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SOME OBSERVATIONS ON THE PUTATIVE DUAL REFLEXES OF PIE *CRHC IN GREEK AND ARMENIAN, FRANCIS’ LAW AND GREEK αὐχήν ‘NECK, ETC.’

Abstract. The notion of accentually determined dual Greek reflexes of PIE CRHC sequences, now well supported by Rix 1976, Rico (several publications) and even (spasmodically) by Beekes 2010, is matched in a new way with a version of Clackson’s 1994 dual Armenian reflexes of the same PIE sequences that has been made more secure by a suggestion of Olsen’s 1999. An unpublished rule for Greek by Francis 1970 is shown to be essentially a special case of the foregoing and alleged counterexamples are found to be similarly accentually determined. The slightly improved notion of the closeness of Armenian and Greek thus achieved becomes the basis for a new explanation of the origin of Greek αὐχήν.

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1. Clackson (1994: 36–41) presents a useful review of the “five different outcomes in Armenian” (l.c., p. 40) that have been proposed for the PIE sequence CRHC and reduces them, for the most part unobjectionably, to two, viz. CaRC and CaRaC. Clackson’s solution is improved in one respect by Olsen (1999: 93 n. 191) who observes that the relationship between the pairs canawt ‘known’: čanač’em ‘I know’, alaw’tk ‘prayer’: alač’em ‘I beseech’, amawt ‘shame’: amač’em ‘I am ashamed’ suggests that “-araw- is simplified to -ara- whether in unstressed position or before a consonant cluster”. The cluster in question in the verbs results no doubt from the suffix *-sk- generally reconstructed in their protoforms (Clackson l.c. 40; Olsen l.c. 169). Looking through Clackson’s examples the only exception to this rule seems to be ťalak ‘(earthenware) vase’ < *tlh2-t-, which is attested only in the modern language and concerning which Clackson (l.c. 39) cites Hübenschmann’s opinion that the word may be a Persian loan.

It seems to me that Olsen’s rule can also be applied to the pair arawt ‘pasture’: aracem ‘I pasture’. For arawt Olsen (1999: 92f.) proposes a root noun *srh₂-t- under the rubric “Stems in *-d-” claiming “*-d- somehow seems to emerge from the laryngeal in connection with /y/ although the exact details escape our control.”
Further Olsen opines (l.c., n. 191) that the -w- in this noun is “apparently part of the original root, not just a secondary feature pertaining to the development of ‘long sonants’.” But since the *u Olsen added to the root found in Pokorny (1959: 910) appears not to be a fixture and also since Olsen (l.c. 92 f.) acknowledges that *aracem “would appear to be a simple denominative in *d-I-” and that *arawi is an “i-stem in Yovhannēs Drasxanakertec’i” it seems that her mysterious claims of an inexplicably emerging *d and a w that is “apparently” part of the root can be replaced by the hypothesis that the original noun to which *aracem is the denominative has been lost and replaced by a new root noun based on the apparently new root *srh2-di- – of the denominative and this has been subsequently reanalysed as an i-stem. Alternatively, an i-stem has been formed from the new root *srh2-di- that has been abstracted from the verb. The w that then appears in what becomes the final stressed syllable of the Armenian noun disappears quite naturally in the nonfinal syllable of the verb stem *srh2-di-e/o-.

On this basis the examples collected by Clackson for most of his five outcomes can be (re-)classified as follows.¹

Under CaRC:

*dr-and ‘door-post’ : Ved. ātā- ‘frame of door’, Lat. antae ‘square pilasters’.
*armukn ‘elbow’ : Ved. īrmā- ‘arm’.
*kalin (< *kaln? – ibid. 135 f.) ‘acorn’ : Gk. βάλανος.
*cicalim ‘I laugh’ < *gel-gilh2-, cf. Gk. γελάω ‘id.’.
*gañn ‘lamb’ < *urhn-n-, cf. Gk. πολύρρηνες ‘many-lambed’.
*karkut ‘hail’ < *grH-groHd-, cf. Lat. grando id.’.
*barti ‘Populus nigra’ < *b’rh3g-, Lith. bėržas, PSL. *bėrza ‘birch’.
*tal ‘district (of a city)’ < *tlh2-ni-, cf. Lat. tellus ‘ground, earth’.

Under CaRaC:

*k’ařasun ‘40’ < *(k)*tuř-ḵomt: West Greek τετράκοντα.²
ewt’anasun ‘70’ < *septm-ḵomt.

¹ In addition to t’alar, the following of Clackson’s items have been excluded from these lists mostly on the basis of Clackson’s remarks: xalat ‘peacefully’ which, like other instances where apparently Arm. x = Gk. χ, is perhaps based on an early borrowing from Greek, cf. γαλάω ‘slacken, lower, let down, relax, loosen, open, be open’ after the asperae had devoiced there, k’ařak ‘city’ is perhaps an Iranian loan; erastank ‘arse’ is < *preh₂-kt- beside *proh₂-kt- > Gk. προκάτος ‘id.’ (Beekes 2010 s.v.) rather than remodelled from *arast < *prh₂-kt- by Iranian loan erank ‘thighs, loins’ as per Olsen (1999: 320); (an)awt ‘fasting’ with anlaut *nh is not quite CRHC, apart from the uncertain Armenian anlaut; cnawt ‘jaw’ and cnawt ‘parent’ probably both reflect *ɡe’nH-C-.

