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The development of the Proto-Indo-European syllabic liquids in Greek

Beek, L.C. van

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Author: Beek, Lucien van

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12. Conclusion

This concluding chapter summarizes and evaluates the most important results.

12.1 The reflex of word-internal **r* in Ionic-Attic and Epic Greek

I have arrived at the conclusion that the regular development in the Proto-Ionic vernacular was **r* > -αρ-, and that Epic Greek retained **r* considerably longer. Such cases of Epic **r* were eliminated before Homer, but relatively late, by a conditioned sound change: **r* > -πα-, but -πο- after a labial consonant. The following evidence for a regular **r* > -αρ- in Ionic-Attic has been gathered along the way:

1. ἀμαρτεῖν ‘to miss’ is the regular outcome of **amrte/o-* in Proto-Ionic, while ἡμβροτον shows the regular Epic reflex of preserved **ām̃rte/o-* (section 8.2.2)
2. ἄρπη ‘sickle’ < **sɾpā-* and καρπός ‘fruit’ < **kɾpó-* are isolated lexical items. Since there is no trace a full grade root within Greek, the usual assumption of analogically restored -αρ- is arbitrary and unwarranted. It is attractive to explain σάρξ ‘meat’ < **twrk-* in the same way (section 9.6).
3. καταδαρθεῖν ‘to fall asleep’ is the regular outcome of **-dɾt^he/o-* in Attic, and hence in Proto-Ionic, whereas -πα- was substituted for **r* at an early date in Homeric κατέδραθον (sections 8.2.1 and 8.4.2)
4. καρδία, καρδίη ‘heart’ continue the regular outcome of Proto-Ionic **kɾdiā-*, while κραδίη is the regular Epic outcome of **kɾdiā-*. This explains the peculiar metrical behavior of κραδίη in Homer (sections 6.1, 6.6, 6.7).
5. καρτερός ‘steadfast, firm’ is the regular outcome of **kɾteró-* in Proto-Ionic (chapter 5), and κάρτα ‘very’ that of **kɾta*. The outcome -πα- was the result of paradigmatic leveling in κρατύς (section 4.4). Thence, the allomorph κρατ- spread to derivationally related forms like κράτος, κράτιστος, which originally had an *e*-grade root.
6. μάρναμαι ‘to battle’ has no cognate forms within Greek and continues an inherited nasal present **mr-n-h₂-* (chapter 9.5).
7. ταρφέες ‘dense, frequent’ contains the regular outcome of the weak stem **t^hɾp^héw-* in Proto-Ionic. Its restricted plural inflection in Homer explains why the vowel slot of the original strong stem **t^hrép^hu-* was not generalized (section 4.3.1).
8. τέταρτος ‘fourth’ is the regular outcome of **k^wétɾto-* in Proto-Ionic, while τέτρατος arose within Epic Greek, probably as the regular outcome of metrically lengthened **k^wétɾto-* (sections 2.5, 2.6 and 6.7.4)

The evidence from the following roots is less certain:

9. σπάρτον ‘rope, cord’ seems to be related to σπεῖρα ‘coil’, but the words have no clear etymology (section 9.6).
10. ταρσός ‘sole of the foot’ < **tɾsó-*, as opposed to τρασιά, ταρσιή ‘drying place’, where the poetic form τρασιά, if it is indeed an epicism, could have the regular outcome of **tɾsiā-* in Epic Greek (section 9.1.5).
11. φαρχσαι (Attic inscr.), which was ultimately based on a zero grade formation derived from PIE **b^herg^h-*, seems to be the regular outcome of **p^hɾk^h-s-*. However, the origin of the Homeric and later Classical aorist φράξε (pres. φράσσω, φράγνυμι) remains unclear (section 9.2.3).

