this may be, given that we are dealing with a full grade II in either case, *to-qi-de* is an important piece of evidence against a regular development **r* > Myc. *ro*.

6. *o-pa-wo-ta* (KN Sk 5670.2+, PY Sh 737+) /op-āwɔ̄ta/. Although the precise referent is unclear, it is agreed that at least part of the attestations refer to something like “‘plates’ or ‘pads’ attached to body-armour” (*Docs.*², glossary).¹²³ An accessible summary of the attestations and their contexts has been given by Vine (1994: 37-39). The pre-form **op-awɔ̄-to-* is a compounded verbal adjective containing the zero grade root of **awer-* ‘to hang, attach’ that is continued in Homer as ἀείρω. Note, however, that an analogical reshaping of the zero grade **awro-* >> *awor-* after the full grade **awer-* cannot be entirely excluded if one accepts that **r* had already vocalized in Mycenaean.

7. Concerning the reconstruction of *to-pe-za* as **tr₂-ped₂ia*, it is usually thought that the first member derives from **k^wtwɔ̄-* ‘four-’. There are, however, reasons to think otherwise (cf. Thompson 2002-03: 356-7 and section 2.5 below). Thompson sticks to the reconstruction with **tr₂-* on the basis of the internal Greek evidence, but I do not share his doubts concerning the IE origin of the word. For more details, see below.

8. Of course, *to-si-ta* is only a personal name and must be treated with care. It is traditionally compared with Hom. Θερσίτης, but would have to contain the (more original) zero grade of the root. Leukart (1994: 191-4) has suggested to analyze *to-si-ta* as a hypocoristic name derived from **T^hrsi-telēs*/. This could make sense in view of the PNs Θερσίλοχος and Arc. Θορσυλοχος (name of a man from Eastern Achaea), which contain λόχος ‘ambush, armed band’. Similarly, **T^hrsi-telēs*/ would contain τέλος in the sense ‘military unit, division’ (*LSJ* q.v., mg. I.10). This would imply that *to-si-ta* was derived from a possessive compound ‘whose unit has θάρσος’.

This analysis is quite possible, but as always in Mycenaean onomastics, it requires that we make a number of assumptions. Alternatively, it could be envisaged to derive *to-si-ta* directly from an inherited adjective **d^hrsitó-*, as reflected in Ved. *dhṛṣitá-* ‘strong’ (e.g. of weapons) and YAv. *daršita-*, which could point to the existence of such an adjective in Proto-Indo-Iranian and even earlier.¹²⁴ Although there is no further trace of this formation in Greek, this analysis works excellently from a formal perspective. It does not explain, however, the

¹²³ Vine suggests that a heteroclitic neuter **opā-wɔ̄*, **opā-wɔ̄t-* underlies (part of the attestations of) the Myc. form *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 ὄπεια” (p. 38); the second would indeed be /op-aworta/ (chest-protecting plates or pads). If Vine is right, part of the attestations of *o-pa-wo-ta* would still require the traditional analysis.

¹²⁴ The formation of the adjective **d^hrsitó-* is odd. Could it be assumed that the original form was a compound **d^hrsi-h₁i-t-* or **d^hrs-h₁i-t-* ‘going straight at’, with a by-form **d^hrs-h₁it-ó-* ‘one who goes straight at’?

form of Homeric and later alphabetic Greek Θεσπίτης (with long $\bar{\iota}$), for which the traditional analysis as a hypocoristic remains the most promising solution.¹²⁵

9. The alphabetic Greek form of this word is ῥόδον. Arguments in favor of reconstructing the pre-form of *wo-do-we* as **wṛdo-went-*, rather than **wordo-went-*, depend partly on the interpretation of the alphabetic Greek material to be provided in chapter 7. For now, it deserves attention that the reconstruction of a pre-form **wṛdo-* allows us to avoid the conclusion that the alphabetic form ῥόδον is due to liquid metathesis. The possibility is often granted that the diverging dialectal reflexes of this word are due to borrowing from a Near-Eastern source, such as an Iranian **urda-*. But although the word could indeed be of foreign origin, it seems preferable to try and explain all Greek forms from a pre-form with **r*, as long as we are not led into contradictions (cf. Morpurgo Davies 1968: 811).

10. Theoretically, the zero grade of *wo-ze* may be analogical after the full grade **werg-*. A different avatar with zero grade has been assumed in *wo-ro-ki-jo-ne-jo* (PY Er 312.7, 718.11), but I exclude this form from the evidence (see below).

2.3.2 Doubtful and irrelevant examples

1. *a-mo-ra-ma* ‘day by day’ was interpreted by Heubeck as representing /āmṛ(r)-āma/ but preferable is /āmōr-āmar/ (cf. Leukart 1987: 349ff.).

2. In *a-re-pa-zo-o* ~ *a-re-po-zo-o* ‘unguent-boiler’, Heubeck (1972: 69) suggested to derive the second form from **aleip^hr-*, but “only with reserve”. As against the commonly accepted **aleip^hη-* (see *DMic.* s.v.), Heubeck’s suggestion is uncertain and cannot be relied upon.

3. *do-ka-ma-i* ‘?’ (PY An 1282.3, Dp.) occurs on a tablet which assigns numbers of laborers to the production of certain chariot parts, such as wheels and halters. It therefore probably refers to a part of the chariot, but it is unknown to which part exactly. The following interpretations have been proposed:¹²⁶ (a) comparison with δοχμή ‘hand’s breadth’, (b) with δραχμή, the later monetary unit, as from **drk^hmāhi*. According to Chadwick (l.c.), neither option “offers satisfactory sense”. (c) A connection with δοκός ‘beam’ could make sense in the context of the tablet, but it is hard to see how a form **dokmā* could be derived from δοκός.

Alternatively, it is possible that *do-ka-ma* contains a substantivized form of the adjective δοχμός ‘oblique, slanted’. It is likely that δοχμή ‘hand’s breadth’ (com.) developed from **“the distance across (the hand)”*, and it seems quite possible that parts of the chariot frame were called ‘crosswise, oblique’ (cf. the English word *cross-beam*).¹²⁷ However, as mentioned by *Docs.*², the group of men assigned 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, including cross-beams. As long as the interpretative problems concerning *do-ka-ma-i* have not been solved, the form cannot be used in our discussion.

4. *do-qe-ja*, which occurs repeatedly on a much-discussed tablet (PY An 607), has been tentatively interpreted as /dork^wei*a*i/ ‘female reapers’ (e.g. in *Docs.*²: 167), from the root

¹²⁵ If Myc. *to-si-ta* and Hom. Θεσπίτης are not directly related, one could also account for a formal difference between Mycenaean and alphabetic Greek: if the earlier form of the name was **T^hrsitās*, it would not make sense to introduce the full grade θερσ-, because this would destroy the metrical structure of the form. If the Myc. form was already /T^horsitās/, as Leukart assumes, this difficulty would vanish. However, in my view it is more likely that Mycenaean preserved **r*, for reasons that will become clear later on.

¹²⁶ See *Docs.*²: 522. For other, implausible suggestions, cf. *DMic.* s.v.

¹²⁷ In other words, δοχμή does not from δέχομαι, as is assumed by *LSJ*. The barytone accentuation of the variant δόχη may be connected with its substantivization.

of δρέπω ‘to reap’. But other scholars think the form is a female theonym (cf. the older lit. in *DMic.* q.v.).¹²⁸

5. *mo-ro-qa* (PY, KN), the title of high officials notably at Pylos, has been compared by Mühlestein (1958) with the classical form βράβης, a variant of βραβεύς ‘arbiter’. Since the word has no etymology and the equation is not clear-cut, there is no way to test whether either of these words had **r*. For the same reason, Palmer’s alternative interpretation as /mo(i)ro-kkwā-/ ‘holder of a plot’ (see *DMic.* q.v. with references) remains uncertain too.

6. *pa-wo-ke*, *pa-wo-ko* (both PY), appellatives denoting female persons, have been interpreted as containing a second member /-wrges/, /-wrgōn/. While this is possible in principle, it is problematic that no convincing interpretation of the first member has been given so far. Possibilities include /pan-/ (cf. class. πανούργος ‘criminal’), /par-/ (cf. class. πάρεργον, παρεργάτης), and /p^harwo-/ (cf. Myc. *pa-we-a₂* Hom. φάρεα ‘clothes’).¹²⁹ We may safely leave the form away from the evidence, because it adds nothing new to the information provided by *wo-ze*.

