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1. Introduction

1.1 The Greek reflexes of *r and *l: the problem and its relevance

The main aim of this book is to establish the reflexes of the syllabic liquids *r and *l in all dialects of Ancient Greek. In a number of phonological environments, Proto-Greek inherited these sounds from Proto-Indo-European, but like most Indo-European languages upon their first attestations, all first millennium Greek dialects have eliminated *r and *l in various different ways. For example, the Proto-Greek thematic aorist *amr̥t-e/o- ‘to miss, fail’ is continued in Ionic-Attic as ἀμαρτεῖν, but in Lesbian as αμβροτην (inscr.) and ἄμβροτε (Sapph.).

At first sight, the outcomes of *r and *l are an isolated topic of Greek dialectology and historical phonology. However, the reflexes of *r are intimately connected with two much-debated questions that are of vital importance for the reconstruction of Greek prehistory. How did the four main dialectal groups of alphabetic Greek originate, and at which date? And when did the artificial language of Epic Greek, in the form familiar to us from Homer onwards, come into being?

1.1.1 A brief summary of previous accounts

In order to illustrate what is at stake, let us start with a summary outline of Ruijgh’s view,¹ which consists of two major building blocks:

1. the syllabic liquids were eliminated from all Greek dialects already in the mid-second millennium. This resulted in a split into dialects with *o*-vocalism (Aeolic, Achaean) and dialects with *a*-vocalism (Ionic-Attic, West Greek).
2. the metrical behavior of certain Homeric formulae proves the existence of Epic verse, *grosso modo* in its Homeric form, in the mid-second millennium.

It is traditionally accepted that a regular *o*-colored reflex of the syllabic liquids is found only in the Aeolic dialects (Lesbian, Thessalian, Boeotian) and in Arcado-Cyprian. From the viewpoint of Classical Ionic-Attic, this reflex was considered so characteristic that Aeolic and Arcado-Cyprian were occasionally lumped together, in the first half of the previous century, as a special subgroup. After the decipherment of Linear B, however, most scholars agree that the fundamental division is between what Risch (1955) called North Greek and South Greek.² The two most important isoglosses between these two groups are the South Greek assibilation *t^(h)i > si and the South Greek development of intervocalic *-t^(h)i- through *-ts- and -ss- to -s-. The phonologically more conservative North Greek dialects retained ti and *ts.³

¹ As expounded in a large number of contributions throughout his scholarly career, for instance Ruijgh (1961, 1967, 1985, 1995, 1997).

² North Greek comprises the later West Greek and Aeolic groups, and Proto-South Greek is the ancestor of Achaean (= Mycenaean plus Arcado-Cyprian) and Proto-Ionic. The idea was already proposed before the decipherment of Linear B: see Risch (1949) and Porzig (1954).

³ The examples are well-known: for *ti > si, cf. e.g. Myc. *di-do-si* /didonsi/ ‘they give’, Class. τίθησι ‘puts’, and for *-t^(h)i- > *-ts- > *-ss- > -s-, see Myc. *to-so* /to(s)son/ ‘so much’, Class. τόσος and Myc. *me-sa-to* /me(s)sato-/, Class. μέσος ‘middle’. The crucial innovation of South Greek is the reduction of the affricate *-ts-, first to *-ss-, then to single -s-. In Aeolic and West Greek, neither development took place at an early date: the Boeotian and Cretan reflexes presuppose that the original affricate outcome of PGr. intervocalic *-tj- was preserved until Proto-Aeolic and Proto-West Greek at least. In view of the ambiguous spelling of Linear B, it is impossible to determine with certainty whether Mycenaean had already undergone the development *-ss- > -s-.

The decipherment of Linear B also seemed to prove an early date for the vocalization of **r*. Mycenaean forms like *to-pe-za* and *qe-to-ro-po-pi*, which derive from PGr. **t_r-ped-ia* and **k^wetr-pod-p^hi*, are all but universally interpreted as /torped^z:a/ and /k^wetropopp^hi/. These examples seem to prove that the vocalization had been accomplished already in the 14th c. BC in the Achaean dialects of South Greek, and perhaps even earlier. A much-cited argument in this connection is the development of an epenthetic *-d-*, attested already in Mycenaean and also in the Homeric form ἀνδροτῆτα < PGr. **anr_tāt-* (see below). Since the insertion of *-d-* in ἀνδροτῆτα presupposes a vocalization of **r* to *-ro-*, it is concluded that both developments took place prior to the Mycenaean tablets.⁴

By extension, Ruijgh assumed that the other dialects vocalized **r* (and **l*) around the same time, even if these dialects are first attested at a much later date than Mycenaean. Thus, he supposed that the following developments took place in mid-second millennium Greek, resulting in a split into four dialect groups:⁵

South Greek: * <i>t^(h)i</i> > <i>si</i> ; * <i>-t^(h)i-</i> > * <i>-ts-</i> > <i>-s-</i>	Achaean: * <i>r</i> > <i>-or-</i> , <i>-ro-</i>
	Ionic-Attic: * <i>r</i> > <i>-ar-</i> , <i>-ra-</i>
North Greek: * <i>-t^(h)i-</i> > * <i>-ts-</i>	Aeolic: * <i>r</i> > <i>-or-</i> , <i>-ro-</i>
	West Greek: * <i>r</i> > <i>-ar-</i> , <i>-ra-</i>

Table 1.1: the mid-second millennium split into four dialect groups, according to Ruijgh

Note that the different outcomes of **r* are the only *phonological* criterion on which the proposed mid-second millennium split into four dialect groups is based. There are no other phonological developments that are demonstrably early and where the first millennium dialect groups have different reflexes.⁶

Let us now turn to the second issue: the prehistory of Epic Greek and the hexameter. The debate, as it stands nowadays, was initiated by Mühlestein (1958) in an article about Mycenaean names starting with *a-no-*, which he interpreted as /anor-/, corresponding to Class. ἀνδρο-. Mühlestein combined the Mycenaean form with a long-standing metrical problem from Homeric Greek. The formulae |_H ἀνδροτῆτα καὶ ἦβην ‘vigor and youth’ and |_T Ἐνυαλίῳ ἀνδρεϊφόντῃ ‘man-slaying Eualios’ (for older *ἀνδροφόντῃ) are unmetrical as they stand in our Homeric text. Moreover, other formulae like ἀσπίδος ἀμφιβρότης |_P ‘man-covering shield’ require application of the otherwise uncommon *muta cum liquida* licence.⁷ These metrical irregularities would disappear if **r* were to be substituted for its Homeric outcome *-po-* (pre-forms **anr_tāta*, **anrk^{wh}ontāi*, **amp^himr_tās*). Therefore, it seemed attractive to assume that these and other Homeric formulae were coined before the elimination of **r* from the dialect from which they were taken. If one accepts that the Achaean sound change **r* > *-or-*, *-ro-* had been completed before the Linear B tablets, and that forms like ἀμφιβρότης and ἀνδροτῆτα (with their reflex *-po-*) originated in a direct ancestor of Mycenaean, it would

⁴ In *a-di-ri-a-te* /andriantei/ ‘with a man’s figure’, the PN *a-re-ka-sa-da-ra* /Aleksandrā/, and perhaps in the PN *a-da-ra-ko* /Andrark^hos/. Apart from Ruijgh, see e.g. Hackstein (2002: 6), but he mentions only *a-re-ka-sa-da-ra* and *a-da-ra-ko*, forms which did not contain syllabic *r*, but its prevocalic consonantal allophone.

⁵ This is specifically Ruijgh’s view (e.g. 1985: 162-3, 1992: 84-7, 1996: 117). Among the other scholars who defend a pre-Mycenaean origin of Epic Greek, West (“in the Mycenaean tablets that stage is already past; that dialect at least has moved irrevocably towards *or* or *ro*”, 1988: 156-7) and Wathélet (“un fait relativement récent en mycénien et, sans doute, aussi dans l’ensemble du grec”, 1970: 172) are more careful.

⁶ For a summary overview of morphological criteria (the inf. act. in *-vai*, *-μεν*, or *-μεναι*, or adverbs of the type ὅτε, ὅτα, ὅκα ‘when’) and lexical criteria (e.g. βούλομαι, βόλομαι, δέλομαι, etc.), see the classical study by Risch (1955), especially the table on p. 75. The most important question always remains whether a common innovation of the two South Greek dialect groups can be proven, or whether we are dealing with coexisting morphological archaisms.

⁷ For the meaning of |_P, |_T, and |_H, see the abbreviations.

follow that the formulae in question were coined approximately in the mid-second millennium.⁸

This explanation of ἀνδροτήτα and related forms was the standard view by the 1980's and early 1990's, but in the meantime, it had also become the topic of a severe controversy that was initiated by Tichy (1981).⁹ Her main objection was that the unchanging existence of the Homeric hexameter for such a long period is a premise that cannot be relied upon. She argued, instead, that formulae like ἀσπίδος ἀμφιβρότης and Ἐνυαλίῳ ἀνδρεϊφόντη could be relatively recent creations, and that ἀνδροτήτα καὶ ἦβην is not a phonological archaism, but a metrical archaism to be explained within the proto-hexameter framework provided by Berg (1978). In her view, the aberrant Homeric scansion of the form ἀνδροτήτα was regular in a pre-stage of Epic verse, when a trochaic fourth foot was still allowed. This scenario, or at least its possibility, has gained an increasing number of proponents in recent years.¹⁰ Another point of criticism has been that the preservation of metrically irregular formulae over a period of seven centuries is implausible (cf. Haug 2002: 63-4).¹¹ Finally, it was observed that the formula ἀνδροτήτα καὶ ἦβην, in its Homeric form, cannot have existed in (pre-)Mycenaean Epic because the conjunction καὶ is unattested in Mycenaean (Ruijgh 1997: 42-44, cf. Hackstein 2002: 6).¹²

Ruijgh's idea of an early split into *a*-coloring and *o*-coloring dialects has also been challenged in various different ways. First of all, scholars like Risch and Cowgill already remarked that the Mycenaean situation cannot be automatically projected on the other dialect groups: there is no particular reason to assume that the presence of *o*-coloring in two dialectal groups is due to a common development. For this reason, they remain agnostic about the precise date of vocalization of **r* and **l* in the various non-Achaean dialectal groups.¹³ Moreover, the assumption that *o*-vocalism was the only regular treatment in Aeolic and Achaean has occasionally been challenged, most notably by Morpurgo Davies (1968).¹⁴ Finally, Heubeck (1972) has argued that Mycenaean still preserved **r* until the period of the tablets, and proposed that Epic language and metre as they are known from Homer originated in the early Dark Ages.

Thus, there is no current consensus about the precise reflex of **r* in Aeolic or Arcado-Cyprian, about its date of vocalization in the various dialect groups, or about the origin of the metrically aberrant formulae with -*po*- in Homer.¹⁵

⁸ Mühlestein (1958: 224): “Demnach muss schon vor der Mitte des zweiten Jahrtausends in griechischen Hexametern von Mannheit gesungen werden sein”. See also Ruijgh (as above), Wathelet (1966: 171-2), West (1988: 156-7). However, Mühlestein also argued (1958: 226, *Nachtrag*) that “der Weg zur homerischen Sprache (...) nicht durchs Mykenische hindurch, sondern am Mykenischen vorbei [geht]”, in view of the abstract *a-no-qa-si-ja* /anork^{wh}asiā-/.

⁹ Hackstein (2002: 6) calls it “ein beständiger Zankapfel zwischen der Philologie und der Sprachwissenschaft”, but one might just as well speak of an apple of discord among linguists.

¹⁰ E.g. Haug (2002), Hackstein (2002, 2010), Hajnal (2003).

¹¹ Haug's interesting arguments concerning Ἐνυαλίῳ ἀνδρεϊφόντη are further discussed in section 7.3.2.

¹² Ruijgh modified his views on the status of ἀνδροτήτα καὶ ἦβην in his later publications, and focused on Ἐνυαλίῳ ἀνδρεϊφόντη instead as the main piece of evidence.

¹³ Concerning the relative chronology of liquid vocalization, Risch remarked: “... die Verhältnisse sind hier im einzelnen so wenig übersichtlich und zum Teil sogar so widerspruchsvoll, dass sie sich einer klaren Beurteilung entziehen und dieses Merkmal daher für unsere Betrachtung ausscheidet” (1955: 72). Cowgill went even further with his remark that “the contrast of *op* and *ap* is not very important for grouping Greek dialects” (1966: 82). In a similar vein, cf. Wathelet (1970: 172-3).

¹⁴ See section 3.5.