As a consequence, all remaining instances of -πα- have to be accounted for. There is no need to account separately for forms with -πα- which may have developed by analogy with full

grade forms, such as ἔτραπον beside τρέπω. As we have seen in section 2.6, the first member τετρα- has an analogical -α- after δεκα-, εἶνα- (etc.), and the same explanation accounts for Myc. *qe-to-ro-po-pi* (beside *e-ne-wo pe-za*). Many forms with either -ρα- or -αρ- arose by the spread of a zero grade allomorph in so-called “Caland formations”. These forms cannot be used in the discussion about the regular reflex in Ionic-Attic, but they may be used to determine the derivational relations within the Caland system more precisely (see chapter 4).

The clear distributions, within Ionic-Attic, between poetic forms with -ρα-, -ρο- and prose words with -αρ- render a solution in metrical terms plausible. Apart from the doublets mentioned above, the following forms have received a special explanation:

- a) The regular reflex of Epic **r* is -ρα- in the following Homeric forms with *McL* scansion: δράκων, θρασειάων, κραται-, κραταιίς, κραταιός, τράπεζα, τραπέομεν, τραπέσθαι (section 6.7) and Ἀνδρείφοντι, ἀνδροτήτα (with -ρο- for -ρα-, section 7.3).
- b) The regular reflex -ρα- of Epic **r* is found in the following other forms (section 6.7): κραδίη, τέτρατος, στρατός.
- c) The regular post-labial reflex of Epic **r* is -ρο- in the following forms with *McL* scansion (section 7.2): βροτῶν, βροτοῖσι, ἀμφιβρότης, ἀβρότη, ἀβροτάζομεν, προκείμενα, πρὸς, πρόσω, πρόσωπον, Ἀφροδίτη.
- d) The regular post-labial reflex -ρο- of Epic **r* is found in the following other forms: other case forms of βροτός, ἄμβροτος, ἄμβρόσιος, ἡμβροτον, ῥοδόεντι (section 7.2), πρὸξ, προκάς (section 9.4.1).
- e) Epic **r* was replaced with -ρα- at an early date in κρατερός and in the aorists ἔδρακον, ἔδραθον, ἔπραθον (section 8.4).
- f) The aorist ἔτραφον is an artificial replacement of ἐτρέφην in Epic Greek (section 8.3).
- g) Hom. ὑπόδρα, in which a word-final consonant was lost, was preserved with Epic **r* in the formula ὑπόδρα ἰδὼν (section 9.3.3).
- h) In Pindar, the intransitive aorist ptc. δρακεῖς was substituted for the ptc. δρακῶν of the thematic aorist.

It is now time to take stock: which advantages does the present scenario offer over previous hypotheses? Do these advantages justify the assumptions that have been made?

First of all, the present scenario aligns the abundant attestation of -ρα- in Homeric words with their metrical behavior. Since Mühlestein (1958) and Wathelet (1966), it has been broadly acknowledged that forms like τράπεζα < **tr̥pēd̥iā* and βροτοῖσι < **m̥r̥toisi* contain a metrical trace of the syllabic liquid, because their onset cluster is subject to *muta cum liquida* scansion. Several objections have been voiced against Wathelet’s scenario. Is it possible that metrical irregularities were preserved over such a long period of time? And how can the formulaic or traditional status of Epic material be proven in a rigorous way? These concerns are only partially justified, because we have found extensive synchronic evidence for the avoidance of *McL* scansions in Homer. Moreover, the former presence of **r* is ascertained in most of the lexemes which undergo *McL* scansion on a structural basis. A retention of Epic **r* until approximately one or two generations of poets before Homer explains why *McL* scansion is so frequent in words with -ρα- or -ρο- from **r*. It also allows us to answer the chronological objections to Wathelet’s earlier account, and to understand why the *McL* licence is still structurally avoided in Homer.