7. *to-mi-ka* (KN, of clothing) has been interpreted as /tor-miska/ ‘vierfädig, viergezwirnt’ by Mühlestein (1968: 115, also *apud* Morpurgo Davies 1968: 813). He suggested that <to-> <**t₃*- ‘four’ is the same element found in *to-pe-za*, and compared the Pamphylian gloss τριμίσκον· ἰμάτιον. Ασπένδοιοι (Hsch.), which would contain the numeral ‘three’ and originally mean ‘dreifädig’. He compares the second member /misko-/ ~ -μίσκον with the root of class. τρίμιτος ‘woven from three threads’, and assumes that syncope took place in an original *-*mitisko*-. He finds the Mycenaean pendant of the Pamphylian gloss in the broken attestation *ti-ri[mi-ka]* (KN Ld 788 A, on the B-side of which he restores find *pa-we[-a₂]*), which in his view shows that **t₃*- developed out of **k^wtwr*- ‘four-’. Needless to say, this proposal is far too speculative to be used in the present discussion (cf. the remark by Thompson 2002-03: 357).

8. *tu-ka-t₃-s₃* /t^hugatorsi/ ‘daughters’ (reading by Mühlestein and Lejeune, accepted by Heubeck 1972), *tu-ka-t₃-s₃* /t^hugatarsi/ (reading accepted by most other scholars). As Haug remarks, this is a ‘lecture peu sûre sur laquelle il serait imprudent de fonder une théorie’ (2002: 59).

9. The Dp. *u-do-no-o-i* (PY Fn 187.13) refers to male individuals. It is generally supposed that the second member /-noho-/ derives from the root of νέομαι ‘to return’, and that the compound means something like ‘who bring in water’. It is often assumed that the first member represents the outcome of **ud₃*- ‘water’ (cf. *DMic.* l.c., Bartoněk 2003, index), but this is unlikely if **ŋ* yielded Myc. -o- in a labial environment only (cf. section 1.3.2). Heubeck interprets the form as /ud₃-no^hoi^hi/. However, no interpretation of the tablet context has found general acceptance (see the discussion of various proposals in *DMic.* s.v.), which leaves the proposal a mere possibility.

10. 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) are clearly similar to the later, classical expressions τὰ ὑπεράκρια ‘the highlands’, οἱ Ὑπεράκριοι ‘inhabitants of the poor highlands of Attika’, i.e. ‘which lies (or: those who live) on the other side of the hilltops’. Heubeck proposes to interpret *u-pa-ra-* and *u-po-ra-* as variant spellings representing one and the same underlying form /upr(r)-a^o/. The zero grade

¹²⁸ Chadwick (o.c.) comments that ‘the word will perhaps mean ‘picker’, possibly ‘reaper’ or ‘gleaner’.’ This proposal could be attractive because μαλοδρόπηες ‘apple-reapers’, which presupposes a simplex agent noun *δροπεύς ‘reaper’, is attested in Sappho. (As *Docs.*² remarks, a man’s name *do-qe-u* is attested in KN B 804, but its appurtenance to the word in question is uncertain.) It might be objected, however, that the etymological connection of δρέπω with the Slavic root of SCr. *dřpati* ‘to tear’, Cz. *dřpati* ‘to pick, scratch, crumble’ precludes a labiovelar in Mycenaean. If the reconstruction of *do-qe-ja* as **d₃k^w-ēw-ya*, the motional feminine of an agent noun δροπεύς, is correct, the form provides another argument against -ro- as the regular outcome of **r*.

¹²⁹ The latter has been proposed by Bader (1965: 163ff.), followed by Morpurgo Davies (1968: 812). However, a first member /p^harwo-/ is extremely unlikely because both Myc. *pa-we-a₂* and Hom. φάρεος are *s*-stem forms.

first member **upr* must in his view be compared with Pamph. ὕπαρ. The reintroduction of **upr*, of which the form with *u-po-ra-* would be the regular spelling, is supposed to be due to the “analogical effect of other compounds in which the second part had an initial consonant” (1972: 67). The form *u-pa-ra-* is supposed to have been written by a scribe who heard [upra-]. Heubeck gives a similar interpretation of the PN *a-no-ra-ta* as /Anr(r)-altās/ ‘feeder of heroes’.

In my view, this interpretation is unlikely: *r* was an allophone of *r* in the position between two consonants, and there never was a phoneme /r̥/ distinct from /r/. An alternative to Heubeck’s assumption is the following. If we suppose that *u-pa-ra-ki-ri-ja* /upr-akria/ represents the regular outcome of the Proto-Greek pre-form **upr-akria*, *u-po-ra-ki-ri-ja* can hardly have been an alternative realization. The synchronic form of the preposition may have been /upor-/, e.g. by analogy with /upo-/ or by regular development of word-final **-r*. It cannot be excluded, then, that /upor-/ was introduced in *u-po-ra-ki-ri-ja*.¹³⁰ This explanation of *u-po-ra-ki-ri-ja* has also been suggested, be it with reservation, by Thompson (2002-2003: 363-65); he also extensively discusses other possible interpretations, and conveniently summarizes the literature on the alleged phenomenon of anaptyxis in Mycenaean.

11. *wo-ne-we* (PY Cn 40.2, 643, 719), Np. msc. of an adjective, describing flocks of sheep. It has been analyzed by some scholars as /wornēwes/ and would consequently belong to ἀρήν, ἀρνός ‘lamb, sheep’, deriving from a pre-form with **wɹn-*. This interpretation is impossible because the root of this word was actually **urh₁-* (cf. Beekes 1988a: 74), and ἀρνός must be analogical after the Ns. ἀρήν < **urh₁-ēn* (cf. κύων ‘dog’, Gs. κυνός). Other scholars have interpreted *wo-ne-we* as /woinēwes/ ‘wine-colored’, but the value of such interpretations remains unclear (cf. *DMic.* s.v. and Bartoněk 2003, indices).¹³¹

12. *wo-ro-ki-jo-ne-jo* ‘?’ (PY Er 312.7, 718.11) has been interpreted as /wrogiōneion/, supposedly from the zero grade root **wɹg-* of *wo-ze* ‘works’.¹³² It is an adjective which qualifies plots of land (*ka-ma* or *e-re-mo*) and seems to be derived from a base form in *-iōn-*. However, the semantics of the context are unclear, and it has also been suggested that the underlying form is a PN **Wroikiōn-* who was the owner of the plots in question (see Thompson 2002-03: 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 as /wroneia/ ‘of lamb’, comparing class. ἀρήν, is adopted by many scholars (see *DMic.*, s.v., and Thompson 2002-03: 357-8). But this is impossible because the root contained a laryngeal (see above on *wo-ne-we*).¹³³ Further, the interpretation /wloneia/, from **wolno-* > class. οὔλος, “with the metathesis seen in the by-

¹³⁰ See section 1.2.3 on the outcome of word-final **r*. For an analogical final vowel in prepositions, cf. Myc. *pa-ro* /paro/ beside class. παρά.

¹³¹ The formation in *-e-we*, in combination with the adjectival semantics, could be taken to point to a *u*-stem adjective. I think of an interpretation /wolnēwes/ or /wɹnēwes/, from an ablauting *u*-stem adjective **welnú-*, **wɹnéw-* which would belong to the root of εἴλωμαι ‘to throng, be compact’. It would form a nice counterpart to Hom. ἀλλέες ‘thronged, all together’ < **smi-wɹn-es-* (on which see section 10.5.2). Semantically, this fits the attestations of *wo-ne-we* fine, because the Cn-tablets deal with flocks of small cattle (cf. the analysis of these cattle inventories in Palmer 1963: 164ff.). From the same root is probably derived Hom. οὔλος ‘thick, compact, woolly’ < **wolno-*, qualifying animal hair and wool. It must be admitted, however, that a number of details of interpretation of the three tablets on which *wo-ne-we* occurs are unclear. This analysis would require that the vocalization of **j* took place after the development of intervocalic **-ln-* to *-ll-*, because *o-pe-ro-si* /op^hellonsi/ does not have *-ln-* anymore in Myc. This chronology is, of course, quite possible.

