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Greek *$C\underset{\frown}{i}$ Clusters

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Abstract

The scope of the present thesis is to trace the history of primary *$C\underset{\wedge}{\iota}$ clusters in Greek. The dissertation is divided into eight chapters. Chapter 1 explores the early history of *$t^{(h)}\underset{\wedge}{\iota}$ and *$k^{(\mu)(h)}\underset{\wedge}{\iota}$ with particular emphasis on the development of *$(\text{-}C)t\underset{\wedge}{\iota}$- and *$(\text{-}R)k\underset{\wedge}{\iota}$-. The former unexpectedly became /(-C)s-/ in the *t*-dialects, while *$(\text{-}R)k\underset{\wedge}{\iota}$- yielded /(-R)s-/ in Cretan and Boeotian, but /(-R)t-/ in Attic and Euboean. It is argued that singleton *$(\text{-}C)ts$- from any source was fricativized at an early date in strong positions, by extension of the rule that fricativized original (singleton) *-*ts* word-finally. Depending on whether or not *$(\text{-}R)k\underset{\wedge}{\iota}$- had merged with *$(\text{-}C)ts$- at the time of the fricativization, the former sequence either resulted in a fricative (cf. *$k\underset{\wedge}{\iota}$- > Boeot. /s-/, *-$Rk\underset{\wedge}{\iota}$- > Cret. /-Rs-/), or followed the development of intervocalic *-$k\underset{\wedge}{\iota}$- (cf. *$k\underset{\wedge}{\iota}$- > Att., Eub. /t-/). Chapter 2 examines certain issues related to the historical phonology of the groups *$d\underset{\wedge}{\iota}$ and *$g\underset{\wedge}{\iota}$. Chapter 3 investigates aspects of the history of *-$R\underset{\wedge}{\iota}$-. It is proposed, among other things, that the outcome of *-*er*/$n\underset{\wedge}{\iota}$- was both -*ēr*/*n*- *and* -$e\underset{\wedge}{\iota}r$/*n*- outside Aeolic, (partly) depending on the dialect. Chapter 4 is concerned with the details of the sound change *$p\underset{\wedge}{\iota}$ > /pt/. In Chapter 5 it is argued that the Greek reflexes of *-$\underset{\wedge}{\mu\iota}$-, namely -$\underset{\wedge}{\iota\iota}$- and -$\underset{\wedge}{\iota\mu}$-, are best understood as products of palatalization. Chapter 6 offers a full account of the development of PGk. *-$s\underset{\wedge}{\iota}$-. It is contended that the result of that cluster was -$\underset{\wedge}{\iota\iota}$- after any vowel and in all dialects (irrespective of the presence or not of a morpheme boundary), and that **s* was palatalized before yod at some point in its history. Chapter 7 discusses the chronology of the loss of yod after consonants relative to other sound changes. The most important findings of the dissertation are summarized in chapter 8.

Zusammenfassung

Das Ziel dieser Arbeit ist es, die Geschichte der primären *$C\underset{\wedge}{\iota}$-Cluster im Griechischen zu verfolgen. Die Dissertation ist in acht Kapitel eingeteilt. Kapitel 1 befasst sich mit der Frühgeschichte von *$t^{(h)}\underset{\wedge}{\iota}$ und *$k^{(\mu)(h)}\underset{\wedge}{\iota}$, wobei zwei Probleme insbesondere im Vordergrund stehen: 1) die Entwicklung von *$(\text{-}C)t\underset{\wedge}{\iota}$- zu /(-C)s-/ in den *t*-Dialekten, und 2) die Fortsetzung von *$(\text{-}R)k\underset{\wedge}{\iota}$- durch böot., kret. /(-R)s-/ vs. att., eub. /(-R)t-/. Es wird argumentiert, dass nichtgeminiertes *$(\text{-}C)ts$- (jeglicher Herkunft) zu einem frühen Zeitpunkt frikativiert wurde, als Folge einer Erweiterung der Regel *-*ts* > -*s*. Je nachdem ob *$(\text{-}R)k\underset{\wedge}{\iota}$- zum Zeitpunkt der Frikativierung mit *$(\text{-}C)ts$- zusammengefallen war oder nicht, wurde erstere Sequenz schließlich zu einem Frikativ (vgl. *$k\underset{\wedge}{\iota}$- > böot. /s-/, *-$Rk\underset{\wedge}{\iota}$- > kret. /-Rs-/) oder teilte die Entwicklung von intervokalischem *-$k\underset{\wedge}{\iota}$- (vgl. *$k\underset{\wedge}{\iota}$- > att., eub. /t-/). Kapitel 2 befasst sich mit bestimmten Fragen der phonologischen Entwicklung der Gruppen *$d\underset{\wedge}{\iota}$ und *$g\underset{\wedge}{\iota}$. Kapitel 3 untersucht Aspekte der Geschichte von *-$R\underset{\wedge}{\iota}$-. Es wird unter anderem vorgeschlagen, dass das Ergebnis von *-*er*/$n\underset{\wedge}{\iota}$- nicht nur -*ēr*/*n*-, -*err*/*nn*- war, sondern auch -$e\underset{\wedge}{\iota}r$/*n*-, (teilweise) abhängig vom Dialekt. Kapitel 4 befasst sich mit den Details des Lautwandels *$p\underset{\wedge}{\iota}$ > /pt/. In Kapitel 5 wird dargelegt, dass die griechischen Reflexe von *-$\underset{\wedge}{\mu\iota}$-, nämlich -$\underset{\wedge}{\iota\iota}$- und/oder -$\underset{\wedge}{\iota\mu}$-, am besten als Produkte einer Palatalisierung verstanden werden. Kapitel 6 bietet einen vollständigen Überblick über die Entwicklung von urgr. *-$s\underset{\wedge}{\iota}$-. Es wird behauptet, dass das Ergebnis dieses Clusters nach jedem Vokal und in allen Dialekten -$\underset{\wedge}{\iota\iota}$- war (unabhängig vom Vorhandensein oder Nichtvorhandensein einer Morphemgrenze) und dass **s* (oder **h*) vor *$\underset{\wedge}{\iota}$ palatalisiert wurde. In Kapitel 7 wird die Chronologie des Verlusts von *$\underset{\wedge}{\iota}$ nach Konsonanten im Verhältnis zu anderen Lautwandeln erörtert. Die wichtigsten Ergebnisse der Dissertation sind in Kapitel 8 zusammengefasst.

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0. Introductory remarks

"Il semble que nous devrions organiser
un colloque sur les palatales.
Ce serait bien souhaitable"
(Morpurgo Davies *apud* Ruipérez 1988, 166).

The present thesis examines the history of **C̯i* clusters in Greek. The focus is on primary **C̯i*, but words originally going back to **°Cih₂* (> **°C̯ia*) were also taken into consideration during the assessment of the material. The reason for this is that the change of **-ih₂* to **-i̯a* (and of **-ih₁* to **-i̯e*) was early enough to precede the elimination of primary **C̯i* sequences. I have consciously refrained from embarking on a discussion about the possible value of the Linear B signs *za*, *ze*, and *zo* (on this matter see especially the works of Crespo 1985, Del Freo 1989, and Mexas 2011, all with lit.). This is mostly because I have nothing new to add to the existing debate, but also because cogent arguments for and against the two interpretations have been put forward from both the affricate and the palatal camps. Questions that have no direct bearing on the historical grammar of Greek (such as that of the distribution of the change (*)/-(d)dz-/ > /-zd-/ in the Greek dialects) have not been addressed.

To my knowledge, this is the first-ever attempt at a full-scale treatment of Greek **C̯i* clusters. A similar dissertation was published over a hundred years ago by Otto Lagercrantz (1898), but that work had different objectives and is now largely outdated. This lack of scholarly interest in a crucially important aspect of Greek linguistic prehistory is surprising. Although the result of **t̯i* etc. is generally not a matter of dispute (but note that there is no unanimity regarding the reflex of **s̯i*), there are still many unknowns about the history of **C̯i* in Greek: historical linguistics is not only concerned with the 'whats', but also with the 'whys', the 'whens', and the 'hows'. In the present case, it has rarely been asked why e.g. **t̯i* and **k̯i* have different outcomes in different positions in the Greek dialects. Similarly, the phonology of Greek **C̯i* clusters has never been the subject of a systematic and chronologically sensitive investigation.

The dissertation is divided into eight chapters. Each of these is devoted to a specific cluster or to a group of phonologically related clusters, but with two exceptions; chapter seven, which touches upon issues of relative chronology, and eight, which concludes the thesis. There are no special interconnections between the main parts of the dissertation; each chapter is essentially a short case study. Generally, linguistic material is not cited for its own sake. An abundance of forms relevant to the issues treated in this work can be found in e.g. Lagercrantz 1898, Wathelet 1970, 110 ff., Lejeune 1972, 100 ff., Peters 1980, Méndez Dosuna 1993, Brixhe 1996, and in Barber 2013. The names of ancient works and authors are abbreviated according to the OCD, but for the Etymologicum Magnum the abbreviation 'EM' is used. For the long mid vowels I use *ē̯*, *ę̯̄*, *ę̯̄* and *ō̯*, *ǭ̯*, *ǭ̯*. For the palatal approximant in ancient Indo-European languages I use *i̯*; however, palatalization is indicated by a superscript *ʲ*.

1. *(-)$t^{(h)}$(+)$\underset{\wedge}{i}$- and *(-)$k^{(\underset{\cup}{u})(h)}\underset{\wedge}{i}$-

1.1 Introduction

The development of PGk. *(-)$t^{(h)}$(+)$\underset{\wedge}{i}$- and *(-)$k^{(\underset{\cup}{u})(h)}\underset{\wedge}{i}$- (henceforth *(-)$t$(+)$\underset{\wedge}{i}$- and *(-)$k\underset{\wedge}{i}$-) is complicated. Heteromorphemic *-t+$\underset{\wedge}{i}$- and *-k+$\underset{\wedge}{i}$- (> *-$t.t\underset{\wedge}{i}$-, *-$k.k\underset{\wedge}{i}$-; cf. Méndez Dosuna 1994a, 115 ff. and notes 25 and 333 below) give -ττ- in Attic (cf. e.g. βλίττω, φυλάττω)[1], Euboean (cf. Μελιττος IG XII,9 244A, Μελιττα IG XII,9 243 < *$melit$-$\underset{\wedge}{i}a$[2], εκπρηττοντων IG XII,9 90), Boeotian (cf. e.g. χαριϝετταν CEG I, n° 326, πρᾱττωσα[3] SEG 32:456, διαφυλαττι IG VII 207),[4] and Central Cretan[5] (e.g. ιατται = οὖσαι IC IV 72.VIII 47, ευγλωθ{ι}οι IC I xxiii 3.7 f.) (on Aetolian see Méndez Dosuna 1985, 127–129),[6] but -σσ- in

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[1] On -σσ- in 5th-c. prose writers such as Thucydides, see Crespo 1979. For -σσ- in Attic inscriptions, see Threatte 1980, 538–541. Vara's 1979 (see also Teodorsson 1993, 311 with nn. 24 f.) attempt to show that -σσ- is genuine Attic is unconvincing. -σσ- in Xen. πτήσσομεν (*Cyr.* 3.3.18; πτησσε/ο- is also found in the Athenian dramatists) and Soph. πτύσσεται (fr. 872.3; Pl. διαπτύττω) (NB neither form is found in Homer) should rather be seen as a literary feature (the /(p)t°/ cannot have played a role here, cf. πτίττω, τάττω; cf. Schwyzer 1939, 319 n. 1 and Hackstein 1993, 136 f. n. 1). Neumann (*apud* Wehgartner 1989, 230 f.) reads πτῶσσᾳ on a 5th-c. Attic lekythos (AVI 2503), but on this reading see the remarks by Henry Immerwahr in AVI (*pace* Neumann, there are no other examples of -σσ- on Attic vases or inscriptions that could be considered genuine Attic; Exekias' τεσαρα AVI 6979, uttered by Achilles while playing a board game with Ajax, is striking, but it is found in a heroic context and Kretschmer 1894, 80 thinks that Exekias might have been a non-Athenian, since he wrote ιολᾶος instead of ιολεῦς on AVI 2216). On Δάκαρης et al. 2013, n° 2261A (πρᾶσ(σ)οι), see Méndez Dosuna 2018, 278. On the corrected sampi(?) in Att. Νετος (AVI 0731) = Νέσσος (cf. now also 4th-c. ?Ion. Νεττειδης; Δάκαρης et al. 2013, n° 229B), see Brixhe 1982, 220 f. (san, not sampi; but the painter was possibly an Athenian, see Threatte 1980, 24); Dubois 2017, 225 f. with lit.

[2] See further e.g. Kim 2014, 124 f. with lit.; *pace* Schwyzer 1914 (*$meli$-lik^h-$\underset{\wedge}{i}a$ 'Honigleckerin'; cf. Skt. *madhu-lih-*).

[3] With secondary *-$k\underset{\wedge}{i}$- for *-$g\underset{\wedge}{i}$- after forms where the velar stood before a voiceless consonant, cf. e.g. Méndez Dosuna 2005, Barber 2013, 262 ff.

[4] -ττ- < *-t+$\underset{\wedge}{i}$-, *-$k\underset{\wedge}{i}$- in Attic, Euboean, and Boeotian has been seen as an areal feature by several scholars (cf. for instance Solmsen 1909, 105; Allen 1958, 126 with n. 61; Nagy 1970, 126; Colvin 2004, 102; Miller 2014, 321).

[5] The material from other parts of Crete is limited and late, but (e.g.) 3rd-c. οσσοις (IC III iv 8.5.32) from Itanos (east) and 3rd/2nd-c. οσσα (IC I ix 1.118) from Dreros (central east), which can be neither Attic nor Ionic, suggest that *-$t\underset{\wedge}{i}$- became -σσ- in East Cretan (see further Brause 1909, 148 ff. and n. 88 below). Unless otherwise stated, the term 'Cretan', when used in the context of stop palatalization, always refers to Central Cretan in this study. — Sheets' (1976, 156) statement that *-$k\underset{\wedge}{i}$- yielded -δδ- in Cretan is not correct. All of the examples cited by him are cases of voiced, and not voiceless velars plus *$\underset{\wedge}{i}$ (see also Peters 1980, 289). — The outcome of *-$t\underset{\wedge}{i}$- and *-$k\underset{\wedge}{i}$- was denoted by -θθ- in Cretan during the Hellenistic period (but this spelling is not completely unknown in Classical times). Allen (1958, 126 n. 63; similarly Bartoněk 1961, 162; Kümmel 2007, 169) believes that Cret. /-tt-/ simply became /-t^ht^h-/ at some point (differently Brixhe 1996, 105 ff.). This is probably correct: in several geminating Modern Greek dialects (e.g. Cypriot), geminate (voiceless) stops are consistently aspirated (see Arvaniti / Tserdanelis 2000; Arvaniti 2010; Armosti 2011; Μανωλέσσου / Μπασέα-Μπεζαντάκου 2012, 954; cf. also Ridouane 2010, 65. 69 f.; compare further Messapic *-$t\underset{\wedge}{i}$- > -$t\theta$-, e.g. De Simone 1972, 156–158). — The result of *ts and *$t\underset{\wedge}{i}$ was represented by -ζ- in Cretan during the 7th and 6th centuries. On the value of zeta in Archaic Cretan, cf. on the one hand Méndez Dosuna 1993, 99 f. with n. 45. 102 and on the other Brixhe 1996, 93–110.

[6] 6th-c. χετειῦ = χεσείω (desiderative of χέζω) on a Rhodian vase showing a man in crouching position probably continues *k^heds- and possibly shows the change of *-tts- to -ττ- that is also

the rest of Greek (cf. e.g. Arg. εσσᾱ[ς] = οὗσης IG IV²,1 122.2, περισσον IG IV²,1 103.B50; Arc. Παδοεσσα BCH 39 1915, 53–97, ησσον IG V,2 6.A.Col.II.41; Ion. κρέσσων, φυλάσσω; Lesb. χαρίεσσα Sa 108, ογκᾱρυσσετω IG XII,2 645[7]).[8] In Mycenaean, the result of the palatalization of **t* in the sequence **-t+i̯-* is denoted by *s* (e.g. *a-pe-a-sa* < *°*at-i̯a* ≈ ἀποῦσα). The outcome of **-k+i̯-* was probably *z* (cf. **ka-zo-e* < prob. **kak-i̯oh-*; *a-o-ze-jo*, cf.

found in Boeotian (*pace* Wachter 1998; see Peters 1991, 570 f. with ref. to Gallavotti; ιχεται in the same text could be the Rhodian equivalent of ἵκεται, see Méndez Dosuna 2005, 99 n. 5; cf. perhaps Att. hιφοχρατῆς = Ἱπποκράτους, Vanderpool 1949, 403; see further Threatte 1980, 461 f. and note also εὖω < **eu̯he*/*o-* etc.). The problem with the assumption that the tau in χετειῑ represented /-tt-/ is that Rhodian is an *s*-dialect (cf. e.g. οποσσῑ[ς], οσσ[οι] SEG 4:171). If we are not prepared to attribute the *s*-forms to an Aeolic substrate in Rhodes (on which see recently Nussbaum 2019, esp. 457 f. with n. 71. 459 n. 77), as per Peters, the only alternative seems to be that χετειῑ represents [k^{h}ettse̯i̯ῑ]. Since the most salient element of an affricate is the fricative, Méndez Dosuna (1993, 91 n. 19) objects that the spelling of [t(t)s] with a <ᴛ> would be surprising. However, the initial affricate of Old Persian **Čiça-farnah-* = Τισ(σ)αφέρνης (Thuc.+) was apparently perceived as /t/ in Greek; the same is true of the affricate in OP **Čiθrā-vahišta-* = Τιθραύστης (Xen.+) and **Čiçan-taxma* = Τριτανταίχμης (Hdt.) (cf. e.g. Jacobsohn 1927, 261 n. 3; Schmitt 1967, 121 f.; Mayrhofer 1973, 258; Hinz 1975, 75). For more examples see Steiner 1982, 62 f. with lit.