² If this form belongs here at all – see doubts by Waanders (1992: 375 f.); it will continue to be quoted, particularly in respect of its status as a possible exception to the rules to be proposed below, with this proviso being taken as read.
ćanač'ěm 'I know' < *gnh₃-sk-i-e/o-<, cf. Gk. γνωσκω.
alač'ěm 'I beseech' < *plh₁/*slh₂- + *-sk-i-e/o-<, cf. Gk. ἴλάσκωμαι 'appease' < sislh₂- (on short ā see ibid. 173 f).
amač'ěm 'I am ashamed' < *smh₁-sk-i-e/o-.
aracem 'I pasture' < *srh₂-d-i-e/o-< (rather than *trh₂-g-e/o-<).
alawni 'dove' < *plh₂-ši-ni-.
ařaf 'first' < *prh₂-ši-o- (not *h₂-, see on Gk. πρῶτος/πρῶτος below), like olf 'sound, whole' < *solui-o-— thus Olsen (1999: 197) who suggests that ř in ařaf may be due to the influence of the preposition ař, the phrase ař ařf being understood as meaning 'what is' to the right, right at hand'.
aland 'heresy' < *h₂l₂-s, cf. Gk. ἀλλαόμαι.
haraw 'south' < *prH-u-o-, cf. Ved. pūrva-; Olsen 1999: 26 who has H = h₃, but this is uncertain if based on Gk. πρῶτος/πρῶτος, on which see below.

And with CaRawC in the Armenian final, i.e. stressed, syllable, as indicated above:

canawt' 'known' < *gnh₃-ti-<, cf. čanač’em ‘I know’ above.
alawt'k' 'prayer' < *plh₁-ti- or *slh₂-ti-, cf. alač’em ‘I beseech’ above.
amawt' 'shame' < *(s)mh₂-ti-, cf. amač’em ‘I am ashamed’ above.
araawt' 'pasture' < *srh₂-d-i-, cf. aracem ‘I pasture’ above.

Clackson is less successful, however, in his comparison of these two Armenian outcomes, CaRC and CaRa(w)C, with the two proposed by some scholars for Greek, viz. CRĖČ and CRĒŒC – of which more shortly. First it is necessary to discuss the Greek material by itself.

2. The two Greek outcomes of CRHC are conveniently illustrated by such pairs and groups as (with *h₁< (κασί-)γνητος ‘born (together), i.e. brother’ : γένεσις ‘origin, generation’, (with *h₂<) θνητός (Dor. θνάτος) ‘mortal’ : θάνατος ‘death; dead body’, (Hom.) pf. κέκμηκα ‘be weary’, ptpl. κεκμηκός : (Att.) κάματος ‘toil’, (Hom.) gen. sg. κράτατος : (Hom.) nom. pl. κάρηνα (< *k₁rh₂.sn-<) ‘head’, (with *h₂<) στρωτός ‘spread’, (Att.) pf. ἐ-στρω-ται : (Aeol.) pf. ἐ-στρεό-ται (taken from Rix 1976: 72 f).

To these can be added the additional items accepted by Beekes (2010 s.vv. infra) in the corpus of pairs classified by Rico (2002/2006: 170) into three categories of likelihood, viz.: (Rico’s “possible”) θράσσω ‘disturb, trouble’ : ταράσσω ‘stir, agitate, confuse, arouse, startle’ or rather ταράχη or better still Xenophon’s τάραχος, both meaning ‘trouble, disorder’ (but not πλήσσω ‘strike’ : παλάμη ‘palm of the hand’ which Beekes rejects); (Rico’s “probable”) γλήνη ‘eyeball’ : γαλήνη (Dor. γαλάνα) (< *g₁lh₂.sn-<) ‘stillness of the sea, calm weather’,³ βιδάζ ‘indolent,

³ Though it must be said that while Beekes cross-references these words with each other he favours an IE etymology only in the case of γαλήνη.
stolid, stupid’ : μαλακός ‘soft’; and (Rico’s “certain”) ἀδόμητος ‘untamed, unmarried’ : ἀδάματος ‘untamed’, τιμός (Dor. τιλάτος) ‘able to tolerate, patient; bearable; suffered, endured’ : τάλαρος ‘basket’.

Rix (1976: 73) makes the tentative suggestion that the disyllabic reflexes of the segments result from (secondary) accentuation of the RH complex.

As far as I have been able to determine, Beekes (2010) expresses agreement with Rix only in the cases of ταράχη, ταλάσσαι and δαμάσ(σ)αι (l.c., s.vv. θράσσω, ταράσσω, ταλάσσαι) for which Beekes recognizes that a secondarily accented zero grade seems to be required “as defended by Rix” (l.c., s.v. ταράσσω) and “in spite of earlier objections” (l.c., s.v. θράσσω), i.e., those voiced by Beekes himself (see below). This new view of δαμάσ(σ)αι (l.c., s.v. ταλάσσαι) is not the one stated earlier in the book (l.c., s.v. δαμινημι), where the older explanation of reshaping from *δεμα- is given. Evidently, Beekes had a change of heart about the -αRa- forms while working on his 2010 dictionary and either was not able to completely expunge his old ideas from the work or felt that in some instances they still represented the superior view.