¹³² Cf. the discussion by Bader (1965: 17-19, following Palmer), who shows that *wo-ro-ki-jo-ne-jo* cannot be compared with alphabetic ὀργίον, since that form probably stands for ὀργειών, an older form of ὀργεών < **worgāwon-*. Bader’s assumption of metathesis in *wo-ro-ki-jo-ne-jo* /wrogiōneyo/ from earlier **worg-* is led by her desire to connect the form with the root **werg-* ‘to do, perform’. But nothing assures this connection, because the interpretation of the context remains unclear in both attestations.

¹³³ The notation **/uɹ(h₁)en-* adopted by Hajnal (2006: 205) is illustrative for the embarrassment.

form λῆνος < *wlānos?'' (Docs.²: 322), is hardly understandable. If Chadwick means that *wolno- may have been reshaped to *wlono- under the influence of wlānos-: this cannot be entirely excluded, but does not seem very likely.

From this overview of the evidence, it appears that the strongest candidates to contain the regular outcome of **r* (section 2.3.1) have the spelling <Co->. These are: *a-no-me-de* /Anṛ-mēdēs/, *a-no-qa-ta* /Anṛ-k^{wh}ontās/, *a-no-qa-si-ja* /anṛ-k^{wh}asiā-/, *ma-to-pu-ro* /Māṛ-pulos/, *to-pe-za* /tṛ-pedd^ya/, *to-qi-de* /strk^{wh}idei/, and possibly *wo-do-we* /wṛdo-wen/. On the other hand, the interpretation of *mo-ro-qa*, *wo-ro-ki-jo-ne-jo*, and *wo-ro-ne-ja* remains unclear. If *qe-to-ro-po-pi* can be explained in a different way, we may conclude that syllabograms of the type <Co-> write the regular reflex of **Cr*.¹³⁴

2.4 Previous explanations of *qe-to-ro-po-pi* versus *to-pe-za*

Before proposing my solution, I will now first review three previous attempts to explain the difference between *qe-to-ro-po-pi* and *to-pe-za*: (1) liquid metathesis in *to-pe-za*, (2) analogical explanation of *to-pe-za*, (3) an accent-conditioned development.

2.4.1 Liquid metathesis

Variations like *to-no* ~ *to-ro-no*- have been interpreted by Risch (1966) as a means to distinguish *mycénien spécial* from *mycénien normal*. In his view, the variant with *-or-* has undergone metathesis and is characteristic for Pylos, whereas the original form with *-ro-* is characteristic for Knossos.¹³⁵ He connected the supposed metathesis in *to-no* with the anaptyxis of *-o-* in forms like PN *o-pe-to-re-u* ~ *o-pe-te-re-u*: both phenomena would be due to the avoidance of clusters consisting of stop plus liquid.

More recently, Risch's hypothesis has been analyzed by Thompson (2002-03: 259), who rejects the evidence for liquid metathesis in words which originally contained **r*. It has been supposed that the loss of *-w-* in *to-pe-za* can only be explained if an intermediate stage was **tropedja* < **twropedja*, where the glide was lost in front of a consonant. If so, *to-pe-za* /torpedd^ya/ would be an instance of liquid metathesis. However, Thompson remarks that this analysis can only be upheld if a chain of assumptions is made concerning the original form of the word. Generally, he concludes 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." (2002-03: 366). Although I severely doubt that there is any evidence for liquid metathesis in Mycenaean at all (note that all the alleged examples contain the vowel *o*), I agree with Thompson on his conclusion about words with etymological **r*.¹³⁶

In connection with the Mycenaean material, it has been repeatedly remarked that liquid metathesis is found in many languages, and that it may apply irregularly.¹³⁷ But when invoked *ad libitem*, an irregularly operating liquid metathesis has no real predictive or

¹³⁴ Whether it stood for *r* or *or* cannot be decided on the basis of Mycenaean alone; I will return to this issue in section 2.7 and in chapter 7.

¹³⁵ In Hajnal-Risch (2006: 102-3), Hajnal seems to suggest that *qe-to-ro-* can be analyzed as a metathesized form, whereas the regular form should be seen in *to-pe-za*. This is apparently based on a misunderstanding of Risch's original doctrine.

¹³⁶ Cf. Thompson's seemingly ironic remark that "the reflexes of **r* provide a fertile ground for looking for examples of liquid metathesis" (o.c. 356), suggesting that liquid metathesis cannot be the correct solution.

¹³⁷ Later, Risch repeated this view with the following comment: "... die Liquidenmetathese ist auch in späteren griechischen Dialekten, aber auch in anderen Sprachen häufig, z.B. Homer κραδίη und καρδίη, vgl. auch dtsh. *Brunnen* - *Born*. Für eine Dialektklassifizierung eignet sie sich nur selten, so im Slavischen, wo z.B. *gród* fürs Polnische, *górod* fürs Ostslavische und *grad* fürs Südslavische charakteristisch sind (...)" (1979: 99). Cf. also Thompson (2002-03: 362), Hajnal-Risch (2006: 203).

explanatory power.¹³⁸ If the Mycenaean facts can be explained by sound change and analogy – and they can – we need not take refuge in this *asylum ignorantiae*.

2.4.2 Ruijgh’s analogical explanation of *to-pe-za*

The hypothesis that the four main dialect groups of Greek already existed in the middle of the second millennium is based on the vocalization of the syllabic liquids (section 1.1.1). Ruijgh stated his arguments for this view, and against Heubeck’s hypothesis of retained *r*, as follows: “L’arcado-chypriote et l’éolien présentent *op* et *po* comme substitués de *r* dans les mêmes conditions où l’ionien-attique et le grec occidental ont *ap* et *pa*; ainsi, l’arcadien fournit *τέτορ-τος* répondant à att. *τέταρ-τος*. Il est donc évident que la distinction graphique du type *to-ro* : *to* répond à la distinction phonologique *τρο* : *τορ*, conformément aux règles orthographiques du mycénien (...)” (1978: 420).

Ruijgh apodictically claims that the place of the anaptyctic vowel is, in principle, the same in all four major dialectal groups. But this claim is not borne out by the evidence. In a number of cases, Aeolic dialects have *-po-* where Ionic has *-ap-*, e.g. Lesb. *αμβροτην* ‘to transgress’ beside Ion.-Att. *ἀμαρτεῖν*. Particularly embarrassing are Thess. *πετροτος* and Boeot. *πετρατος* beside Arc. *τετορτος* and Ion.-Att. *τέταρτος*.

Since Ruijgh accepts that *-ro-* is the regular outcome of **r*, he contrives a special explanation for *to-pe-za*. This isolated lexeme would have acquired *-or-* by analogy with the cardinal **k^wetortos*, whereas *qe-to-ro*° /*k^wetro-*/ would be the regular development of **k^wet(w)r-*. But the place of the anaptyctic vowel in the cardinal **k^wetortos*, which is actually unattested for Mycenaean, requires an explanation itself. Here, Ruijgh assumes that the vowel slot was adapted from an older form *tur-* that was once present in the ordinal **τυρτός* ‘fourth’, a form which in his view underlies the PN *Τυρταῖος* (e.g. Ruijgh 1992: 87 with n. 32, 1996: 117). This emergency solution for *to-pe-za* is highly unsatisfactory.¹³⁹ It is unlikely that a morphologically opaque form **/tro-* was replaced by another opaque form */tor-* that was taken from the ordinal **k^wetortos*, which itself is supposed to be analogical. If the first member of *to-pe-za* would have been restored, one would expect to find the synchronically productive compounding allomorph *qe-to-ro*°.¹⁴⁰ Thus, *to-pe-za* cannot be readily explained by analogy if *-ro-* was indeed the regular outcome of **r*. As we will see, a much better candidate to have undergone analogical reshaping is *qe-to-ro-po-pi*.