[7] On 3rd-c. Lesb. απαλλαττομενοις[, see Hodot 1990, 28 f. with ref. to Peters.

[8] On Cypriot see Egetmeyer 2010, 124 f., but cf. also Eust. *sch*. *Il*. 3.96 "Αἴλιος δὲ Διονύσιος ἱστορεῖ […] ὅτι Θετταλοὶ καὶ Κιτιεῖς, οὐχ' οἱ κατὰ Φοινίκην, ἀλλ' οἱ περὶ Κύπρον, ὧν πόλις Κίτιον, […] θάλατταν ἔλεγον καὶ πίτταν καὶ καρδιώττειν καὶ Ματταλίαν". According to Jacobsohn (1913), -ττ- was also found in Chalkidike; compare the ethnic name Αττᾱριος (cf. Ἄσσηρα, Ἀσσηρίτης).

The result of **-ti̯-* and **-ki̯-* in Thessalian is -σσ-; see García Ramón 1975, 83; 1985, 116 f.; 2007b, 92 f.; 2008, 196. 198; Peters 1984, 83 f.; 1999; Tziafalias / Helly 2013 (indef. ποσσα n.); cf. now also Δάκαρης et al. 2013, (e.g.) n° 1134A (πρᾱσο[νσα]), 217A (πρᾱσσοι); further Méndez Dosuna 2018, 281. 287. There is some evidence for -ττ- as well (see Schulze 1897, 900 f.; Solmsen 1903, 612; Peters 1999, 450 n. 22 with ref. to Helly; and the passage above), but -ττ- in Thessalian is confined mostly to names with uncertain etymology (on πετταρες see n. 89 below). Peters (1984, 83 f.), following previous scholarship (Schulze, Solmsen, Bechtel), has attributed the forms showing -ττ- to Northwest Greek influence. This hypothesis is mainly based on a number of Aetolian ethnic/place names like Βουττος/Βουττιος. However, the etymology of these names remains largely unknown, and regular vocabulary shows -σσ- in Aetolian (cf. Méndez Dosuna 1985, 127–129). The name of the Thessalians, which probably comes from **k$^{u̯h}$et^{h}i̯aló-* (Weiss 1998), is always spelled with -ττ- in Thessaly, but, as Weiss has proposed, that name was possibly of Boeotian origin.

The idea that -ττ- in Boeotian is to be attributed to influence from neighbouring Northwest Greek varieties (Schulze 1897, 901 f.; Peters 1984, 84; cf. also 1999, 450 f. n. 22; Cowgill 1966, 84 n. 22) seems unnecessary to me (cf. also Miller 2014, 296. 321). The fact that **-ti̯-* and **-ki̯-* gave -σσ- in Thessalian and Lesbian is hardly a compelling reason to doubt that the original outcome of these clusters was -ττ- in the dialect of Boeotia. Peters (1999, 450 f. n. 22 with ref. to Schindler) traces Boeot. (F)ᾱσανδρο- back to (**su̯ād-ti-* >) **su̯ād-ti̯-* *[°ᾱttḭ-] (with a secondary **-ti̯-* cluster, but cf. n. 29 sec. par.) > **hu̯āss-* > **hu̯ās-* (*/-ss-/ > /-s-/ after a long vowel). García Ramón (1992, 252 ff.), followed by Méndez Dosuna (1994, 215 n. 13), favours an analogical explanation for the consonantism of forms like Fᾱσανδρο-. Boeot. νάσσας in Aristophanes is probably not an original dialect form (Colvin 1999, 167).

perhaps Hom. ἀοσσητήρ ‘helper’; but cf. also ἄοζος ‘[temple] servant, attendant’, DELG 777, s.u. 2 ὄζος).[9]

[9] Both initial **kʲ̯-* and secondary **-kʲ̯-* are denoted by *z* in Mycenaean (for the former see below, for the latter cf. e.g. *su-za* < **sūkeʲ̯ā*). This speaks in favour of the assumption that prim. **-kʲ̯-* > Myc. *z* (cf. further *a-ze-ti-ri-ja* < (*)*askētriʲ̯ā̆-*; Méndez Dosuna 1994).

According to Palmer and several scholars nowadays, (Pylos) *wa-na-so-i* (and *wa-na-se-wi-ja*/*-jo*) is related to ἄνασσα < **û̯anakʲ̯ia* and to the appellative ἄναξ ‘king, ruler’ (cf. *wa-na-ka-te wa-na-so-i* PY Fr 1227, *wa-*]*na-so-i wa-na-ka-te* Fr 1235.1). If the above comparison is valid, then **-kʲ̯-* had two outcomes in Mycenaean. The suggestion of Lejeune that Myc. *wa-na-s-* continues **û̯anaktʲ̯-* is difficult to accept. Words like λέαινα beside λέων, -οντος rather point to **û̯anakʲ̯ia* (Peters 1980, 289 f.). Assimilation of **-ktʲ̯-* uel sim. to **-ttʲ̯-* is improbable: stop clusters remain intact in Mycenaean and in most Greek dialects (stop assimilation is common only in Cretan and Thessalian). A possible simplification of the cluster **-ktʲ̯-* would probably lead to **-kʲ̯-* (see Miller 2010, 179; 2014, 284 with lit.; cf. further Balles 2000, 148–150 with n. 18 on αἰγυπιός ‘vulture’ << **h₂ŗ̥ĝi-pʲ̯ó-* < **h₂ŗ̥ĝi-pt-ʲ̯ó-*; cf. also Att. Πῑσισρατος [see n. 191]; the simplification of **kʰtʰʲ̯-* in El. σερός [further LIPP II, 267 with n. 8] — NB in onset position — does not entail that internal **-ktʲ̯-* might be liable to reduction).

It is possible that in morphologically opaque environments **-kts-* was metathesized to **-tsk-* or was replaced by **-sk-* (**-kts-* is preserved in νυξί and ἄναξι): cf. Att. Φιλοσκε̄τ[= Φιλοκτήτης (AVI 4610) < **°tk°* and Cret. aor.(?) subj. κατασκενηι (cf. Hajnal 1988, 74 ad init.; LIV, 645 f. n. 6) < **tken-* in the analysis of Jasanoff 2018, 138 (ἄξιος probably continues **aĝ̂-s-*; cf. Anttila 2000, 263 f.). This might attest to a dispreference for the sequence **-kts-* in early Greek (but cf. ἀνεψιός ‘cousin’). However, reconstructing **û̯anaktsa* > **û̯anatsa* on the basis of Φιλοσκε̄τ[and κατασκενηι would be far too speculative (loss of the initial element of an illicit [onset] cluster is seen in Gk. δοῦπος; cf. ἐρίγδουπος, βαρύγδουπος, and e.g. Lejeune 1972, 277). (The metathesis in Φιλοσκε̄τ[at least may be a purely graphic phenomenon; *pace* Lipp 2009, 303: cf. Att. ΣΧ for ΧΣ, Threatte 1980, 20 f.; 1996, 677 [also for the use of ΚΣ for regular Attic ΧΣ; ΣΧ for ΧΣ in Attic is seen as a real sound change by e.g. Allen 1987, 60; differently e.g. Méndez Dosuna 2017, 249. 258]. However, **TK* > Gk. /ks/ is found only in Φιλοσκε̄τ[and κατασκενηι and in both cases the cluster appears in the apparently metathesized form -ΣΚ-. Also, ΣΚ for [ks] is rare in Greek and unparalleled in Cretan.)

Peters (2000a, 92 n. 8; cf. also 1986, 313 ff.) assumes dialect mixture in order to account for *wa-na-so-i* (see also Del Freo 1989, 187; Miller 2014, 321 with lit.; and cf. generally Duhoux 2007). If we want to retain Palmer’s idea, this seems the only reasonable way to explain why Hand 2 writes both *wa-na-so-i* and *za-we-te* (*pace* Ruijgh 1985, 106–126). But divorcing the former from the family of ἄναξ and ἄνασσα always remains an option. For Petrakis (2016, 67 n. 28 with lit.), the connection with ἄναξ, *wa-na-ka* is “hardly necessary”. Miller (2014, 284) is also sceptical about the comparison. Meissner (2013, 16), following in principle Petruševski, finds it likely that *wa-na-so-i* is a place name representing dat./loc. pl. /warnas(s)oi̯hi/.

The Mycenaean PN *A-re-su-ti-jo*, *Su-di-ni-ko*, and *Su-we-ro-wi-jo* have been connected with the root **kʲ̯eu̯* by Neumann (1983, 332 f.; 1992, 433–436). His interpretation of *Su-di-ni-ko* ?/sudinīko-/ (cf. πανσυδί) and *Su-we-ro-wi-jo* ?[su̯erhou̯i̯o-] (cf. Ευσυης) is quite hypothetical (cf. García Ramón 1994, 57 n. 13). However, his analysis of *A-re-su-ti-jo* as [arēssutiʲ̯o-] (Neumann’s transliteration) ‘von Ares bzw. von Kampfgeist getrieben’ (:**kʲ̯eu̯*; cf. Ἄρης λᾱοσσόος, -(σ)συτο-) seems more promising (cf. Ruijgh 1985, 117 n. 43). Neumann (1983, 332) wonders whether the upsilon could have influenced the development of **-kʲ̯-* here (cf. further the discussion on Att. πανσυδί on pp. 23 f. with n. 73). According to Ruijgh (e.g. 1985, 117 n. 43; already Chadwick, see DMic., s.u.), *A-re-i-ze-we-i* is the “dat. de Ἀρε*h*ι-ᵗσσέϝης” (:**kʲ̯eu̯*). This interpretation remains uncertain: Melena (2014, 47), for example, follows Palmer and connects the second member with Gk. σκεῦος ‘vessel, etc. also military equipment’ (cf. *A-no-ze-we*/*A-no-ke-we*).

Tautomorphemic *-*tḭ̂*- gives -σ- in Attic-Ionic (this alternates with -σσ- in Homer, e.g. τόσ(σ)ος;[10] cf. also Eub. οποραι IG XII,9 188.5) and Arcadian (οσω SEG 37:340), but -σσ- in the rest *s*-dialects (cf. e.g. Arg. hοσσα[περ] IC I viii 4*.a13, Herac. hοσσα n. IG XIV 645, Lesb. ποσσᾱ̃ν IG XII Suppl. 143.38), and -ττ- in Cretan (οποττοι IC IV 72.IV.40) and Boeotian (οποττον SEG 43:212(A).28.30).[11, 12] The result of *-*tḭ̂*- in Mycenaean is represented by *s*

[10] Hom. τόσσος et sim. may but need not be of Aeolic origin.

[11] Vine (2006) connected κολοσσός 'gigantic statue' with South Picene **qolofítúr** 'erigitur'. He derived both words from a substantivized adjective *$k_{\mathrm{e}}^{\acute{}}h_3$-$d^{h}h_1$-*o*- 'action de mettre (qqch.) debout' (< *$k_{\mathrm{e}}^{\acute{}}h_3$-$d^{h}h_1$-ó- 'mettant debout' : *kelH* 'élever, ériger'; for an alternative derivational scenario, see Neri 2017, 337). According to Vine, κολοσσός is a *i̯o*-derivative of *$kólot^{h}o$- (< *$k_{\mathrm{e}}^{\acute{}}h_3$-$d^{h}h_1$-*o*-), and its original meaning was 'quelque chose placé debout'.

*$kolot^{h}i̯ó$-, with a (synchronically) tautomorphemic *-*tḭ̂*- cluster, would be expected to become κολοσός in Attic-Ionic (cf. τόσος < *$toti̯os$ etc.). However, Herodotus, the tragedians, and other (non-Attic) writers have consistently κολοσσός (Diodore of Sicily κολοττο- does not inspire confidence; see Dobias-Lalou 2000, 64 n. 42). Surprisingly, the expected East Greek form, with a singleton sigma, is found in two Cyrenaean inscriptions from the 4th century, which however reproduce linguistic material that can be traced back to the 7th and 6th centuries (SEG 9:3.44; 9:72.117.120 [beside τοσσα, οποσσω]; IGCyr: https://igcyr.unibo.it/igcyr011000?q=IGCyr011000; https://igcyr.unibo.it/igcyr016700?q=IGCyr016700; last accessed: 30/6/2019). The existenc-e of a form with one sigma in Greek is also supported by two *uariae lectiones* in Diodore (see further Dobias-Lalou 2000, 64 n. 42 with lit.).

Cyrenaean has, as expected, οσσος, τοσσος, (εκασσα,) etc. (Dobias-Lalou 2000, 65), and *-*ttḭ̂*- > -σ- is not found in Doric dialects. Hence, κολοσος cannot be the regular outcome of *$kolot^{h}i̯ó$- in Cyrenaean. Vine (2006, 508 with n. 34) argues that Cyr. κολοσος results from degemination. However, double sigma remained intact in the dialect of Cyrene (see Dobias-Lalou 2000, 64), and [-ss-] (as all other geminates) is consistently written <-ΣΣ-> in the inscriptions in question. Vine refers to Lonati (1990, 132), but her take cannot be correct (non-writing of geminates in an archaic document; cf. also CEG 13, s.u. κολοσσός).

Vine claims that "le -σσ- (att. -ττ-) pourrait en principe résulter régulièrement de la « seconde palatalisation » grecque; et cela serait à son tour cohérent avec la formation secondaire en *-*i̯o*-" (p. 510). *$kolot^{h}i̯ó$*- seems really old (Vine himself considers it possible that it was inherited), it is not clear to me how the cluster in that word could have undergone the second and not the first palatalization (for these terms see the next section). Restoration of the yod in a *i̯o*-derivative would be unlikely (technical terms like κισσός/κιττός prove nothing [cf. Vine 2006, 510 n. 39]: provided that they are really *i̯o*-derivatives, their stems could have ended in a velar).

It has been thought (see Benveniste 1932, 122 and recently Badoud 2011, esp. 138 ff.), on the basis of non-linguistic arguments, that the cultural term κολοσσός is of Doric origin. So κολοσσός could be a borrowing in East Ionic. Alternatively, κολοσσός has been reformed after nouns in -σσός; but the analogical introduction of a second sigma in (Attic-)Ionic, though possible, is not self-evident. It is more difficult to account for Cyr. κολοσος, but Cyrene (which was established by Therans) has seen the arrival of populations from the Aegean islands and the Peloponnese during the first half of the 6th century (Dobias-Lalou 2000, 10; see also 293). Ionic varieties were spoken in several Aegean islands, and Vine's *$kolot^{h}i̯ó$*- would be expected to give κολοσος in Arcadian. Currently, I cannot see how the matter could be settled.