¹⁵ For instance, Cowgill (1966) has recently been cited approvingly by Parker (2008), and Heubeck (1972) has been accepted by García Ramón (explicitly in 1975, implicit in many later works). Rix (1992: 65) is slightly more reserved about the *o*-colored outcome in Mycenaean and Arcado-Cyprian. Scholars like Lejeune (1972: 197-8) assume a stronger “preference” for the *o*-colored outcome in Mycenaean and the Aeolic dialects. The

1.1.2 Research questions and hypotheses

Any evaluation of this almost inextricable jumble of questions and hypotheses has to depart from a thorough investigation of the non-Ionic-Attic dialectal evidence, as attested primarily in epigraphic material and secondarily in glosses. The first main goal of this book is, therefore, to review the evidence for $*r$ and $*l$ per individual dialect group, and to establish the regular development of these sounds. An evaluation of the etymological evidence for $*r$ in Mycenaean and the major non-Ionic-Attic dialects will be given in chapters 2 and 3, respectively. The much more extensive Ionic-Attic evidence, including that of Epic Greek, is the subject of chapters 4 to 9. Since the evidence does not necessarily suggest that the development of $*r$ was identical to that of $*l$, I will treat the development of $*l$ in all dialects separately in chapter 10.

Unlike most previous treatments, my main focus throughout this book will be on the regular place of the anaptyctic vowel. Shorthand formulations like “PGr. $*r > \text{Ion.-Att. } \alpha\rho/\rho\alpha$, Myc. *or/ro*” are commonplace in the scholarly literature (see section 1.1.1). But if such statements are taken at face value, the assumed variation would violate the principle of *Ausnahmslosigkeit*: sound changes normally do not have a dual outcome. We therefore have to ask, for each individual Greek dialect: was the regular reflex *-or-*, *-ro-*, *-ar-*, or *-ra-*? Although the evidence of many dialects is rather limited, especially within the West Greek group, it is remarkable that the treatment of the Aeolic dialects is diametrically opposed to that of Achaeae. Anticipating my conclusions, Lesbian and Boeotian show a regular reflex $*r > -\rho\alpha-$ (chapter 3), but such a development can be excluded for Mycenaean (chapter 2).

The most complicated question is whether the regular outcome of $*r$ in Ionic-Attic was *-αρ-* or *-ρα-*. The origin of pairs like *κραδίη ~ καρδία* and *κρατερός ~ καρτερός* forms a long-standing problem, for which several solutions have been suggested since the late nineteenth century. Since none of these attempts has been particularly successful (see section 1.4), many scholars have resigned to the view that the original distribution cannot be fully recovered. At the same time, and in spite of the problems with this view, it is still widely believed that $*r > \rho\alpha$ was indeed the regular development in Ionic-Attic.

In order to solve these problems, I propose to assume a regular development $*r > -\alpha\rho-$ in spoken Proto-Ionic, and explain all instances of *-ρα-* by assuming a specific development for cases of $*r$ which were retained longer within Epic Greek.¹⁶ I will briefly introduce the benefits of such a scenario in section 1.6, and elaborate this proposal in chapter 6. Thus, the second objective of this book is to make explicit the various mechanisms by which forms with original $*r$ were treated in Epic Greek.

We have seen that the vocalization of $*r$, as an isogloss, has played an important role in previous discussions about the genesis of the four main Greek dialect groups. The reader may already have noticed my scepticism concerning the mid-second millennium date assumed by Ruijgh and others. The conclusion that Aeolic and Mycenaean / Arcado-Cyprian have two different outcomes of $*r$, in spite of the fact that they share an *o*-colored reflex, deprives the idea of an early vocalization of all justification: there is no reason whatsoever to align these two different developments chronologically.¹⁷ For reasons that will become clear later, I think that the vocalization of $*r$ must be pushed forward in time, towards our first attestations, as

mainstream view concerning claim 1. is represented, beside Ruijgh, Wathelet, and West, by scholars like Sihler (1995: 92), Haug (2002: 59), and Hackstein (2002: 5-7).

¹⁶ Henceforth, when speaking of Proto-Ionic, I will refer to the most recent common ancestor of Attic, Western Ionic, Central Ionic, and Eastern Ionic.

¹⁷ García Ramón (1975) assumes a post-Mycenaean vocalization to *-ρo-*, *-op-* in Proto-Aeolic, basing himself on Heubeck's idea of retained $*r$ in Mycenaean. But in a similar way, there is no principled reason either to conclude, from the non-occurrence of a change in one (South Greek) dialect, that the change did not occur in a different (North Greek) dialect.

far as possible.¹⁸ In this context, a particularly important question is whether Mycenaean still preserves **r*, as Heubeck (1972) argued. The issue appears to be very hard to resolve on the basis of the Mycenaean evidence alone, and largely depends on one's opinions about the presence of Mycenaean forms and scansion in Homer. On the basis of my new proposal that *-ρα-* is the outcome in Epic Greek, as opposed to *-αρ-* in the Ionic-Attic vernacular, the value of the vocalization of **r* as an isogloss must be reconsidered.¹⁹ This is our third main objective. An evaluation of all chronological indications will be presented at the end of this book, in chapter 11.

Before examining the previous solutions to the vexed question of *-αρ-* versus *-ρα-*, let us first of all delimit those phonetic environments where the Greek dialects did not diverge in their treatment of **r* and **l*. These environments with a Pan-Greek or Proto-Greek vocalization to *αρ* and *αλ* are discussed in section 1.2, and will generally be left out of further consideration in the remainder of this book. After that, some problems surrounding the *o*-colored reflex of **r* will be treated (section 1.3): in which dialects do we find *o*-vocalism, and under which conditions? And is there any relation between the *o*-colored reflex of the syllabic liquids and that of the syllabic nasals?

1.2 Environments with Pan-Greek or Proto-Greek *αρ*, *αλ*

The sounds **r* and **l* were part of the inventory of Proto-Indo-European and continued to exist until a dialectally differentiated stage of Greek. In Proto-Indo-European, they can be viewed as allophones of /r/ and /l/ in interconsonantal position. A first, early development occurred in Proto-Greek when the laryngeals were eliminated: it is now commonly agreed that an anaptyctic vowel developed in front of liquids and nasals in the PIE sequence **CRHV*, yielding Proto-Greek **C_oRHV* and then **CaRV-* in all Greek dialects.²⁰ The fact that liquids and nasals behave in a uniform way in this environment points to an early phonemicization of the anaptyctic vowel, which took place when the prevocalic laryngeals were lost in Proto-Greek. In what follows, all such cases will be left out of consideration.

A Common Greek **r* or **l* also turns up as *-αρ-* (*-αλ-*) in all Greek dialects in front of a semivowel **j*, and again, the development of the syllabic nasals in this position is identical. Let us first review the evidence for this development, before we consider the possibility of an early vocalization in three other environments: word-initial and word-final position, and the position before a nasal (**CLNV-*).

1.2.1 **r* and **l* in front of a glide

The loss of intervocalic laryngeals in Proto-Greek led to the phonemicization of the glides **j* and **u*, as opposed to the vowels *i* and *u*. Thus, in PIE **med^hio-* > PGr. **met^hio-* 'middle', **-jo-* came to be phonologically distinct from the suffix **-iH-o-* > PGr. **-io-*.²¹ It is widely

¹⁸ In this respect, then, I agree with scholars like Wathélet (1970) and Heubeck (1972).

¹⁹ Since the evidence for **l* is too limited, I will focus on the vocalization of **r* as far as chronological issues are concerned. It cannot be excluded on forehand that **l* vocalized earlier than **r*.

²⁰ For this point, which has been sufficiently elucidated by previous scholars, see e.g. García Ramón (1985), Rix (1992: 74). Not long after the publication of his dissertation (1969), Beekes gave up the idea of laryngeal coloring from **CRHV*, mainly in view of ἀρήν 'lamb' < PIE **urh₁-ēn* beside Skt. *urán-*. A special development **CRHV* > **CoRV* has been assumed for Lesbian, but the evidence merely consists of the forms τόμοντες (Ion. ταμόντες 'cutting' < **tmh₁-ont-es*) and χόλαισι (Ion. χαλώσι, from χαλάω 'to release, slacken') in Alcaeus. In my view, these two forms do not warrant such a drastic conclusion. For present purposes, it suffices that all dialects had the anaptyctic vowel in front of the liquid in the environment **CRHV* (PGr. **CəRV*).

²¹ It is possible that a marginal phonemic difference between consonantal *r*, *l* and syllabic **r*, **l* came into existence at this stage, because the sequence *-ur-* would have become differentiated from *-ur̥-* in the position between two stops (e.g. Early PGr. **k^weturto-* 'fourth', **turkes* 'pieces of meat' beside the presumably early borrowing **púrgo-* 'bulwark'). As we will see, however, this already marginal difference seems to have been eliminated when *-ur-* was reduced to *r* after alveolar and labial stops (**k^weturto-* > **k^wetrto-*, **aleip^h-ur̥*

acknowledged that all Greek dialects regularly developed *a*-vocalism in front of a liquid between a PGr. consonant and prevocalic glide: $*r, l > \alpha\rho, \alpha\lambda \mid *C_{-}iV$.²² The main piece of evidence are the verbs in $-\acute{\alpha}\rho\omega$, which never turn up with *o*-vocalism ($^{++}$ - $\acute{\omicron}\rho\omega$) in any dialect. Potential instances of dialectal $*-ori-$ < $*-rj-$ are dubious: Lesbian $\acute{\omicron}\nu\omicron\iota\rho\varsigma$ (Sapph.) can be compared to Arm. *anurj* ‘dream’ < $*on\acute{\omicron}rj\acute{o}-$, with shortening of the long diphthong by Osthoff’s Law in Greek.

There are, however, two potential problems with the assumption that $*r, l > \alpha\rho, \alpha\lambda$ was the regular development in the environment $*C_{-}iV$. First of all, it is not so easy to adduce formations with $*-rj-$ that are demonstrably of Proto-Greek date. Most verbs in $-\acute{\alpha}\rho\omega$ may be inner-Greek denominatives to stems $-\alpha\rho$, such as $\tau\epsilon\kappa\mu\acute{\alpha}\iota\rho\mu\alpha\iota$ ‘to conjecture’ from $\tau\acute{\epsilon}\kappa\mu\alpha\rho$ ‘sign’. In such cases, the *a*-vocalism could theoretically be due to the word-final development to $-\alpha\rho$, which may well have been Pan-Greek (see below), or it could even be due to restoration across a morpheme boundary.

Turning to the more isolated cases, it seems that the formation of $\chi\acute{\alpha}\rho\omega$ ‘to rejoice’ was inherited from earlier PIE $*g^hr-je/o-$, given the cognates Ved. *hárjati* ‘id.’, Lat. *horior* ‘to encourage’, U. *heriiei* ‘wishes’. However, a thematic *yod*-present of PIE age is uncertain, because the Sabellic and Vedic forms point to earlier root ablaut.²³ Another example of considerable antiquity could be $\mu\epsilon\gamma\acute{\alpha}\rho\omega$ ‘to begrudge’, cognate with Arm. *mecarem* ‘to hold in esteem’, which derives from the exact same pre-form, and illustrates the intermediate stage in the semantic development from $\mu\acute{\epsilon}\gamma\alpha$ to $\mu\epsilon\gamma\acute{\alpha}\rho\omega$. Apart from $\chi\acute{\alpha}\rho\omega$ and $\mu\epsilon\gamma\acute{\alpha}\rho\omega$, I have not been able to identify any clearly inherited formations. It is even harder to find examples for $*-lj-$ of sufficient antiquity. A possible example is $\acute{\alpha}\lambda\lambda\omicron\mu\alpha\iota$ ‘to jump’, if this derives from $*slj-je/o-$ and can be compared directly with Lat. *saliō*. The *a*-vocalism of the Latin verb, however, is difficult to explain from a root $*sel-$, and perhaps rather points to $*sh_2el-$ (see de Vaan, *EDL* s.v.).²⁴

A second problem concerns the relation between the outcome $*-ari-$, $*-ali-$ (in the verbal formations just discussed) and the different syllabification found in forms like $\tau\rho\acute{\iota}\omega\tilde{\nu}$ (Gp.) ‘three’ < PIE $*tri-om$ or the feminine agent nouns in $-\tau\rho\acute{\iota}\alpha$ (Myc. $-ti-ri-ja$, $-ti-ra_2$) < PIE $*-tr-i(e)h_2-$. According to Ruijgh (1992: 78ff.), the outcome seen in $\tau\rho\acute{\iota}\omega\tilde{\nu}$ and $-\tau\rho\acute{\iota}\alpha$ is regular, and the development to $*-ari-$, $*-ali-$ is due to restoration across a morpheme boundary between $*LN$ and $*i$, as in the present stems in $-C\alpha\rho\epsilon/o-$ < $*C_r-je/o-$. But the converse could also be defended: $\tau\rho\acute{\iota}\omega\tilde{\nu}$ could be analogical after the Dp. $\tau\rho\acute{\iota}\sigma\acute{\iota}$ or a hypothetical Ap. $*trins$, and the feminine agent nouns in $*-tr-ih_2-$ also contain a morpheme boundary.