2.4.3 Klingenschmitt’s accent-conditioned explanation

Departing from a regular development **r* > Myc. *ro*, Klingenschmitt has proposed to explain *to-pe-za* by a further conditioning: “Die mykenische Form des Wortes für ‘Tisch’, *to-pe-za* [**tórpeza*] zeigt gegenüber späterem *τράπεζα* sogar die lautgesetzliche Vertretung von betontem *r* im Wortinlaut; ebenso ist wohl myk. *wo-ze* [**wórzei*] < **urǵie-i* zu beurteilen. Das spätere *τράπεζα* hat *ra* wohl analogisch aus ursprünglich endbetonten Formen des Paradigmas

¹³⁸ The following remarks by Hajnal are illustrative: “Im einzelnen bleibt es allerdings schwierig zu entscheiden, in welchen Fällen wirklich Metathese vorliegt, oder wo */or/* bzw. */ro/* lautgesetzlich sind, da ersteres akzentuiertes **/r̥/*, letzteres unakzentuiertes **/-r̥-/* bzw. **/-r̥-’/* fortsetzt.” (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.” (ibid. 103)

¹³⁹ Perhaps, there is a reason why Ruijgh erects this unlikely construction. He wants a development **r* > *-or* in word-final position, in order to explain the *o*-vocalism in the neuter *n*-stems. Even so, it could be assumed that Mycenaean had the word-final development to *-or* and at the same time preserved **r* in word-internal position. For the syllabic nasals, see section 1.3.2.

¹⁴⁰ For arguments in favor of deriving **tr-* from ‘three’, see section 2.5.

(Gen. Sg. **trapezās* usw.) bezogen” (1974: 275-76).¹⁴¹ In other words, he supposes that secondarily accented **r̥* yielded *or* or *ar* in all Greek dialects, whereas unaccented **r* yielded *ro* or *ra*.

In his article, Klingenschmitt did not discuss the Mycenaean evidence in full. Assuming that the Limitation Law operated before Mycenaean¹⁴², the following examples form potential counterevidence against the accent-conditioned rule (in alphabetical order):¹⁴³ PNs *a-no-me-de* /Anṛ-médēs/, *a-no-qa-ta* /Anṛ-k^{wh}óntā/, *a-no-qa-si-ja* /anṛ-k^{wh}asīā-/ ‘manslaughter’, *o-pa-wo-ta* /op-áwrta/ ‘pads or plates attached to armor’, *qe-to-ro-po-pi* /k^wetró-popp^{hi}/ ‘cattle’ < **k^wet(w)r̥-pod-*, PN *to-si-ta* /T^hrsítās/, *wo-do-we* /wṛdówen/ ‘rose-scented’.

It is true that not all these counterexamples are equally compelling. The Myc. form of the simplex ‘rose’ is unattested, but was probably root-accented, just like alphabetic Greek *ródon*. It is also possible to argue that *o-pa-wo-ta* is analogical for **awrota* after the full grade **awer-*. Serious counterevidence, however, is the difference between *a-no-me-de*, *a-no-qa-ta*, *a-no-qa-si-ja* (all with unaccented **r̥*) and the corresponding classical forms with *ἄνδρο-*, *ἄνδρο-*. Since names with a second member in *-andr-* are frequent in the tablets (e.g. *a-re-ka-sa-da-ra* /Aleks-andrā/), and since *andr-* must have been the oblique stem of the simplex, I do not believe that the first member *a-no-* can be analogical after compounds in *-ήνωρ*.¹⁴⁴ If a first member **andro-* had come into existence by regular sound change, there would have been no clear motive to replace it. It is also questionable to assume that *qe-to-ro-* was generalized from compounds with an accented second member. Possessive compounds generally have a recessive barytone accent in Greek, and most of them would have had an accented first member.

In his discussion of the evidence for *-ro-* and *-or-* from **r̥*, Hajnal (Hajnal-Risch 2006: 102-3, 202-205) concludes that the evidence cannot be explained in its entirety by the accent-conditioned development. However, his assumption of irregular liquid metathesis in forms like *a-no-me-de* and *qe-to-ro-po-pi* is designed merely to save Klingenschmitt’s rule, and may be safely discarded.¹⁴⁵ In fact, the accent-conditioned development itself hardly has explanatory power. Consider the following examples, which according to Hajnal (Hajnal-Risch 2006: 102 n. 182) could be explained with the accent-conditioned development:¹⁴⁶

1. *wo-ze* ‘works’ and other present stem forms of the same verb. This depends on whether verbs had already acquired recessive accent at this stage (**uṛg̃-je/o-*), which seems likely but cannot be proven. The present stem *wo-ze* can be explained without a problem if <Co-> writes the regular reflex of **r̥*. Hajnal’s derivation of *wo-ro-ki-jo-ne-jo* from this root as /wrog̃ionejon/ “(ein bestimmtes Grundstück)” is too uncertain to rely upon: see above.

2. According to Hajnal, who adopts the reconstruction **d^hr̥no-* for Myc. *to-no* beside Hom. *θρόνος* ‘chair, throne’, the compound *to-ro-no-wo-ko* (KN As 1517.11) /t^hrono-worgoí/ would have the regular development in unaccented position. Apart from the fact that one would expect *to-no* to be restored if the compound means ‘chair-makers’, we have already seen that *to-ro-no-wo-ko* may contain a different etymon (Hom. *θρόνα*). In my view, *to-no*

¹⁴¹ See section 1.4.1 for the problems with applying this rule to alphabetic Greek. Klingenschmitt’s account has been followed in a considerable number of subsequent discussions, e.g. Leukart (1994: 54 n. 23), Thompson (2010: 190).

¹⁴² This assumption potentially affects only the forms *o-pa-wo-ta* and *qe-to-ro-po-pi*.

¹⁴³ The material has been gathered from Hajnal-Risch (2006: 102-3, 202-205).

¹⁴⁴ Cf. also *a-di-ri-ja-te* /andriantei/ ‘with a man’s figure’, which was probably based on an adjective /andrio-/ < PGr. **anr-io-*.

¹⁴⁵ This also applies to the analysis by Thompson (2002-2003), discussed in section 2.4.1.

¹⁴⁶ In the PN *ke-ro-ke-le-we-o*, Gs. /K^herro-kléwe^hos/ ‘Hand-Famous’ (PY Sa 487), Hajnal assumes a pre-form **k^hes-r-*, but a compositional thematic vowel cannot be excluded.

does not derive from a pre-form **dʰrno-*, but even if this reconstruction would be correct, the hypothesis that <Co-> writes the regular reflex of **r* explains the material as well.

Thus, there are no cases where the accent-conditioned rule helps us to explain the Mycenaean reflexes of **r*. On the contrary, a number of forms remain in need of yet another analogical explanation, among them *qe-to-ro-po-pi*. Since Klingenschmitt's rule seems to have been devised precisely in order to explain the difference between *to-pe-za* and *qe-to-ro-po-pi*, we may safely reject his proposal.

It has already become clear that *to-pe-za* is a hard nut to crack if <Co-ro-> is assumed to write the regular reflex of preconsonantal **Cr-*. I will therefore depart from the simple hypothesis that the spelling <Co-> writes the regular outcome of **Cr*, and that all evidence for <Co-ro-> must be explained in a different way. I will now argue that *qe-to-ro-*, like Hom. τετρα-, has an analogical vowel after other compounding first elements (Myc. *e-ne-wo-*, Hom. πεντα-, ..., δεκα-).

2.5 Ion.-Att. τέταρτος and the reduction of **-tw-*

In order to make an analogical origin of *qe-to-ro*° plausible, I will now consider the Homeric and alphabetic reflexes of 'four'. The key question is: how can we explain the loss of the glide *-w-*, which supposedly took place both in *qe-to-ro*° and in *to-pe-za*?

In the paradigm of PGr. N. **k^wetwores* 'four' and related formations, there are three forms which have no trace of the labial glide: the dative **k^wetr̥si* > τέτρασι (Hes.+), the first member **k^wetr̥-* (Ion.-Att. τετρα-, Myc. *qe-to-ro*, Thess. πετρο-), and the ordinal **k^wetr̥to-* (Hom. τέτατος, Ion.-Att. τέταρτος, Arc. τετορτος, Thess. πετροτος). Most previous treatments of these forms departed from the assumption that the loss of *-w-* occurred only in front of a consonant, and never in front of syllabic segments. Klingenschmitt reasons as follows: "Es gibt nun sogar ein zwingendes Argument, welches die Annahme einer mykenischen Vertretung von ursprünglichem wortinlautendem *r* als *or/ro* unumgänglich erscheinen lässt. Mykenisch **k^wetro-* (*qe-to-ro-po-pi*) < **k^wetr̥-* und **tór-* (*to-pe-za*) < **k^wtur̥-* können indogermanisches *μ* nur bei Vorliegen einer Gruppe *tw* (< idg. *tū*) + konsonantischem *r* eingebüsst haben: **k^wetr̥-* > **k^wet^wrə-* > **k^wetro-*; **k^wtur̥-* > **twrə-* > **tro-* (urgriechisch etwa **traped'ĩās*); danach analogisch **tor-* für **twor-* (**twārpēd'ia*)."¹⁴⁷

The argument supposes that *-w-* was lost only after **r* had vocalized as *-pa-* or *-ro-*. This would indeed explain the forms τέτρασι, τετρα-, Myc. *qe-to-ro*, and τέτατος. However, it requires that we make a number of additional assumptions. In order to explain *to-pe-za*, Klingenschmitt needs to assume leveling of a paradigm **twórpedia*, G. **tropediās* to **tórpedia*, G. **tropediās*, then to **tórpedia*, G. **torpediās*. This would mean that neither *to-pe-za* nor *qe-to-ro-po-pi* is the regular outcome of its pre-form, which is theoretically possible but not very likely.