[12] A major problem with the idea that the 3sg. thematic ending (i.e. /-ei̯/) goes back to *-*tḭ̂* #V- > */-tʲ/ > */i̯t/ (thus Willi 2012) or *-*tḭ̂* #*V*- > */-tʃ/ → */-tʃ #C-/ > */i̯tʃ #C-/ > /i̯ #C-/ (thus Ellsworth 2011) is that there is no evidence for prepalatalization (for this term see chapter 3) of palatalized stops or affricates in Greek (though note that the development of preconsonantal */tʲ/ and */tʃ/ in that language is not known, and coda consonants are particularly liable to prevocalization; cf. Operstein 2010). On the origin of the Greek endings cf. rather Hoenigswald 1986; Kim 2004, 119 n. 33 with lit.; Harðarson 2011, 4 f.; Miller 2014, 250 f. On

(e.g. *to-sa*). Clear examples of tautomorphemic *-*ḵi̯*- are missing, cf. perhaps γλῶσσα/γλῶττα ‘tongue’ < **glōkʰi̯a*, πίσσα/πίττα ‘pitch’ < **pikʰi̯a* (for the morpheme boundary cf. Peters 1980, 140 ff. with n. 94 and n. 24 below).[13]

Initial **ti̯*- and **ḵi̯*- gave σ- in most dialects (cf. esp. Boeot. α-σᾱμα[14] prob. < *(-)*tʰi̯*°[15] IG VII 3171.B46, α-σεβιοντας < *(-)*ti̯*° IG VII 2418.3, σᾱετος = σῆτες ‘this year’ <[<] **ḵi̯āu̯etes*[16] SEG 43:205.12, Hsch. σεῖα· ἐδίωξα. Βοιωτοί < **ḵi̯eu̯-s-m̥*[17], West Cret. σᾱμα IC II x 13,[18] and perhaps Central Cret. ευσεβιες IC I xxiii 3) except Attic (cf. σῆμα ‘sign, mark’, σέβομαι ‘feel awe, fear’ vs. τήμερον ‘today’, τευτάζω ‘to be employed upon’ < **ḵi̯*°;[19] for the last two words cf. Wackernagel 1887, 121–123; Hermann 1914, 56; Neumann 1992, 436 n. 6; García Ramón 1994, 56; and especially Vine 2009 and Forssman 2011, 69 f.), Euboean (cf. 6th-c. σε͂μα IG XII,9 288; 4th-c. τημε[ρον] IG XII,9 1167; and perhaps late 2nd-c. τητινων SEG 29:806), and some unspecifiable Doric varieties (cf. τᾶτες[20] and now τᾱμε̣ραν in Δάκαρης et al. 2013, n° 1732A; 450–400), where the former gave σ- but the latter τ-. The

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δέσποινα < **demspotni̯a*, which was derived from an intermediate *°*potʃni̯a* by Ellsworth, see Balles 2000, 157 n. 34. καί, if from **kati* (thus e.g. Hackstein 2011, 195 f.; Miller 2014, 276; cf. Hitt. *katti* ‘[along] with’, κασίγνητος ‘brother’), is a difficult case; for the problems associated with the dissimilation analysis, I refer to Klingenschmitt 1975, 73 and Willi 2005 (incidentally, for the hypothetical change of **kati #t-* to **kai̯ #t-*, cf. e.g. fast[/normal] speech MGk. σπίτι του/της ‘his/her house’ [spii tu/tis]). Bader and Taillardat (references in Willi 2005, 241 n. 43) compare δαί and ναί. Klingenschmitt (1975, 73 ff.; followed recently by LIPP II, 391 n. 1) derives καί from an *i*-locative to a root noun **ḱás-* ‘fortlaufende Anreihung, kontinuierliche Folge’ (cf. Ved. *śáś-vat* ‘eine kontinuierliche Folge bildend’, ?ἀνδρακάς ‘man by man’). Willi’s (2005) proposal was rejected recently by Dunkel (see LIPP II, 391 n. 1). The question of the origin of καί must be left open.

[13] **du̯ikʰi̯os* (> δισσός/διττός) was possibly analyzed **du̯ikʰ-i̯os*, cf. δίχα ‘in two’ (differently Peters 1980, 287 n. 241).

[14] Cf. also ?early 5th-c. ?Boeot. σᾱμη̣ωι in Δάκαρης et al. 2013, n° 1037A.

[15] σᾱμα ‘sign, mark’ most likely continues **dʰi̯eh₂mn̥* uel sim. (thus e.g. Allen 1958, 124 n. 56; Ruijgh 1995, 33 n. 109; Forssman 2011, 71; cf. Skt. [lexic.] *dhyāma* n. ‘thought’ [but see KEWA II, 114], *dhyā́yati* ‘thinks’), cf. Nagy 1990, 202 ff.; Belardi 1999 (differently EDHIL, 1020 with ref. to Janda: **ti̯eh₂mn̥*).

[16] See Vine 2009. — In the light of σᾱετος, it seems preferable to take Pind. τά ‘why?’ (Megar. σά) < **kʷi̯a* as Doric rather than Boeotian (*pace* e.g. Lejeune 1972, 46; for Dor. τ- < **ḵi̯*- see below). The /t°/ here could be explained analogically (after, e.g., τί etc.), but, unless we are ready to assume that an earlier σά was directly replaced by τά, this would require the assumption that (*/ts-/ <) */tʲ-/ < **ḵi̯*- was still intact at the time of the palatalization of the labiovelars in Boeotian. Chronologically, this is unlikely (cf. 1.3.3.4). Pindar also has σάμερον. This is commonly thought to be a Doric form. Since **ḵi̯*- becomes σ- in Boeotian, this could well be Boeotian.

[17] Schulze 1892, 98; Kiparsky 1967, 627 f. (*pace* Hettrich 1976, 53 f. and *passim*; cf. Peters 1980, 87–90 n. 40).

[18] Cf. West Cret. δατταμενος < **-ts-* (Bile 1988, n° 34.18).

[19] “σεύομαι ist im Ion. ein lebendiges Verbum, im Att. gehört es jedoch ganz der hohen Dichtung an” (Forssman 2011, 70; thus also Hermann 1914, 56).

[20] *Pace* Vine 2009, 205 with n. 1. — Hsch. τᾶτες· κατ’ ἔτος; Suid. Τῆτες καὶ Τῆτα: τούτῳ τῷ ἔτει, ἐπ’ ἔτος. […] τοῦτο οἱ Δωριεῖς τᾶτες λέγουσι, καὶ διὰ τοῦ δ τῆδες. Schol. in Ar. *Ach*. 15a τῆτες δ’ ἀπέθανον: ἐπὶ ἔτος, ὅπερ οἱ Δωριεῖς τᾶτες λέγουσιν. Cf. further Dor. σᾱτει (Δάκαρης et al. 2013, n° 228; 4th c.?), Sicil. σᾱτε̣ς (IG XIV 256.9), Hsch. τῆτες· ἐν τῷδε τῷ ἔτει. οἱ δὲ Δωριεῖς σᾶτές φασιν […].

result of *$t\underset{\smile}{i}$- in Mycenaean remains unknown (Ruijgh 1995, 33 n. 109 proposes to see *e-ru-sa-*$m\underset{\smile}{o}$[as a PN in /°sāmos/; cf. E/Αρισᾱμος etc. : σᾱμα); the outcome of *$k\underset{\smile}{i}$- is denoted by *z* in that dialect (e.g. *za-we-te* ≈ τῆτες).

The sequence *-*nt*+$\underset{\smile}{i}$- gives /-(n)s-/ in all of Greek (cf. Cret. πανσαι IC IV 13, καταλιπονσα IC IV 72.VI 32 f.; Boeot. πᾱσα e.g. IG VII 3172.158, 4136, υπαρχωσᾱς SEG 45.451; Att. πᾶσα; Myc. *pa-sa*, etc.).[21] Similarly, *-*nk*+$\underset{\smile}{i}$- resulted in /-(n)s-/ even in a *t*-dialect like Cretan (but on the idea that *-*Rk*+$\underset{\smile}{i}$- became /-Rs-/ in all of Greek, see sections 1.3.3.2–4 and n. 28); cf. especially Cret. 7th/6th-c. παν]σεϝδι = πανσυδί/πασσυδί 'with all one's force' (: *$k\underset{\smile}{i}e\underset{\smile}{u}$ 'move quickly').

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[21] εονθᾱς = οὔσης in Δάκαρης et al. 2013, n° 5A = Lhôte 2006, n° 45 (Doric? mid-5th c.) is perhaps a hypercorrect spelling for εονσᾱς (cf. Ion. ἐοῦσα; Thess. εονσᾱς, e.g. SEG 31:575; 42:510). In the dialect concerned, /t^h/ had possibly been fricativized, as in Laconian, Elean, and Cretan, and <Σ> could be used for original /t^h/ as well. This led to occasional spellings like the above. Compare Lac. θαλαθα = θάλασσα, ποιηθαι = ?ποιῆσαι (both 5th c.), Μεθανιοι = prob. Μεσσᾱνιοι (5th c.), Πριανθις = prob. Πριανσις* (6th c.), and perhaps (differently Brixhe 1996, 110) Cret. πολιθι = πόλισι, ϝετε(θ)θι = ἔτεσι (cf. del Barrio Vega 2007 with lit.; Colvin 1999, 166; Miller 2014, 205 with lit.).

For Arc. εασα* < *$h_1s\underset{\smile}{n}t\underset{\smile}{i}a$ cf. Peters 1989, 73 f. with lit. (neglect of the morpheme boundary in informal styles); Viredaz 1993, 335 ("réduction phonétique irrégulière dans un mot grammatical"); Brixhe 1996, 50 n. 40 (analogy after participles in -νσα < *-*nt*$\underset{\smile}{i}$*a*). Risch (1979, 272) believes that *-*ont*$\underset{\smile}{i}$*a* and *-*at*$\underset{\smile}{i}$*a* < *-*$\underset{\smile}{n}t\underset{\smile}{i}a$ in feminine participles were considered "comme un seul morphème"; this is unlikely. Wrongly Moralejo 1993 (incidentally, on Arc. Ἀνεμῶσα < *-*o*$\underset{\smile}{u}$*et*$\underset{\smile}{i}$*a* in Paus. 8.35.9, cf. the excellent paper by Volkmar Schmidt 1978, 48 ff.).

Pace Hinge 2017, ἰμάσσω [ă] (: ἰμᾰ́ς) goes back to *$him\underset{\smile}{n}t\underset{\smile}{i}\bar{o}$, not *$himant\underset{\smile}{i}\bar{o}$ (see Debrunner 1907, 221; Barber 2013, 296 with n. 2; and especially Peters 1980, 194 n. 149); -εσσα < *$\underset{\smile}{u}et\underset{\smile}{i}a$, not *-$\underset{\smile}{u}ent\underset{\smile}{i}a$ (how is -σσ-/-ττ- < "*-*ntš*-" "nicht unwahrscheinlich", while we have e.g. Cret. /-ns-/ and Att. /-V̄s-/?); *-*nt*$\underset{\smile}{i}$- cannot give a geminate by regular sound change, *-.$t\underset{\smile}{i}$- was not geminated (see below). — On 3rd-c. Gela (acc. pl.) πασσᾱς and Cret. (gen. sg.) πανσσᾱ<ς>, see Minon 2000, 236 f. with lit.

Minon (2000, 239 with lit.; 2007, 350 ff.) proposed that secondary [-s-] < *-*nt*$\underset{\smile}{i}$- merged with [-ss-] in Hellenistic Elean (cf. also Blevins 2004, esp. 286; /-VsV-/ ← *-*VhV*- < *-*VsV*- became /-VhV-/ in Elean). The geminate in 3rd/2nd-c. El. ανταποδιδωσσα and θεοκολεῐ̆σσα would reflect exactly that merger. It is interesting that this irregular geminate is found twice in participles. An athematic participle like *$didh_3\underset{\smile}{n}tih_2$ would have become *didassa* in Greek (on the phonology cf. Peters 1980, 193 f. n. 149). This form could have been later thematized under the influence of the masculine (Risch 1979, 274 n. 23). *didoassa* would produce °διδωσσα quite straightforwardly (*pace* Minon 2000, 232). -ωσσα could then be substituted for regular -ωσα < *-*ont*$\underset{\smile}{i}$*a* (cf. El. δικαδῡσα) also in thematic verbs (cf. θεοκολεῐ̆σσα) (somewhat differently Nikolaev 2010, 257 f. n. 58). Alternatively, -σσα in the two forms may be seen as a "hypercorrection 'chic'", comparable to the one found in Hellenistic and Roman νῆσσος/νᾶσσος for νῆσος/νᾶσος, cf. (Brixhe *apud*) Smith 2000 (thanks to Martin Peters for this reference). — *Pace* Minon (2000, 234), 2nd-c. Αρκουσσα and (undated) Πειθουσσα could (also) show influence from -ουσσα < -οεσσα. — The best analysis of the geminate sibilant in Κλειφωσσα (Melos, NB attested twice in different texts) and (Hes., Hsch., schol. on Ap. Rhod.) Ἰοφῶσσα remains that of Peters 1993a, 101 ff. (Minon 2000, 243, following in the footsteps of O. Masson, sees 'expressive' geminates here).

ἄττομαι 'das Gewebe anzetteln' comes from *att$\underset{\smile}{i}$*e*/*o*- < *$h_2\underset{\smile}{n}t\underset{\smile}{i}e$/*o*- (cf. Alb. *end* 'weben'; Klingenschmitt 1982, 113 n. 8); Rix's law possibly did not apply before nasals, see Nikolaev 2010, 258. 238 ff.

It makes no sense to restrict the change of *-*t*/*k*+*i̯*- to Gk. /-s-/ to the environment after nasals (cf. already Peters 1980, 287 n. 241[22]). Compare αἶσα (Hom.+; Myc. *a₃-sa*) 'portion, destiny' (< **a̯it-i̯a* < **h₂a̯itih₂* < **h₂a̯iti̯-ih₂*; Nussbaum *apud* Neri 2005, 217 n. 63), ἕξα* 'Anschluß' < **sek^{h}ti̯a* (Peters 1980, 141 n. 94; but see also Höfler 2017, 476 f.), and perhaps δίψα 'thirst' (< ?**dik^{u}-tih₂*, cf. Peters 1980, 140 f. n. 94; compare δεῖπνον 'meal', Myc. *de-qo-no* TH Fq (2) 254.1; CEG 12, 296 f.), Hom. πεῖσα 'obedience' (< ?**p^{h}ei̯t^{h}-i̯a* < ?**b^{h}ei̯d^{h}-tih₂*, Peters 1980, 141 n. 94; see however Höfler 2017, 400), and ἄλσος '(sacred) grove' (Hom.+) < ?**alti̯os* (Solmsen 1909a, 215 n. 4; cf. Ἄλτις 'sacred precinct of Zeus at Olympia' and Myc. *A-se-e*, DMic., s.u.; **alsos* is also possible, see Höfler 2017, 337–339). For *-*Rki̯*-, one may compare 3rd/2nd-c. Boeot. Ευσυ[του] < *-*ki̯u-to*- (e.g. SEG 22.382, SGDI 2519, BCH 82 1958.82 ff.; cf. García Ramón 1999, 56. 59), but the sigma of σεύομαι (cf. also unaugmented forms like σύτο, συθῶμεν, etc.) may have been generalized throughout the paradigm in Boeotian, which makes it possible that *°*V-ki̯uto*- was not *°*V-ttuto*- but *°*V-(s)suto*- in that dialect (cf. further n. 91). In other words, Ευσυ[του] represents only weak evidence for the development of *-*u̯ki̯*- in the dialect of Boeotia.[23]

Pace Dressler (1976, 127) and Peters (1980, 140 with n. 94), the fact that Ion. αἶσα was possibly segmented **a̯iti̯-a*[24] can hardly be the reason behind the

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[22] "[M].W. könnte man überhaupt von einer Vereinfachung nach *R* ausgehen […]".

[23] On Ion. διξός and τριξός < ?-*k^{h}t^{h}i̯os* (cf. Hom. δίχθα, τρίχθα), cf. Barber 2013, 200 f.; Schulze 1895, 394 f. ἕξω < **ék^{h}sō* rather than **ék^{h}s-ti̯ō* (LIPP II, 206 with n. 19). — The ending of the *s*-aorist infinitive, -σαι, has been traced back to *-*t^{h}i̯ai̯* and compared with Vedic infinitives of the type *bhāradhyai* (e.g. Rix 1992, 238; Lipp 2009, 107). (Forms with double sigma such as ὀμόσσαι are secondary; see Schulze 1888, 266 ff.; 1895a, 126 ff.; Miller 1982, 75.) This comparison faces serious problems (see Peters 2002, 123 f.; Fortson 2012, 108–111; 2013, 52 f.). For example, Cret. ομοσαι or Boeotian αδικεισι = ἀδικῆσαι are difficult to account for in terms of a preform *-*t^{h}i̯ai̯* (cf. García Ramón 1990, 152 n. 50), since the expected outcome in these dialects would be -ττ-, -ζ-, or -θθ-, not -σ-. It would be possible to argue that geminate palatalized alveolars were replaced by singleton ones after forms where *-*t^{h}i̯*° was preceded by consonants, but this idea is unattractive: the "**dhi̯*° morpheme […] was originally depresential and thematic […]" (Fortson 2013, 52). Another obvious problem is the long **ā* of the Indic forms (*-*t^{h}i̯āi̯ #C*- > *-*t^{h}i̯ăi̯ #C*-? García Ramón 1977, 194 n. 51). It is easier to assume that the sigma in -σαι is the suffix of the aorist itself or, perhaps more likely, that -σαι has been abstracted from the (hysterokinetically inflected) allative case of proterokinetic *s*-stem nouns (see Peters 2002, 119 ff.). That the ending -σθαι comes from *-*sd^{h}i̯ai̯* cannot be excluded (Peters 2002, 123 f.); a development *-*st^{h}i̯ai̯* > /-st^{hj}ai̯/ > *-*st^{h}ai̯* would be unsurprising (cf. Méndez Dosuna 1994), but it would be impossible to show that **t^{h}i̯* was phonologically distinct from **ti̯* when palatalization occurred. On -σθαι, see rather García Ramón 1993, 111 f. n. 17.