Although these issues are interesting in themselves, they need not be resolved here: all that matters for now is the lack of evidence for the retention of a syllabic liquid in front of a Proto-Greek $*j$. In all Greek dialects, cases for which $*-rj-$ could be reconstructed invariably end up either with $-ri-$ or with an anaptyctic $-a-$ in front of the liquid: that is, we never find outcomes like $*-raj-$ or $*-orj-$. The development of the syllabic nasals in the same environment may also shed some light on the issue.²⁵ Analogical restoration does not seem likely in the inherited and paradigmatically isolated present formations $\beta\acute{\alpha}\iota\tilde{\nu}\omega$ ‘to walk’ <

‘unguent’ > $*aleip^hr$); there are no good examples for $-ur-$ after velar or labiovelar stops. This allows us to regard Common Greek $*r$ as an allophone of $/r/$ between two consonants.

²² Cf. e.g. Haug (2002: 53) following García Ramón (1985: 206-8).

²³ Cf. de Vaan (*EDL* s.v. *horior*). The reflex in Vedic *hárjati* differs from that in *mriyáte* ‘to die’, which must contain the regular Indo-Aryan reflex of PIE $*Cr-je/o-$ (cf. Lat. *morior* < $*mr-je/o-$). Even so, the Greek form is best derived from a thematic *yod*-present $*k^hr-je/o-$ of at least Proto-Greek date, because its synchronically unexpected active voice speaks against a more recent formation based on the aorist $\chi\alpha\rho\eta\tilde{\nu}\alpha\iota$ (contrast $\tau\acute{\epsilon}\rho\pi\omicron\mu\alpha\iota$: $\tau\alpha\rho\pi\eta\tilde{\nu}\alpha\iota$, with an expected middle present).

²⁴ Moreover, $\acute{\alpha}\lambda\lambda\omicron\mu\alpha\iota$ may have been influenced by the Hom. root aorist $\acute{\alpha}\lambda\tau\omicron$ ($*\acute{\alpha}\lambda\tau\omicron$). Other examples like $\sigma\acute{\kappa}\acute{\alpha}\lambda\lambda\omega$ ‘to hew’ and $\sigma\acute{\phi}\acute{\alpha}\lambda\lambda\omicron\mu\alpha\iota$ ‘to stumble’ could derive from older nasal presents.

²⁵ Cf. García Ramón (1985: 207).

*g^wṃje/o- (Lat. *veniō*) and μῆνομαι < *mṃje/o- (Ved. *mányate*). It would therefore be attractive to explain χαίρω in the same way: in both cases, all Greek dialects have an outcome with *a*-vocalism in front of the liquid or nasal.

It is difficult to cite a single convincing example for the outcome of the syllabic liquids in the environment PGr. *C_μV. The problem can be illustrated by an example containing a nasal: μανός ‘thin, sparse’. This adjective has *ā* once in Empedocles, but *ǎ* generally in Attic, and therefore presupposes a pre-form **manwó-*. However, μανός does not reflect PGr. **mṃwo-*, because the gloss μανύ (Hsch.) suggests that this form is due to the thematicization of an older *u*-stem **mnH-u-*.²⁶ Such a proto-form is also corroborated by the Arm. *u*-stem *manr* (G. *manu*) ‘small’.²⁷ The same type of formation may underlie Hom. κᾶλός, Att. κἄλός, Boeot. κἄλφος: again, the antiquity of the thematic form is unclear, and the underlying root probably ended in a laryngeal.²⁸ The often adduced neuter φᾶρος ‘cloth’ (Hom.), *pa-we-a*₂ (Myc.) has previously been compared with Lith. *bùrva* ‘color, colored garment’ and *bùrè* ‘sail’, but according to Fraenkel (*LEW* q.v.), the former was probably borrowed from Polish *barva*, itself from MHG *varwe* (MoHG *Farbe* ‘color’), and the latter is considered to be a loan from Finno-Ugric. It is therefore uncertain whether PGr. **p^harwos* contains a reflex of **r*.²⁹

1.2.2 Word-initial **r* and **l*

A number of discussions of the development of the syllabic liquids in Greek still use the term “syllabic **r* and **l* in anlaut”.³⁰ However, it is clear by now that many apparent cases derive from PIE **HLC-*.³¹ As Beekes (1969) and Rix (1970) have shown, an epenthetic vowel developed in word-initial **HLC-* in early Proto-Greek. In the ensuing **H_əLC-*, the schwa was subsequently colored by the neighboring laryngeal.³² Furthermore, the phonotactics of PIE probably did not allow word-initial **r-*.³³ Proto-Greek secondarily developed word-initial **r-* only in the precursor of ἄρσῃν ‘male’, where it was due to the loss of **w-* in the pre-form **w_rsen-* in late PIE (Pronk 2009).³⁴ Leaving this case aside, examples of Gr. ἄρ- are generally derived from two types of PIE avatars:

(1) **h₂rC-* or **h₂erC-*, as in ἄρκέω ‘to ward off’ beside Hitt. *hark-* ‘to hold’, Lat. *arceō* ‘to contain’, or ἄρτύω ‘to arrange, prepare’ (ἄρτύς· σύνταξις Hsch.) beside Lat. *artus* ‘joint’, Ved. *rtú-* ‘order, fixed time’.³⁵

²⁶ Cf. de Lamberterie (1990: 187-194).

²⁷ De Lamberterie (o.c. 192f.) proposes a further etymology: **mnH-u-* ‘sparse, rare, thin’ may be a derivation from the verbal root of Lith. *minti* ‘to tread, break flax’ if an older meaning of the adjective was ‘broken into pieces’.

²⁸ In my view (see section 10.5), κᾶλός is best reconstructed as a thematicization of PGr. **kalú-* < PIE **klH-u-*, from the root of Lith. *kilti* ‘to rise, emerge’, Lat. *-cellō* ‘to rise, excel’.

²⁹ García Ramón (1985: 210) equally remarks that there is no good evidence for the sequence **C_μV-*, but makes a possible reservation concerning Hom. φᾶρος and Myc. *pa-we-a*₂. Since he also accepts that φᾶρος could be a loanword, I do not understand on which basis he concludes that “the Common Greek form must be reconstructed as **p^hrwos* > **p^harwos*”.

³⁰ Including e.g. Morpurgo Davies (1968) and García Ramón (1985). Thus already Schwyzler (1939: 342): “*ap* erscheint im Anlaut und Auslaut, vor einstigem Halbvokal und vor Vokal”.

³¹ Cf. Haug (2002: 50).

³² The effect is now known as “Lex Rix”. On **HLC-*, see recently Vine (2005).

³³ Cf. Ruijgh (1992: 86 n. 31).

³⁴ The vocalization of ἄρσῃν may have been influenced by the full grade: dialectal ἔρσῃν shows that the Proto-Greek paradigm had ablaut. The Thessalian form ορσῃν excludes a Pan-Greek development of **r* in initial position. See section 9.1.7 for further discussion of this word.

³⁵ As various scholars have observed, there is no reason for deriving ἄρχω ‘to rule; begin’ from a form with **r-*. The comparison of the particle ἄρα, ἄρ (Hom.) ‘then, so’ with the Baltic conjunction Lith. *iř*, Latv. *ir* ‘and, also; even’ and with the question particle Lith. *arĩ*, Latv. *ar*, has been taken to point to a reconstruction **r*. This is based, essentially, on the comparison of ἄρα, ἄρ with the Homeric clitic ῥα (cf. Hoenigswald 1953: 289-90, with

(2) $*w_rC-$, for which there are hardly any ascertained examples (perhaps in ἄρνειός ‘ram’ beside Ved. $vr̥ṣṇī-$ ‘id., ram-like’).³⁶

Word-initial $*l-$ may have existed in PIE, but there are no good examples for its reflex in Greek. For instance, the root underlying ἄλκή was $*h_2l̥k-$, as is shown by the related ἀλέξω ‘to ward off’ < $*h_2leḱ-s-$. Various words with initial λα- may have had $*lh_2C-$, $*sl-$ or $*wl-$. Ruijgh (1992: 86 n. 31) points at the interesting case of λεπτός ‘delicate, small’, which is attested already in Myc. *re-po-to*. As one would expect a pre-form $*l̥ptó-$ with zero grade root in this type of formation, roots of the structure $*leC-$ probably generalized the full grade at an early date.

1.2.3 Word-final $*r$ and $*l$

In word-final position, we only have evidence for $*-r$: there are no clear examples of $*-l$.³⁷ Most scholars accept an early, Pan-Greek change $*-r > -αρ$ which took place before the vocalization of $*r$ in internal position.³⁸ Given the well-known parallels from Indo-Iranian and Celtic, such a scenario is indeed quite plausible.³⁹ According to García Ramón (1985: 212), an early vocalization is proven by ἔαρ ‘spring’ < PIE $*ues-r$ because in his view, the intervocalic lenition $*s > *h$ could only have operated on a form ending in *-ar*. But since it is hard to exclude that the lenition of $*s$ also took place between a vowel and $*r$ (cf. Haug 2002: 51), the argument is not compelling.⁴⁰ There are, however, some other indications in favor of a pan-dialectal change $*-r > -ar$: García Ramón (1985: 215) points at the Homeric particle αὐτάρ (cf. τάρ < $*tr$ and ἀτάρ), which turns up as *autar* in Cyprian, a dialect which is mostly supposed to have an *o*-colored outcome in word-internal position.⁴¹

An alternative scenario has been proposed by Ruijgh (1961: 205), who assumes a split between (1) *-op* in Aeolic and Achaeon (Arcado-Cyprian and Mycenaean), and (2) *-αρ* in West Greek and Ionic-Attic. In his view, there was no difference between the word-internal and word-final development as far as the color of the anaptyctic vowel is concerned. This would allow a chronological alignment of both developments. Ruijgh’s only direct argument are the two isolated Epic forms ἤτορ ‘heart’ and ἄορ ‘sword’, which he supposes to be

a review of older literature). Upon this view, ἄρα arose as a conflation of ἄρ and ῥα, which are supposed to be two different outcomes of the same pre-form $*r$. Haug (2002: 52) accepts the reconstruction $*r$, but admits that all kinds of special accidents may have taken place, and therefore does not use ἄρα, ἄρ, ῥα as evidence. But since the origin of the variation ἄρ ~ ῥα remains obscure, we might as well connect only ἄρ with the Baltic forms and reconstruct a particle $*h_2r$, $*h_2ér$ (EDG s.v. ἄρα, cf. also DELG). Prof. Kortlandt points out to me that this reconstruction potentially conflicts with the idea that the prohibitive particle Toch. A *mar* reflects $*meh_1$ (as in Gr. μή, Skt. $mā$) plus $*r$. It seems logical to relate its final *-r* directly to the particle Toch.B *ra*, which is usually derived from PIE $*r$ plus another particle PToch. $*ā$ or $*ē$. In my view, it is possible to derive this particle from a pre-form starting with PIE $*h_2r$, because it cannot be excluded this first developed to $*r$ in Proto-Tocharian, with loss of the laryngeal.

³⁶ On ἄραπαλέος < $*walpaléo-$, see section 10.2.

³⁷ It is possible to explain some suffixes containing *-al-* by assuming an original Ns. in $*-l$.

³⁸ For an early vocalization of final $*-r$ to *-αρ* in all Greek dialects, see e.g. Schwyzler (1939: 342), Lejeune (1972: 196), García Ramón (1985), and Sihler (1995: 92). Haug (2002: 51-2), who discusses García Ramón (1985) and Ruijgh (1961), does not make a decision between these two competing points of view.

³⁹ See García Ramón (1985: 203), and for the possibility of a conditioned development of $*-r$ in Latin, see Frotscher (2012). The vocalization of $*-r$ had already occurred in Vedic, as in $údhār$ ‘udder’ < PIE $*(H)úHd^h_r$, whereas r was preserved in word-internal position. Perhaps, accented $*-r̥$ yielded *-úr*, as in *sthātúr* ‘immovable wealth’ and the 3p. pf. ind. *-úr*, as opposed to unaccented $*-r > -ar$: see Frotscher (2012). In Irish, the word-final change $*-r > -or$ (OIr. *arbar* ‘grain’ < PCelt. $*arawr$ < PIE $*h_2erh_3-ur$) differs from the word-internal development $*-r > -ri-$ (OIr. *críde* ‘heart’ < $*k̥rd-io-$); again, the latter change must have taken place later.

⁴⁰ Compare the possibility that $*-s-$ underwent lenition in the environment $*-rsV-$: see section 9.1 on τραυλός.

⁴¹ In addition, García Ramón (1985: 215-6) points at Arc. *παρ* < $*pr̥$, Myc. *a-mo-ra-ma* /āmōr-āmar/ ‘day by day’ < $*āmōr-āmr̥$, and the ligature *A-RE-PA*, which must represent /aleip^har/. He also interprets Myc. *o-da-a₂* as containing a particle /ar/ and compares it with Hom. ἄρ, ῥα, ἄρα, which he derives from PIE $*r$. But I agree with Haug (2002: 52) that it would be hazardous to base any conclusions on this particle.