Furthermore, it presupposes that Ion.-Att. τέταρτος and Arc. τετορτος are secondary forms, and that the regular outcome of the ordinal form is reflected in τέτατος. This is hard to accept for three reasons. First, there was no motive to replace a regular outcome τέτατος, because this form would have been protected by the first member τετρα-. There is no clear model for the replacement either: a proportional analogy with the cardinal would normally have yielded Att. ⁺⁺τέτταρτος (etc.).¹⁴⁸ Secondly, a stem τεταρ- is not found elsewhere, and an analogy which eliminates a perspicuous stem form (τετρα-) with a novel one (τεταρ-) is hard

¹⁴⁷ Cf. more recently Thompson (2010: 190): "The cluster **tw* before a consonant has simplified to *t* in e.g., *qe-to-ro-po-pi*, *k^wetropopp^hi* "four-footed animals" (instr. pl.) < **k^wetwropodp^hi* < **k^wetw̥ropodp^hi* (showing that this simplification must postdate the changes to *r*) (...)"

¹⁴⁸ Cf. Hirt (1901: 235): "Nach Brugmann (...) hat τέταρτος sein einfaches τ von τέτρα bezogen (...). [Aber hätte es ein **τέτταρτος* gegeben, so wäre es wohl durch τέταρες gehalten." Influence of a hypothetical **τυρτός* on τέτατος (proposed by Ruijgh, e.g. 1996: 117) cannot be upheld either.

to sustain. Thirdly, the *a*-vocalism of τέταρτος cannot have been taken from the cardinal form (Att. τέτταρες, Hom. τέσσαρες), because τέσσερες occurs beside the ordinal τέταρτος in Eastern Ionic.¹⁴⁹ The same argument applies to Arcadian, which has τεσσερες beside τετορτος.¹⁵⁰ Thus, it is doubtful that τέταρτος was replaced by τέταρτος on the basis of the cardinal in any Greek dialect, let alone in three dialects independently. Anticipating my explanation for the poetic form τέτρατος, I conclude that Ion.-Att. τέταρτος and Arc. τετορτος are the regular outcomes, in these dialects, of the Proto-Greek ordinal form **k^wetwɾto-*.

Since PIE **-tu-* turns up before a consonant as **-tu-*, not as **-tw-*, the condition “before consonant” proposed for the reduction of **-tw-* is uninformative.¹⁵¹ All instances of the reduction of **-tw-* before a surfacing consonant contain an underlying prehistoric **ɟ*. Therefore, I propose that the condition for the reduction was **tw > t | _ɟ*, and that this sound change took place prior to the vocalization of **ɟ*. The loss of a labial segment between two non-labialized phonemes is phonetically natural (note that labialized rhotics are difficult to realize, and typologically rare). The *-w-* was preserved in front of a vowel in most case forms of the cardinal: Ion. and Arc. τέσσερες, Att. τέτταρες (with secondary *-α-*), etc.¹⁵²

A seeming objection to this scenario is σάρξ ‘meat’, where **tw-* was not reduced to *t-* in front of **ɟ*. The pre-form of σάρξ is PIE **turk-*, which regularly vocalized as **turk̑-* in Greek.¹⁵³ Why did this form not develop into ⁺⁺τάρξ? There are two ways to proceed. First, one could think that a full grade form of the root was around in Greek. In Schindler’s view (1972: 34), Aeolic and Doric σάρξ (attested in glosses like σύρκεσι· σαρκξίν· Αιολειξ Hsch.) point to a full grade form **tuork-* elsewhere in the paradigm, with *o > u* by Cowgill’s Law.¹⁵⁴ It could then be assumed that a paradigm Np. σύρκες, Dp. **ταρξί* was first leveled to σύρκες,

¹⁴⁹ The regular form in Herodotus and in Ionic inscriptions is τέταρτος. The Magnetian form τετταρ[τ]ος is explained by Nachmanson (1904: 146-7, who calls the form “ominös”) as due to influence of τετταρακοστην in the previous line. That form is probably due to Attic influence. A similar form is read in Miletus: see Scherer (1934: 58), who thinks that it may have been “durch das Kardinale beeinflusst”. But since the cardinal had *-σσ-* in Ionic, we may have to reckon with incidental geminate spellings.

¹⁵⁰ See section 3.5.3. Morpurgo Davies states that “we expect for the Arcadian ordinal an original **τέτροτος* (or **τέτρατος*) because otherwise it would be impossible to justify the presence of a single τ instead of the geminate *-ττ-* expected as a treatment of the cluster **-tu-*” (1968: 795). This argument is invalid, because it depends on the relative chronology (see below).

¹⁵¹ It is possible that prevocalic PIE **-tu-* had already become monophonemic **-t^w-* early in Greek. When I write **-tw-* in reconstructed forms that postdate Proto-Greek, I do not mean to exclude this possibility.

¹⁵² An additional advantage of this scenario is that it may explain the West Greek cardinal form τέτορες. The loss of **-w-* in this form has been ascribed to a dissimilation against the initial **k^w-* (Szemerényi 1960: 148), but this dissimilation did not take place in the cardinal form in other dialects. In the *Grundriss* (II 2, 13), Brugmann already assumed that WGr. τετορες was influenced by τετρα- and τέτρατος, which seems much more logical. Of course, Brugmann also departed from the assumption that the vocalization of **ɟ* to *-α-* preceded the loss of digamma. Within the present scenario, we may simply assume that the ordinal form **k^wetɾto-* and the first member **k^wetɾ-*, perhaps assisted by case forms with single *-t-* like G. **k^weturōm* (cf. Lillo 1990: 15-16), influenced the old nominative form of the cardinal **k^wetwores* to become remodelled to **k^wetores* in West Greek.

¹⁵³ The Greek vocalization of **CurC*, **CunC* as *CɹC*, *CɿC* has been variously explained. Ruijgh (1992: 78) refers to a “règle de Beekes” (referring to Beekes 1985: 134-135), which states, in Ruijgh’s terms, that the semivowel is always vocalized in a sequence of semivowel (*i*, *u*) plus semiconsonant (liquid or nasal) between two consonants, (e.g. not only **klut-*, **krit-*, but also *-um*, *-im*, *link^w-* rather than *-ɿm*, *-ɿn*, *lɿnk^w-*). This goes against the rule formulated by Edgerton and Schindler that the second of two resonants always vocalizes. Beekes departed from the two Vedic Ap. endings *-yas* and *-ias*, a problem which certainly deserves consideration. But since syllabification was subphonemic (and therefore automatic) in PIE, and since this automatic vocalization could change in the daughter languages, the Greek evidence for *CɹC*, *CɿC* may also be due to a post-PIE resyllabification. There is no need to insist, with Ruijgh, on analogical origin of such sequences within Greek. Moreover, the issue is not strictly relevant for the present discussion, because forms like **k^wetwɾto-* are post-PIE creations in any case.

¹⁵⁴ The form σαρκ- is ascribed to Aeolic in most lexicographical sources, but to Doric (“Δωριεῖς”) in EM 708.33. See Vine (1999) on Cowgill’s Law in connection with σάρξ.

σαρξί, and then to σάρκες, σαρξί in Ionic. But it is perhaps not very likely that the root had ablaut in Greek, given that Lubotsky (1994) has pointed at the general lack of evidence for a full grade in other reflexes of this PIE root.¹⁵⁵ The forms σύρκες and σάρκες could also be due to dialectally different vocalizations of a pre-form PGr. **t^swrk-*.