Beekes’ earlier belief (see 1969: 207; 1976: 9 et passim) was based on dismissing the idea of a secondary accentuation on the ground that the zero grade necessarily implies lack of accent. This is all the more remarkable because in setting up this belief Beekes (1969: 207) found it judicious to cite a very useful counterexample from Germanic, viz. OHG mord, Olcel. mord ‘death, murder’ < *mŕtō- (beside Ved. mṛtā- ‘dead’) in which the output of Verner’s law testifies precisely to an accented zero grade. Instead Beekes saw the Greek disyllabic reflexes as representing the cases where the RH complex is immediately preceded or followed by *e. The first case, *eRH, is still represented by γένεσις (2010 s.v. γίγνομαι), a decision that seems entirely ad hoc: Greek nouns like θέσις ‘a placing etc.’ < *dʰi.ti- and στάσις ‘a standing etc.’ < *stʰi.ti- have (secondarily) accented zero grades and must belong to a late stage of the protolanguage when the laryngeals had become more vocalic (at least in some dialects; on this subject generally see Reynolds/West/Coleman 2000), so there is no reason why γένεσις should not exhibit the same formation, i.e. *gʰi₄.ti- or *gʰi₃.ti-.

The case where Beekes’ *e follows RH is illustrated by the most of the remainder of the material (see Beekes 2010 s.vv. θάνατος, κάμνω, κάρα, κάρηνα, γαλήνη, βλάξ, μαλακός, but not δάμινημι) though little is said about ἐστόροται (see s.v. στόρνυμι).

Rico (2000: 197) espouses the same accent conditions for the variants as Rix and points out in addition the numerous accentual changes that have occurred in the history of Greek, especially in the case of nominalizations of old adjectives and participles (l.c.: 196). Rico’s 2000 paper contains a masterly survey of previous research on the topic, noting a number of scholars who have sought solutions in differing accent place, sometimes hesitantly, e.g. Beekes with his
“impression … that adjectives are oxytone and nouns barytone” (Beekes 1988: 74; Rico 2000: 182), and including some who have been led astray as a result, like Specht who in KZ 59 (1932) invoked the τόμος : τομός noun/adjective opposition and concluded therefore that the disyllabic reflexes represented the o-grade (Rico 2000: 174 f.).

The τόμος : τομός opposition is an obvious exemplar of the principle that adjectives are oxytone and nouns barytone, but those who may still be inclined to scoff at the application of the principle in the present case should remember that it is found in other formations beside o-grade o-stems, such as s-stems – and not only in Vedic, e.g. tāras- ‘velocity, energy’ vs. tarās- ‘quick, energetic’ and rākṣas- ‘act of guarding; something to be guarded against’ vs. rākṣās- ‘harmful’ (and ‘evil being, demon’, which reveals the potential for secondary substantivization), but seemingly also in Germanic, e.g., coupled once again with Verner’s law, the gender variation in Goth. agisa n., OE ege(s)sa and OS, OHG agiso, egiso m. and OHG egisa f. ‘fear, terror’ points to a substantivized oxytone adjective while the “erroneous” 9th century OHG hapax egiro ‘id.’ can point to an original barytone noun (Woodhouse 2000: 189 ff.). And is to be noted that in all these examples the difference of accent brings with it no difference of ablaut.

Rico (2003/2009: 184 f.) in fact invokes the τόμος series himself to explain the retraction of the accent in the zero grade forms in question, in particular to explain Gk. σφάραγος, which Rico glosses ‘bruit’, i.e. ‘any loud, continuous noise’, and successfully argues to be the basis not only for the compound epithets ἐρισφάραγος ‘loud-roaring’, βαρυσφάραγος ‘heavy-roaring’ and others, but also the verbs σφαραγέομαι ‘1. hiss, sizzle; 2. be full to bursting’, and σφαραγίζω ‘stir up with a loud noise’;\(^4\) and to which is thus related σφραγίζω ‘seal’ as the ‘hisser’ or ‘sizzler’ when applied to the wax or other sealing material. Not all of these ideas, including the comparison with other verbs with accented zero grade, such as Ved. sphūrjati ‘explode’ and Lith. spirgti “fry; sizzle”, are new of course, but the logical progression of Rico’s ideas is a welcome innovation in the discussion, which thus-disposes of Beekes (1988: 74) claim that, as applied to σφαραγέομαι, “the accent rule does not work here either.”

The Rix/Rico view appears to be confirmed by most of the above examples, not only the Greek but also Germanic *mrīo- vs. Ved. *mṛtő-. To these can be added Rix’s unpaired adjectives βιλήτος ‘hurled, struck’, ἀκράπος ‘unmixed, pure’ and τλήτος (Dor. τλήτος) ‘patient, constant in suffering; endured; endurable’. Beekes (1969: 195–201) supplies in addition the nouns κάλαμος ‘a reed’

\(^4\) In fact, Rico (2003/2009: 165 n. 12) acknowledges Tichy (1983: 180) as the originator of the idea that the verbs derive from the noun.