[24] It is not clear whether the morpheme boundary was lost in "Sachbezeichnungen" in *-*ih₂* as per Peters (but see 1.2.1.2). Peters (1980, 141 n. 94.) reconstructs a form *νέμεσα in order to account for the denominative νεμεσ(σ)άω 'feel just resentment'. He also derives φῦσα 'breath, wind' from **p^{h}uHtih₂*, and νύσας (ἐκάλουν τὰ δένδρα) in Pherecydes from **snuh₂-ti-h₂* (for the latter see Peters 1989, 217–220). According to Peters (1980, 144 f.), ἄρουρα < **aro̯u̯r-i̯a* (Myc. *a-ro-u-ra*) beside πότνια < **potn-i̯a* suggests that the morpheme boundary in the former was not identifiable by the speakers (differently Kim 2004, 112 f. n. 23); but ἄρουρα could also continue (ntr. pl.) **aro̯u̯ra* (see Forssman 1983, 290 with n. 1 and cf. Peters 1980, 134 n. 82; 1984a, 88* n° 591; differently but less convincingly — against **aro̯u̯ri̯a* anyway — Ruijgh

singleton sigma in that word. Gemination did not apply to the sequences *$t\underset{\wedge}{\iota}$ and *$k\underset{\wedge}{\iota}$ (etc.) when these were found after a consonant/resonant (or in word-initial position), since in that case they were tautosyllabic;[25] cf. e.g. the superlative ᾱσιστα in Elean and in the Xouthias inscription[26] (cf. ἄγχι, *$ank^h\underset{\wedge}{\iota}os$ 'closer', Peters 1980, 288; cf. also Hsch. ἐπᾱ́σιοι/ἐπαίσιοι in the interpretation of Nussbaum 2013, 13 f.), Dor. κάρρων << *$kart\underset{\wedge}{\iota}os$ (cf. also ἔρρω 'get lost, disappear' < ?*$\underset{\wedge}{\mu}ert\underset{\wedge}{\iota}\bar{o}$; Forssman 1980, Viredaz 1993, 336 with n. 45, LIV, 691 f.; cf. further CEG 11, s.u.[27]), Arc. λευσω 'see' < *$leu\underset{\wedge}{k}\underset{\wedge}{\iota}\bar{o}$ (Nussbaum 2013, esp. 12 ff.; forms with a geminate are probably secondary; on Arc. λευτο- see ibid.), and the PN Arc. Ευσοιδᾱς IG V,2 278 (: *$\underset{\wedge}{k}\underset{\wedge}{\iota}eu$; 4th c.; HPN, 403).[28] There was probably no Cretan †αιτ(τ)α etc.; compare especially 7th/6th-c. (Central) Cret. Αισōνιδᾱς (cf. SEG 52:838; epichoric alphabet; on the use of the sigma here cf. also p. 24), cf. further Minon 2007a, 190 n. 96; Genevrois 2017, 29 f. with n. 3 (p. 30); Solmsen 1909, 71 f.; Αισων, Myc. *A_3-so-ni-jo*, etc. The cluster in αἶσα became a fricative at an early date in all dialects, as did *°$t\underset{\wedge}{\iota}$° in e.g. *$pant\underset{\wedge}{\iota}a$.[29]

1983, 374). Att.-Ion. Βῆσα/βῆσα beside Dor. Βησσ- 'Schlucht' could go back to an original *$g^{u}\bar{a}tsā(-)$; see Peters 1999, 448 n. 9. 450 f. On ἄση 'loathing' (accor. to Peters 1980, 141 n. 94 << *$(s)at\underset{\wedge}{\iota}a$), compare now Peters 2013, 236 f. n. 33; Meissner 2013, 17 f.; Höfler 2017, 340–342.

[25] "It is clear that the syllable boundary plays a role in gemination. The presence of a syllable boundary and potential morphological boundary within a consonant are necessary for the existence of a geminate" (Goblirsch 2018, 52). On the syllabification of postconsonantal *-$C\underset{\wedge}{\iota}$- in Greek, see now Cooper 2015, 107 ff.

[26] On Hsch. ἄσσιστα· ἔγγιστα. Αἰσχύλος Ἠδωνοῖς cf. e.g. Peters 1980, 288; cf. further p. 22.

[27] Differently Klingenschmitt 2004 (on his proposal cf. Vine 2011, 10–14); Nussbaum *apud* Cooper 2015, 112 n. 10 (unlike Forssman 1980, 188 n. 41) still considers it possible that ἔρρω continues *$\underset{\wedge}{\mu}ers\underset{\wedge}{\iota}\bar{o}$ (: *$\underset{\wedge}{\mu}ers$ 'wipe, sweep'; cf. LIV, 690 f.).

[28] It should be emphasized that, *pace* Peters (1980, 288 ad fin.) and Nussbaum (2013, 13), real indications that *-$R\underset{\wedge}{k}\underset{\wedge}{\iota}$- became /-Rs-/ in all Greek dialects only come from Cret. παν]σεϝδι, perhaps 3rd/2nd-c. Boeot. Ευσυ[του], and secondarily from the development *$\underset{\wedge}{k}\underset{\wedge}{\iota}$- > Boeot. σ- (however, as will be argued below, the fact that *$\underset{\wedge}{k}\underset{\wedge}{\iota}$- became τ- in Attic runs counter to the idea of a pan-Greek change *-$R\underset{\wedge}{k}\underset{\wedge}{\iota}$- > /-Rs-/). Forms such as Arc. λευσω, El. ᾱσιστα, and the like merely show that gemination did not apply after non-syllabics.

[29] Ellsworth (2011; see already Holt 1937; Hill 1967; neither study is cited by Ellsworth), claims that the change of *ti to si results from a process of i-devocalization. More precisely, Ellsworth assumes that *-$ti\underset{\wedge}{\iota}V$- was realized either as *-$ti\underset{\wedge}{\iota}V$- or as *-$t\underset{\wedge}{\iota}V$- in the environment after short vowel, and that secondary *-$t\underset{\wedge}{\iota}$- was affricated and fricativized. According to him, the /i/ was eventually restored after the *-$ti\underset{\wedge}{\iota}$- variant and the /s/ was extended to other parts of the paradigm (e.g. the nominative). Formally: (e.g.) *-$\check{V}tis$, *-$\check{V}ti\underset{\wedge}{\iota}os$/*-$\check{V}t\underset{\wedge}{\iota}os$ > *-tis, *-$ti\underset{\wedge}{\iota}os$/*-$tsos$ > *-tis, *-$ti\underset{\wedge}{\iota}os$/*-$sos$ → *-sis, *-$si\underset{\wedge}{\iota}os$.

The assibilation of *ti is not a strictly East Greek phenomenon. For example, adjectives in *-$ti\underset{\wedge}{\iota}os$ show assibilation in all Greek dialects (further e.g. Thompson 2008, 757). If we follow Ellsworth's analysis, then the singleton /s/ in t-dialects such as Boeotian (cf. e.g. Boeot. τᾱς αποδοσιος in IG VII 3172.132) will be difficult to account for (cf. Miller 1982, 88 f.). One would normally expect /-(t)t-/ from *-$t.\underset{\wedge}{\iota}$-; we will need critical ordering to separate out *-$t\underset{\wedge}{\iota}$- in *$tot\underset{\wedge}{\iota}os$/*$eret\underset{\wedge}{\iota}\bar{o}$ and *-$t\underset{\wedge}{\iota}$- in, say, *$pot\underset{\wedge}{\iota}os$. Given that palatalized consonants were preserved until relatively late in Greek (cf. e.g. Méndez Dosuna 1993, 102), it will be difficult to explain how primary and secondary *-$t\underset{\wedge}{\iota}$- remained distinct in t-dialects.

It may be argued that in the case of secondary *-$t\underset{\wedge}{\iota}$- the result in the first place was an affricate, but the affricate from *-$t(t)\underset{\wedge}{\iota}$- < *-$ti\underset{\wedge}{\iota}$- must have been a geminate and it would be

Schematically, these changes can be summarized as follows:

(-C)$t\underset{\wedge}{\iota}$- > Gk. /(-C)s-/, Myc. -*s*°
(-R)$k\underset{\wedge}{\iota}$- > Gk. /(-R)s-/, Myc. *z*°; but *$k\underset{\wedge}{\iota}$- > Att., Eub., partly Dor. τ-
*-$t\underset{\wedge}{\iota}$- > East Gk. -σ(σ)-, non-East Gk. -σσ-/-ττ-, Myc. -*s*°
*-*t*+$\underset{\wedge}{\iota}$- > East Gk. -σσ-/-ττ-, non-East Gk. -σσ-/-ττ-, Myc. -*s*°
*-*k*+$\underset{\wedge}{\iota}$- > East Gk. -σσ-/-ττ-, non-East Gk. -σσ-/-ττ-[30], Myc. -*z*°

Three points deserve mention regarding these developments. 1) Tautomorphemic *-$t\underset{\wedge}{\iota}$- (and original *-*ts*-) gives /-s-/ in East Greek, while heteromorphemic *-*t*/*k*+$\underset{\wedge}{\iota}$- give /-ss-/ in Ionic and Arcadian, but /-tt-/ in Attic and Euboean (by contrast, *-$t\underset{\wedge}{\iota}$- and *-*t*/*k*+$\underset{\wedge}{\iota}$- have the same outcome in non-East Greek). 2) *$t\underset{\wedge}{\iota}$- and *-*Ct*+$\underset{\wedge}{\iota}$- give /(-C)s-/ in the *t*-dialects (*$t\underset{\wedge}{\iota}$- > Att. σ- would be unsurprising, cf. τόσος etc.). 3) Initial *$k\underset{\wedge}{\iota}$- and *-*Rk*+$\underset{\wedge}{\iota}$-[31] most likely gave /(-R)s-/ in Cretan and Boeotian (where /(-R)t-/ would be expected), but *$k\underset{\wedge}{\iota}$- became /t-/ in Attic, Euboean, and, in part, Doric.

These matters have either been ignored altogether or partially dealt with in the literature. In order to understand the history of *$t\underset{\wedge}{\iota}$ and *$k\underset{\wedge}{\iota}$, it is crucial to investigate in detail the origins of the above discrepancies. It will be convenient to begin our discussion with the first point, since this has received the most attention over the last 60 years, and the majority of scholars now agree as to why *-$t\underset{\wedge}{\iota}$- and *-*t*/*k*+$\underset{\wedge}{\iota}$- show different outcomes in East Greek.

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expected to pattern with (primary) intervocalic *-*ts*- (> Boeot. -ττ-; though sec. *-*ts*- has become -σσ- in Boeot. αγορασσιν Roller 1989, n° 87.21). It is difficult to believe that when the affrication occurred original *-*tts*- was already */-t^{j}t^{j}-/ in Boeotian (via so-called regression; see Méndez Dosuna 1993, 95 ff.); **ti* assibilation was a rather early change. Also, a geminate affricate would be expected to give *-*ss*- after fricativization. It may be that the /s/ was generalized from words where secondary *-$t\underset{\wedge}{\iota}$- stood after a consonant or that words showing assibilation outside East Greek (and Lesbian) are borrowings from Attic-Ionic (cf. Miller 1982, 89), but there is no way of knowing this. However, the latter alternative would have the advantage of explaining why assibilation is found only in certain categories outside East Greek and Lesbian. (Actually, reconstructing *-*ti*- > *-*tsi*- > -*si*- would not solve the above problems, unless we suppose that *-*tsi*- < *-*ti*- was not geminated, or that /s/ was indeed generalized from the position after consonants; note also that it is not clear whether affricate gemination applied after long vowels; it may have not.)

An important issue raised by Barber (2013, 102), whose work should be consulted for further arguments against Hill's/Ellsworth's account, is that this kind of prosodically-restricted sound change seems to have worked only in cases that included **t*; for instance, no †-ζιος adjectives from stems ending in **d* or **g* are found.

Finally, it is possible that **ti* assibilated to *si* in Greek also in initial position before a consonant; see Fischer 1969 (cf. Neri 2017, 321) and Hollifield 1978, 174 (thanks to Martin Peters for drawing my attention to these two works); but cf. also Miller 1982, 90 and Schwartz 1992, 394 with n. 14.

For the best approach to and details about the change **ti* > *si*, see Miller 1982, 82 ff. and 2014, 323 f. A recent paper on the matter with different conclusions from those of Miller (and without reference to him) is Thompson 2008.

[30] *Pace* e.g. Schwyzer (1939, 318), it is unlikely that -ττ- and -σσ- were originally different ways to spell the same sound, see Willi 2003, 237 with lit.; cf. also Chadwick 1969, 91.

[31] I know of no Greek words where *-$k\underset{\wedge}{\iota}$- is immediately preceded by a stop.

1.2 The alternation -σ-, -σσ-/-ττ- in East Greek

According to a widely held view going back to Ernst Risch (1955, 66 f.; 1966, 150–152; see already Thurneysen 1921, 190–192; Pedersen 1923, 114–116 with lit.), there were two distinct palatalization phases in Greek (similarly e.g. Allen 1958; Cowgill 1966, 79; Ruijgh 1967, 50–52; 1985, 116 f.; Wathelet 1970, 126 f. n. 134; Dressler 1976, 127; Peters 1980, 142. 144). In the first place, palatalization occurred only in East Greek and was confined to tautomorphemic clusters; either because it was undone or (less likely; see below) because it was blocked in heteromorphemic sequences.[32] The resulting palatalized alveolars were affricated and eventually fell together with original *-*tts*-[33] (> *-*ss*-[34] > East Gk. /-s-/; cf. δικάσαι, ἐτέλεσα, etc.).[35] Sometime after the first palatalization, and while tautomorphemic *-*tı̯*- was already *-*tts*- or even *-*ss*- in East Greek, a second, much wider, this time pan-Greek palatalization process occurred. This resulted in the elimination of *-*t*+*ı̯*- and

[32] The restoration of the yod was largely due to analogical pressure from *ı̯e*/*o*-verbs, primary comparatives, and *ı̯ā̆*-nominals, whose stem ended in a resonant, labial, or perhaps velar. For the 'blocking' of phonological processes across morpheme boundaries, see Dressler 1976 (see also Zsiga 1995 on the variability of palatalization across word boundaries in English).

[33] Affricates are phonological units, not simple sequences of consonants. In the IPA, this fact is normally denoted by a ligature underneath or over the segments, but for the sake of simplicity this convention will not be followed in this work. — /t^{j}/ affrication would normally lead to /ts^{j}/ (> /s^{j}/), /tɕ/, /tʃ/ uel sim. in the first place (see e.g. Bateman 2007, 313. 315 and the material collected in Kümmel 2007, 260 f.). For simplicity's sake, secondary affricates are written *ts* in this work except in cases where the phonology of the sound is relevant to the argument being made.

The assumption that the immediate result of /t^{j}/ affrication was a palatalized (alveolar) sibilant affricate uel sim. is perhaps supported by the following considerations. It seems that secondary *-*rs*- < *-*rtı̯*- (cf. Dor. κάρρων << **kartı̯os*; Att.-Ion. etc. ἔρρω < ?**u̯ertı̯ō*) underwent assimilation even in dialects where original *-*rs*- normally remained intact (see Forssman 1980, 194 ff.; cf. also NAGVI, 241). As far as I can see, there is not much that we can do to explain why secondary *-*rs*- allegedly changed but original *-*rs*- did not: phonetically speaking, primary and secondary *-*rs*- were probably not identical, otherwise *-*rtı̯*- and original *-*rs*- would be expected to have the same outcome in Greek. It would follow from this that the affricate from which the fricative in secondary *-*rs*- was produced was not really a [ts] (thus essentially Forssman 1980, 197 f.). (Possibly, there was also another word in Greek where a sequence of a rhotic plus sibilant became -ρρ- in all dialects; namely πυρρός 'red, tawny', if from **pursu̯ós* as per Hoffmann 1898, 589 and Solmsen 1901, 309; see further Jacobsohn 1908, 507 n. 89; Schulze 1910, 792.)

[34] On the change *-*tts*- > *-*ss*-, see section 1.2.2.