A second option is to depart from the different development of **tw-* in word-initial position. Apart from σάρξ, two examples prove that the underlying affricate **t^s-* < **t^sw-* was reduced to *s-* relatively early.¹⁵⁶ The adjective σάος ‘safe and sound’ < PGr. *twáwo-* has *σ-* in all dialects, and Att. σάττω ‘to stuff’ PGr. < **twḥk-je/o-* is also found in Cret. συνεσσακσαι = συν-εκ-σάξαι (see Bile 1988: 145). This may be contrasted with the development of word-internal **-tw-*, which yields *-ττ-* in Attic τέτταρες. In other words, word-internal **-tw-* behaves like **-k_i-*: both groups yield *-σσ-* in Ionic and most other dialects, but *-ττ-* in Attic, Boeotian and Cretan.¹⁵⁷ In word-initial position, on the other hand, **tw-* > *σ-* contrasts with the development of **k_i-*, which yields Attic τ-, but Ionic σ- (as in τήμερον ‘today’, beside Ionic σήμερον; cf. also Att. τῆτες ‘this year’, Myc. *za-we-te* /kyā-wetes/ ‘this year’s’).¹⁵⁸ Thus, the reflex of **tw-* has merged with that of **t_i-* in alphabetic Greek: cf. σέβομαι ‘to revere, honor’ < **t_ieg^w-e/o-* (Skt. *tyaj-* ‘to abandon, give up’), attested in both Ionic and Attic. This implies that the reduction **tw-* > *σ-* is probably due to an early sound-change that was Proto-Ionic, perhaps even Pan-Greek, and prior to the reduction of word-internal **-tw-* in front of *r*. The merger of **tw-* and **t_i-* could be explained by an intermediate affricated stage **t^sw-* that was reduced to **t^s-* only in initial position. In intervocalic position, on the other hand, **-tw-* (or **-t^sw-*) may have remained stable for a longer period. In this way, the different treatment of σάρξ < **s_rk-* < **t^srk-* can be explained. Note, in passing, that σάρξ points to **r* > *-αρ-* as the regular development in Ionic-Attic.¹⁵⁹

If correct, this analysis has repercussions for the etymological origins of the word for ‘table’. The comparison between Ion.-Att. τράπεζα and Myc. *to-pe-za* allows us to reconstruct the first member as **tr-*. Most scholars assume that **tr-* is a reduced form of the numeral ‘four’, with a double zero grade **k^wtu_r-*.¹⁶⁰ In the first place, this conflicts with the commonly accepted interpretation of τρυφάλεια ‘(kind of) helmet’, which is compared with τετράφαλος

¹⁵⁵ Note Schindler’s formulation (ibid.): “Puisque *CarC* pour *CraC*, mis à part quelques cas qui ne sont pas clairs, est normalement dû à *CerC* ou *CorC* dans des formes apparentées, il est légitime d’expliquer σύρξ comme issu de **twork-*, avec *u* au lieu de *o* au voisinage d’un labiale.” Given that the traditional explanation for *-αρ-* referred to by Schindler will appear to be untenable in the following chapters, one wonders whether Schindler’s assumption is still legitimate, especially in view of Lubotsky’s arguments. Vine (1999) favors Schindler’s explanation.

¹⁵⁶ The reflex of σάος > Ion.-Att. σῶς ‘safe and sound’ < **twawo-* is found in most dialects, cf. dialectal West Greek forms with *σα-*. A reflex of σάττω ‘to stuff, coerce’

¹⁵⁷ An affricate stage is still preserved in Cretan, cf. Bile (1988: 142-46).

¹⁵⁸ The **k_iā-* of **k_iā-wetes* may have been taken from **k_iāmeron* < **ki-āmero-*.

¹⁵⁹ Thus, North Greek may have preserved the difference between the original onsets **tw-* and **t_i-* when these had already merged into **t^s-* in this position in South Greek. North Greek then solved the problem of vocalization posed by **t^swrk-* by a resyllabification **t^surk-* > *σρκ-*. In South Greek, on the other hand, the reduced form **t^srk-* eventually vocalized as *σρκ-*. Another example of a dialectally differing anaptyctic vowel is Boeot. βανά ‘woman’ beside γυνή in all other dialects. Here, it is South Greek which has an anaptyctic *-u-*, but this does not contradict the distribution between σάρξ and σύρξ. First of all, the anaptyctic vowel in βανά and γυνή is due to the fact that the word was a monosyllable. Secondly, the labiovelars may have remained intact longer in South Greek, so that North Greek introduced the anaptyctic vowel into a form **bnā*, and South Greek into **g^wnā*. See further section 9.6.

¹⁶⁰ See, for instance, the list of references in *DMic.* s.v. *to-pe-za*. Thompson remains sceptical of the connection with ‘four’, “both from the point of view of the *realia*, and because of its phonological difficulties” (2002-03: 357). On Mühlestein’s analysis of Myc. *to-mi-ka*, see section 2.3.2 above.

‘with four φάλοι’ (cf. *Lfgre* s.v.) and derived from a form starting with a metathesized PIE $*k^wtru-$ < $*k^wtur-$.¹⁶¹ The following scenario could then be envisaged:

1. PIE $*k^wtur-$ > $*k^wtru-$ (cf. Av. *caθru-*, Lat. *quadru-*)
2. Early PGr. $*k^wtur-$ is reintroduced in the precursor of ‘table’, and syllabifies as $*k^wtur-$. But $*k^wtru-$ is maintained in the precursor of τρυφάλεια.
3. $*k^wetur-$ is introduced as the regular first member of ‘four’. $*k^wtur-$ and $*k^wtru-$ are reduced to PGr. $*tur-$ and $*tru-$, respectively.¹⁶² $*tru-$ is preserved only in τρυφάλεια, $*tur-$ only in the precursor of ‘table’.
4. Loss of *-w-* in $*tur-$, yielding $*tr-pedia$.

The final change, however, conflicts with the development observed in σάρξ < PGr. $*turk-$. In order to save the analysis of $*tr-$ in $*tr-pedia$ as ‘four-’, it would have to be assumed that inherited $*tur-$ had already developed to $*t^s-$ (vel sim.), reflected in σάρξ, before $*k^wtur-$ developed to $*tur-$ (as reflected in $*tr-pedia$).¹⁶³ This “secondary” $*tur-$ might then have joined the reduction seen in $*k^wetur-$ > $*k^wet-$.

This scenario cannot be entirely excluded, but it seems rather complicated, to say the least.¹⁶⁴ It is therefore worthwhile to consider an alternative option: what if the first member of $*tr-pedia$ was not ‘four’, but $*tr-$ ‘three’?¹⁶⁵ There is evidence for an older form $*tr-$ ‘three’ in Ved. *tr̥t̥iya-* ‘third’ (cf. Mayrhofer *EWAia* s.v. *tr̥t̥iya-*) and in Old Prussian *tirtis* ‘id.’. Just like the ordinal $*tr-to-$ was replaced by $*tri-to-$ everywhere except in Vedic and Old Prussian, the compounding element $*tr-$ may have been preserved only in Greek $*tr-pedia$. This analysis is attractive from the point of view of *realia*: geometrically, tables are stable when they have three feet, but unstable with four feet. It would also be in line with the Mycenaean attestations: *to-pe-za* was not conceived of as a compound any longer, and simply means ‘table’, but it is qualified as *we-pe-za* /wek(s)-pedd^ya/ ‘six-footed’ and *e-ne-wo-pe-za* /enewo-pedd^ya/ ‘nine-footed’.¹⁶⁶ Both are multiples of three.

Whether the derivation of τρι- from $*tr-$ ‘three’ is correct or not, the difference between Myc. *to-pe-za* and Hom. τράπεζα ensures that the pre-form of ‘table’ contained $*r-$ in mid-second millennium Greek.¹⁶⁷ Regarding the words for ‘four’, we may conclude that the

¹⁶¹ This etymology is not evident (cf. the doubts in Beekes 1973: 388 n. 1), because it would make the word an extremely archaic compound, whereas the second member has no IE etymology. But since the analysis of $*tr-$ in ‘table’ does not really depend on it, I will assume that it is correct.

¹⁶² The loss of $*k^w-$ can be regular only before two following onset consonants. If the *-w-* was lost first, the labiovelar of $*k^wtur-$ would be preserved.