\(^5\) Though this last may have the ictus retracted by Hirt’s law since the laryngeal in the zero grade *sprHg- can be interpreted as following immediately upon the syllable head /r/.
and παλάμη ‘palm of the hand’ (with unavoidably advanced accent), as well as
the pf. τετρησκία. Beside the originally adjectival privatives ἀκμήτος ‘unworned,
untiring’ and ἀδώμητος ‘untamed, unbroken, wild’ are other privatives based on
original substantives, such as ἀκάματος ‘untiring, unresting; without sense of toil’
and ἀδάματος ‘unbroken, untamable; unwedded’, and other formations, such as
ἀκάμας gen. ἀκάμαντος ‘untiring, unresting’, and ἀκμῆς gen. ἀκμήτος ‘untiring,
fresh’, which latter may have either zero or full grade of the root; and similarly
ἀδάμας gen. ἀδάμαντος ‘unconquerable, inexorable’ and as substantive ‘adamant =
steel(?)’, and ἀδάμαστος ‘unbroken, untamable’. The aor. ἐτάραξε hardly counts
because, according to Beekes (1969: 199), it has been remodelled on the basis of
the noun παραχή ‘trouble, disorder’ the divergent accent of which points perhaps to
secondary substantivization, unlike the form beloved of Xenophon, τάραχος ‘id.’,
which seems to preserve the original accent.

The chief exceptions in the above material are, in §1 above, τετρικόκοντα and
gυγνόσκω, which clearly have the typical accent placement of Greek words of their
respective classes, γυγνόσκω no doubt having accent originally on the reduplicating
syllable, judging by Vedic type bibharti. In Hom. κράτος, the long vowel of a
stem form unfamiliar to the daily speech of later rhapsodes has possibly attracted
the accent from its putative original place as may be judged by the contracted
and tragic form κράτος. Att. Ion. πρῶτος, Dor., Boeot. πρῶτος ‘first’ are no doubt
secondarily barytone as are all the other Greek ordinals of the first decade, except
perhaps δεύτερος (Rix 1976: 171 f.).

Sometimes the principle of the barytone noun vs. the oxytone adjective itself
appears disturbed or reversed, e.g. νέος ‘young, new’ vs. νεός f. ‘fresh or fallow
land’. In addition, as mentioned above, the principle that the disyllabic reflexes
result from secondarily accented zero grades places the developments near the
end of the PIE period. Given, then, that sparingly attested Gk. σφάραγος has been
shown to be the source of σφαραγέωμαι, which instead of being a denominative
could conceivably have originated as the type “1s” present, according to the scheme
in LIV (p. 19), with new zero grade root σφαραγ- and accented suffix *-éie/o-
from the outset, it seems possible that some time after the establishment of pairs
of the βάνατος : θυητός type, the relationship between the two forms ceased to be

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6 The best etymological suggestion for the pair I have come across is that of Rix (1976: 73),
viz. πρῶτος is due to contamination of original πρῶτος < *prh₂-to- by πρότερος. It is
hard to accept Beekes’ (2010 s.v. πρῶτος) idea of different laryngeals in the protoforms.
Waanders’ (1992: 378) ingenious derivation of the pair from instrumentals in *h₁ of
masc. *pr₁-, fem. *prh₁-, though not without merit, is a little expensive. A possible
alternative, which might account better for the extensive dialectal coverage of Att.
Ion. Arc. Cypr. Lesb. πρῶτος (for which see Waanders I.c.) and also mirrors Beekes’
(2010 s.v.) new view of Gk. πρωκτός : Arm. erstank’, is that πρῶτος represents an
innovative o-grade *prh₁-to- prompted by *pro.
productive, apart from the barytone: oxytone principle which still remained in force. This would enable oxytone adjectives having the basic shape of barytone nouns to be explained on the basis of a lost barytone noun. Thus τάναος ‘stretched, tapered, tall, long’ and μαλακός ‘soft’ would presuppose the former existence of *πάναος *‘a stretching, lengthening, something stretched or lengthened’ and *μάλακος *‘softness, a softening, something soft’.7

Beekes in fact does something very similar to this in order to explain the noun τάλαρος ‘basket’ < *‘bearer, thing that bears’ (or preferably *‘something carried’?) in Beekes (2010 s.v.) by suggesting, somewhat oddly, precisely the reverse development from a putative adjective *τάλαρος “with regular shift of accent” and inviting readers to compare λαγαρός ‘slack, emaciated, thin’ (l.c., s.v. λαγαίω ‘release’) and χαλαρός ‘slackened, flaccid, loose, lax’ (l.c., s.v. χαλάω ‘slacken’). Yet both these last derivatives indicate a passive meaning, which leads one to suspect that Beekes’ alleged adjective *τάλαρος should mean something like ‘borne, carried’ and that consequently τάλαρος is an original noun meaning ‘bearer’ or possibly ‘something borne or carried’. In addition an original adjective meaning ‘borne’ should have had the shape *τληρός (Dor. *τλάρος) (cf. Gk. τλητός Dor. τλάτος < *tlh₂-t-ó-), in other words employing the same general pattern as σκληρός (< *sklh₁-r-ó-) ‘hard, brittle, harsh, severe’ < *dried up, withered, hardened’ to σκέλλομαι ‘dry up, wither, languish, grow tired, harden’ (< *skelh₁-, l.c., s.v. σκέλλομαι) – note that Beekes himself (l.c., s.v. σκέλλομαι) encourages comparison of these two roots, *skelh₁- and *telh₂-, and their derivatives. Of the other two adjectives mentioned, λαγαρός and χαλαρός, apart from the fact that Beekes suspects that both derive from non-inherited roots, only χαλαρός could possibly reflect the CRHC structure under review and if it does, then, like μαλακός, it must ultimately be based on a lost barytone noun having the same pattern as τάλαρος, and meaning perhaps *‘something made slack’, but “with regular shift of accent” to make the conversion to oxytone adjective.