[35] Willi (2008, 155 n. 10) proposed that Ionic τόσος < **totı̯os* (vs. ἐρέσσω) owes its singleton /s/ to syllabification. According to him, τόσος was syllabified **to.tı̯os* under the influence of its derivational basis (cf. Lat. *tot(i)* etc.). I fail to see how this theory explains Attic τόσος vs. e.g. βλίττω. In any case, Willi's proposal requires the assumption that the basis of (Ion.) μέσος < **medʰı̯os* was preserved until quite late in Greek. Nevertheless, a locative **medʰi*- is nowhere attested in Indo-European, as far as I know; μέσος is probably inherited (cf. Ved. *mádhya*-, YAv. *maiδiia*-, Lat. *medius*, Arm. *mēǰ*, Goth. *midjis*). Another problem is raised by the morphologically unmotivated adverbs πρόσ(σ)ω < **pro*-*tı̯o*- and ὀπίσ(σ)ω < **op*-*itı̯o*- (Dunkel 1982; CEG 15, s.u. διαπρύσιον), since ὀπίσω is found several times in Homer and πρόσω is the only form in Herodotus. Finally, and most importantly, "[s]yllabification is typically not a process susceptible to analogy. […] [It] is (nearly) universally a process derived solely by phonological rules" (Byrd 2015, 145–147 with lit.).

*-*k*+*i̯*- in Attic-Ionic and Arcadian. In non-East Greek, where the first palatalization did not apply, the affected clusters were *-*ti̯*-, *-*t*+*i̯*-, and *-*k*+*i̯*-.[36]

Risch's two-stage theory is the best analysis of the dichotomy between *-*ti̯*- and *-*t*/*k*+*i̯*- in East Greek.[37] However, the assumption that the first palatalization was an exclusively East Greek phenomenon need not be correct (cf. Sheets 1976, 159 ff.; Viredaz 1993, 331 f.).[38] As far as I can see, this idea is based on two facts. First, on the presence of *$t^{(h)}i$ > /si/ in East Greek (cf. e.g. Parker 2008, 443), and second on the absence of evidence for two distinct phases in non-East Greek.

Nevertheless, *t*-assibilation is not only found in East Greek (cf. further Miller 1982; 2014, 321. 323 f.; Thompson 2008; and n. 29 above);[39] but even if it were, it does not follow that palatalization before yod was initially only an

[36] Wyatt (1968) and Wathelet (1970, 123 f. 126) believe that the first (Wathelet) and second (Wyatt) palatalizations had already occurred when Indo-European speakers arrived in Greece. Since Pre-Greek names in -σσος/-ττος (cf. also Att. (h)Ιλισός, Κηφισός) cannot continue heteromorphemic *-*t*+*i̯*- (a morpheme boundary in a borrowing would be unlikely), and original *-*tts*- gives /-s-/ in East Greek, Wathelet claims that the names must have been borrowed at a time when primary and secondary *-*tts*- (< tautom. *-*ti̯*-) was already *-*ss*-. Wyatt derives -σσος/-ττος from *-*tfos* (uel sim.; cf. Luv. -*assa*). This forces him to assume that the palatalization of heteromorphemic clusters was a Proto-Greek process. Wyatt's and Wathelet's hypotheses are far-fetched. It is possible that the suffix in question originally contained *[-k$^{\text{ʲ}}$-] (>> *-*ki̯*-?), see Beekes 2009. Myc. *ku-pa-ri-s*° = κυπάρισσ/ττο- could hardly contain *-*t*/*ki̯*-, but assuming that the suffix went back to *-*tu̯*- (Chadwick 1969, 90; Crespo 1985, 99 n. 20; Viredaz 1993, 333) would not work, cf. p. 28. The consonantal part of the suffix may have been perceived in different ways in different places. On -σσος/ττος see more generally Yakubovich 2010, 9–11; Meissner 2013, 12–14; Miller 2014, 19; all with lit.

[37] Sheets (1976, 162 ff.) assumes that the reason why *-*ti̯*- and *-*t*/*k*+*i̯*- develop differently in East Greek is that a drag chain phenomenon took place in that dialect group owing to the affrication and subsequent assibilation of **ti*. More precisely, Sheets believes that when *-*ti*- became *-*tsi*- "in the context of an ongoing assibilation" to *-*si*-, original intervocalic *-*ts*-, as in dat. pl. **sōma(t)tsi*, fell together with secondary *-*ts*- (in *-*tsi*- < *-*ti*-) and was, as a consequence, "drawn into the assibilation process". When *-*(t)ts*- became (*)-*(s)s*-, */-t$^{\text{ʲ}}$t$^{\text{ʲ}}$-/ deriving from tautomorphemic *-*ti̯*- was affricated to fill the gap. */-t$^{\text{ʲ}}$t$^{\text{ʲ}}$-/ from *-*t*/*k*+*i̯*- did not undergo affrication at that point, because the process affected "*only those examples of /t$^{\text{ʲ}}$/ which stood in morphologically unproductive environments*" (p. 163; Sheets' emphasis).

This account requires that primary *-*tts*- and secondary *-*tts*- (from tautom. *-*ti̯*-) became *-*ss*- independently of each other, which is unnecessary (and possibly not a very good idea, cf. 1.2.2). Further, since **ti* > *si* is also found in non-East Greek, one would expect original *-*tts*- to have been fricativized in dialects like Boeotian as well. However, *-*tts*- gives -ττ- in that dialect. Also, the position of drag chain effects in historical linguistics is somewhat controversial (cf. e.g. Ohala 1989, 191–193; Blevins 2004a, 278 ff. with lit.; Miller 2010, 270 ff. with lit.; Gordon 2015; Samuels 2017 with lit.). Hamp's (1960) account is rather idiosyncratic, phonologically speaking. In other respects, his approach resembles quite closely that of Risch. For another, yet improbable, analysis of the contrast between -σ- and -σσ-/-ττ- in East Greek, see Lagercrantz 1898, 63 ff.

[38] Dating Risch's first palatalization after the second is theoretically possible (especially since palatalization frequently fails to apply within morphemes, see Bateman 2007), but it would require a considerable number of additional, pretty much gratuitous hypotheses.

[39] "[…] [T]he completeness of the change [in Lesbian — GK] suggests more than just spreading Ionic influence" (Miller 2014, 321). According to Thompson (2008), **ti* > /si/ was originally pan-Greek.

East Greek phenomenon (similarly Sheets 1976, 160). As for the second point, in dialects where *-*t̂i*-, (original) *-*tts*-, *-*t*+*i̯*-, and *-*k*+*i̯*- merged, nothing precludes the possibility that two palatalization phases occurred. It may be that in Doric and Aeolic *s*-varieties affrication occurred only *after* the application of the second palatalization; that is, when */-tʲtʲ-/ < *-*t̂i*- (resulting from the first palatalization) had already merged with */-tʲtʲ-/ < *-*t*/*k*+*i̯*-. Alternatively, */-tʲtʲ-/ from heteromorphemic sequences was affricated *before* the fricativization of *-*tts*- (< */-tʲtʲ-/) < *-*t̂i*-. It is also theoretically possible that */-tʲtʲ-/ < *-*t̂i*- and */-tʲtʲ-/ < *-*t*/*k*+*i̯*- became */-tts-/ or /-ss-/ independently in the individual dialects (but cf. 1.2.2).[40]

In Cretan and Boeotian, where *-*t̂i*-, *-*tts*-, *-*t*+*i̯*-, and *-*k*+*i̯*- all yield /-tt-/, nothing speaks against the application of the first palatalization either. It could be assumed for example that */-tʲtʲ-/ < *-*t*/*k*+*i̯*- emerged before the depalatalization of */-tʲtʲ-/ < *-*t̂i*-, or that original and secondary *-*tts*- merged with */-tʲtʲ-/ ~ *-*tts*- < *-*t*/*k*+*i̯*-.[41]

1.2.1 Some surprising forms

1.2.1.1 τετον/τετος

Two Ionic forms deserve mention at this point. The first is [μ]ετον in a 5th-c. inscription found in Sane, Chalkidike (colony of Andros), and the other is τετο- in an inscription from the Milesian colony Nymphaeon (Black Sea; ca. 400, cf. SEG 59:866). The text in which [μ]ετον occurs is unfortunately very fragmentary, and the restoration by the first editor (Ελισάβετ Τσιγαρίδα) is only based on the fact that sampi is normally found in cases where later Greek has -σ(σ)-. The reading [μ]ετον seems plausible (Dubois 2017, 223), but we cannot put much weight on it.[42]

The difficulties surrounding τετο- are of a different nature. Here the readings are clear but the interpretation remains uncertain. τετον/τετος is always found in the contexts $PN_{nom.}$ τρε̄ς τετος and $PN_{nom.}$ εκτην τετον. It

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[40] *-*t(+)i̯*- and *-*ki̯*- were distinct in Mycenaean, and *-*ki̯*- was possibly palatalized later than *-*t*+*i̯*-. *-*ki̯*- probably fell together with *-*t(+)i̯*- at a comparatively late stage in some dialects. But this was not a general phenomenon in Greek (see 1.3.3.4).

[41] Since an unconditioned change of a sibilant affricate to an alveolar stop is almost completely unheard of typologically (cf. Méndez Dosuna 1993, 98. 100; Kümmel 2007, 96 f.; Kochetov 2011, 1674. 1675; Jasanoff 2018, 136), it seems that the -ττ- outcomes result from depalatalization of */-tʲtʲ-/ (differently Viredaz 1993, 333 f.: *-*tts*- > /-tt-/). That the palatal stops were at some point affricated in e.g. Cretan and Boeotian is suggested by the fact that original *-*ts*- also became /-tt-/ in these dialects (cf. e.g. Cret. αποδατταθθαι, δαττονται, Boeot. εψᾶφιττα[το], κατασκευαττη, απολογιττασθη). This change is the result of so-called regression: "[p]alatal /t΄t΄/ would have begun to evolve into /tts/ in Cretan, Boeotian and Rhodian just like in the other dialects. When affrication was still a variable rule /t΄t΄/ → /t΄t΄/ ~ /tts/, the change was aborted. Overgeneralization would have caused /tts/ – whatever its etymological origin – to be interpreted as coming from /t΄t΄/" (Méndez Dosuna 1993, 101). See also Brixhe 1996, 63 n. 68.

[42] <ΜΕΤΑ> on coins from Mesambria probably mirrors the original pronunciation of this Thracian name (cf. Brixhe 1982, 219 f. 225; Dubois 2017, 223 with nn. 36. 38), but the possible preservation of the affricate of *med^h*i̯o*- in a Megarian colony would not be particularly problematic under the traditional approach.

seems likely that the inscription concerns the sum of money paid or to be paid by certain individuals. Regarding the two forms that are of interest to us, Dubois (2017, 218 f.) has made the plausible suggestion that they represent variant forms of the adjective τόσ(σ)ος. Crucially, as pointed out by Dubois, an ancient tradition going back to Dionysius Thrax has it that the Aeolic equivalent of τοσοῦτον was τέσσουτον (on the stem allomorph *_te_-, cf. LIPP II, 782 ff.; cf. further Ved. _káti_ < *_kʷóti_ vs. YAv. _caiti_ < *_kʷéti_; the failure of Brugmann's Law in Ved. _táti_ does not necessarily point to *_téti_).

Dubois' analysis of τεπον/τεπος cannot be considered certain but it is intuitively appealing (cf. also [μ]επον). If it is correct, then this is a potential game changer (cf. Dubois 2014, 606 n. 14). It is a well known fact that sampi in native vocabulary normally represents the sound resulting from *-_ki̯_- or *-_tu̯_- in archaic and early classical Ionic inscriptions (cf. e.g. Brixhe 1982, 221). According to all recent analyses that I am aware of, <ϡ> denotes an affricate. The use of sampi in Ionic probably indicates that (*)-_tts_- < */-tʲtʲ-/ < *-_ki̯_- and *-_tu̯_- had not yet been assibilated in some Ionic-speaking areas in the 6th and 5th centuries. That ϡ is used apparently to denote tautomorphemic *-_ti̯_- in Nymphaeon and Chalkidike suggests that *-_ti̯_- was still an affricate in these cities in the late archaic/classical period. This is in direct conflict with Risch's scenario, according to which, tautom. *-_ti̯_- had already become (*)/-ss-/ > /-s-/ by that time (cf. Risch 1955, 75; and e.g. Heubeck 1971, 123 f.; Ruijgh 1985, 116; Brixhe 1996, 60 f.[43]). If *-_ti̯_- was still an affricate during the 6th/5th century in some parts of the Ionic-speaking world, then the question arises as to how *-_ti̯_- and *-_t_/_k_+_i̯_- remained distinct in East Greek.

It could be that *-_t_+_i̯_- was still /-tʲtʲ-/ in some alphabetic Greek dialects, but this would go against the Mycenaean data, and *-_ki̯_-, which was possibly eliminated later than *-_t_+_i̯_- (and via a mid-stage */-tʲtʲ-/), was probably an affricate in 5th/6th-c. Ionic. Assuming that original *-_tts_- and *-_tts_- < *-_ti̯_- were degeminated before they become fricatives would be counterintuitive given the clear evidence for */-ss-/ > /-s-/ in East Greek. Also, degemination is not common in that dialect group. "[T]here seems to exist no language contrasting /t$s/ and /t$ts/, which suggests that such a contrast […] is difficult for speakers/hearers to implement/perceive" (Méndez Dosuna 1993, 99 n. 43). One could toy with the idea that original *-_ts_- was not geminated in East Greek and that secondary *-_tts_- < tautom. *-_ti̯_- merged with *-_t.s_- in these dialects,[44] but the contrast between geminate and singleton intervocalic affricates could be enhanced by a simple resyllabification of *-_t.s_- to *-_.ts_-. Also, the East Ionic phonemic inventory probably contained /-tts-/ during the archaic and early classical periods (cf. τεταραϙοντα etc.), so assuming that τεπο- represented /tet.so-/ would not solve the problem without additional hypotheses. A historical spelling in the present context cannot be excluded, but even if

[43] For example, according to the aforementioned scholars, Mycenaean _to-so_ represented either /tosso-/ or /toso-/.

[44] Alternatively, prim. *-_ts_- was not geminated in any Greek dialect and the merger worked the other way around in e.g. Boeotian (cf. Boeot. -ττ- < prim. *-_ts_-).

τετο- was the orthography during, say, the 6th century, the use of ϯ here would still be surprising.

It may be assumed that in (late) 5th-c. Ionic affricates (from *-*t*/*k*+*i̯*- and *-*tu̯*-) had been fricativized, and that the current value of sampi was /(ʃ)ʃ/ or /(s^{j})s^{j}/. That made it possible for palatal/palatalized sibilants that did not continue *-*t*/*k*+*i̯*- or *-*tu̯*- to be denoted by ϯ. One such case could be τετον/τετος.[45] Alternatively, the sibilant from *-*ti̯*- and the affricate from *-*t*/*k*+*i̯*-, *-*tu̯*- were still palatalized in some Ionic cities during the 6th and 5th centuries, and ϯ could be used for both /-tts^{j}-/ and /-(s^{j})s^{j}-/ (for Diver 1958, 17 f., Ion. -ϯ-, -σσ- = "*šš*"). Cf. also Brixhe 2013, 175 with lit.

1.2.1.2 φύζαν

In *Hymn*. *Hom*. *Merc*.[46] 113 f., e.g. in the edition by Allen, Halliday, and Sikes (Allen et al. 1936), we read λάμπετο δὲ φλὸξ | τηλόσε φῦσαν ἰεῖσα πυρὸς μέγα δαιομένοιο. The translation is 'and the flame shone from afar, emitting a stream of fire burning up high' (Vergados 2013, 324). φῦσαν 'blast of fire' at the beginning of the second foot in line 114 is a conjecture. The transmitted forms are φύσαν in E and φύζαν in all other manuscripts. Peters (*apud* Méndez Dosuna 1993, 100 n. 45) is certainly right in considering the latter the *lectio difficilior*. There is no question that the intended word here was φῦσα (see e.g. Solmsen 1909, 248). φύζαν is probably an alternative spelling for φῦσαν. If this is so, φύζαν in our passage obviously bears the wrong accent. It is not difficult to understand why. <ΦYZAN> was incomprehensible to later copyists; the least intrusive way to transcribe the form would be to write φύζαν (cf. also φύζα 'headlong flight, rout' < *p^{h}u̯gi̯a).[47] φύσαν in manuscript E is probably a conjecture (cf. esp. its unexpected accent mark; a 'correction' of an original (*)φῦσαν to φύσαν is improbable: the first syllable of the word is in the arsis and there was no word φύσα in Greek). This was made by someone who was clearly more familiar with the text. Perhaps he was not very confident about his choice, which explains why he kept the wrong accent of φύζαν even though φύσαν was unmetrical and essentially unattested in Greek.

[45] The idea that /s^{j}/ was a part of the phonological system of Greek during the archaic period is not new. As is well known, the Greek alphabet originally contained both sigma and san (<ϻ>) (cf. the fact that the Etruscan alphabet had both). In most epichoric scripts of the archaic period, the latter has been lost. In some Doric-speaking areas (e.g. Crete, Thera, etc.) san is used for /s/, and sigma has been abandoned. It has been proposed (see Lejeune 1972, 89) that at the time of the creation of the Greek alphabet, the Greek phonological system had two *s*-sounds. /s/ from PIE **s*, and a "sifflante forte" deriving from the palatalization of certain consonant groups. Originally, the one was denoted by sigma and the other by san (the original value of Phoenician *ṣādē*, on which Gk. san was based, may have been a sibilant fricative; cf. e.g. Ruijgh 1997, 561; Woodard 1997, 176. 187). For different approaches to the problem of the original value of san, see most recently Ruijgh 1997; Woodard 1997, 175 ff.; Slings 1998.