Secondly, all previous scenarios operate with rather abstract analogical explanations: forms with -αρ- are thought to be “somehow” analogical after full grade forms. The analogical influence of κῆρ on καρδία is unlikely for chronological reasons, and because κῆρ has a different synchronic root shape. No full grade forms of the verbal root **kerp-* ‘to pluck’ are attested beside καρπός, and it is far-fetched to assume influence of νημερτής on the verb

ἀμαρτεῖν. The assumed replacement of τέτρατος with τέταρτος is difficult because a convincing motive and model are lacking. Influence of a root allomorph κερτ- has been invoked in order to explain καρτερός and κάρτα, but the evidence unequivocally points to one single root shape κερτ-.

The new analysis of all these forms is therefore a definite improvement. The analogical developments assumed here are much more natural, because they appear to occur mostly within an ablauting paradigm or between derivationally related formations. Because thematic καρτερός and adverbial κάρτα are non-ablauting, and because they had become semantically and derivationally isolated from κράτος and related forms at an early date, only these two forms preserved the regular zero grade outcome -αρ-. All *u*-stem adjectives generalized the vowel slot of the ablauting *e*-grade root within the paradigm (cf. κρατός, βραχύς), but ταρφέες did not undergo this influence because it only occurred in the plural when **r* vocalized in the Ionic vernacular.

A third and more general benefit is that no previous scenario has accounted in a coherent way for the structural interchange between prose forms with -αρ- and poetic forms with -πα- in Ionic-Attic. This distribution appears from the fact that doublets such as καρδία ~ κραδίη, καρτερός ~ κρατερός, and τέταρτος ~ τέτρατος are found only in Homer and later poetry, and also from the more general observation that forms with -πα- are often restricted to Epic Greek. None of the previously assumed conditioned developments (accent-conditioned distribution, original sandhi variants) was able to explain why forms with -πα- are so frequent in poetry, and especially in Epic Greek. A fourth benefit is that the Homeric words with -πο-, for which there are no clear indications of Aeolic origin apart from the *o*-colored reflex, now appear to have arisen within Epic Greek by a conditioned development of Epic **r*.

Thus, the advantages are clear, but what about the costs: which assumptions do we have to make? The assumption of ablaut in the *u*-stem adjectives can hardly be shocking in itself: the retention of -σ- in δασύς proves that an ablauting paradigm **densu*-, **dñs-ew*- was preserved until at least a Proto-Greek stage. The preservation of paradigmatic ablaut until a Proto-Ionic date might arouse more suspicion, but we have seen that the spread of *a*-vocalism in the root of various Caland formations must have been a dialectal Ionic-Attic development. In other words, root ablaut of the type **kṛteró*-, **kṛta*-, **kṛti*- as opposed to **kréteh*-, **krétioh*-, **krétisto*- must have existed until a relatively recent date in all Greek dialects. The generalization of κερτ- became attractive after the elimination of root ablaut from the *u*-stem adjective had yielded Proto-Ionic κρατός. Note that Cretan and other West Greek dialects treated the ablaut of this specific root in a different way by generalizing the allomorph καρτ-.

A second potential problem concerns the assumption that some words attested in Classical prose are epicisms, that is, that they were borrowed from the Epic tradition (or more specifically from Homer) into the Ionic-Attic vernacular. This mainly applies to θρασύς, στρατός, and τράπεζα, for which I have argued in section 6.7 that they belong to specific semantic fields (martial or ritual vocabulary). True, it is hard to prove beyond doubt that a given word must be an epicism, but for present purposes, it merely has to be conceded that epic origin is a possibility in these three words. For a second group of words with -πα- or -πο- of the sort δράκων or βορτός, it is already generally assumed that they are epicisms in later poetry.