Achaean elements in Homer. In addition, he uses the assumed Mycenaean development to *-op* to explain the *o*-vocalism in neuters like *pe-mo* (see section 1.3.2). By contrast, forms like Myc. *a-mo-ra-ma* /*āmōr-āmar*/ ‘day by day’ have in his view introduced the *a*-vocalism of the oblique cases in *-at-* < **-nt-* into the NAs. in **-or*. But as we will see (section 1.3.2), such a leveling is not the most convincing way to solve the problem posed by the Mycenaean neuters, and other scenarios for *ῆτορ* and *ῶορ* cannot be excluded.⁴²

Finally, an almost forgotten idea by Hoenigswald (1988: 201f.) deserves to be mentioned. The normal and most widespread Ionic-Attic reflex of **-r* is clearly *-αρ*, but Hoenigswald claims that all secure examples have a heavy root syllable. He proposes that the development depends on the weight of the preceding syllable: **ām_r* > **āmar* after a heavy syllable (Hom. *ῆμαρ*, cf. Myc. *a-mo-ra-ma*), as against **arow_r* ‘cultivated land’ > **arowra* after a light syllable (Hom. *ἄρουρα*, Myc. *a-ro-u-ra*). He adduces two other examples of **-r* after a light syllable: Hom. *ὑπόδρα* ‘looking sternly’ < **upo-d_rk* and *τόφρα* ‘so long’ < **to-b_rt*.⁴³ It would not be prudent, however, to base any conclusions on *ἄρουρα*, in view of the various competing reconstructions of this word.⁴⁴ Furthermore, it is noteworthy that both *ὑπόδρα* and *τόφρα* derive from a pre-form with word-final stop.

It is not possible, at this moment, to make a swift decision between the scenarios proposed by García Ramón, Ruijgh, and Hoenigswald. We will return to the chronological problems in chapter 9, when we will have obtained a clearer picture of the word-internal developments. This will also allow us to deal with the problematic form *ὑπόδρα*.

1.2.4 **r* and **l* in front of a nasal

Recently, Haug tentatively proposed that **r* and **l* also developed Pan-Greek *a*-vocalism in the environment **C_NV* (*N = m, n*): “Peut-être le développement de *ῤ* syllabique en *αR* ou *Rα* est-il grec commun non seulement devant voyelle, *y* et *w*, mais encore devant toute sonante. (...) on lit, à Mytilène et à Larisa, *στάλλα* (= att. *στήλη*) qui provient de **stl-nā-* (...). Il semble bien qu’il y ait eu développement d’une voyelle de timbre *a* devant sonante dans ces dialectes qui attestent normalement, en position interconsonantique, un *o*.” (2002: 54).⁴⁵ In other words, Haug supposes that the syllabic liquids undergo the same treatment in front of **NV*, **HV*, and **WV*.

It is noteworthy that Haug only comments on the color of the anaptyctic vowel, not on its place. Apart from Aeolic *στάλλα* and the non-probative Myc. PN *wa-ni-ko*, he does not cite any further evidence for the alleged Common Greek development.⁴⁶ In fact, the assumed reconstruction of *στήλη* is not ascertained at all. Most handbooks (Rix 1992: 67, *DELG* s.v.) compare it with OHG and OS *stollo* ‘support, post’ (m. *n*-stem), which presupposes a form

⁴² García Ramón remarks that *ῆτορ* and *ῶορ* stand beside the formulaic possessive compounds *μεγαλήτορ*, *χρυσάωορ*, from which they “can hardly be explained separately” (1985: 213-4). In my view, this is not very likely: see section 9.3 for a more detailed treatment of *ῆτορ* and *ῶορ*.

⁴³ The latter reconstruction was proposed by Hamp (1983).

⁴⁴ The problems concerning *ἄρουρα* are extensively discussed by Peters (1980: 143ff.). In Hoenigswald’s view, the outcome **arow_r* > **arowra* would formally look like a feminine singular, after which the word took over the flexion of the *ia*-stems. Alternatively, one could assume that *ἄρουρα* continues an older collective (neuter plural) to a thematic stem in PGr. **-wr-o-*: compare cases like *ἄλευρον* ‘flour’, *νεῦρον* ‘sinew’ < PIE **sneh₁-ur-o-*. Note, too, that Hom. *βέλεμνα* ‘missiles’ presupposes a thematic formation **g^welh₁-mn-o-*, because the regular outcome of **-mnh₂* would be Gr. **-mnā*.

⁴⁵ Most handbooks do not treat the issue. This could be taken as an indication that they reject a special development of **rn* and **ln*.

⁴⁶ Myc. *wa-ni-ko* is often casually derived from a diminutive **w₁rn-isko-* that would contain the stem of *ἀρήν* ‘lamb’. But the root of *ἀρήν* must have been **urh₁-*, in view of *πολύρρην* and Ved. *urán-*. Therefore, the oblique stem *ἄρν-* < **warn-* must be analogical for earlier **wrēn-* < **urh₁-n-*, with **war-* from the nominative **warēn* < **urh₁-ēn*. Thus, if *wa-ni-ko* is to be connected with the oblique stem of ‘lamb’ at all, it cannot be used to determine the regular reflex of **rn*.

with **st_l-n-*. But for *στήλη*, the alternative analysis as **sth₂-sleh₂-* (Risch 1974: 110, Sihler 1995: 213) from **steh₂-* ‘stand’ is attractive from a semantic point of view: a verbal root **stel-* in the meaning ‘to stand’ exists in Germanic, but not in Greek, where *στέλλω* means ‘to equip’.⁴⁷ There is also a phonological objection to **st_lnā-*: the geminate **-ll-* resulting from **-ln-* would not emerge early enough to take part in the first compensatory lengthening in Ionic-Attic (cf. section 10.5 on *βάλλω, περικαλλής*). Moreover, as a default assumption, **st_lnā-* is expected to develop *o*-vocalism in the Aeolic dialects, even if there is no direct evidence for the outcome of **l* in Lesbian (sections 3.4 and 10.6). In view of these objections and of Risch’s alternative reconstruction, Aeolic *στάλλα* cannot be considered probative for Haug’s thesis.

In fact, there is ample further material for the development of **r, l* in the environment **C_NV*. Most of the evidence is found in nasal present formations, where the vowel always appears in front of the liquid.⁴⁸ A treatment of these forms is found in sections 9.5 (**-rn-*) and 10.5 (**-ln-*). Anticipating my conclusions, the evidence suggests that the vocalization of **-rn-* and **-ln-* took place in the individual dialects and dialectal groups.

1.2.5 Conclusion on early *a*-anaptyxis

The current *communis opinio* on specific conditioned developments of **r* in Ionic-Attic was formulated as follows in Schwyzer’s *Griechische Grammatik* (1939: 342): “*αρ* erscheint im Anlaut und Auslaut, vor einstigem Halbvokal und vor Vokal”. The presupposed distinction is, of course, that *-ρα-* is the regular development in other positions. As for the claim that *-αρ-* is regular in the environments mentioned by Schwyzer, it appears that a number of modifications and provisos have to be made:

1. instead of “vor Vokal”, we have to read “in front of laryngeal plus vowel”
2. there is no evidence for *-αρ-* in front of **w*; we have to read “in front of *yod*”
3. the development in word-final position is still debated
4. there is no good evidence for word-initial position

It is also important to distinguish chronological levels: change 1. is of Proto-Greek date, 2. may also have been early, but in 3. the dialect groups possibly diverged.

From now on, we may focus on the environments **CLT* (where **T* is any occlusive or **s*) and **CLNV*. Unless otherwise indicated, the debate concerning the Ionic-Attic “double reflex” *αρ ~ ρα* only concerns these environments.

1.3 The *o*-colored reflexes

As for the dialectally conditioned color of the anaptyctic vowel, the differences of opinion mainly concern two issues. First, it has been debated whether the *o*-colored reflex was the exclusive outcome of **r* and **l* in the *o*-coloring dialects, or whether it occurred only in some sort of labial environment. Since Mycenaean, Arcado-Cyprian, and the Aeolic dialects will be treated more extensively in chapters 2 and 3, I will limit myself to a brief introduction to the problem. Furthermore, a few remarks will be devoted to the marginal evidence for *o*-vocalism in Ionic-Attic. A second problem concerns the relation between the vocalization of the syllabic liquids and that of the syllabic nasals in the dialects which attest *o*-colored reflexes. I will argue that these two developments must be viewed independently.

⁴⁷ For the suffix **-sleh₂-*, one may compare e.g. Lat. *scālae* ‘stairs’ < **skand-slā-*.

⁴⁸ As Hirt already remarked, “die *nā-* und *neu-*Verben haben *αρ*” (1897: 157), mentioning as examples, among others, *πάρνυμαι* and the gloss *θάρνυσθα*.

1.3.1 Which dialects have a regular *o*-colored reflex?

As is well-known, *o*-colored reflexes of **r* appear in Arcado-Cyprian and the Aeolic dialects, and Mycenaean also spells the outcome with signs of the *o*-series. The most important question is whether the *o*-colored reflexes are conditioned by their phonetic environment or, put differently, how seriously the evidence for *a*-vocalism in these dialects should be taken. Since Morpurgo Davies (1968), it has been remarked time and again that the *o*-reflex frequently appears in a labial environment. Morpurgo Davies herself proposed a strict condition: only a preceding **w-* would have conditioned the *o*-coloring in Arcado-Cyprian and Mycenaean, and the normal reflex of **r* in these dialects would be *ra* or *ar*. However, anticipating the conclusions of chapters 2 and 3, I have not found a compelling reason to doubt a general *o*-colored reflex in these dialect groups, with the possible exception of Mycenaean, which may have preserved **r*.

Most scholars do not doubt that an unconditioned *a*-colored reflex is regular in Ionic-Attic and the West Greek dialects. A notable exception is Bader (1969), but her suggestions have not been taken very seriously, probably because she did not try to establish a distribution between *a*- and *o*-vocalism, and resigned to the conclusion that both reflexes may appear in any dialect without further conditioning (1969: 57-58).⁴⁹

Let us consider the Ionic-Attic examples for *o*-vocalism discussed by Bader.⁵⁰ All forms in a non-labial environment can be eliminated without a problem, because reasonable alternative explanations are available. For instance, μητρόπολις ‘metropolis’ (Th.) may simply have the compositional vowel -*o*-. Ablatival forms like μητρόθεν ‘from the mother’s side’ (Pi., Hdt., trag., later also πατρόθεν) may have been influenced by the Gs. μητρός or by compounds with μητρο-.⁵¹ In compounds with a first member ‘man-’, ἀνδρο- is the normal form, but there are three instances of ἀνδρα-: ἀνδραφόνος ‘manslayer’ (ascribed to Solon), ἀνδρακάς (Hom.), and ἀνδράποδα ‘slaves’.⁵² Clearly, the form with *a*-vocalism is older, and there is no reason to doubt that Alphabetic Greek ἀνδρο- < **anr-o-* (with the compositional vowel) replaced the outcome ἀνδρα-. Finally, a few words with -*po-* < **r* occur mainly or exclusively in poetry, for instance βροτός ‘mortal’ < **mrtó-*, ῥόδον ‘rose’ (Myc. *wo-do-we* ‘rose-scented’, Sapph. βρόδον) < **wrdo-*. In view of their restricted distribution, these forms cannot be used as evidence for the Ionic vernacular reflex.⁵³

In my view, the only potentially promising candidate for a reflex -*op-* < **r* in Ionic-Attic is πόρρω ‘further’, which could be derived from PGr. **prtĩō*. In view of the problems involved in the cognates of πόρρω, I will postpone its discussion to chapter 9. For now, we may conclude that there is no reason to doubt a general *a*-colored reflex for Ionic-Attic. Finally, among the West Greek dialects, there is evidence for *o*-vocalism in Cretan. As I will show in chapter 3, the Cretan evidence can be explained if we assume that the development of **r* was conditioned by the preceding (labial or non-labial) segment.

⁴⁹ Bader’s reference to the supposedly unconditioned double reflex of the syllabic resonants in Balto-Slavic is erroneous, because the conditioning factor for -*uR-* was a preceding labiovelar stop. This was originally proposed by Vaillant, whose hypothesis has recently been reinforced by Kortlandt (2009: 39-41).

⁵⁰ There are also instances of *o*-vocalism in Cretan and Thera, see section 3.2.2.

⁵¹ Boeotian επιπατροφίων ‘patronym’ (Tanagra, 3rd c.) has been adduced as evidence for the Aeolic reflex -*po-*, under the assumption that it continues an instrumental **πατρόφι* < **patr̥p^hi*. But as Ruijgh (1961: 196) remarks, the -*o-* in this form could be a “voyelle de liaison”.