¹⁶³ It should be taken into consideration, then, that Mycenaean also attests forms like *ma-ra-tu-wo* /marat^hwo-/ ‘fennel’, class. μάραθον. In other words, the evidence for *-tw-* of secondary origin (not affected by the sound change $*tw- > *t^s-$) may suggest that this group was preserved as such in Mycenaean.

¹⁶⁴ It is not evident, for instance, that the development to $*t^s-$ took place in word-initial $*tur-$, but not in the more complicated word-initial cluster $*k^wtur-$.

¹⁶⁵ Morpurgo Davies (1968: 803f.) suggested this possibility, but remained rather sceptical. She objected that there is no independent evidence in Greek itself for $*ter-$ or $*tr-$ ‘three’, but only “from Sanskrit and Hittite – and even this is disputed.” (art.cit. 804). I fail to understand her objection that Mycenaean also has the morpheme *tri-* in *ti-ri-po* ‘tripod’ beside <to-> in ‘table’: *to-pe-za* could be an archaism, *tri-pod-* a more recent creation.

¹⁶⁶ Attestations: *to-pe-za e-re-pa-te-ja* ... *we-pe-za* 1 (PY Ta 713.2), *to-pe-za* ... *e-ne-wo-pe-za* (ibid. 713.1 and *passim*).

¹⁶⁷ There is no foundation whatsoever for the assumption (e.g. Morpurgo Davies 1968) that ‘table’ is a borrowing that was adapted by folk etymology to yield a meaningful compound. The point emerging from the tablets is, precisely, that the etymological compound meaning of *to-pe-za* was *not* conspicuous anymore. Morpurgo Davies is overly sceptical when she doubts that the interchange Myc. *or* ~ Hom. *pa* should be explained by assuming a syllabic liquid. Her own argument is biased by the ambition to show that Mycenaean *o*-vocalism from a syllabic liquid is only regular after *w-*, a proposal which is untenable, as I have argued above. See chapter 3 for a discussion of the Arcado-Cyprian material.

Pan-Greek reduction of word-internal *-tw-* to *-t-* was conditioned by a directly following **r*. This is the only way to explain the Ionic-Attic form τέταρτος. It remains to explain the Epic form τέτρατος, the residual Dp. τέτρασι, and the first member τετρα-, Myc. *qe-to-ro-*.

2.6 Analogical explanation of τετρα-, *qe-to-ro*^o, and τέτρατος

The numeral first members of several possessive compounds derive from a pre-form which ended in a syllabic nasal: ἑπτα-, εἶνα- < **enwa-*, and δεκα-.¹⁶⁸ In Epic Greek, this “compositional *-α-*” has been extended analogically to ‘five’, ‘six’ and ‘eight’, as is shown by the following instances:

‘five’: πενταέτηρος ‘five years old’ (*Il.* 2.403 *passim*) and πεντάετες ‘five years long’ (*Od.* 3.115) for **penk^we-wet-es*.

‘six’: ἑξάετες (*Od.* 3.115) << **(s)weks-wet-es*.

‘eight’: ὀκτάκνημα ‘eight-spoked (wheel)’ (*Il.* 5.723), ὀκτάβλωμος ‘consisting of eight pieces’ (*Hes. Op.* 442), ὀκταπόδην ‘eight feet long’ (*Hes. Op.* 425).

In Epic Greek, there are no exceptions to this spread of *-α-*. The post-Homeric evidence shows a similar picture: even if there are some traces of older forms like ὀκτώπους, the first members πεντα-, ἑξά- and ὀκτα- are also normal in the classical language.¹⁶⁹ It follows that τετρα- may have been influenced by the higher numeral first members *hepta-*, **enwa-*, and *deka-*, which arose by regular sound change.¹⁷⁰

We may now explain Myc. *qe-to-ro-po-pi* as follows. Since we already find *e-ne-wo*^o /e(n)newo-/ ‘nine-’, it may be assumed that Mycenaean had at least partly carried out a levelling similar to that of Epic Greek, but generalizing the *-o-* which arose in a labial environment in ‘nine-’ (see section 1.3.2).¹⁷¹ The spread of this *-o-* from ‘nine’ to ‘ten’ is found in several dialects, including Arcadian δεκοτος, and it is possible that Mycenaean already had *deko-* ‘ten-’ and *dekoto-* ‘tenth’.¹⁷² Since the *-o-* of *deko-* and *dekoto-* was productive in the Arcadian ordinals, where it spread to πεμποτος ‘fifth’ (cf. Morpurgo Davies 1968: 795), it is quite possible that it had spread to the first member ‘four-’ already in Mycenaean.¹⁷³

¹⁶⁸ The evidence for these forms from Epic Greek is as follows: ‘seven’: ἑπτάπυλος ‘seven-gated’ (*Il.* 4.406, etc.), σάκος ἑπταβόειον ‘shield with seven layers of cow-hide’ (*Il.* 7.222, 245 etc.), ἑπταπόδην ‘seven feet long’ (*Il.* 15.729), ἑπτάετες ‘lasting seven years’ (*Od.* 3.305), hydronym ἑπτάπορος ‘with seven fords’ (*Il.* 12.20 *passim*). ‘nine’: εἰνάνυχες ‘nine nights long’ (*Il.* 9.470), εἰνάετες ‘nine years long’ (*Il.* 18.400). ‘ten’: δεκάχιλοι ‘ten thousand’ (*Il.* 5.860, 14.148), δωδεκάβωιον ‘consisting of twelve cows’ (*Il.* 23.703), δεκάδωρος ‘ten palms long’ (*Hes. Op.* 426), δωδεκάμηνος ‘twelve months old’ (*Hes. Op.* 752).

¹⁶⁹ Cf. ὀκτακόσιοι (Th., Hdt.), ὀκταπλάσιον ‘eightfold’ (Ar.), ὀκτάμηνος ‘lasting eight months’ (X.), beside ὀκτώπους (old com.), ὀκτωδάκτυλος (Ar.).

¹⁷⁰ Note that a similar spread is found in τετράς, -άδος ‘fourth day’ (Hes.+), which took the suffix *-άδ-* from δεκάς, -άδος ‘team of ten’ < **dek^hi-t-*. In the words of Rau (2009: 13 n. 2), “The *-δ-* that surfaces in Gk. δεκάς, -άδος is secondary, and is due to contamination with the formally, semantically and derivationally similar *άδ-* stems.”

¹⁷¹ Ruijgh (1996: 118) draws the opposite conclusion: in his view, ἑξά- and πεντα- are analogical after τετρα-. His reason is, obviously, that he wants to explain the *o*-vocalism of Myc. *e-ne-wo-pe-za* ‘nine-footed’ as analogical after *qe-to-ro-*. Thompson (1996-97: 319) objects to Ruijgh’s scenario that influence from ‘four’ on ‘nine’ is only plausible if the other numerals also underwent it. This objection also applies to the analysis proposed here, but see the main text for a solution.

¹⁷² The latter form may be attested in the PN *de-ko-to* (PY), but the alternative explanation as /Dekto-/ “the accepted one” (vel sim.) cannot be excluded.

¹⁷³ The evidence for the numerals in the Aeolic dialects also deserves to be reconsidered in this light; see the discussion in section 3.4.1.

To this scenario, it may be objected that the analogy did not affect all intermediate numerals in Mycenaean, which preserves *we-pe-za* /^(h)weks-pedd^ya/ ‘with six feet’.¹⁷⁴ Moreover, the analogical introduction of a vowel in *τετρα-* would have changed the metrical structure of the posited pre-form **k^wetr-*. Was there a motive to replace ‘four-’, but not ‘six-’? One possible solution would be that the Proto-Greek form of ‘four-’ was not **k^wetr-*, but **k^wetru-*. This would be the expected outcome of the PIE form **k^wtru-* into which an *-e-* was secondarily introduced (cf. Av. *caθru-*, Lat. *quadru-*). Thus, ‘four-’ was influenced by ‘nine-’ and ‘ten-’ because it ended in a vowel, and **(h)weks-* was exempted from the spread of *-o-* because it did not have a final vowel.¹⁷⁵ We may assume that ‘five’, ‘seven’ and ‘eight’ also received this *-o-* in Mycenaean.