The assumption likely to arouse most opposition, from a “typological” point of view, is the prolonged retention of Epic **r* for a period of at least two or three centuries. There are, of course, parallel cases of a poetic tradition preserving archaic phonology or phonetics. French poetry and song preserve the syllabic value of unaccented word-final -ə to this day, even if the sound disappeared from Standard French in the early 17th century. Similarly, Russian vowel reduction is not applied in the liturgical pronunciation in the Russian Orthodox

Church.¹²⁶⁰ Another outer-Greek case that immediately comes to an Indo-Europeanist's mind is the traditional pronunciation of *r* in Sanskrit: to this day, Indic scholars pronounce [rɪ]. This pronunciation must have arisen after the Indo-Aryan vernaculars had lost **r̥*. However, both cases are different from the retention of Epic **r̥*: French poetry preserves a segment which was protected from total loss for obvious metrical or rhythmic reasons, the Russian liturgical pronunciation may be due to the reading aloud of texts, and the artificial pronunciation of Sanskrit *r̥* may, in principle, have come into being immediately upon the vocalization of this sound in the vernacular. Another difference: in the case of Epic Greek, we have to assume that Epic **r̥* was eliminated by a conditioned development that has all characteristics of a regular sound change. Perhaps, then, the situation of Epic Greek is best compared to the prehistory of the Avestan tradition: there, we find not only the results of vernacular sound changes entering an orally transmitted text; there is also evidence for sound changes that are not found in any Iranian vernacular, but which took place within the Avestan tradition itself.¹²⁶¹

The decisive point is that the new scenario allows us to explain a number of peculiarities of Epic vocabulary and formulae, both phonological and metrical. The evidence can be put to the test by assuming that **r̥* was not retained for a longer period in Epic Greek, but that it was artificially vocalized as -pa- in Epic Greek, *for metrical reasons*, more or less simultaneous with the vernacular sound change **r̥* > -ap-. In this way, one could explain κραδίη as an artificial reflex of **krdiā* (κραδίη was metrically awkward), and τραπέιομεν as an artificial reflex of **trpēomen* in the formula φιλότῃσι τραπέιομεν εὐνηθέντε (*McL* scansion was less damaging to the metre than the vocalization to -ap-).

It would remain unclear, however, why less obviously formulaic words like **dr̥kōn*, **edr̥kon* and **str̥tós* did not end up as ⁺⁺δάρκων, ⁺⁺ἔδαρκον and ⁺⁺σταρτός. Moreover, the *o*-colored outcome of cases like βροτός is best explained as conditioned by the preceding labial consonant. Since the Ionic vernacular vocalization did not have this conditioning, this implies that we are not dealing with an artificial replacement of the vernacular outcome, but with a separate sound change. Finally, the problems concerning the metrical evidence would be severe. A case of exceptional importance is κραδίη which, as Hoenigswald recognized, never causes a preceding short vowel to scan heavy in Homeric verse. The different metrical behavior of κρατερός as opposed to that of κραδίη can only be understood if we assume that **kr̥teró-* was replaced at an early date (probably under influence of κρατύς), and if κραδίη retained Epic **r̥* for a considerably longer period. The avoidance of thematic aorist forms like δρακόν, as against the non-avoidance of δράκων, can be explained in the same way: Epic **r̥* was eliminated in the thematic aorists at an early date, but retained in δράκων.

Thus, there is evidence not only for the avoidance of unmetrical forms, but also for the analogical creation, within Epic Greek, of metrically useful forms. The analogical changes which took place in the root κατ- ~ κρατ- within Epic Greek strongly suggest that the main dialect of the tradition was Ionic for a considerable period, and that a verse form much like the Homeric hexameter was used all along. I would therefore prefer to approach the “composite” nature of Epic Greek in a different way, and ask: is there a parallel for a poetic tradition that entirely shifted its dialect but retained its verse form, as is usually assumed for Epic Greek in the framework of the theory of phases? If Aeolic was indeed the traditional language of Epic poetry, why is there no trace of Aeolic Epic in hexameter verses? And why would Ionic singers suddenly start to sing verses, with Ionic vocabulary, in what was not a traditional Ionic metre?

¹²⁶⁰ As Prof. Lubotsky (pers. comm.) points out to me.