[46] On the recent proposal by Schenck zu Schweinsberg (2017) that the hymn dates from the Hellenistic period, see Strauss Clay 2018 and Thomas 2019 (Vergados 2013, with discussion of previous views, dates the hymn to the second half of the 6th century; most scholars believe that the poem was composed during the 6th century).

[47] Of course, the first syllable of both *φῦζαν and φύζαν would scan long.

Gk. φῦσα possibly goes back to *$p^hūt̯ia$ (Peters 1980, 141 n. 94; Ruijgh 1985, 112; see also the discussion in Solmsen 1909, 247 f.). A preform *$p^hūtsa$ is also possible but seems less likely (cf. Solmsen ibid.). *$p^hūt̯ia$ would be expected to give †φῦσσα/φῦττα (cf. γλῶσσα/γλῶττα), but as argued by Peters, the morpheme boundary in *i̯a*-stems that were semantically "Sachbezeichnungen" was perhaps not identifiable by the speakers (cf. further n. 24). Under the traditional theory, the affricate resulting from tautomorphemic *-*t̯i̯*- in East Greek was fricativized long before the alphabetic period. However, φύζαν suggests (cf. e.g. the *s*-aorist Croton hēζατο : **sed*) that *-*tts*- < *-*t̯i̯*- remained intact in Ionic until quite late in its history (but notice the alliteration of the sibilants in τηλόσε φῦσαν ἰεῖσα πυρὸς, Vergados 2013, 324; arguably an affricate would not have a very different acoustic effect here).[48] Nothing would change with regard to our problem if *$p^hūt(t)sa$ is the correct etymon.

An alternative analysis of the consonantism of φύζαν may be available, but it is very speculative. Intervocalic /s/ underwent rhotacism in Oropos and in some parts of Euboea; cf. for example mid-6th-c. (Eretria) νῑκε̄ρᾱ̃ς = νῑκήσᾱ̃ς or late 5th-c. (Tamynae) ειρελων = εἰσελῶν (see further del Barrio Vega 2015, 18). The change of /s/ to /r/ no doubt involved a stage [z] (e.g. Kümmel 2007, 44. 80 f.). According to Peters (1995, 194 with n. 30) and others, the Hymn to Hermes was composed by a West Ionian poet (for a recent discussion see Vergados 2013, 148–153). It would be possible to see the zeta here as an approximate[49] spelling of the sound [z]; cf. e.g. Maced. Με(σ)ζο/ωρισκο- (: μέ(σ)σος, ὅρος/ὄρος) in the analysis of Méndez Dosuna (2012, 137 f.) and 4th-c. Maced. Διονῡ́ζιος = Διονῡ́σιος (beside χ<ρ>ῡσων, with sigma). See further Schwyzer 1939, 217 f.

1.2.2 The fricativization of the affricates

It is commonly assumed that in *s*-dialects (e.g. Ionic) */-tʲtʲ-/ was first affricated and later assibilated to (*)-*ss*-. Nevertheless, a change /-tts-/ > /-ss-/ is rather unlikely from a phonological perspective. The fricativization of an affricate stop is an unambiguous case of lenition. It is a firmly established fact that lenition processes (excluding degemination) do not affect 'true' (as opposed to 'fake'/concatenated[50]) geminate consonants (see Kirchner 2000; 2001 with lit.; Blevins 2004a, 183 f.). Numerous weakening processes that apply to singleton consonants simply fail to apply to geminates in the world's languages. To illustrate the point, in Tuscan Italian, the affricates [tʃ] and [dʒ] are fricativized to [ʃ] and [ʒ] respectively in intervocalic position and across word boundaries; cf. Standard Italian *amici* [ami:tʃi] 'friends', *cacio* [ka:tʃo] 'cheese' vs. Tuscan Italian [ami:ʃi], [ka:ʃo], etc. However, this process does not apply to geminate

[48] This analysis would entail that /dz/ > /zd/ (cf. Eub. Θεοζοτου; Bechtel 1924, 81) was a relatively late phenomenon in Euboean.
[49] Unless ζ was sporadically pronounced [z(z)] in 6th-c. Euboean (cf. Schwyzer 1939, 217 f.; Bartoněk 1961, 151; Nagy 1970, 127).
[50] That is, heteromorphemic.

affricates, cf. e.g. SI, TI *faccio* [fattʃo] ‘I make’, SI, TI *roccia* [rɔttʃa] ‘rock’ (see Marotta 2008, 251 ff.). Examples like the above can be multiplied at will.

The only case of geminate lenition known to Kirchner (2000; 2001) comes from Florentine Italian. However, in that dialect lenition only applies in extremely fast and/or careless speech, which makes it “unlikely that the duration of the fast-speech ‘geminate’ approaches the typical duration of a geminate in slow or normal speech” (Kirchner 2001, 107).[51] Apart from Greek, there are only two languages allegedly showing (*)/-tts-/ > /-ss-/ in the relevant six-page list in Kümmel’s book (2007, 69–75). These are Sardinian and West and East Finnish. For the latter, the references given by Kümmel (p. 414) have not been of much help to me. ((*)/-k͡i-/ >) (*)/-tts-/ > /-ss-/ in Sardinian is only found in the dialect spoken in Barbagia (sibilants alternate with affricates in some localities; see Wagner 1941, 106–110; esp. 107). However, according to one analysis (Calabrese 2005, 348 ff. and earlier publications), the process (*)/-k͡i-/ > /-ss-/ in Barbagia did not involve a stage with a geminate affricate. If Calabrese’s proposal is correct (which is unclear to me given the evidence for (*)/-k͡i-/ > (*)/-tts-/ in Sardinian), then there is no connection between this and the change *-*t*/*k(+)*͡*i*- > -σσ- in Greek. In any case, applying Calabrese’s approach to the Greek data would again not solve the problem posed by the apparent lenition of a geminate stop/affricate to a geminate sibilant in *s*-dialects.

Phonologically speaking, Gk. /-ss-/ could also continue singleton *-*ts*- (cf. e.g. Leumann 1977, 197; Weiss 2009, 170), but a change of */-tʲtʲ-/ to *-*ts*- would be rather unexpected (though cf. p. 14).[52] Also, the process */-tts-/ > /-ss-/ appears to have happened twice during the history of Ionic and Arcadian.[53] Initially, according to the common view, it applied to original *-*tts*- and *-*tts*- resulting from the first palatalization. At a later stage, it affected *-*tts*- from */-tʲtʲ-/ < *-*t*/*k*+*͡*i*-. When the affricate arising from the second palatalization was fricativized, original *-*ts*- must have already been eliminated.

In geminate affricates “it is usually the stop-closure component […] that is phonetically lengthened” (Laver 1994, 439). Geminate affricates showing a longer fricative element are not unknown (see e.g. Thurgood / Demenko 2003), but are rare (in Polish, geminate affricates are variably articulated either with longer closure duration, or with longer frication; rearticulation of the affricate — e.g. [tʃtʃ] — is also an option; see Thurgood / Demenko 2003).

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[51] Even if we were to set up a scenario according to which Greek generalized fast-speech ‘geminate’ (i.e. phonetically short) affricates (this must be assumed to have happened twice in Ionic and Arcadian), it would still remain unexplained why the reflex of these affricates is a geminate consonant (cf. Kirchner 2000, 513).

[52] There is no doubt that Gk. *-*t͡i*- became *-*tt͡i*- in the first place, cf. Boeot. etc. -ττ- < *-*t͡i*-. Note further that resonants are clearly geminated in Greek, and stronger consonants are generally more liable to gemination before yod (cf. Callender 2007).

[53] If the affricate in *-*tsi*- (< *-*ti*-) was geminated in East Greek (as might be expected, cf. Brixhe 1996, 45; but see n. 29 3rd par.), it probably fell together with original *-*tts*- and *-*tts*- from tautomorphemic *-*t͡i*-.

In theory, Gk. -σσ- could be seen as a conventional way to spell /-tts-/. Miller (2014, 284 n. 118) is uncertain about whether -σσ-(/-ττ-) is to be taken at face value (cf. also Brixhe 1982, 214), and affricates in loanwords are frequently spelled <σ> in late texts (alternative spellings are <τ> and <στ>; see Steiner 1982, 62 f.).[54] Also, -ᴛ- alternates with -σσ- in two East Ionic inscriptions (LSAG, 344 n° 52 ca. 465, ελαᴛονος ll. 16 f., ἐλ̣α[σ]σονας ll. 23 f.; DGE, n° 744 bef. 454, Αλικαρνᾱᴛε[ω]ν l. 2, Αλικαρνησσον, Αλικαρνᾱσσεων ll. 40 f.; on the long alpha see Jacobsohn 1913, 309). Nevertheless, ancient -σσ- < *-*t*/*ki̯*- is pronounced [-ss-] in geminating dialects of Modern Greek (cf. e.g. Cypriot γλώσσα [ɣlossɐ]), which likely means (but cf. Μανωλέσσου / Μπασέα-Μπεζαντάκου 2012, 956 esp. the first par.) that, even if Classical Gk. -σσ- represented /-tts-/, this sound was lenited to /-ss-/ during the later history of Greek in geminating varieties at least (cf. further Allen 1987, 61).[55] So, assuming that the original value of -σσ- was /-tts-/ would not really solve the problem.

Unfortunately, the question of the fricativization of Greek geminate affricates must be left open.[56]

1.3 The development of word-initial and postconsonantal clusters

The old idea that the affricate resulting from *-*t*+*i̯*- (and *-*k*+*i̯*-) was assibilated earlier and more rapidly after **n* or generally resonants (see Peters 1980, 287 n. 241 with lit.) is questionable. There is, as far as I am aware, no typological or other evidence suggesting that preceding resonants (or stops) per se could influence the development of palatalized sounds. Further, it seems that **ti̯* was assibilated at an early stage also in initial position (cf. Peters 1980, 290[57]). It would be tempting to see the two changes as a single phenomenon (thus Allen 1958, 124 n. 56; Sheets 1976).

1.3.1 Allen

Allen (1958, 124 n. 56) has proposed that the reason behind the unexpected result of **ti̯* after consonants and word-initially is to be sought in syllabification. According to him, a third palatalization process occurred in Greek that applied before the other two and affected only tautosyllabic sequences (for the tautosyllabicity of Gk. *-*Ci̯*- after consonant, see now Cooper 2015, 107 ff.; cf. also the lack of gemination in *-*Cti̯*- and *-*Rki̯*-, and Devine / Stephens 1994, 42 f.).

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[54] Spellings like <τ(τ)σ> are almost non-existent in Ancient Greek. A well-known example is τζετρακατιαι < **k*$^{\mu}$*etr*° in IG V^2 159 (Tegea 5th c.). Another one may be Lesb. δικατζεσθαι (SEG 34:1238; 3rd c.), but Hodot (1990, 28) convincingly proposes to read δικατδεσθαι.

[55] -σσ- is pronounced [ts] in some modern dialects, but this is seen as a secondary development by (e.g.) Newton (1972, 92) and Μανωλέσσου / Μπασέα-Μπεζαντάκου (2012, 955). See however Pisani 1965 with ref. to Rohlfs ("Bewahrung des alten Zustandes") and Kümmel 2007, 155 f. ("Archaismus?").

[56] On the non-merger of palatals from labiovelars and **t*/*ki̯* in *s*-dialects, see Brixhe 1996, 88–90.

[57] "[G]erade im Anlaut hätte man eine fortgeschrittenere Entwicklung der Konsonantengruppe erwartet, cf. die entsprechenden Verhältnisse bei an- und inlautendem *(-)*tu̯*- […]."

Byrd (2015, 228 f. with ref. to Olga Urek) claims that Latvian yod palatalization occurs only when the target and the trigger "are found within the same syllable". For such a generalization to hold, the process should be blocked in heterosyllabic sequences. In Urek's recent dissertation (2016, 60 ff. 135 ff.), I have found no reference to such a phenomenon; the relevant clusters seem to always be tautosyllabic in Latvian (see already Byrd 2015, 229 again with ref. to Urek). As far as I can see, Byrd's claim is based on the fact that forms like /ku.snja/ [ku.ʃɲa] (with a palato-alveolar fricative) contrast with /gul.sja/ [gul.ʃa] (with non-palatal *l*). But unless I am missing something, [gul.ʃa] and the like merely show that palatal assimilation did not occur across syllable boundaries. Palatalization is confined to the position before tautosyllabic vowels in some languages (see Bateman 2007, 71 with lit.), but we should be very careful in drawing far-reaching conclusions about Gk. **tį̂* (and **kį̂*) from this kind of evidence.

It appears that palatalization is rarely restricted to tautosyllabic sequences (cf. also p. 91). But let us accept as a working hypothesis that the reason behind the different development of **-Ctį̂-* and **tį̂-* lies in the syllabification of these clusters. As Peters (1980, 288 n. 241) remarks, it will not do to assume that **-Ctį̂-* was phonologically more advanced simply for chronological reasons, because even an early palatalized */-Ct^{j}-/[58] < **-Ct+į̂-* (as e.g. in **pantį̂a*) would still be expected to be unpacked to */-Ct$^{(j)}$į̂-/* (under the pressure of the morpheme boundary) and eventually develop as the rest heteromorphemic sequences. This difficulty can perhaps be avoided if we assume (cf. Nussbaum 2013, 2. 16) that Allen's first palatalization resulted in an affricate directly, but there is currently no way of showing that the change in question was a case of full/place-changing palatalization (for this term cf. Bateman 2007; Kochetov 2011). The hypothetical first palatalization affected both **(-C)tį̂-* and **(-R)kį̂-* in some dialects (e.g. Boeotian), but only **(-C)tį̂-* in others (e.g. Attic). No explanation of this discrepancy has been offered by Allen. Why did velars palatalize so early only in certain areas? Finally, at a prehistoric stage, the syllable onset **tį̂* was also found in a word like **eretti̯ō̂*. Perhaps gemination was later than Allen's first palatalization, but the former change was apparently very old (see further pp. 90–92). Although it is not impossible that **t* behaved differently before a tautosyllabic yod when the former was part of a geminate, it has not been made clear by Allen how exactly **.tį̂* in **eret.ti̯ō̂* and **.tį̂* in e.g. **pan.ti̯a* were kept distinct.

The proposal that tautosyllabic sequences were eliminated first in Greek does not seem to work properly. As things stand, it is better not to rely on this theory to explain the dichotomy between postconsonantal/word-initial and intervocalic clusters.

[58] Singleton *[t^{j}], *[k^{j}], and *[ts] were probably not real phonemes in Greek, but allophones of */t^{j}t^{j}/ etc. in postconsonantal and word-initial position (cf. Méndez Dosuna 1993, 87 n. 12. 99). Since this is not yet a generally accepted idea, and for the sake of simplicity, I will be using slashes in reconstructions involving these sounds.

1.3.2 Early fricativization of singleton **ts*

As far as one can see, */-t^{j}t^{j}-/ was affricated to **-tts-* in Boeotian and Cretan (see n. 41). This change was never completed in these dialects and the affricate was ultimately lost. It is reasonable to think that at some point */-t^{j}t^{j}-/ could also be realized as **-tts-* in Attic and Euboean/Proto-Attic-Ionic as well. Now affrication probably affected palatalized alveolars in all positions. Since secondary and primary **(-C)ts-* gave /(-C)s-/ in the *t*-dialects,[59] it follows that singleton **ts* was for some reason fricativized to /s/ before the complete replacement of (prim. and sec.) **-tts-* by (*)/-t$^{(j)}$t$^{(j)}$-/; otherwise **(-C)ts-* would be expected to give e.g. Boeot., Cret. */(-C)t-/ (thus essentially Méndez Dosuna 1993, 101; similarly Peters 1980, 287 n. 241).[60]

As mentioned already, affricate fricativization is clearly a case of consonant weakening. Lenition processes typically begin in weak prosodic positions (but cf. Méndez Dosuna 1996). Word-initial and post-coda consonants, i.e. consonants in strong positions, are expected to be affected (if at all) last by leniting sound changes (e.g. Ségéral / Scheer 2008, 135. 140). It can be concluded from this that the fricativization of singleton affricates started life in weak positions and gradually affected **ts* across the board. As is well known, (final) codas are weak. It seems likely that the 'normal' development of **(-C)ts-* (from any source) was interrupted in Greek owing to the fricativization of word-final **-ts* and the later extension of that rule to all singleton affricates (for **-ts* > -ς in Cretan and Boeotian, cf. e.g. Cret. πευσθενς IC IV 83.3, καταθενς, επισπενσανς IC IV 72.VI 19 f.; Boeot. καταβᾱς SEG 44:414.8, παις BCH 25 1901, 361 f., l. 17).[61, 62]

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[59] For the latter cf. Cret. εσπενσαμες (SEG 27:631.A1; 5th c.), επισπενσαντος (IC IV 72.V 3 f.; 480–450), (τοιλ) λειονσι (ibid. 32), επεσπενσε (ibid., 52 f.), επελευσαντα (ibid. 7 f.), etc., Boeot. απᾱσι (SEG 43:205.21; 3rd c.), Πεισιμῑλιδᾱς SEG 19:354, 500–450 (: πεῖσαι 'prevail upon, persuade' rather than τεῖσαι 'pay'; cf. HPN, 315. 368 f.), Πεισιστρο[τ]ᾱ (Roller 1989, n° 87.55; but note Att. Τεισιστρατη SEG 44:203), Πᾱσιτῑμω (Roller 1989, n° 87.62; 3rd/2nd c.).