⁵² The reflex -*pa-* (rather than -*ap-*) in these forms will be discussed in section 7.3.3. Outside of Ionic-Attic, we find the PN Ανδραπομπος (IG XII, 3, 1139, archaic period, Melos).

⁵³ Bader also mentions θρόνος ‘chair’ (Myc. *to-no*), but it is improbable that this derives from **t^hrno-*. See chapter 7 for a further discussion of forms with -*po-* in Homer.

1.3.2 The *o*-colored reflex of the syllabic nasals

The Greek vocalization of the syllabic liquids has often been compared with that of the syllabic nasals. The rationale behind this comparison is that all four syllabic resonants may turn up with either *a*- or *o*-vocalism, and that the Greek dialects which generally have *o*-colored reflexes of **ɾ* also have instances of *o*-vocalism from **ŋ*, and **ɲ*. There are, however, some important differences between the regular development of **ɾ* and that of the syllabic nasals. The following brief discussion does not intend to solve all the problems; its goal is merely to argue that these two sound changes are best considered independent developments.

First of all, it deserves attention that the similarities between the two changes are only superficial. The unconditioned regular reflex of **ɾ* is *-po-* in the Aeolic dialects, *-op-* in Arcadian (see chapter 3), and either *ɾ* or *-or-* in Mycenaean (chapter 2). On the other hand, there is no dialect which has *-o-* as the unconditioned reflex of the syllabic nasals: the normal reflex of **ŋ*, **ɲ* in all Greek dialects, including Mycenaean, is *-a-*.⁵⁴ This fact alone shows that we are dealing with two distinct developments. Furthermore, the phonetics underlying the two developments are different. The nasal feature completely disappeared when **ŋ*, **ɲ* were vocalized, probably through an intermediary nasalized vowel. On the other hand, **ɾ* and **l* were vocalized due to the phonemicization of an anaptyctic vowel, and the liquids were retained as independent segments.⁵⁵

It remains to explain how the *o*-colored reflex of **ŋ*, **ɲ* was conditioned. Most scholars accept the thesis, first formulated by Morpurgo Davies (1960) for Mycenaean, that the *o*-colored reflex is due to a neighboring labial consonant.⁵⁶ In my view, the strongest examples are *a-no-wo-to* /an-o^hwoto-/ ‘without handles’ < PGr. **an-owsŋ-to-* (against Hom. οὔατα ‘ears’) and *e-ne-wo* ‘nine-’ < PGr. **en(n)ewŋ* (Class. ἐννέα).⁵⁷ A labial conditioning could also explain why Myc. has *a-mo* ‘wheel’ (also Np. *a-mo-ta*, DLp. *a-mo-si*) corresponding to Hom. ἄρμα, ἄρματα ‘chariot’, and *pe-mo* ‘seed’ beside Alph. σπέρμα ‘id.’.⁵⁸ It could also explain the Homeric forms ὄπατρος ‘of the same paternal descent’ < **sm-patr-o-* and οἰετέας ‘born in the same year’ < **sm-wetes-*, whether these forms are of Aeolian or Aeolic origin.⁵⁹ Note that there was no difference between the reflexes of **ŋ* and **ɲ* in

⁵⁴ Cf. recently Thompson (2010: 191), with a discussion of the most important Mycenaean material, citing *a-ki-ti-to* /aktiton/ ‘uncultivated’ < **ŋ*- and Dp. *te-ka-ta-si* /tektasi/ ‘builders’ < **tektŋ-si*.

⁵⁵ Cf. Wathélet (1970: 175), who also remarks that an earlier vocalization of the syllabic nasals (as compared with the syllabic liquids) has a parallel in Indo-Iranian.

⁵⁶ Thus, for Mycenaean, Lejeune (1972: 198), Leukart (1994: 110), Sihler (1995: 98). These three authors assume that only preceding labials could color the outcome, but Vine (1998: 35) argues that both preceding and following labials could cause this effect. He adduces *o-wi-de-ta-i* < **ŋ-wid-et-āhi* ‘to the invisible [deities]’ and *o-mi-ri-o-i* < **ŋ-mr-io-* ‘to the immortals’ as possible examples for the latter case. More recently, Hajnal-Risch (2006: 212-13) and Thompson (2010: 191-2) pleaded in favor of the labial conditioning. See Thompson (1996-97: 316-20) for an overview of the potential evidence for **ŋ* in Mycenaean.

⁵⁷ It has been repeatedly observed (e.g. Ruijgh 1961, Wathélet 1970) that much of the reputed evidence for **ŋ*, **ɲ* > *o* is found in the numerals. However, the analogical spread of *o*-vocalism through the numerals in certain dialects can in my view only be explained if there was a sufficient basis for the leveling. See below.

⁵⁸ A less secure example is *do-po-ta* ‘lord’ < **dŋ-pot-ā-* beside *da-ko-ro* < **dŋ-koro-* ‘temple servant’, both from Pylos. Myc. *do-po-ta* is the recipient of an offering, and therefore most probably a theonym (cf. δεσπότης). Myc. *da-ko-ro* is an occupational term, and usually compared with class. ζάκορος ‘temple servant’.

⁵⁹ In οἰετέας, οἰ- spells (metrically lengthened) /ō/ before a following ε. It could be argued that ὄτριχας was triggered by οἰετέας, which directly follows it in *Il.* 2.765. If ὄτριχας was a nonce formation, this would explain its deviant semantics (“having the same *kind* of hair”, rather than expected “having the same hair”). Whereas ὄτριχας and οἰετέας are hapaxes, ὄπατρος is clearly genuine, because it is attested twice in the formula κασιγνήτος καὶ ὄπατρος (Ns. *Il.* 12.371, As. *Il.* 11.257). The only two other attestations of copulative ὄ- are found in Hsch.: ὄζυγες· ὄμόζυγες and ὄγάστωρ· ὄμογάστωρ, glosses to which not too much value can be attached. Ruijgh explains copulative ὄ- by an analogy that would have taken place in a psilotic dialect like Lesbian, where the preconsonantal variants ἄ- < **sm-* and ἄ- < **ŋ-* had merged. This would have motivated the analogical creation of ὄ- beside prevocalic ὀμ- (< **som-*) after ἄ- beside prevocalic ἄν-. While this ingenious

Mycenaean or in any Aeolic dialect: cf. Myc. *a₂-te-ro* /hatero-/ ‘next [year]’ < **sm̥tero-* ‘the other [year]’”.

However, a persistent problem with the labial conditioning is formed by the variations in a few Mycenaean neuters: (1) *pe-ma* /sperma/ is also found at Pylos, but only in one scribal hand, and beside the much more frequent *pe-mo*, (2) *A-RE-PA* /aleip^har/ ‘unguent’, oblique stem *a-re-pa-te* /aleip^hatei/; *a-re-po-zo-o* beside *a-re-pa-zo-o* /aleip^ho-, aleip^ha-d^yoho-/ ‘unguent boiler’, (3) *e-ka-ma-te* /hek^hmatei/ and *e-ka-ma-pi* /hek^hma(t)p^hi/ < **hek^h-m̥n̥-t-* ‘support’ (part of a table), to be compared with Hom. ἔχμα ‘support, prop’ (of a ship or a wall).⁶⁰ These forms constitute a well-known crux of Mycenaean studies, and this is not the place to propose a solution or even to review all previous answers.⁶¹ As before, I will limit myself to a discussion of Ruijgh’s proposal.⁶²

Ruijgh argued that the syllabic nasals had *a*-colored reflexes in all dialects, and that the Mycenaean instances of *o*-vocalism originated in *-or* as the regular outcome of the NAs. **-r̥*.⁶³ An older heteroclitic paradigm Ns. **-r̥*, Gs. **-r̥tos* which developed to Ns. **-or*, Gs. **-atos* could in principle be levelled in two different directions. A paradigm with *-ap*, *-ατοϛ* was the result in literary Lesbian, as well as in the Mycenaean heteroclitic *A-RE-PA*, *a-re-pa-te*, and the variant *a-re-pa-zo-o*.⁶⁴ In addition, Ruijgh supposes the existence in Mycenaean of “doublets” in **-or*, **-otos*, which arose by leveling in the other direction. He proposes to explain the *o*-vocalism in words like *a-mo* and *pe-mo* by a secondary extension of this “double flexion” (°*at-* beside °*ot-*) to non-heteroclitic neuters.⁶⁵ Traces of such “doublets” would be *pe-mo* beside *pe-ma* and *a-re-po-zo-o* beside *a-re-pa-zo-o*. Some neuter **mn̥*-stems like *e-ka-ma* would have retained only the expected *a*-vocalism, and other such stems like *a-mo* are supposed to have generalized the doublet with °*ot-*.

Ruijgh’s scenario cannot be correct. It is unlikely that *both* assumed suffix variants °*at-* and °*ot-* served as the productive marker of a morphological category in one single dialect. Moreover, Ruijgh does not explain why some neuters acquired *o*-vocalism and why others did not. Finally, there is no unambiguous proof that the heteroclitic stems ever had a NAs. in *-or* < **-r̥* in Mycenaean (see section 9.3). Considering the case of ‘unguent’, it would be much easier to assume that the productive suffix °*ar*, °*at-*, which arose after non-labial consonants, was introduced in *A-RE-PA*, *a-re-pa-te*, and that the compound *a-re-po-zo-o*, which denotes a profession, preserved the older oblique form (with the regular post-labial reflex of **ṛ̥*) for some time.

In sum, I accept a conditioned *o*-colored reflex of the syllabic nasals in labial environments in Mycenaean, as in *a-no-wo-to* and *e-ne-wo*.⁶⁶ It must be admitted that *e-ka-ma* and the variation *pe-ma* ~ *pe-mo* continue to cause problems, but the conditioned change allows us to explain the pervasive *o*-vocalism of *a-mo* < PGr. **ar-m̥n̥*, and the fact that *pe-mo* is the normal form, with the exception of one single hand. In the remainder of this work, the syllabic nasals will not play a role, except in my explanation for numeral forms like Myc. *qe-*

suggestion cannot be entirely excluded, it does not explain why Homer attests psilotic forms like ἄκοιτις ‘spouse’, rather than ++ἄκοιτις.

⁶⁰ Ruijgh (1961: 203) remarked: “M. Risch a pensé que le résultat de *ṛ̥* est *o* dans un entourage labial, mais la forme *e-ka-ma-pi* prouve que cette hypothèse est gratuite.”

⁶¹ Hajnal (in Hajnal-Risch 2006: 212ff.) summarizes various proposals. I am sceptical about Risch’s proposal to distinguish “mycénien normal” from “mycénien spécial”.

⁶² E.g. Ruijgh (1961: 205, 1967: 100-101), followed by Wathelet (1970: 173-5).

⁶³ Ruijgh (1961, 1985: 153ff.) assumes a change **-r̥* > *-or* both for Aeolic and the Achaean dialects. In his view, Hom. ἦτροπ and ἄορ are Achaean words. On these forms, see section 9.3.

⁶⁴ But it cannot be easily excluded that the literary Lesbian forms in *-ap* are epicisms or borrowings from Ionic: see section 3.4.3 and above.

⁶⁵ And also to *a-no-wo-to*, beside NAs. PGr. **ous* ‘ear’.

⁶⁶ For other arguments, see section 1.3.2.

to-ro-, Thess. *πετρο-*, Class. *τετρα-*. In section 2.6, I will argue that these dialectal differences can be explained by analogy with the corresponding differences in ‘nine’ and ‘ten’.⁶⁷

1.4 Previous explanations of -αρ- versus -ρα- in Ionic-Attic

In his volume of the *Indogermanische Grammatik* about accent and ablaut, Kuryłowicz gives an instructive treatment of the Greek reflexes of **ɣ*. He adduces the following evidence for the regular development to -ρα- (1968: 247): “Dass -ρα- lautgesetzlich ist, beweisen Gegensätze wie δέρκομαι : ἔδρακον; πέρθω : ἔπραθον; νημερτής aber ἔμβραται· εἴμαρται und ἔμβραμένη· εἴμαρμένη (Hesych)⁶⁸; τέρπω : τραπέομεν; σπείρω : -σπρατός; δέρω : δρατός; τέρσομαι : τρασιά; θέρσος (äol.) : θρασύς; τέτταρες (für *τέττορες) : τράπεζα. Vgl. ferner isolierte Beispiele wie βραδύς : lat. *gurdus*; κράνος : lat. *cornus*; πράσον : lat. *porrum*.”