¹²⁶¹ For an introductory overview to the problems concerning the spelling and transmission of Avestan, see Hoffmann (1989).

In view of these problems, our new framework for the relation between Epic Greek and the Ionic vernacular is much more natural. As explained in section 6.6, I think that Epic Greek generally conserved a more archaic pronunciation in comparison with the Ionic vernaculars, and that it could resist innovative phonetic tendencies for a certain amount of time. The decisive point of this change of paradigm is that the results of vernacular sound changes, much like morphological innovations, generally penetrated into Epic Greek by lexical diffusion, on a word-for-word basis. Archaic pronunciations and formations were preserved when a word was not current in the vernacular or when there was some metrical motivation not to introduce the vernacular form. I have suggested that at least one other phonological peculiarity of Homeric Greek can be explained in this way: the labial reflexes of labiovelars before the front vowels *e*, *ē*. The case would be an exact parallel in that the labiovelars were retained longer, but eventually eliminated by an inner-Epic phonological development. It seems promising to apply this principle to other Ionic sound changes and reputed Aeolicisms, but for the time being, the elaboration of this idea has to be postponed.

12.2 The dialectal reflexes of word-internal **r*

The following table summarizes our results for the different dialect groups:

Dialect group	Sub-dialects	Regular outcome of word-internal * <i>r</i>
Achaean	Mycenaean	<-Co>, representing either - <i>r</i> - or - <i>or</i> -
	Arcadian	-op-
	Cyprian	Uncertain whether - <i>ro</i> - or - <i>or</i> -
Aeolic	Lesbian	-po-
	Thessalian	Probably -po-
	Boeotian	-po-
Ionic-Attic	All varieties	-ap-
West Greek	Cretan	-ap-, but -op- after C _[+lab] (also Theran?)
	Other varieties	Unclear whether -ap- or -pa-
Epic Greek	Homer	-pa-, but -po- after C _[+lab]

Table 12.1: The outcome of word-internal **r*

In many dialects, the material is difficult to judge, but quite a few interesting conclusions can be drawn regarding the evidence from Cretan and from the Aeolic dialects. It was previously assumed that Cretan underwent a liquid metathesis of -pa- and -po-, but I propose that the regular outcome of **r* in Cretan is -ap-, but -op- after a labial consonant. The evidence from most other West Greek dialects does not allow us to go beyond the rather general observation that these dialects had an *a*-colored reflex.

For the Aeolic dialects, the traditional assumption that *o*-vocalism was regular (independent of the environment) has been vindicated. An important new conclusion is that the only regular Aeolic reflex of **r* is -po-. In this respect, the Aeolic dialects differ from all other Greek dialect groups, at least as far as we can see, and from most of the other Indo-European languages. The development **r* > -po-, ascertained for at least Lesbian and Boeotian and probable for Thessalian, seems to be a common innovation. It is therefore an important argument in favor of a Proto-Aeolic unity.

Concerning the Achaean dialects, it deserves attention that there is no good evidence for an *a*-colored reflex in Mycenaean, as García Ramón already argued. The Mycenaean material clearly excludes that **r* developed to -*ro*-. The regular Myc. reflex of **r* was written <-Co>, never <-Co-ro>. It is possible that spellings like *to-pe-za* and *to-qi-de* represent underlying /torpedja/ and /stork^{wh}ides/, but it cannot be excluded that **r* was preserved as such, and that the syllabary had no separate means to distinguish this sound from e.g. -*o*- or

-or-. Concerning Arcado-Cyprian, I accept Haug's arguments for a general *o*-colored reflex, but only the Arcadian evidence allows us to draw a conclusion concerning the place of the anaptyctic vowel.