[60] It is also possible that word-initially and after a consonant */t^{j}/ was affricated earlier than its geminate peers. Of course, consonant strengthening in strong positions is commonplace (cf. e.g. Gk. **i̯-* > **dz-*; Méndez Dosuna 1995, 111 n. 17; 2009, 83 [cf. also 1994, 211–213] postulates a change /-s.t^{h}-/ > */-s.ts-/ ["renforcement"] > /-ss-/ for Elean). However, there is no unanimity about whether stop affrication is a type of consonant strengthening or weakening. Several scholars consider it (for various reasons; among them is the fact that it is common in word-initial position) a type of strengthening. Nevertheless, others see it as a first step towards frication (see the recent study by Buizza / Plug 2012 wih lit.). Buizza / Plug (2012, 4) argue "that decisions as to whether a given case of plosive affrication is best interpreted in terms of lenition or fortition should ideally be based on a thorough phonetic analysis of the process, along with distributional analysis, and should take into consideration, where possible, relevant findings in the fields of experimental phonetics and laboratory phonology".

[61] I am unconvinced by Seigneur-Froli's (2006, 349 ff.) and Scheer's (2012, 263 ff.) attempt to show that the word-initial and postresonant positions were weak (/that consonants were strong only after obstruents) in prehistoric Greek. Their analysis of Gk. **Ci̯* clusters is not compelling: for example, the claim that "IE yod disappears everywhere in Greek except after obstruents" (Scheer 2012, 273) is clearly wrong. The strengthening of **i̯-* to **dz-* (cf. ch. 2), which neither scholar has adequately explained, clearly does not lend support to the proposal that word-initial consonants were weak in prehistoric Greek. On PGk. **s-* > /h-/, see Méndez Dosuna 1996.

The fricativization of singleton **ts* was probably earlier than the restoration of the yod (and the subsequent depalatalization) in heteromorphemic sequences, and consequently earlier than the second palatalization. The opposite scenario would entail that tautomorphemic and heteromorphemic clusters fell together after the second palatalization in East Greek (cf. tautom. Att. *$t\underset{\frown}{i}$- > σ- and heteromorphemic *-*nt*+$\underset{\frown}{i}$- > -(ν)σ-); we know that this cannot have been the case. The present analysis also suggests that the first palatalization affected both tautomorphemic and heteromorphemic *-$t\underset{\frown}{i}$- in the first place. In other words, it suggests that Risch's first palatalization was not really blocked but undone in heteromorphemic clusters.

If fricativization happened while some dialects still possessed */t$^{\text{j}}$/, it is perhaps peculiar that all *t*-dialects generalized /s/. If this is not due to chance, then the uniform outcome is possibly due to the early date of the change.

1.3.3 *$k\underset{\frown}{i}$- and *-*R*$k\underset{\frown}{i}$-

1.3.3.1 'Boeot.' τευμήσατο

Antimachus of Colophon (fr. 3[63]) holds that the Boeotian oronym Τευμησσός was so named because Zeus created (τευμήσατο) an ἄντρον 'cave' there in order to hide Europa. Wackernagel (1887, 121) has argued (and he is followed in this by e.g. Bechtel 1921, 249 and recently Matthews 1996, 89) that τευμήσατο (: *$k\underset{\frown}{i}eu$; cf. Av. *šiiaoman*- 'deed, work, action') can be neither Ionic (for phonological reasons) nor Attic, and that Antimachus probably used here a word of Boeotian origin.[64]

However, the reflex of *$k\underset{\frown}{i}$- was /s-/ in Boeotian (cf. σᾱετος, Hsch. σεῖα). It is difficult to disconnect τευμήσατο from Av. *šiiaoman*- (*pace* Szemerényi 1938). This leaves us with two alternatives: either *$k\underset{\frown}{i}$- > τ- was a feature of some East Ionic varieties as well (cf. Eub. *$k\underset{\frown}{i}$- > τ-), or τευμήσατο was made up by Antimachus.[65] Since no East Ionic form showing -ττ- < *-*t*/*k*(+)$\underset{\frown}{i}$- seems to exist, the first proposition is not convincing. Possibly, τευμήσατο is an artificial form. It can be argued that Antimachus, knowing the old tale about Zeus hiding Europa in a cave on mount Teumessos, and realizing the phonetic similarity between Τευμησσός and his native *σευμήσατο, created τευμήσατο (NB the real Boeotian form would end in -ᾱ́σατο) by overgeneralizing

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[62] Le Feuvre (2011, 317) rejects the traditional derivation of Hom. κάμμορος 'ill-fated' from *κάτ-μορος (Schulze 1888, 262 n. 1; Bechtel 1914, 186) and reconstructs instead **katsmoros* (: **smer*) > **kasmoros* > **kahmoros* > **kammoros*. This analysis could be correct and would have certain implications for the chronology of the change **ts* > **s*. However, Hsch. κάσμορος· δύστηνος (not discussed by Le Feuvre), if from **katsmoro*- as is likely (thus Schulze, Bechtel), suggests that secondary *-*sm*- did not merge with original *-*sm*- (cf. however the preservation of the sibilant in σμῑκρός; see further n. 228). The derivation κάμμορος < *κάτ-μορος remains valid ("κάμμορος ist eine bildung jüngerer zeit"; Schulze ibid.).

[63] See Matthews 1996 and recently Lombardi 2003 with ref. to Medaglia.

[64] Cf. also Hsch. Τεύμης· ποταμὸς Θηβῶν; Τευμησία· περὶ τῆς Τευμησίας ἀλώπεκος οἱ τὰ Θηβαϊκὰ γεγραφότες ἱκανὰ εἰρήκασιν. Boeot. Τευμασιγε[νεις, mentioned by LGPN IIIB, 403, is a false reading for Τελ[ε]σιππω; see Roller 1989, n° 87.73.

[65] But cf. also Pind. τά < *$k^{\text{u}}\underset{\frown}{i}a$ (Boeotian? see n. 16) and Attic forms like οστρακιδῶ (see n. 109).

Ion. -σσ- = Boeot. -ττ-.[66] Pausanias (9.19.4) informs us that the Boeotians thought that Μυκαλησσός got its name from the lowing of a cow ("διότι ἡ βοῦς ἐνταῦθα ἐμυκήσατο"). In *Hymn. Hom. Ap.* 224, Μυκαλησσός and Τευμησσός occur side by side. Matthews (1996, 89) asks whether the etymology was (also) suggested to Antimachus by the coupling of the two names in that passage. This is not impossible. Since there is incontestable evidence for **kʲ̂-* > σ- in Boeotian, I will tentatively consider τευμήσατο as a non-Boeotian form.

1.3.3.2 **-Rkʲ̂-* in Attic

Since **tʲ̂-*/**-Ctʲ̂-* become *(-C)s-* in all of Greek, and **kʲ̂-*/**-Rkʲ̂-* seems to have given *(-C)s-* in Cretan and Boeotian (for Cretan see below), the fact that **kʲ̂-* results in τ- in Attic, Euboean, and partly Doric implies that **-Rkʲ̂-* gave **-Rt-* in some *t*-dialects.

There is evidence for **-Rkʲ̂-* > *-Rs-* in Attic, but it seems unlikely that **(-)kʲ̂-* became (e.g.) Att. (-τ)τ- in all positions except after resonants, and all relevant words can be explained away.[67]

The adverb ἧσσον (Hom.+) < **ank^{h}ʲ̂ios* (the geminate is secondary, see Seiler 1950, 45 f.; Peters 1980, 288; Nussbaum 2013, 14 f. with n. 26) is only attested in the tragedians and Aristophanes (*Eq*. 1306) as far as the Attic dialect is concerned. In Aristophanes, ἧσσον is spoken by the chorus leader in the antepirrhema of the second parabasis (cf. further Totaro 1999, 52–61; Anderson 2003).[68] Generally, the Aristophanic parabasis has a less colloquial tone; poetic words in it are common in both the recited and the sung parts[69] (see Mastromarco 1987; Totaro 1999, 9 f. with n. 25 and *passim*; on poetic language in Aristophanes see more generally Rau 1967; Hoffmann / Debrunner 1969, 120 ff.).[70] ἄσσον is clearly fossilized in Greek, with no corresponding positive adjective and traces of hyper-characterized forms already in Homer (cf. ἀσσοτέρω at ρ 572 and τ 506; Barber 2013, 165). It could have been just a poetic word for 'nearer' in the Attic dialect of the 5th century; it is unclear whether it was ever a genuinely Attic word (cf. Wackernagel 1914, 124 bottom; Seiler 1950, 46; Basset 2009, 123 n. 12; Barber 2013, 165 n. 36).[71]

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[66] Attic *τευμήσατο (cf. perhaps Hsch. τευμᾶται· τεχνάζει) could also have played a role here, but τευμάομαι is first attested in Antimachus. Recall that Antimachus was also a grammarian.

[67] There are no secure attestations of λεύσ(σ)ω (Hom., trag.) < **leu̯kʲ̂ō* and γλαύσ(σ)ω < **glau̯kʲ̂ō* (Callim.+) in Attic.

[68] For the structure of Old Comedy, see Pickard-Cambridge 1962, 194 ff. For the structure of the parabasis, see Sifakis 1971, 33 ff.

[69] The antepirrhema was recited.

[70] Note that line 1302 in the same antepirrhema where ἧσσον is found is quoted from Eur. *Alcmaeon in Psophis* fr. 66 (e.g. Rau 1967, 189; Totaro 1999, 54). — On ἧσσον ἔρχομαι (cf. ἥτις ἀνδρῶν ἧσσον οὐκ ἐληλύθει, *Eq*. 1306), compare Hes. *Th*. 796, Semon. fr. 7.33, Aesch. fr. 175.1, Soph. *OC* 722.

[71] Paroxytone Hom. ἄσσον in (e.g.) Herodian and the Venetus A (as opposed to ἧσσον in other manuscripts) must represent the original Homeric form (cf. Jacobsohn 1908, 346; Wackernagel 1914, 124 f.). The first vowel of a hypothetical East Ionic **āsson* ← **āson* would be rather unusual for a primary comparative in that dialect (cf. also Peters 1980, 289 n. 242). **āson* was probably remade to **ăsson* in East Ionic (cf. Seiler 1950, 46; Vessella 2007, 139); "vulgatum ἧσσον ad normam Atticam accommodatum est" (West 1998, xx; *pace* Barber 2013, 165 n. 35).

The PN Ευσοισκη in the epitaph IG II² 11468 (: *$k̑_{\text{i}}eu̯$; ca. 400) can be the name of a non-Athenian. Bechtel (1901, 423) observes that since the name is not accompanied by a patronym or an ethnonym, Ευσοισκη must have been a slave. He goes on to speculate that a name meaning 'Hurtig' would be quite fitting for a slave. If the name Ευσοισκη was given to the person in question by her master, then it is possibly Attic. The sculptor name Συ[μ]εν[ος (cf. Rhod. Συμενος) < ?*$k̑_{\text{i}}u(u̯)$-$m̥h_1$*nó*- (cf. Ved. *cyávāna*-) 'who gets in motion' (García Ramón 1999; but Nussbaum 2019, 455 n. 60, without reference to García Ramón, derives the name from σῦς 'boar') on a basis found on the Athenian acropolis (IG II² 4898; before 350) need not be Attic (similarly LGPN II, s.u.). 2nd-c. Ευσους (: *$k̑_{\text{i}}eu̯$?[72] SEG 21:1006, 30:246; Athens) is late and need not be the name of an Athenian (similarly LGPN II, s.u.).

The adverb πανσυδί/πασσυδί 'with all one's force' (Thuc. 8.1.1.4, Pherecr. fr. 36, Xen. *Cyr.* 1.4.18.7; cf. also Hom. πανσυδίῃ 'with all speed' [LfgrE, s.u.], Bacchyl., Eur., Xen. πασσυδίᾳ) probably belongs with the root *$k̑_{\text{i}}eu̯$ and is cognate with σεύομαι etc. (cf. e.g. Leumann 1950, 190; Risch 1974, 123; Neumann 1992, 435. 436; Viredaz 1993, 333 n. 5; doubts by García Ramón 1994, 57 n. 13). °συδ- in °συδ-ί is abstracted from an adverb *$k̑_{\text{i}}u$-*da*, */k$^{\text{j}}$u-da/, or */t$^{\text{j}}$u-da/ (cf. zero-grade μίγδα, κρύβδα, φύγδα, etc. and Aesch. σύδην); compare Neumann 1992, 435.

The evidence of πανσυδί/πασσυδί is not decisive. A poetic or Ionic word in Thucydides and Xenophon would be far from surprising (see e.g. Gautier 1911; Hoffmann / Debrunner 1969, 133–139; Pritchett 1975, 85–87 with lit.). Pherecrates' πασσυδί is only mentioned by Photius p. 401,14 (≈ Sud. π 763) and is given out of context (ἔστι καὶ ἐν Αὐτομόλοις Φερεκράτους). Since poetic (and non-Attic words) are not uncommon in certain parts of Attic comedy, πασσυδί in Pherecrates, if real, is of little value for present purposes (on non-Attic vocabulary in Pherecrates, and on Pherecrates' language in general see Urios-Aparisi 1992; Quaglia 2003).[73]

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[72] Thus Bechtel 1901, Minon *apud* CEG 13, s.u. σεύομαι. That Ευσους belongs with *$k̑_{\text{i}}eu̯$ is mostly suggested by Hsch. εὔσους· ὁ διευτυχῶν. καὶ ἥρως ἐγχώριος. καὶ **εὐκίνητος** (emph. mine — GK). εὐφόρος [*sic*]. A connection with the root seen in (Ion.) σόος < *$tu̯$° 'safe and sound, alive and well' seems less likely but would not be completely out of the question: cf. Hsch. εὔσοοι· ἀσφαλῶς σῳζόμενοι and δύσσοος 'wretch, rogue, brute' in Theocr. 3.24, 4.45 and SEG 38:940 (Camarina; mid-5th c.). The exact meaning of Theocr. εὔσοος (εὔσοα τέκνα; 24.8) is not easy to establish (Gow 1952 translates 'safe'), despite Bechtel. The syntax and the sense of the abstract εὔσοια (Soph. *OC* 390; fr. 122), which has also been connected with *$k̑_{\text{i}}eu̯$ by Bechtel, are "doubtful" (Edmunds 1981, 228 n. 30).

[73] If πανσυδί is Attic, it will be difficult to account for its consonantism. I can think of only one way to do this, but it is not very promising. As is well known, the phonetic value of Classical Attic <υ> was probably [ỹ]. The change *$ŭ$ > $ỹ$ is attested in both Attic and (East) Ionic, and its (probable) absence from the dialect of the Chalcidian colonies in Magna Graecia may simply indicate that *$ỹ$ underwent backing to $ŭ$ in colonial Euboean. Therefore, *u*-fronting possibly dates from the Attic-Ionic period or earlier (thus Méndez Dosuna 1993c, 115 ff.; cf. also del Barrio Vega 1990a, 180; differently e.g. Miller 2014, 46 with lit. [ca. 550]; Samuels 2017, 99 f. [ca. 700–600]; Méndez Dosuna 2018a now considers *$ŭ$ > $ỹ$ a change of Proto-Greek date). If the change is reasonably old, we might argue that the palatal stop */k$^{\text{j}}$/ was affricated to *[tʃ] before high front vowels in Attic(-Ionic), and that that *[tʃ] was affected by the general

1.3.3.3 Cretan

πανσυδί has the form παν]σεϝδι[74] in Cretan (IC I xxviii 7; late 7th/early 6th c., central Crete; see Bile 1988, 105. 212 n. 234; Viredaz 1993, 333 n. 5; for the chronology, see also Genevrois 2017, 302). The sigma here is remarkable. At such an early date <z> is by far the most common grapheme for the representation of the outcome of the intervocalic clusters. During the archaic period, *-*tį̂*- is denoted by <σ> in Cretan only in two inscriptions, as far as I am aware (cf. οσοι SEG 27:631.10, οσος, οσω SEG 35:991A.3.7; both Lyttos, central east). Nevertheless, one should not fail to notice that *-*Ctį̂*- is always represented by <σ> in Cretan, even in archaic texts (cf. -νσα < *-*ntį̂a* in IC IV 64; I x 2.11; IV 72.III 45.53.VI 32 f., etc.).