Although not every example is equally compelling, this is indeed an impressive list. The apparent impossibility to give a different explanation for -ρα- in such pairs as δέρκομαι : ἔδρακον and πέρθω : ἔπραθον has always motivated the general consensus that -ρα- must be the regular reflex of **ɣ* in Ionic-Attic. In other words, whenever *CraT-* is found as the zero grade reflex of roots of the structure *CeRT-*, it cannot be explained by normal analogical mechanisms.⁶⁹

But this is not the end of the story. As was recognized long ago, cases of -αρ- < **ɣ* are also found in roots of the structure *CreT-*. Osthoff (1879: 144-5) and Güntert (1916: 72) pointed at κάρτα beside κρατύς (κράτος, κρατέω, κραταιός), as well as ταρφύς, ταρφειά, τάρφος beside τρέφω, τρόφις. Güntert eventually dismissed κάρτα in view of the possibility that Goth. *hardus* is etymologically related, and waved away ταρφύς and τάρφος with the assumption that they are artificial epic creations.⁷⁰ Neither claim can be easily substantiated. Within Greek, κάρτα belongs to the root κρετ-, with a different full grade slot. If ταρφύς would have been preferred over ⁺⁺ταρφύς for metrical reasons, it remains unclear why a similar reshaping did not take place in other Homeric adjectives like βραδύς, θρασύς, κρατύς.

Kuryłowicz dealt with κάρτα and ταρφύς by assuming that the fluctuation between zero grades *CraT-* and *CaRT-* from roots of the structure *CeRT-* induced a hesitation about the

⁶⁷ See sections 2.5-6 and 3.4. Ruijgh (o.c.) also explained the numerals by analogical developments, but without invoking a conditioned change **η, *η̄ > o*. In his view, Arc. δεκο, Thess. Lesb. δεκοτος and forms of ‘nine’ (cf. Lesb. ενοτος) would have acquired their final -o from οκτο (attested in Boeot. and Lesb.), which would itself have developed from οκτώ under influence of δύο beside δύω. Subsequently, the final -o would have spread to ‘nine’ and ‘ten’. This view has recently been accepted by Haug (2002: 51). But even if influence of ‘two’ on ‘eight’ is accepted, it is remarkable that in a sequence ἐπτά - οκτό - ἐννέα - δέκα, it was the final vowel of οκτο that prevailed. In my view, it would be much easier to explain the cases of *o*-vocalism in the numerals if ‘eight’ was assisted by ‘nine’ (Myc. *e-ne-wo* the regular reflex of **enewη* due to the preceding labial consonant; similar for Lesb. ενοτος). From ‘nine’ and perhaps also ‘eight’, the final -o could spread to ‘ten’. The forms δέκο, δέκο-, δέκοτος could then easily induce further analogical changes, such as Arc. πεμποτος after δεκοτος (the latter also attested in Thess. and Lesb., and possibly in Myc. *de-ko-to* PN), and notably Myc. *qe-to-ro-*.

⁶⁸ This example is erroneously adduced by Kuryłowicz, because ἔμβραται is derived from the root of μείρομαι ‘to receive as a share’, and νημερτής from that of ἀμαρτεῖν ‘to miss’. Moreover, ἔμβραται is not an Ionic-Attic form (it is ascribed to the Syracusan mimographer Sophron).

⁶⁹ Kuryłowicz (ibid.) mentions the following pairs of forms which are either attested with both -αρ- and -ρα-, or suggest the earlier existence of such a pairing. In his view, the form with -ρα- is the older reflex: “μάρπτω : βράψαι; βάρναμαι : μάρναμαι; παρδεῖν : παραδεῖν; καρδία : κραδία; ἔδαρθον : ἔδραθον; ταρπῆναι (...), aber τραπέομεν.” In addition to the forms cited by Kuryłowicz, Güntert (1916: 71-2) adduces a few other relevant examples like γράφω ‘to write’ beside G. *kerben*. However, most of the examples adduced by Güntert do not survive closer scrutiny, e.g. βράκανα (n.pl.) ‘wild vegetables’ beside OHG *moraha* ‘carrots’, ράδαμος ‘branch’ beside Goth. *waurts* ‘root’, ράπτω ‘to sew’ beside Lith. *verpiù* ‘I spin’, δράσσομαι ‘to grasp with the hand’ beside Lith. *difžas* ‘handle of an oar’, τράμις ‘perineum’ beside G. *Darm* ‘intestine’. The dubious status of a number of these etymologies will be discussed in section 9.4. Kuryłowicz rightly restricted himself to a group of more central examples.

⁷⁰ On Osthoff’s explanation, see section 1.4.4 below.

correct zero grade of roots of the structure *CreT-*.⁷¹ But it remains unclear why hesitation about the correct zero grade would occur in roots with a clear full grade. Kuryłowicz does not explain either why such etymologically incorrect *-αρ-* is found precisely in *καρτερός*, *κάρτα* and *ταρφύς*, nor why there are no by-forms ⁺⁺*κράτα* and ⁺⁺*τραφύς*. It is difficult, then, to dismiss *κάρτα*, *καρτερός*, and *ταρφύς* that easily.

An important question concerns the origin of doublets of the type *καρτερός* ~ *κρατερός*. In his *Grammaire homérique*, Chantraine observed that such doublets are mainly found in Homer, and proposed that they originated as follows (1942: 23): “Dans le développement des sonantes *r* et *l* l’élément consonantique s’est maintenu et l’a figure soit avant soit après la consonne: on observe un flottement entre *ρα* et *αρ*. Les aèdes ont naturellement choisi la forme la plus favorable à l’hexamètre dactylique”.⁷² Thus, Chantraine seems to assume that at some point, forms with [rə] and with [ər] were in competition as a result of phonetic developments. Only Epic Greek would preserve traces of the hesitation between the two competing realizations, and only in a small number of cases where it could be utilized for metrical purposes. There are, however, no other compelling reasons to assume a phonetic hesitation between [ər] and [rə] in pre-alphabetic Greek. The fact that no alternations between /ar/ and /ra/ are found within in the same formation in the Ionic-Attic vernacular speaks against a phonetic cause for the variants attested in Homer. Moreover, the limited number of examples excludes that the creation or retention of these pairs was due to metrical convenience only.

Departing from the idea that *-ρα-* is the regular reflex of **r*, most previous accounts use one or more additional hypotheses in order to explain the forms with *-αρ-* that cannot be due to analogical restoration.⁷³ Let us now summarize and discuss the most noteworthy proposals:

1. an accent-conditioned development, according to which secondarily accented **r̄* would yield *-άρ-*: Kretschmer (1892), Schwyzler (1939: 342), Klingenschmitt (1974: 275), Hajnal-Risch (2006: 102-3 and 202-205).
2. *-αρ-* is the result of liquid metathesis: Hirt (1901: 232-38), Risch (1979: 98-99), Lejeune (1972: 196-97), Thompson (2002-2003), Hajnal-Risch (2006, l.c.).
3. secondary ablaut *CeRT-* : *CaRT-* before the vocalization of **R̥*: Kuryłowicz (1956 and 1968: 243-47), García Ramón (1985).
4. *-αρ-* is the regular reflex after a heavy onset cluster: e.g. Osthoff (1879: 144-45),

⁷¹ “In manchen Fällen konnte das Nebeneinander von *TRaT* u. *TaRT* auch alte *TReT*-Wurzeln in Anspruch nehmen, so *κρετ-* (*κρείπτων*, äol. *κρέτος*), wo neben *κράτος*, *κρατερός*, *κράτιστος*, *κρατύνω* auch die entsprechenden Formen mit *αρ* auftreten. Ferner findet sich neben *τρέφω* ‘gerinnen lassen’ *ταρφύς* ‘dick, geronnen’, *ταρφειαί*, aber das Jonische hat auch *τραφερή* (*γῆ*) ‘feste Erde, Festland’.” (Kuryłowicz 1968: 247).

⁷² Chantraine discusses the following examples: “À l’attique *καρδία* « cœur » répond généralement l’homérique *κραδίη*: *καρδίη* n’est possible qu’au nominatif et au datif singulier devant un mot à initiale vocalique, l’hiatus abrégant la longue finale (...); l’ionien-attique a employé concurremment *θάρσος* et *θράσος* « audace »; le dialecte homérique a normalement *θάρσος* (12 exemples), et une seule fois *θράσος* (...); il existe une répartition entre *καρτερός* « fort » qui est attique et *κρατερός*, cette seconde forme étant employée lorsque la syllabe finale est longue; suivant les besoins du vers Homère emploie soit *τέταρτος* « quatrième » qui est attique soit *τέτρατος* (...) qui, avec une finale brève, fournit une dactyle; enfin à *βραδύς* répond un superlatif *βάρδιστος* (...) ; *βάρδιστος* ne pouvait entrer à aucune place du vers homérique.” (1942: 23-4).

⁷³ Rix (1992: 65) only mentions the possibility of analogical influence of the full grade. Sihler explicitly admits that the problem has not yet been solved, and gives the following, rather neutral characterization: “The conditions governing the appearance in Greek of *αλ* and *αρ* vs. *λα* and *ρα* have not been determined. In some words the difference is dialectal, but not in most.” (1995: 92). It is impossible, but also unnecessary, to review all previous proposals and discussions here. The arguments and conclusions of O’Neil (1971) are so manifestly wrong that they need not be discussed in extension. Idiosyncratic ideas on the coloring of the anaptyctic vowel are found in other articles like Wyatt (1971) and Bernabé (1977). These authors do not address the issue to which the present treatment pays most attention: the place of the anaptyctic vowel.

Hoenigswald (1953, 1968, and 1988), Lubotsky (1994: 97).

1.4.1 Accent-conditioned development

For the alternation between $\alpha\rho$ and $\rho\alpha$ in certain words, Schwyzer's *Griechische Grammatik* recommends the following explanation (1939: 342): "Für καρδία (aber hom. κραδίη, vgl. air. *crīde*), θαρρεῖν (neben θρασύς), δαρτός (neben δρατός; vgl. got. *gataurps* f. ai. *dṛti-* f.), σπαρτός, ἔφθαρκα, ἄγαρρις aus -ρσ- ist die Stellung des ρ in κῆρ θέρσος δέρω σπείρω φθείρω ἔφθορα ἀγείρω verantwortlich zu machen. Doch erklären sich andere unstimmmige Fälle so nicht: κάρτα καρτερός neben κρατός : äol. κρέτος κρέσσων κρατερός, μαρνάμενος usw., μάρπτω : βρακεῖν, μάρτυς : μέρμερος μέριμνα. Man darf wohl für solche Fälle mit der Möglichkeit rechnen, dass auch ein r , das sekundär den Akzent erhielt, zu $\alpha\rho$ wurde (...)."

Schwzyer does not indicate more precisely how the accent would be responsible for the different outcomes in the examples he cites. For instance, how is the difference between καρτερός and κρατερός, both with the same accent, to be explained? The analogical explanation generally assumed for καρδία, that -αρ- is due to the influence of κῆρ, is not straightforward either (see chapter 6). These and similar problems arouse suspicion as to whether an accent rule can solve the problem.

The view canonized in Schwyzer's grammar essentially goes back to Kretschmer (1892: 391-94). Kretschmer's main argument for the accent rule were the particles ἄρ (accented) beside ῥα (unaccented), which in his view retain the original distribution. For both particles, he departed from a pre-form PIE $*r$. Other examples adduced by Kretschmer include the gloss στάρτοι (Hsch., with retracted accent) beside the normal form στρατός 'army', and μάρτυς 'witness' which he connected with βραβεύς 'arbiter'. But none of these examples is probative. The gloss στάρτοι is ascribed to Cretan, but in that dialect the reflex -αρ- is also regular in unaccented position; moreover, the etymological relation between βραβεύς and μάρτυς cannot be maintained. Finally, a solution for the distribution of -αρ- and -ρα- cannot be based on the particles ἄρ and ῥα, if only because these forms do not contain the environment $*CLT$.⁷⁴ While Kretschmer did not consider any counterevidence to his rule, Grammont (1895: 26) pointed out a number of counterexamples, of which κατέδαρθον and τέταρτος are strongest, and to which I would also add καρτερός, ταρφύς, and καρπός.

More recently, Kretschmer's accent-conditioned development has been revived by Klingenschmitt (1974: 275-6), but only with very summary argumentation.⁷⁵ The inadequacy of this rule will be further illustrated in section 2.4, in a discussion of Hajnal's attempt (Hajnal-Risch 2006) to apply it to the Mycenaean material.

1.4.2 Liquid metathesis

Since the accent rule does not account for all instances of $-\alpha\rho-$ < $*r$, some scholars have invoked liquid metathesis as an additional mechanism. Hirt (1901: 232-38) argued as follows. On Crete $-\rho\alpha-$ has been metathesized to $-\alpha\rho-$, and there is also evidence for metathesis of $-\rho\epsilon-$ to $-\epsilon\rho-$. Therefore, forms with $-\alpha\rho-$, which are frequent on Crete, could also be due to metathesis from $-\rho\alpha-$. Starting from this observation, Hirt proposed that the metathesized forms with $-\alpha\rho-$ spread from Crete to other dialects.