Other alleged Greek exceptions are as follows.

The ‘wool’ word λίνος (see Beekes 1969: 195) appears to have ancient accent on the initial, zero grade syllable, cf. Ved. āṛṇ-, BSl. *wIʔnII-2-, but this may be due to late parallel developments and indicate a mobile paradigm. There is another peculiarity in the Greek form, viz. early loss of the anlaut laryngeal, which may be in keeping with an expected earlier oxytone.

The Greek ‘wives of brothers’ word εἰνατέρες derives from *Hienh₂-ter-(Beekes 1969: 195; 2010: s.v. εἰνατέρες [sic, with misprinted accent]) and so is of

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7 Beekes’ (2010 s.vv. ταναός, μαλακός, βλάχ) explanations of ταναός < *tnh-eu-o- and μαλακός < *mlh₂-ek- seem unnecessarily ad hoc. Beekes (l.c., s.v. ταναός) is right, however, to reject the attempt at a laryngeal-free etymology by Rico (2001) (whom Beekes refers to as “Christophe”!) in view of the many cognates Beekes cites as requiring laryngeal, including SerboCroat (not Slovenian!) tānak.
no concern here. Similarly, Hom. nom. pl. γαλόω, gen. pl. γαλόων are probably from γαλάϝ-ω- < acc. sg. *γίλων- with *ό from the nom. sg. as Beekes (1976: 15; 2010: 259) suggests; they are thus irrelevant to the present discussion. Finally, Beekes (2010 s.v. χθών) agrees with Rico (2004: 99–102) (though probably not with Rico’s reconstruction with two reduced vowels) that Gk. χθαμαλός does not require a laryngeal, so this word is off the board as well.

Regarding the precise mechanism leading to the dual outcomes, it is worth paying attention to the highly informative experimentally based investigation of likely PIE laryngeal properties by Reynolds/West/Coleman (2000). These authors also see both outcomes as emerging from the same phonological RH segment but representing different durations and timing sequences in the co-production of the two elements (p. 372). Since these scholars regard the laryngeals as metrically weak vowels, they assign these co-production timing sequences to two of their graphic representations on p. 366, which we can represent as follows:

\[
CRÊ,C: \begin{array}{c}
R \\
HHH \\
Time →
\end{array}
\]

\[
CE,RE,C: \begin{array}{c}
R \\
HHH \\
Time →
\end{array}
\]

Although Reynolds/West/Coleman do not explain how the differences in timing arise they do indicate (2000: 371, 377) that, other things being equal, the fact that the resonant precedes the laryngeal is enough to make the resonant the syllable head. This seems to be an adequate explanation of why CRÊ,C represents the unaccented outcome. In the accented case the representation of the resonant happens to be slightly delayed in favour of the ‘vocalic’ laryngeal yielding CE,RE,C. In each case the resonant appears to yield its mora to that of the laryngeal, yielding the single bimoraic vowel in the first (unaccented) case and the two monomoraic vowels in the second case.

Based on all of the above, I find the Rix/Rico account, now increasingly subscribed to also by Beekes, to be the superior and henceforth shall refer to the two Greek structures as the unaccented (CRÊ,C) and (secondarily) accented (CÊ,RE,C) outcomes of CRHC and ČRHC, respectively.

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8 This welcome change of outlook on Beekes’ part gibles much better with the Beekes (1985: 156–158) that wrote the theory of the rise of the α-grade replacing zero grades and eventually becoming accented as well.
3. Clackson (1994: 41) is attracted by the superficial similarity between the Armenian formula *CaRaC* and the Greek one *CÉ,RE,C* but since no such similarity is then found between Arm. *CaRC* and Gk. *CRÊ,C* Clackson rejects any thought of a parallel between the dual outcomes in the two languages. This conclusion is seemingly supported by the alleged mismatches that Clackson focuses on between cognates in the two languages, viz. Arm. *κάφασν* '40’ : Gk. *τετρώκοντα* and Arm. *čanač’em* ‘I know’ : Gk. *γιγνώσκω*, to which we can add Arm. *ařaj* ‘first’ : Dor. Boeot. *πρᾶτος*, Arm. *kalın* ‘acorn’ : Gk. *βάλανος* and Arm. *čalr* ‘laughter’ : Gk. *γαλήνη* ‘calmness of weather’.9 This position probably represents the communal opinion. Reynolds/West/Coleman (2000: 356), for example, link descriptively the Greek *γένεσις* type with the Armenian *čanač’em* type as alternatives to the *-γνητος* type.

I think this view is unhelpful. If one examines the variant reflexes in each of the two languages it is observed that in both cases in Greek there is a vowel after the resonant and two vocalic morae in the reflexes, while in Armenian there is always a vowel before the resonant and the number of vocalic morae varies between the two reflexes. When these differences are set aside, both languages have in common that one form in each language has more vocalic morae after the resonant, i.e. Gk. *CRÊ,C*, Arm. *CaRaC*, than the other form (which may have as few as zero in this position), i.e. Gk. *CÉ,RE,C*, Arm. *CaRC*. Thus I propose that the forms that should be paired are Gk. *CRÊ,C* = Arm. *CaRaC* and Gk. *CÉ,RE,C* = Arm. *CaRC*. When that is done the four pairs of examples cited in the preceding paragraph as showing divergent developments fall completely into line, the first three illustrating the first of these two equations, the last two the second.