Once the place of the anaptyctic vowel is seen to be a significant dialectal trait, it appears that there were not two, but at least four different possible ways of vocalizing the syllabic liquids. These vocalizations may well have occurred at different times. There are several reasons to assume a relatively late vocalization of **r* in most dialects. The most important general objection against an early vocalization is the retention of Epic **r*. The fact that Attic and Ionic behave in exactly the same way points to a Proto-Ionic vocalization, but it would be unwarranted and unnecessary to extend the date of vocalization back to before the Dark Ages. If Mycenaean still preserved **r*, this could explain the appearance of typical Mycenaean-looking lexemes like **wṛdowent*-, **tṛpedīa*, **anṛk^{wh}ontā*-, and **amṛtaksomen* with Epic **r*. It cannot be entirely excluded that a putative Mycenaean Epic tradition preserved **r* after the vernacular had lost this sound. It seems attractive to assume that a South Greek Epic tradition gained momentum after the collapse of the Mycenaean empire. If this scenario is correct, and if one assumes that the *o*-colored outcomes of Arcadian and Cyprian are due to a common innovation, then the Achaeon vocalization must have occurred in the declining years of the palace civilization.

The Cretan development has two chronological consequences. First of all, **r* > -ap- is not a general isogloss between West-Greek and Ionic-Attic. Secondly, the difference between Cretan and Elean is best explained by assuming that the vocalization of the syllabic liquids took place after the Dorian tribes had settled in these regions, i.e. probably in the early Dark Ages. As argued in chapter 11, it would still be attractive to connect the general Ionic-Attic and mainland West Greek *a*-colored reflexes, both for geographical and chronological reasons. The Proto-Aeolic development is hard to date, but a relatively early vocalization deserves consideration.

In conclusion, I see no compelling reasons to assume an early divergence between Ionic and Achaeon in the Mycenaean period, and suggestive evidence for a vocalization of **r* as late as the early Dark Ages.

12.3 Remaining issues

The development of word-final **r* is complicated by the nature of the evidence. Analogical influence of the weak cases is hard to exclude in the NAs. of heteroclitic neuters, and the reconstruction of many adverbs in -ap is not quite certain. However, there is some suggestive for an early, Pan-Greek development to -ap. The forms Cyprian *a-u-ta-re* /autar/ and Arcadian παρ suggest that **r* developed to -ap even in Achaeon dialects, which would make this development chronologically prior to that of word-internal **r*-. As for Ionic-Attic, it is remarkable that Homer has no traces of Epic **r* in word-final position, and that the only trace of **r* > word-final -ρα is ὑπόδρα, the pre-form of which ended in a stop. I have therefore proposed that ὑπόδρα contained Epic **r*, and that the word-final development **r* > -ap was prior to the loss of word-final stops, i.e. probably Proto-Greek. As a preverb, however, that **pr*- may have been retained longer, in view of the reflex of Epic **r* in προκείμενα (see section 7.2).

There is some evidence to suggest that the group **rn* behaved like other cases of word-internal **r*: μάρναμαι shows the unrestored outcome, and we find an *o*-colored reflex in the glosses πορνάμεν and μορνάμενος. There is no compelling reason to assume a Pan-Greek development **rn* > *-arn-, all the more so since a Pan-Greek development **ln* > *-aln- is excluded on account of Elean αφλανεος < **ha-wlnēh*-.

The evidence for **l*, both in Ionic-Attic and in the other dialects, is much more meagre than that for **r*. It has traditionally been assumed that the regular Proto-Ionic outcome was

-λα-, independent of the environment. This is indeed the most likely conclusion, in view of the plausible cases βλαδεῖς, βλαστός, γλαφυρός, and perhaps σπλάγγνα. Although a diverging development (**ɹ* > -αρ-, as against **l* > -λα-) is unexpected at first sight, it must be stressed that there is no compelling evidence for a regular reflex **l* > -αλ-, except perhaps in front of a nasal in καλλι-, περι-καλλής and πάλλω. As for the other dialects, the only remarkable piece of evidence are the different outcomes of Elean αφλανεῶς and Cretan αβλοπια. They suggest that the vocalization of **l* is a relatively late phenomenon within West Greek.