Apart from the fact that this construction is difficult to test, and that there is no further evidence for influence of Cretan on Ionic-Attic or on Epic Greek, one of Hirt's premises is manifestly wrong, and the other is not necessarily correct. There is no evidence for a metathesis $\rho\epsilon > \epsilon\rho$ on Crete, the only example for this development being Pamph. περτ', a

⁷⁴ Cf. also Haug (2002: 52). The reconstruction of a particle PIE $*r$ (also embraced by Haug) is doubtful in itself, because word-initial $*r-$ was probably avoided in the proto-language. I would therefore prefer to reconstruct ἄρ as $*h_2r$ (cf. Beekes, *EDG* q.v.), and to leave ῥα unexplained.

⁷⁵ Klingenschmitt's article has been approvingly cited in a number of subsequent treatments (e.g. Leukart 1994).

cognate of Hom. *πρωτί*. But nothing is known for certain about the dialectal affiliations of Pamphylian, or about the expected reflex of **r* in this dialect (see section 3.6). As for Cretan, there are only two examples for the supposed metathesis *po > op*: *Αφορδιτα* and *πρωτι*. Since both cases have *-op-* after a preceding labial consonant, I will argue in section 3.2 that the Cretan examples for both *-ap-* and *-op-* contain the regular reflex of **r*. This refutes a regular liquid metathesis for Crete, and it deprives the assumption of liquid metathesis in Ionic-Attic of its only clear parallel within Greek.⁷⁶

Another much-cited treatment of the problem is Lejeune (1972: 196), whose reasoning goes as follows: “À l’intérieur du mot devant consonne, le traitement de type *pa* est le plus fréquent. (...) On serait tenté de le considérer comme régulier et d’attribuer le traitement de type *ap* à des actions analogiques (...)” Lejeune then remarks that not all examples can be explained in this way, an important “pièce de résistance” being the Homeric doublet *κατερρός* ~ *κρατερός*, and concludes: “On est donc amené à invoquer la mobilité générale des liquides dans le syllabe.”

In some languages, liquid metathesis operates completely regularly, for instance in the so-called *polnoglasie* forms in Slavic languages. The phonetic conditions for liquid metathesis may be highly specific: a noteworthy example is the regular liquid metathesis of unaccented **ar > rə* in Le Havre French (see Blevins & Garrett 1998), which seems to be conditioned by a following labial fricative or labial nasal. The metathesis assumed for *κατερρός* ~ *κρατερός* by Lejeune, however, would be irregular and unconditioned. This is not a solution of the problem of *-pa-* versus *-ap-*: it merely amounts to admitting that one is unable to indicate a historical condition for the distribution.⁷⁷ In the course of this book, we will see that the situation in Mycenaean, Homeric, and Classical Greek is not so hopeless as to call for such a resignation. I will therefore leave liquid metathesis out of consideration from now on.

1.4.3 Secondary ablaut *TeRT-* : *TaRT-*

In his discussions of Indo-European ablaut, Kuryłowicz (e.g. 1956, 1968) has suggested that the “southern” IE languages (Greek, Italic and Celtic, in his view) could introduce a secondary zero grade **TaRT-*, replacing forms of the type **TRT-V-*. A Latin example is *carpō* ‘to pluck’ (PIE root **kerp-*), where ⁺⁺*corpō* would be the expected outcome of a zero grade root **kyp-*. Kuryłowicz assumes (1968: 243) that the ablaut *TeR-V-* (full grade) : *TaR-V-* (zero grade), which came into being after the loss of the laryngeals in roots of the structure *TeRH-*, was analogically transferred to roots of the structure *TeRT-*, giving rise to a “secondary ablaut” *TeRT-* : *TaRT-*. This model would explain why we find secondary zero grades with roots of the structure *TeRT-*, but not with those of the structure *TReT-*, where there was no corresponding model of the type ⁺⁺*TRe-* : ⁺⁺*TRa-*.

To start with, it must be stressed that the evidence for “Indo-European” secondary ablaut of the type **TRT-* → **TaRT-* is marginal. It is safe to say that the mechanism was originally devised for Latin: all nine roots adduced as evidence by Kuryłowicz (1968: 243-4) have a Latin example with *a*-vocalism, and in seven or eight cases the Latin forms are the

⁷⁶ Hirt further believes that Homeric *-ap-* may be due to metrical considerations: in pairs like *κρατ-* / *καρτ-*, *θρασ-* / *θαρσ-*, *ἀταρπιτός* / *ἀτραπιτός* “[liegt] bei Homer kein beliebiger Wechsel von *pa* und *ap* vor, sondern *ap* findet sich da, wo wir metrische Dehnung erwarten sollten.” But: “Dass damit freilich noch nicht alle *ap* des Griechischen beseitigt sind, sehe ich wohl, indess glaube ich doch annehmen zu können, dass *pa* der alleinige Vertreter von *r* ist.” (Hirt 1901: 238). On an earlier occasion, Hirt remarked: “Die Hauptargumente für unsere Ansicht werden bleiben: der Lok. Plur. *πατράσι*, und *ὑπόδρα(κ) zu δέρκομαι*.” (1897: 158).

⁷⁷ The problematic instances of *-ap-* have often been tucked away in previous treatments. A good example is the discussion by Güntert (1916: 69-74). On the one hand, he accepts Kretschmer’s accent-conditioned development. But in addition, he states that Hirt’s discussion, which departs from the assumption of liquid metathesis, has shown “dass es kaum noch erwartet werden kann, in jedem Einzelfall die Verteilung von *ap* und *pa* zu erklären.” In this way, the argument is protected against undesired falsification – a clear *ad hoc* strategy.

only reason to assume a pre-form with **TaRT-*. The Latin *a*-vocalism is a post-PIE, inner-Italic problem for which several other proposals have been made.⁷⁸ As far as we know, the main laryngeal developments took place in the individual branches, so that Kuryłowicz’s idea of a “Southern” subgroup of Indo-European can no longer be upheld. In view of these arguments, the Greek forms with *-αρ-* constitute a separate problem.

Let us now briefly discuss the Greek forms adduced by Kuryłowicz (1968). For a secondary zero grade **TaNT-*, the only two examples he cites are: (1) κάνδαρος ἄνθραξ ‘piece of charcoal’ (Hsch.), which would be related to Lat. *candeō* ‘to shine’, Ved. *cand-* ‘to shine’, and (2) σκάνδαλον ‘trap; outrage’, which would be related to Lat. *scandō* ‘to rise, ascend’, Ved. *skand-* ‘to leap’. But since κάνδαρος is only attested as a gloss, it can hardly be called compelling evidence. Neither is σκάνδαλον admissible as evidence, because its first attestation is in the *Septuagint*. It may well be a loanword from Semitic, and the connection with **skend-* is not evident semantically. Finally, it is noteworthy that neither κάνδαρος nor σκάνδαλον has an inner-Greek cognate formation with a corresponding full grade of the root.

For secondary **TarT-*, the only Greek form mentioned by Kuryłowicz is ἄρη ‘sickle’, related to OCS *srъръ*, Latv. *sirpis*, and possibly also to OW. *serr*, Mlr. *serr* (all ‘id.’). In addition, García Ramón (1985: 217-18) proposed that Kuryłowicz’s explanation of Lat. *carpō* could be extended to Greek καρπός ‘fruit, harvest’. Kuryłowicz’ original idea was that Lat. *sarpō* ‘to prune the vine’ and *carpō* ‘to pluck’ contained analogical prevocalic zero grades **TaRT-V-* of late-PIE date. However, this explanation is not necessary: Schrijver (1991: 493) suggested that the root *sarp-* may either have been generalized from the pre-consonantal zero grade, as in the ppp. *sarptus* < **srp-to-*, or that the *-a-* may have been taken from the semantically and formally close verb *sarriō* ‘to hoe, weed’. It is best, in my view, to explain the Greek and Balto-Slavic evidence from a root noun **syp-* (or ablauting **serp-* / **syp-* if one wishes to include the Celtic forms). For a more detailed criticism of García Ramón’s interpretation of καρπός, see section 2.1.

The lack of convincing evidence is the main reason to reject Kuryłowicz’s secondary ablaut as an explanation for Greek forms with *-αρ-*. Moreover, it is difficult to indicate a motive for the analogical introduction of *a*-vocalism as long as **TRT-* was still analyzable as a regular zero grade. In what follows, I will exclusively make use of regular analogies, which could only take place after the vocalization of the syllabic liquids in the individual branches. As a consequence, the isolated words καρπός and ἄρη require a different explanation.

1.4.4 Conditioning by neighboring consonant clusters

In his contribution to the second volume of *Morphologische Untersuchungen*, Osthoff remarked that the outcome *αρ* < **r* in Greek cannot always be understood as analogical: “Es gibt Fälle, in welchen man dem *αρ* = *r* schwerlich mit irgend welchem “systemzwang” wird beikommen können. Bei καρδία neben κραδίη, ἔδαρθον neben ἔδραθον (...) und wol noch in anderen Fällen fehlt uns im griechischen jegliche Spur einer anderen, stärkeren Ablautsstufe derselben Wurzeln. (...) Vollends bei κάρτος, καρτερός und κράτος, κρατερός, κρατύς würde uns die Zuhilfenahme von κρέσσων (ion.), κρέτος (lesb.), Τιμο-κρέτης allenfalls nur zu dem nicht gesuchten entgegengesetzten Resultat führen können, dass *αρ* lautgesetzmässig und *ρα* durch die Analogie bewirkt sei. Und aus demselben Grunde würden die doch nur zu τρέφω ‘dick werden lassen, gerinnen machen’ unmittelbar gehörenden ταρφέες ‘dicht’, τάρφος ‘dickicht’ unbegreiflich bleiben.” (1879: 144-5). Osthoff then proposed that the preceding word-end could influence the development: “Hiess es ursprünglich ἡ καρδία mit κρα- im

⁷⁸ To be sure, none of these proposals has won general acceptance. For example, Schrijver proposed a conditioning by an adjacent pure velar (1991: 425-35), or the early phonologization of an epenthetic vowel as /a/ before three consonants (1991: 488-98).

anschluss an das vocalisch auslautende, aber τῆς καρδίας mit καρ- hinter dem consonantisch schliessenden proklitikon?“ (1879: 145).

An obvious drawback of this hypothesis is that it cannot be tested against the evidence: it merely assumes the earlier existence of a now-lost sandhi phenomenon. Furthermore, the definite article had not yet developed when the syllabic liquids vocalized. Finally, there are counterexamples: as Kretschmer remarks, “Osthoffs Vermutung, dass vorhergehende Consonantenhäufung die Lautfolge αρ αλ bedinge, lässt sich nicht begründen, und Fälle wie στρατός, ὀφίοσπρατος, τράπεζα aus *πτράπεζα sprechen gegen sie.” (1892: 391).⁷⁹ Well into the twentieth century, a solution along the same lines has been attempted by Hoenigswald (1953, 1968, 1988), but again without considering the counterevidence.⁸⁰

The idea of a special reflex -αρ- after a heavy initial cluster has more recently been advanced by Lubotsky (1994), in a discussion of σάρξ ‘meat’, but in a somewhat different way. In his view, this etymon regularly derives from a non-ablauting zero grade root PIE **uwr̥k-*: “... it is by no means certain that every Gr. αρ < **r̥* must necessarily be attributed to the influence of full grade forms. I believe that an important role in the vocalization of the Greek liquidae was played by the initial clusters. An example may clarify the issue. The vocalization -αρ- in σάρξαν 3pl. aor. ‘to wrap’, σάργαλα pl. ‘swaddling-clothes’ can hardly be explained by the full grade attested in σπεῖρον ‘piece of cloth’ or σπεῖρα ‘coil, etc.’ because the latter words contain a different root. On the other hand, since the initial cluster σπρ- is unattested in Greek, we may suggest that the vocalization **spr̥C* > σπρC, etc. was phonetically impossible and that the sequence **sprC-* regularly yielded **sp̥rC* > Gr. σπαρC-. Similarly, vocalization in forms like ἄσφαλτος, σκαλμός, φθάρμα, etc. may be explained by the particular initial clusters.”

Thus, Lubotsky suggests that the vocalization of **r̥* to -αρ- was regular after a word-initial or syllable-initial onset /sC-/ or /TC-/. Unlike Osthoff and Hoenigswald, he formulates a sound change that is supposed to have operated independent of sandhi phenomena, so that the proposal can be tested. It predicts that no forms with σπρC-, σπλαC-, σφραC-, etc. were present when the liquids vocalized, because these clusters were phonotactically disallowed at that time. However, in groups of s plus dental stop, the onset cluster στρ- is not problematic at all (e.g. στρατός, στρωτός, στρέφω, etc.), and with a velar stop, we find σκληρός ‘withered’ and a verbal root allomorph σκλη- ‘to wither’. This means that the phonotactic rule would have to be limited to clusters containing a labial stop. With σπλ-, we find σπλάγγνα ‘intestines’ from the PIE word for ‘spleen’ (cf. σπλήν). Moreover, a case like σφρηγίς ‘seal, landmark’, even if it has a long root vowel, shows that the initial cluster σφρ- was tolerated in Greek from the loss of the laryngeals until the first attestation of this word.⁸¹ In other

⁷⁹ Although Kretschmer’s criticism of Osthoff’s solution is partly justified, we have already seen that his own proposal (the accent rule) does not offer a convincing solution either.