We are now in a position to apply these results to a rule presented by Francis in his unpublished PhD thesis (1970), which, anticipating what follows, I propose to call Francis’ law.

4. My information on Francis’ law is drawn almost entirely from Clackson’s (1994: 41–49) treatment of it. The law can be stated for the time being thus: *Ci/uh₂:3*C > Gk. *Ci/uÊ,C*, and illustrated by *ἐβίον*, *ζωός*, *πρόσωπον*, *δηρός*, (Arc.) *ζάτος*, *ζητέω* (both reflecting *dih₂-tó-*, ἤνορέη,10 Πάν, *ζωρός*, *μοφός*.

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9 As we have seen in §2 above, the *e* in Beekes’ (2010: 257 f.) reconstruction *ḏlh₂-es-* for this pair is superfluous; it is not even justified by the accent on the middle syllable of the Greek word since this is advanced from its original position on the initial syllable by the normal rules of Greek accentuation.

10 Normier’s etymology for this word, as cited by Clackson, requires the addition of the anlaut laryngeal, thus *h₂suh₂:3nor* > *ehwänor* > *eănor* with anlaut *e* absorbed by the following *ā*, there being no old inherited matter with onset **eā-** in the word list of Beekes 2010.
Francis’ law has found few supporters because there are said to be counter-examples. Clackson (I.c. 42–44) gives the following list, drawn from the work of various scholars: *ὀπίση, πίθι, πίνω, γλοξίς, ἑφό, πολὐττος, ἑχῖνος, βρίθω (if IE, see Beekes 2010 s.v. βρί), δημός, κίνμα, κίνησις (> κινέω), Myc. qi-wo (anthroponym), if to Lat. vīnus, and πλῶνω.

Looking at these two lists, we observe that in the first one, i.e. the list of examples supporting Francis’ law, the syllables in question are generally unaccented. The two questionable cases are readily resolved. They are: Ἡάν < *pwāhe/on-, for which Ved. pūśān- < *puh₁sē/ón-[12] has the accent on the required syllable, and ἐβίον, which must have originally been accented on the augment as in Vedic, the rightward shift of the accent having taken place after the dissolution of the segment containing the laryngeal because the shift was conditioned by the result of the dissolution. In other words this list contains no secure counterexamples to the principle that Francis’ rule as stated above applies only to unaccented zero grades.

This last phrase should alert us to the possibility, apparently not noticed until now,[13] that Francis’ law is essentially a special case of CRHC restricted to the values of \( R = I \), i.e. \( *i/*u \) and \( H = *h₂/*h₃ \). This in turn suggests the possibility that the so called counterexamples represent no more than the secondarily accented variety of the same segments.

This is indeed what we find in the list of alleged counterexamples, although there are a few special cases requiring discussion. The Vedic cognate of the imperative suffix in πίθι is usually accented -dhi, forcing us to consider that the leftward movement of accent in this and πίνω and the present tense forms of other verbs must have taken place before the dissolution of these segments containing laryngeals – which in the case of Greek is not hard to believe. Similarly ἑφό must take its vocalism from non-augmented forms with retracted accent, such as. inf. φῦναι; while πολὐττος is based on gen. sg. πολὐττον and other forms with long final syllable.

Beside these θῆμος appears to be the only real exception, but the connection of this word with Hitt. tuhima-, though favoured by Kloekhorst (2008 s.v. tuhhai- [2]), is too uncertain to be relied on – in Kloekhorst’s example the word seems to refer to something audible, making his gloss ‘smoke’ hardly appropriate;[14] see also discussion by Beekes (2010 s.vv. θῆμος, θῶ/1, θῶ/2) who is disinclined to commit

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[12] Clackson, reporting Normier, writes *puh₂son- but *puh₂sēn- satisfies Brugmann’s law.

[13] True, Clackson makes a connection between the unaccented zero grades in his more extended treatment of ὁμός and erkar (1994: 112115) but instead of seeing them as such he refers to them as “thème II ablaut of the root rather than zero grade” (I.c. 113f.) and thus denies himself the possibility of reaching the unifying solution presented here.

himself on the precise nature of the laryngeal. Consequently nothing prevents the reconstruction *deuh₁-mó- which, with *h₁, is no longer input for Francis’ law.¹⁵

If this is accepted then a number of awkward decisions in Beekes (2010) can be rescinded. These include: (1) the envisaged schwabeblaut for ἕβιον, ζοφός (s.vv. βιο-, ζώος) and δηρός (s.v.); (2) the alternative etymologies with unlikely e-grade of the root for ζωρός, ζητέω (s.vv. and below); (3) the original derivation with short α for ήνορέη; (4) the unnecessary ablauting paradigm in the case of Πάν (s.v.);¹⁷ (5) the alleged difficulty of etymologizing words meaning ‘stupid’ in attempting to connect Ved. mūrå- and μωρός (s.v.); and (6) the qualification “(which is doubtful)” attached to the Dutch scholar’s derivation of πρόσωπον (s.v.) which is based without acknowledgement on Francis’ law.