We now have to consider whether a similar explanation is possible for *τέτρατος*. While this form is normally viewed as the regular outcome of **k^wetrto-*, it must not be forgotten that *τέτρατος* is restricted to Homer and a few occurrences in later poets, and that the only regular prose form in Ionic-Attic is *τέταρτος*.¹⁷⁶ In the previous section, several objections against an analogical explanation of *τέταρτος* have been advanced. In Epic Greek, the variation between *τέταρτος* (14x in Homer) and *τέτρατος* (8x) is potentially well-suited for metrical purposes. Therefore, the possibility that *τέτρατος* was analogically influenced by *δέκατος* and *εἵνατος* deserves consideration.¹⁷⁷ Special by-forms in *-ατος* are also found for some of the other ordinals in Epic Greek: *ὄγδοατος* ‘eighth’ beside *ὄγδοος*, *ἑβδόματος* ‘seventh’ beside *ἑβδομος*, and *τρίτατος* ‘third’ beside *τρίτος*. These forms are all but limited to hexameter poetry, and they were clearly created in order to make certain case forms fit the metre (forms like *ὄγδοήν*, *ἑβδόμην*, *τρίτην* would be unfit).¹⁷⁸ It is unlikely, however, that a metrically unproblematic pre-form **k^wetrto-* was extended to **k^wetrato-*. If artificial Epic forms in *-ατος* are not found for ‘fifth’ and ‘sixth’ either, this must be ascribed to the unproblematic metrical structure of *πέμπτος* and *ἕκτος*. It seems, then, that an analogical spread of *-ατος* to *τέτρατος* within Epic Greek can only be motivated if the pre-form already had a dactylic shape.¹⁷⁹

There are now two options. One could conjecture that the pre-form of *τέτρατος* was in fact **k^wetruto-*, with the same metathesis found in the first member **k^wtru-*. This is highly improbable: the ordinal form reconstructed as **k^wetwrto-* (cf. also OCS *četrvrbъ*, Lith. *ketvir̃tas*, Lat. *quārtus*) is probably a reshaping of post-PIE date, because the Indo-Iranian evidence (Skt. *turīya-*, YAv. *tūiriia-* ‘fourth’, *ā-xtūirīm* ‘four times’) points to an older form PIE **k^wtur-i(H)o-*. A putative **k^wetruto-* would have to be of PIE date in view of the assumed

¹⁷⁴ In alphabetic Greek, we find *ἕξα-* (already adv. *ἕξαιτες* *Od.* ‘six years long’) replacing the older form *ἕξ-*, *ἕκ-*, e.g. adj. *ἕξέτεα* (*Il.*), *ἕκπους*, *ἕκδάκτυλος* (inscr.). Note that the ordinal remains *ἕκτος* ‘sixth’ throughout classical Greek.

¹⁷⁵ This scenario could also explain the regular lack of *McL* scansions (see chapter 6) in the Homeric examples: |_P *κυνέην θέτο τετραφάληρον* (*Il.* 5.743 and 11.41), |_T *σάκος θέτο τετραθέλυμον* (*Il.* 15.479, *Od.* 22.122), *τετραφάλω* (*Il.* 22.315), *τετράφαλον* |_P *κυνέην* (*Il.* 12.384), *τετράγυος* (*Od.* 7.113 and 18.374). The only exception is the *McL* scansion in *τετράκυκλος* at *Il.* 24.324 (|_H *τετράκυκλον ἀπήνην* ‘four-wheeled wagon’). This situation can be interpreted in two ways. It is possible that the single instance of *McL* scansion in *τετράκυκλος* reflects an archaic scansion of **k^wetr-*. On the other hand, it is possible that this scansion is due to an incidental application of the licence (note that *τετράκυκλον* would synchronically contain a cretic sequence), and that the heavy scansion of *-τρ-* in all other cases reflects a pre-form **k^wetrV-*. The latter option is perhaps more likely, given that the only other instance of *τετράκυκλος* (*Od.* 9.242) has an irregular metrical lengthening of *-α-*.

¹⁷⁶ The only post-Homeric attestations of *τέτρατος* are: B. 4.11, Simon. 14.131.5, Alcman. 20.1.3, Pi. *Pyth.* 4.47 and *fr.* 135.2 (both Pindaric attestations have a metrically long first syllable).

¹⁷⁷ This was also suggested by Waanders (1992: 379f.).

¹⁷⁸ For *τρίτατος*, only B. *Epin.* 1.112 and E. *Hipp.* 135 may be mentioned in 5th c. poetry. If *τερτάτοις* is correctly restored for the ms. form *τετράτοις* in Pi. *Ol.* 8.46, it must have been taken from Lesbian poetry: see von der Mühl (1964: 50f.). But this restoration is rather shaky in my view. The forms *ὄγδοατος* and *ἑβδόματος* are restricted to Homer and Hesiod.

¹⁷⁹ In this connection, it may be noted that *τέτρατος* never undergoes *McL* scansion in Homer.

metathesis to *-ru-*, but it seems *ad hoc* to posit such a pre-form only in order to explain Hom. τέτρατος.

A second, more promising scenario would be that Hom. τέτρατος contains an old metrical lengthening. Note that in Homer, τέτρατος is restricted to the As. ntr. τέτρατον (7x) and the Ns. msc. τέτρατος (only *Il.* 23.615), whereas τέταρτος is normal in various different case forms. The metrical lengthening may have originally occurred in a syntagm like τέτρατον ἦμαρ (2x verse-initial in *Od.*), where **k^wetrton* would scan as a tribrach, or in |_P τὸ δὲ τέτρατον |_B (2x *Il.*, both times in hyperbaton with a verse-final noun), in a slot where many old metrical lengthenings are found. I will further elaborate this explanation in section 6.7.4.

It has to be stressed once again that Ionic-Attic τέταρτος and Arcadian τετορτος must be the regular outcomes of **k^wetwrto-* in these dialects, because they cannot be explained by analogy. As for Mycenaean, we may conclude that *qe-to-ro-po-pi* represents /k^wetro-pod-p^hi/, which may have an analogical *-o-* after *enewo-*, **deko-*, and that *to-pe-za* is the regular outcome of its pre-form **tr_o-pedia*.

2.7 Conclusions regarding Mycenaean

The inescapable conclusion of the preceding sections is that the outcome of **r* in Mycenaean was certainly not *-ro-*, but either *-or-* or preserved *-r-*. Among the forms retained in section 2.3.1, the following material conclusively refutes the thesis that **r* yielded *-ro-* in Mycenaean:

- 1) PNs *a-no-me-de* /An_o-mēdēs/, *a-no-qo-ta* /An_o-k^{wh}ontās/
- 2) *a-no-qa-si-ja* /an_o-k^{wh}asiā-/ ‘manslaughter’
- 3) *to-pe-za* /tr_opediā/ ‘table’
- 4) *to-qi-de* ‘spirals’, whether from **trk^wides* or **strk^{wh}ides*

On the other hand, there are no forms with a spelling <Co-ro-> that necessarily reflect the regular outcome of a form with **r*: the first member *qe-to-ro-* may be explained by analogy, *to-ro-no-wo-ko* may contain the avatar of θρόνα, and *ma-to-ro-pu-ro* may have a compositional *-o-*. For reasons to be discussed in section 7.3.4, *to-no* ‘seat, throne’ is best derived from a form with *o*-vocalism of the root.

This conclusion is further corroborated by other evidence. It is welcome that the inherited present formation *wo-ze* is the regular outcome of its pre-form (cf. Goth. *waurkjan*, Av. *vərəziia-*). The difference between *wo-do-we* /w_odo-wen/ ‘rose-scented’ and its direct Homeric cognate ῥοδόεντ- can be understood much easier if the pre-form contained a syllabic liquid (see the discussion in section 7.2.8). If *o-pa-wo-ta* is interpreted as /op-aworta/, the *-or-* could theoretically replace *-ro-* after the full grade of the root **awer-*, but if Mycenaean retains *r*, this way out is barred. *To-si-ta* may be an older form than Θερσίτης, perhaps with the outcome of a PIE **d^hrsitó-* ‘strong, aggressive’ as its underlying appellative form.

There is no compelling evidence for the outcome of **l* in Mycenaean. When discussing the Homeric evidence for *-po-* from **r* in chapter 7, we will return to the question whether Mycenaean may have preserved this phoneme. For now, nothing in Mycenaean itself cogently speaks against such an assumption.