⁸⁰ Hoenigswald formulated his idea as follows: “the element of syllabicity which we have symbolized by [ɮ] crops up, with some phonetically recognizable effect in the daughter languages, after every two consonants not separated by a phonemic vowel ([..CCɮCCɮ..]).” (1968: 22). In this way, two allophones of the syllabic liquids would have come into being: [Lɮ] after a single consonant (or light syllable), and [ɮL] after a double consonant (or heavy syllable). Subsequently, “the post-light allophone merges with the consonant-vowel sequence ρα (ρo), while the post-heavy allophone merges with the vowel-consonant sequence αρ (oρ), thereby becoming prosodically long.” (ibid.). Earlier on, Hoenigswald had referred to Grammont (1948: 285-86) for the idea “that the difficult vacillation between αρ and ρα for **r̥* (...) is also due to the structure of the preceding syllable” (1953: 289-90). In this article, Hoenigswald merely based his idea on an analysis of the particles ἄρα (ἄρ) versus ῥα (ῥ̄). Even if the metrical behavior of these particles is peculiar, I do not think that they can be derived from different vocalizations of **r̥*, among other reasons because PIE did not have this phoneme in word-initial position (see section 1.2.2).

⁸¹ We do not find the disyllabic reflex ++σφαραγίς, nor a form ++σφαρᾶγίς with anaptyctic vowel. For the etymology of σφρηγίς, see Tichy (1983: 178-80) and Rico (2002); the latter reconstructs a PIE root *(s)b^hreh₂g- and derives both σφρηγίς and σφαραγέομαι from a zero grade *sb^hrh₂g-.

words, there is no phonotactic reason as to why **sprC-* would have to vocalize as *σπαρC-* rather than as *σπραC-*.

As far as the examples are concerned, it is not certain whether the non-ablating root *σφαλ-* should be reconstructed with or without a laryngeal (**sg^{wh}el-* or **sg^{wh}h₂el-*: the latter is adopted e.g. by *LIV*² s.v. **(s)g^{wh}h₂el-* and de Vaan, *EDL* s.v. *fallō*). The vowel slot of *φθάρμα* can also be explained by the full grade seen in *φθειρώ* ‘to destroy’ and its pf. *-έφθορα*, cf. also pf. mid. *-έφθαρμαι*, aor. *φθαρήναι* ‘to perish’. The etymology of *σκαλμός* is uncertain (see section 10.1), and the key example *σπάρξαν*, *σπάργανα* also lacks a clear etymology.⁸² Thus, both *σκαλμός* and *σπάργανα* could owe their *α* to the fact that they were borrowed.

I conclude that the examples adduced by Lubotsky for a vocalization **sprC-* > *σπαρC-* are open to other interpretations, and that the counterevidence speaks against “/ **sC_*” as the conditioning environment of the reflex *-αρ-*. On the other hand, Lubotsky’s proposal to regularly derive *σάρκες* from **turk-es*, without the intervention of a now-lost full grade form, seems attractive to me. I will return to the problems surrounding this word in section 2.5, in connection with the reconstruction of *τράπεζα*.

1.5 A metrical explanation for *-ρα-*

Previous scholars have applied the entire linguistic toolkit to the problem of *-αρ-* versus *-ρα-* in Ionic-Attic, but without being able to explain all attested forms. Within the framework of a regular change to *-ρα-*, it appears to be impossible to provide a solution for *καρτερός*, *κάρτα* and *ταρφύς*. Other problematic forms with *-αρ-* are *καρπός* and *ἄρπη*. I therefore depart from the assumption that these forms are what they look like, namely the outcome of a regular sound change **r* > *-αρ-* in Proto-Ionic. Now, it is remarkable that almost every form with *-ρα-* < **r* is attested in Epic Greek, and that we find corresponding vernacular forms with *-αρ-* in a number of cases. In some cases, these vernacular forms are limited to Ionic-Attic prose; in others, they are also present in Homer as variants of the form with *-ρα-* (*καρτερός* ~ *κρατερός*, *καρδίη* ~ *κραδίη*). It is within Epic Greek, then, that the forms with *-ρα-* will have to be explained.

Previous scholars, however, have interpreted the reflex *-ρα-* as a retained phonological archaism. For example, the regular aorist of *τέρπομαι* ‘to enjoy’ in Homer is *ταρπῆναι*, but the 1p. subj. *τραπείομεν* is also attested in a formulaic verse. Whereas *ταρπῆναι* can be easily analyzed as an analogical formation, built on the present *τέρπομαι* following normal ablaut schemes, the irregular form *τραπείομεν* looks like a phonological archaism that was retained because of its metrical utility. This explanation is not implausible in itself, but given the large number of metrically induced formations in Homer, it is also possible to consider forms like *τραπείομεν* as artificial creations of Epic Greek.⁸³ In this connection, it must be stressed that the pair *κρατερός* ~ *καρτερός* does not admit of a similar explanation as *τραπείομεν* ~ *ταρπῆναι*.⁸⁴ As we will see in chapter 5, *κρατερός* ~ *καρτερός* is a special case which takes us right into the heart of Epic diction and its complicated analogical mechanisms.

The idea of a special Epic reflex *-ρα-* is confirmed by a second cardinal point: the Homeric forms with *-ρα-* display metrical peculiarities. Words like *τράπεζα* ‘table’ and *δράκων* ‘snake’ regularly undergo *muta cum liquida* scansion, which is an otherwise highly

⁸² The attestations of *σπαργ-* are fairly old: *σπάργανα* (n.pl., rarely sg. -ον) ‘swaddling clothes’ (poetic, *h.Merc.*, Pi.+), *σπάρξαν* ‘wrapped in swaddling clothes’ (*h. Ap.* 121), denom. *σπαργώω* ‘id., swathe’. However, the forms have no etymology and may well have been borrowed already containing their *a*-vocalism, e.g. from Pre-Greek. They therefore prove nothing in the context of our problem.

⁸³ As Chantraine (1942: 111) remarks, “toute la morphologie est commandée par des préoccupations métriques et nous aurons à chaque instant à faire appel à cette considération”. For artificial formations in Epic Greek, see the articles by Witte in *Glotta* 1-5, Meister (1921), and most recently Hackstein (2010).

⁸⁴ Moreover, as I will argue below on several occasions, it is also highly problematic to explain *καρδίη* (~ *κραδίη*) and *τέταρτος* (~ *τέτρατος*) as analogical forms (after *κῆρ* and *τέσσαρες*, respectively), as is usually done.

uncommon licence in Homer. The same phenomenon is found in certain words with -po- from **r*, such as βροτοῖσι ‘mortals’. Wathelet (1966) therefore explained such cases by assuming that the metrical irregularity resulting from the vocalization of **r* > -pa- (Aeolic or Mycenaean -po-) was preserved only in certain formulae. In his view, the *muta cum liquida* licence acquired a limited currency only at a much later date, when the practice was gradually extended beyond the group of words where -pa- and -po- derive from **r*.

Although Wathelet’s conclusions have been fairly broadly accepted, his argument also involves certain problems that will be further discussed in chapter 6. At this point, however, the evidence for *muta cum liquida* scansion may already appear in a different light when we consider the idea of a regular sound change **r* > -ap-. Could **r* have been retained for some time within Epic Greek after it had vocalized in the Ionic vernacular? And if so, may -pa- have come into being as an artificial reflex of this retained **r*? As we will see, this idea is confirmed in a beautiful way by Hoenigswald’s discovery (1991) that κραδίη is never used to generate length by position in Homer. In other words, κραδίη metrically behaves as if the underlying phonological shape was still /kr̥diā-/. We will encounter other metrical peculiarities along the way in chapters 5 to 8.

In line with the above arguments, I propose to assume two distinct developments:

1. **r* regularly developed to -ap- in spoken Proto-Ionic.
2. **r* was retained in Epic Greek at this point, and developed to -pa- (but to -po- after a labial consonant) at a much later date.

Within this new framework, a number of pieces suddenly fall into place. Assuming that **r* was vocalized in spoken Proto-Ionic a number of centuries before Homer, a prolonged retention of **r* within Epic Greek until not too long before Homer may explain why metrical traces of this sound are so numerous in the *Iliad* and *Odyssey*. In other words, we no longer need to assume that metrically aberrant formulae were preserved over the course of seven centuries or so (cf. section 1.1.1). More importantly, a solution for the problem of -ap- versus -pa- comes within reach, provided that a convincing explanation for all other forms with -pa- can be given. At the same time, we may explain the Epic forms with -po- and *McL* scansion by a conditioned change, rather than as Aeolic or Achaean forms. Many details are intricate and require rather long digressions, for instance about the lexical differences between the Ionic-Attic vernacular and the Epic *Kunstsprache*, the metrical behavior of certain lexemes in Epic Greek, or the prehistory of metrical lengthening. This is what I set out to do in chapters 6 to 8.

It is normally assumed that Epic Greek underwent the linguistic changes of the underlying vernacular of the poets, with the exception of forms that were formulaic or metrically protected in some other way.⁸⁵ Thus, the above scenario, which assumes a prolonged retention of the sound **r* in Epic Greek, entails a change of paradigm concerning the nature of Epic Greek as an artificial language. This may seem a rather drastic measure at first sight, but it appears to be the only way to account for the distributions of forms with -ap- and -pa-.⁸⁶ In fact, it has another benefit: it might enable us to solve the vexed question of the composite dialectal nature of the Epic language. As we will see in chapters 6 to 8, the dialect of Epic Greek must have been essentially Ionic (or more generally South Greek) throughout its reconstructible prehistory. Moreover, the underlying verse form must have been much like the Homeric hexameter all along.

⁸⁵ Cf. Parry (1971: 331) and section 6.6.

⁸⁶ See especially section 6.6.

1.6 Outlook

For cases of $*r$ and $*l$ as delimited in section 1.2, we will try to provide an answer to the following three questions:

1. What was the regular development of $*r$ and $*l$ in the major Greek dialect groups?
2. Which mechanisms underlie the treatment of forms with etymological $*r$ in Epic Greek?
3. What can be inferred, from the vocalization of $*r$ as an isogloss, about the genesis and prehistory of the four main dialect groups, and about that of Epic Greek?

In view of the possibility that $*r$ and $*l$ vocalized in different ways and at different times, the evidence for $*l$ will be treated separately in chapter 10. We will start, in chapters 2 and 3, with the regular development of $*r$ in all dialects except Ionic-Attic and Epic Greek, which requires that we evaluate and sift all available etymological evidence. Special emphasis will be laid throughout on the regular place of the anaptyctic vowel.

The discussion of the Ionic-Attic evidence for $-ap-$ and $-pa-$ starts in chapter 4 with a discussion of the so-called “Caland formations”. This part of the material is of special importance, because it shows that many forms with $-ap-$ and $-pa-$ do not reflect original $*r$. Chapter 5 is devoted to the root of $\kappa\rho\alpha\tau\epsilon\rho\acute{o}\varsigma \sim \kappa\alpha\rho\tau\epsilon\rho\acute{o}\varsigma$, which furnishes the most extensive “Caland system” attested in Greek. All kinds of different formations are attested and various analogies have taken place, both in the vernaculars and within Epic Greek. The root $\kappa\rho\alpha\tau-$ \sim $\kappa\alpha\rho\tau-$ is also of prime importance for the relation between Epic Greek and the vernacular.

In chapter 6, this relation will be revised on the basis of all Homeric forms with $-pa-$, most of which are characterized by metrical peculiarities such as *muta cum liquida* scansion. An analysis of the metrical distributions leads to the hypothesis that Epic $*r$ was retained longer, in the way sketched above. In chapter 7, this new framework is applied to Epic forms with $-po-$, which arose as a conditioned reflex of Epic $*r$ after a labial consonant. The evidence for $-ap-$ and $-pa-$ in thematic aorist forms is discussed separately in chapter 8, because the metrical behavior of these formations is different from that of other forms with Epic $*r$.

Chapter 9 treats the remaining evidence for both $-ap-$ and $-pa-$, including the more marginal and uncertain etymologies. We will also return to a detailed treatment of three specific environments: $*r\varsigma-$, word-final $*r$, and $*rn-$. In chapter 11, the new insights in the dialectal developments and in the treatment of forms with Epic $*r$ are used to obtain a relative chronology. This allows us to draw some definite conclusions about the value of $*r$ as an isogloss for Greek dialectal prehistory. In chapter 12, finally, I will take stock on the basis of a summary of the main conclusions, and ask whether the obvious benefits of the new framework outweigh its potential drawbacks.