Beekes’ (l.c.) preferred etymologies for ζοφός and ζητέω, alluded to above, are *ieh₁-ró- and *ieh₂-tó-, respectively. The latter suffers from the disadvantage that we might expect the zero grade in this form, which, if Beekes’ law operates, would give Arc. ζάτος¹⁸ with short root vowel, as in the verbs δατίσματι and πατέω which Beekes (l.c.) cites as models for ζητέω, whereas length is required not only in ζητέω itself but metrically also in both ζάτευξι (Acleman 33.8) and ζατέω’ (Theocritus 1.85), which in turn suggest that length is also required just as much in ζατός as in ζητός – indeed it is curious that, according to Beekes’ etymology, only the full grade of this root is attested in Attic-Ionic, a disability not suffered by the etymology that supports Francis’ law, which can thus be regarded as superior.

Summing up for Greek: if we distinguish R = M = *l, *r, *m, *n from R = I = *i, *u then we have unaccented CRHC > Gk. CMĒ₁C (Rix) and CIĒ₂/3C : CĪC (Francis’ law) beside secondarily accented CRHC > Gk. CĒ₁ME₁C (Rix) and CĪC.

5. How similar, then, is Armenian to Greek in the matter of Francis’ law?

First let me propose that in the two Armenian formulae for the reflexes, unaccented CaRaC and secondarily accented CaRC, the segment aR may represent no more than the usual reflex of the syllabic resonant. In the case of this being I = *i/*u, this leads to an expectation that unaccented CIHC > Arm. ClaC (cf. CaRaC),

¹⁵ It is not particularly surprising that the duality of outcomes is absent in the case of the most recessive of the laryngeals, *h₁, (cf. the strength hierarchy of laryngeals proposed by Eichner 1988: 131), combined with the two most vocalic of the resonants.

¹⁶ With a somewhat different account of Francis’ findings.

¹⁷ Beekes concludes his entry on Πάν thus: “Doubts by Mayrhofer EWAia 2 s.v.”, which is somewhat misleading: Mayrhofer (l.c., s.v. pūsá̆n-) in fact lists plentiful literature representing various points of view, including the derivation based on Francis’ law, without much commentary beyond “sogar” for the last named.

¹⁸ Unfortunately the solitary, incomplete inscription attesting this form (viz. IG 5(2), 4: 22) appears to be unmetrical, giving no guidance regarding the length of the first syllable of the word.
while secondarily accented CIHC > Arm. CIC (cf. CaRC). Clackson (1994: 44–46) finds there are three Armenian outcomes for CIHC, viz., CšāC, ClāC and CĪC. Since quantities are not preserved in Armenian, these are the equivalent of ClāC, ClaC and CIC, two of which – I suggest the first and the last, ClaC and CIC – correspond to my predictions. Thus ClāC represents originally unaccented zero grade, while CIC reflects secondarily accented zero grade, the remaining form, ClaC, being a blend of the other two. Thus the unaccented zero grade in Arm. erkar < *dwar- makes it the exact equivalent of Gk. δηρός, while Arm. kaw < *twā- can be the exact equivalent of Gk. *σαϝος or descendant of PIE *puH-tó- (Clackson 1994: 43f., 177f. leaves open the question of which etymon is to be preferred).

The longish lists of words with Arm. reflexes i and u that Clackson goes on to provide represent the secondarily accented zero grade, as is appropriate in the case of the several monosyllables that appear in these lists. Thus we appear to have here another exact equivalence of early development in Greek and Armenian.

6. We may prefer to view the above-deduced shared early development of four treatments of CRHC, dictated by the nature of R and the position of the accent, in much the same light as Clackson (1994: 33) views the shared Greek and Armenian intolerance of anlaut *r, i.e. as an areal development testifying to a period of close proximity of the two languages rather than to their actually forming a linguistic unity.

Another shared feature pointing to such a period of proximity is the replacement of anlaut laryngeals by vowels in the two languages. Clackson (1994: 35) may be right to reject this as a would-be shared development that might point to a period when the two languages were one, but I think the fact that the anlaut laryngeals were retained until a later period when they were transformed into vowels, even though in different ways, can be taken as a shared feature contributing positively to the thesis of a period of close areal proximity.

I think this period of close proximity enables us to explain Gk. αὐχήν ‘neck, throat; isthmus’ as an early loan from Armenian of the forms antecedent to Arm. awji-k’ ‘collar’, awj ‘throat’ < (quasi-?)PIE *h₂ŋʷh₂ which stands beside *h₂éŋʷh₂ > Aeol. ἀμφήν in Martirosyan’s (2010: 154) ablauting paradigm. This circumvents some of the difficulties associated with the connection of these forms and, if the Armenian accent had already begun its rightward migration during this period, it might also explain the difference in accent between ἀμφήν and αὐχήν.

The other main impediment to the connection here proposed is that Beekes (2010 s.v. αὐχήν) relying on Clackson (1994: 107–109), regards as controversial...
the development \(*h_{2\beta}NK^w- \rightarrow \text{Arm. } aw\ddot{K}\) that is found in the two words under consideration and in two other Armenian items, viz.

awj ‘snake’ cf. Lat. anguis, Lith. āngis ‘id.; modifying Martirosyan’s (2010: 153) treatment slightly we have: PIE \(*h_{2\beta}ng^{wh-i-} \rightarrow \text{PArm. } an^wng^{wh}i\) (with \(*g^{wh} \rightarrow \overline{g}h\) after20 \(*u/w\) > \(*aw\ddot{g}h\) i. and awcanem ‘anoint; gild; etc.’ cf. Lat. unguere ‘anoint’, Ved. 3. pl. anjānte ‘id.; smear’, PCelt. *amban ‘butter’; once again modifying Martirosyan’s (2010: 153) treatment slightly we have: PIE \(*h_{2\beta}ng^{w-} > \*Hn^{w}g^{w-} > \*aug- > awc."

In fact Clackson (l.c. 107) does not succumb to Pedersen’s objection that \(*g^h\) should yield Arm. z between vowels “(as ozni ‘hedgehog’ < \(*g^h\)in-)”, including after w, but overcomes it by pointing out that this need not apply after the secondarily developed resonant.

Clackson (l.c. 108) does, however, cite as counterexamples Arm. ankanim ‘I fall’ < \(*seng^w-\), hing ‘5’ < \(*pen^wke\) and perhaps anjuk ‘narrow’ if < \(*ang^w\)u-, for which last reconstruction Clackson cites Lehmann (1986: 60) and de Lamberterie (1990: I.267) as sources. These proposals are easily overcome. The first two items do not have anlaut \(*h_{3\beta}\) and so do not meet the input conditions for the change and are therefore not counterexamples. The third is impossible in PIE:21 the labiovelar may exist in cognate forms with a different suffix or different grades of the same suffix but before PIE \(*u\) itself any labiovelar is automatically delabialized, as several scholars have seen, including Brugmann (1897: 595f., 603f., 607, 611), Persson (1912: 270–274),22 and more recently Steensland (1973: 24f., 27f., 39, 43, 111, 114, 117). The truth of this principle can be further demonstrated by the absence of verb roots in LIV2 containing a labiovelar actually or even potentially in contact with a following PIE \(*u\) and also by a trawl of Pokorny (1959) for similar material. The last named procedure yielded me only three items requiring comment, viz.::

\(g^wou\) - ‘bovine animal’, the protoform of which is reconstructed with \(*h_{3}\) interposed between the labiovelar and the \(*u\) by Derksen (2008 s.v. govēdo), Beekes (2010 s.v. boūς), de Vaan (2008 s.v. bōs, bovis) and Martirosyan (2010 s.v. kov), the last-named citing Lubotsky, Schrijver and Nassivera as authorities;

\(g^w\ddot{u}-\) : \(g^w\ddot{u}-d^{h}\) - ‘filth, excrement’: the critical second item is illustrated only by Slavic material, which, being satem, cannot provide any proof of the

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20 Martirosyan actually writes “before \(*u/w\)” here, but since there is no \(*u/w\) following the tectal, it is clear this is an error for “after \(*u/w\)”.

21 The arguments that follow were originally written for a paper (designated MS) still under adjudication and are reproduced here abridged.

22 These can hardly be falsified by reference to languages discovered/deciphered since – Tocharian, the Anatolian languages and Mycenaean Greek.
preservation of a PIE labiovelar; while Lat. būbinō -ināre ‘to soil with menstrual blood’ probably represents non-Lat. *bovinō (Pokorny 1959: 484 following Walde/Hofmann 1965 [1938] s.v.; Persson 1912: 273) and, being non-inherited, is ignored by de Vaan (2008); and

*kwâ- ‘where; when; etc.’: as Brugmann (1897: 595, 603) saw, the sparse data for this – Greek (Cret.) δπυ, (Syrac.) πυς, (Rhod.) δπυς ‘where to?’, Osc. puf ‘where’, puz, Umbr. puze ‘that, as’ – are too susceptible to analogical restoration of the semantically critical initial consonant to provide secure evidence of a surviving labiovelar in the protoform. As for the long debate over the vocalic anlaut of Lat. ubī ‘where’, utīi ‘how, as’, unde, uter beside ali-cubi ‘somewhere’ etc., in which the expected de labialized reflex is preserved only medially in some non-interrogative forms, I think Brugmann’s (1897: 604) example of nec-opīnus (beside in-opīnus, not **in-c-opīnus) supports his contention that a misanalyzed or reanalyzed ne-c- was deleted to re-form the interrogative forms and at the same time gives the lie to Schrijver’s (1991: 262f.) unsupported claim that nec-ubi should have resulted in the preservation of the anlaut velar rather than assisted in its removal. Moreover, Schrijver’s (l.c.) attempt based on Lat. vapor to support Joh. Schmidt’s (1893: 405f.) sound law for ubī, fails because the proposed protoform for vapor, PIE *kwâh₂up-, like *g*₂h₂ou- ‘bovine animal’, does not have the labiovelar in contact with *u. Further, Schrijver’s contention that only the pure velar *k + *u yields qu-in the equation Lat. quatio = OS scuddian, Lith. kuti is cannot be verified because these words (can) reflect an original labiovelar de labialized by the following *u, the combination subsequently being represented in Latin by anlaut qu- in the much the same way as *h₂ekuus > Lat. equus, which latter word testifies eloquently to the fact that Kwu and/or Kwâ in daughter languages need not point to the same segments in PIE.

7. Some specifications have been indicated above of the relative chronology of the dissolution of CRHC segments and leftward and rightward shifts in the accent place of Greek verb forms. This relative chronology is summarized for convenience here:

1. leftward accent shift: *ph₃i-d₃i > *pih₃-D₃i;
2. dissolution of CRHC: *pih₃-D₃i > πīth ‘drink!’; *h₁é-g*₂ih₃-m > *é-biō-N, *gi-γnḥ₃-sk- > *gi-γnō-sk-;

It would be interesting if this sequence were to be confirmed by other data.
References


—–, MS, Delabialization after *μ and the distribution of labiovelars in satem PIE.