Schwyzer (1939, 623 n. 7), followed by Risch (1972, 71 n. 19), has cogently argued that the *e*-grade in παν]σεϝδι is analogical after σεύομαι (adverbs in -δην, -δον, and -δα normally have the zero grade of the root; cf. e.g. Schwyzer 1939, 626). If the affricate in **ts(e)uda* was fricativized after the formation of the compound,[75] the *e*-grade coupled with the sigma in παν]σεϝδι would suggest that *k̑į̂- became *s*- and *-*nk̑į̂*-, *-ns*- in Cretan (a change of *(°)*(t)su*° to *(°)*(t)seu̯*° after a hypothetical, less advanced */t$^{(j)}$eu̯-/[76] is not very likely; one would expect *(°)*(t)su*° → */(°)t$^{(j)}$eu̯°/[77]). The outcome of *-*nk̑į̂*- in παν]σεϝδι may have been influenced by word initial **tseu̯*-, but this would not necessarily affect the above conclusion; cf. the next paragraph. It is theoretically possible that the *e*-grade was introduced at the palatal stage, i.e. before the early fricativization of the affricates (in which case, the argument for the result of initial *k̑į̂- would be questionable), but the change of *°*Cu*° to °*Ceu̯*° here does not seem that old.

The affricate in **ts(e)uda* may have been fricativized before the creation of πανσυδί. In this case, παν]σεϝδι would indicate that the outcome of *k̑į̂- was *s*- in Cretan. Since there is no evidence that *-*Rk̑į̂*- could be phonologically less advanced than *k̑į̂-, and since such a development would make no real sense from a general viewpoint, *k̑į̂- > *s*- in Cretan would possibly entail that *-*Rk̑į̂*- yielded -*Rs*- in that dialect (the same argument could be made regarding the change *k̑į̂- > *s*- in Boeotian).

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fricativization of singleton affricates (but */k^{j}/ before mid front vowels became /t/, cf. τευτάζω; for parallels of *c*-affrication before front vowels, see Kümmel 2007, 208. 213). This last change was admittedly rather early, but a later, independent (? cf. Att. τόσος, μέσος, etc.) fricativization of *[tʃ] cannot be excluded (*/k^{j}/ might have been retained for quite a while in Attic). That the outcome of *k̑į̂ may have depended on the quality of the following vowel in Greek has also been proposed by Günter Neumann 1983, 332 (cf. Myc. *A-re-su-ti-jo* vs. *A-re-i-ze-we-i*, see n. 9).

[74] Adverbs in -ί are mostly compounded (e.g. Schwyzer 1939, 623). πανσυδί is the only known such adverb from the root of σεύομαι, so the restoration of Guarducci must be correct. Risch (1972, 71 n. 19) asks whether παν]σεϝδι αποϝει[π is a haplography for παν]σεϝδια<ι α>ποϝει[π.

[75] The resegmentation *k̑į̂ud-a is found in more than one Greek dialects. On the face of it, this would suggest that πανσυδί is not a very recent creation.

[76] If we take Att. τήμερον vs. πανσυδί at face value, Att. had */t^{j}-/ < *k̑į̂- but *-ns*- < *-nk̑į̂*-.

[77] If **pan(t)sudi* (~ */pant^{j}udi/) became */pant$^{(j)}$eu̯di/ after presential */t$^{(j)}$eu̯-/, παν]σεϝδι would not be expected to be written with a sigma in Archaic Cretan.

At least one Doric variety had τᾶτες instead of σᾶτες (see n. 20 above), and it is likely that τᾱμε̯ραν in the new Dodona tablets is Doric as well. It seems logical that a dialect showing τ- word-initially from *$k\hat{i}$- also showed -ττ- word-internally between vowels (cf. Att. *$k\hat{i}$- > τ-, *-$k\hat{i}$- > -ττ-). However, the only Doric variety consistently having -ττ- in internal position is Cretan, and there are no traces of Cretan dialect in the Dodona tablets (Méndez Dosuna 2007a, 141 n. 12; also, *$k\hat{i}$- probably became σ- in Cretan). There is some evidence for -ττ- in Northwest Greek (and Thessalian; cf. n. 8) and an inquiry from a speaker of a Northwest Greek dialect would be far from surprising in Dodona, but the exact provenance of Dor. τᾶτες in Hesychius and other sources is impossible to determine. It seems likely that the *t*-dialects in Greek were more than four (cf. Schulze 1897, 900–902; Jacobsohn 1913), but certainty on this point cannot be attained.

1.3.3.4 *$k\hat{i}$- and *-$Rk\hat{i}$- in the context of the Greek palatalizations

Ruijgh (1995, 34 n. 110) argues that Att. τ- < *$k\hat{i}$- has been generalized from phrases like *ἀλλὰ ττήμερον. In other words, he proposes that *-*V*# *kk̂iV*- followed the development of intervocalic clusters and that the resulting */-t^{j}t^{j}-/ or */-tt-/ eventually replaced **(t)s*- < *$k\hat{i}$- in Attic (cf. the devoiced geminate in 2nd-c. Cret. Ττηνα << *$di\hat{e}m$ IC IV 174 and the form [Cret.] Τηνα; the lautgesetzlich form Δηνα is also attested in Cretan[78]).[79] Arguably, Ruijgh's explanation would be plausible only if τήμερον, τῆτες, and τευτάζω were variants of σήμερον etc. in the dialect of Attica. However, this is not the case. Further, *$k\hat{i}$- > τ- is also found in Doric (and Euboean): it is unlikely that the same process applied independently in different dialects and that in all cases it affected *$k\hat{i}$-. *$k\hat{i}$- > τ- does not give the impression of an analogical development.

In support of his idea, Ruijgh cites Att. τῶ (EGen., EM; cf. also Pherecr. ἐττημένος), the simplex of διαττάω 'sift, riddle' (traditionally from *$t\hat{u}$°). According to Ruijgh, since *$t\hat{u}$- gives σ- in all Greek dialects, including Attic, the initial alveolar of τῶ must be secondary after the compound. However, the case of διαττάω is different, and Att. τῶ (cf. esp. Pherecr. ἐττημένος), if real[80], could well be a secondary creation after διαττάω; it need not represent the original, uncompounded form of the verb (Wackernagel 1887, 122 n. 1; 1925, 48 f.). At any rate, Ruijgh's proposal also faces the problem that the original consonant cluster of δια-ττάω was probably *$k\hat{i}$, not *$t\hat{u}$ (see Puhvel 1996 and 2019[81]; cf. LIV, 360; EDHIL, 477), so it is not certain that the simplex would normally be †σῶ in Attic.

[78] For a different analysis of Ττηνα, see Brixhe 1996, 97.

[79] In Old Spanish, postconsonantal -CL-, -PL-, and -FL- gave /-Ctʃ-/, but the same clusters yielded /ʎ-/ word-initially. In a few words, the postconsonantal outcome of -PL- is also found in initial position. According to Penny (2002, 72), this phenomenon "no doubt originated under circumstances where the word was preceded by another ending in a consonant […]".

[80] See Rodríguez-Noriega Guillén 2010, 331.

[81] Thanks to Jaan Puhvel for sharing the conclusions of this paper with me.

Boeot. σᾶετος and Cret. παν]σεϝδι (cf. also Boeot. Ευσυ[του]) vis-à-vis pan-Gk. σέβομαι, πα(ν)σα, etc. suggest that in some dialects *$k̂i̯$-/*-$Rk̂i̯$- and *$t̂i̯$-/*-$Ct̂i̯$- fell together at some point and underwent the same phonological developments. This seems not to have been a general phenomenon in Greek (e.g. *$k̂i̯$- gives Att. /t-/, whereas *$t̂i̯$- and *-$Ct̂i̯$- become /(-C)s-/ in that dialect). A simple way to explain how the relevant sequences merged only in parts of the Greek speaking world would be to date the change */k^{j}/ > */t^{j}/ (or even the palatalization of velars) after the elimination of */t^{j}/ / fricativization of *[ts] (~ */t^{j}/) < *$t̂i̯$ in dialects where *$k̂i̯$-(/*-$Rk̂i̯$-) and *$t̂i̯$-/*-$Ct̂i̯$- develop differently (crosslinguistically, palatalization of /k$i̯$/ is frequently later than that of /t$i̯$/, cf. Aski 1999, 38; compare also Brixhe 1982, 211).[82] In these dialects, it may be further argued, 'secondary' */t^{j}/ < *$k̂i̯$ simply followed the development of */-t^{j}t^{j}-/ (< */-k^{j}k^{j}-/) < *-$k̂i̯$- (and */-t^{j}t^{j}-/ < *-$t(+)i̯$-), and was either depalatalized (cf. Att. τ-, -ττ-) or affricated (with later fricativization of the affricate; cf. Ion. σ-, -σσ-).[83] It is virtually impossible to know in which *s*-dialects *$(-R)k̂i̯$- and *$(-C)t̂i̯$- fell together before becoming /s/ (if we judge from the situation in Attic, where *$k̂i̯$- and *$t̂i̯$- have different outcomes, and from Cyzicus ναυτου discussed below, these clusters probably became /s/ independently in Ionic). In dialects like Cretan where *$k̂i̯$-/*-$Rk̂i̯$- and *$t̂i̯$-/*-$Ct̂i̯$- seem to have resulted in /(-C)s-/, */k^{j}/ and */t^{j}/ probably merged at some point prior to the fricativization of singleton affricates.[84]

There are weak indications that in certain dialects *$k̂i̯$- and *-$Rk̂i̯$- were not more advanced phonologically than intervocalic *-$k̂i̯$-. To begin with, Brixhe / Tekoğlu (2000, 31) have plausibly identified Pamph. Ψα with τά/σά <

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[82] *Pace* Brixhe (e.g. 1996, 57), Pamph. Иανα Ψα beside οσᾶ/τῑμᾶϝεσα in the great inscription from Sillyon hardly supports the idea that *$k̂i̯$ was eliminated later than *$t̂i̯$ in Greek, since in the former a conservative spelling is highly likely (see Peters 1980, 289 and recently Miller 2014, 284). Also, the lack of examples of *-t+$i̯$- spelled with sampi in Ionic is an *argumentum ex silentio* (*pace* Brixhe 1982, 225; see also the discussion on *-$t̂i̯$- > -ͳ- in section 1.2.1.1). The contrast between *$k̂i̯$ > *z* and *$t̂i̯$ > *s* in Mycenaean could be significant, but since the values of the graphemes in question (including that of *s* to spell ancient *-$t̂i̯$-, *pace* e.g. Woodard 1997, 94 ff.) are still disputable, nothing can be gained from it either (for example, both *s* and *z* could spell affricates). — The proposal that *za*, *ze*, *zo* initially denoted (primary) /k$i̯$a/, /k$i̯$e/, and /k$i̯$o/ (see most recently Viredaz 1983, 151 with lit.; and esp. del Barrio Vega 1990, 302–304) remains highly hypothetical; especially in the absence of alternative spellings with *ki-*ja*, *ki-*je*, and *ki-*jo*.

[83] Under this approach, *-$Rk̂i̯$- would be expected to give *-*Rt*- in Attic. On the whole question see 1.3.3.2.

[84] Dorsals exhibit full, while coronals secondary palatalization in Bulgarian (see Bateman 2007, 235 f. 248 with n. 71. 305). It could be argued that the palatalization of *k before yod yielded indeed */k^{j}/ in the first place in East Greek, but */tʃ/ in dialects like Boeotian. So theoretically the reason behind the merger of *$k̂i̯$-(/*-$Rk̂i̯$-) and *$t̂i̯$-/*-$Ct̂i̯$- only in certain Greek dialects may not be purely chronological (although I happen not to believe this). Another way to explain the disagreement between Boeotian etc. and Attic would be to assume that the fricativization affected both *[tʃ] (~ *[k^{j}]) and *[ts] (~ [t^{j}]) in Boeotian and Cretan but only *[ts] (~ [t^{j}]) in Attic. An alternative version of this theory would involve the assumption that */k^{j}/ affrication started before the fricativization only in Boeotian and Cretan and not in Attic. Both these accounts take */k^{j}/ affrication for granted; however, there is no evidence that */k^{j}/ could also be realized as *[tʃ] at such an early date.

*k^{μ}i̯a. The word is found in the following context; [ε̄] αИτō (= αὐτῶν) τις Ψα ϝεξε̄ (cf. ει δε τις τινα plus subj. in e.g. IG XII,3 254). The use of the special sign <Ψ> (cf. ИαναΨα etc.; further Brixhe 2005) here suggests that *ki̯- in Pamphylian underwent no special changes other than those affecting *-kki̯-.[85]

The term ναυτου (Cyzicus; Milesian colony) in a 1st-c. copy of a document from the 6th century has been plausibly derived from *nau̯-ki̯ou̯o- by Dubois (2014; 2017, 219–221; cf. Cos ναυσσος IG XII,4 1:293; Arc. βουσος f., Hsch. μηλοσόη· ὁδὸς δι᾽ ἧς πρόβατα ἐλαύνεται. Ῥόδιοι, etc.; for the phonology cf. βοηθός < *°οος and Viredaz 1992, Alonso Déniz 2012, 14 f. with nn. 13–15).[86] The use of sampi in ναυτου possibly indicates that the affricate resulting from the palatalization of *-Rki̯- was not yet fricativized in 6th-c. Ionic (as was the case with the affricate from *-ki̯-). Nevertheless, we should not be too hasty in our conclusions, since the consonantism of this word might be secondary after forms where the cluster stood after a vowel (as in late 2nd-c. Cos ναυσσος; cf. Nonnus μηλοσσόος).

The fact that *ki̯- and *-ki̯- are both denoted by *z* in Mycenaean (cf. *za-we-te*, *ka-zo-e*; compare further n. 9 above) is perhaps another indication that *(-R)ki̯- and *(-C)ti̯- merged only in some dialects (cf. also Myc. *pa-sa*).[87]

1.3.4 Remarks on *tu̯

The sequence *tu̯ gives σ- word-initially in all dialects (cf. e.g. Cret. σōμελες IC IV 41.IV 4; Eub., Cret. Σōτῑμος IG XII,9 56,382, IC IV 71; Att. σῶς; Boeot. Σαυγενῆς IG VII 585.IV 4, Σωστροτω IG VII 2716, περισαος; for the last form see Brixhe 1996, 51 with lit.). The result of *tu̯ in internal position is -σσ- in *s*- and -ττ- in *t*-dialects (cf. Ion. etc. τέσσε/αρες; Att. τέτταρες, Arc. ημισσο-, Boeot. πετταρες, ημιττα SEG 47:250, Eub. τετταρακοντα IG XII,9 1188; (Central) Cretan examples are missing[88]).[89] If οἶσος ‘withy, Vitex

[85] For another possible form from Pamphylian, see Brixhe 2005, 62 f. with ref. to Neumann.

[86] The relevant passage reads […] παρεξ ναυτου, και του ταλαντου και ιππωνιης και της τεταρτης και ανδραποδωνιης. The translation given by Dubois (2014, 604) is the following; “à l’exception du *nautsos*, de la balance publique, de la taxe sur la vente des chevaux, de la quarte, et de la taxe sur la vente des esclaves”. ναυτου, according to Dubois, meant something like ‘taxe portuaire’ (← *‘le chenal d’accès au port, l’accès au port ← le lieu ou se meuvent les bateaux’).

[87] The development of *-Rki̯- in Mycenaean remains unknown. *Pace* e.g. Ruijgh 1999, 532 (see also Hajnal 1995, 65 n. 79; further references in Hellemans 2005, 201), *ka-za*, if cognate with χαλκός, rather comes from *k^{h}alkei̯ā, not *k^{h}alki̯a (cf. *ka-ke-ja-pi*); cf. Heubeck 1961, 167; Risch 1979, 267; Méndez Dosuna 1993a.

[88] The supposed ημιτθον in IC I xvii 2.b8 is probably a false reading for]μει μιτθον, see IC I, 154. ημισσ- in IC III iii 1 and vi 7 (3rd c.) comes from eastern Crete.

[89] *Pace* Sihler (1995, 186) and Hinge (2007, 153), Dor. τέτορες continues *k^{μ}étores ← *k^{μ}etu̯óres, it does not come directly from the latter (see Eichner 1982, 301. 318). — With what we know, and particularly in the light of hε̄μισον in IG IX 2, 1222.1f. (Magnesia), Thess. πετταρες looks suspect (*pace* Blümel 1982, 127, and despite Aeol.-looking πε°). García Ramón (1975, 83) considers the °ττ° here analogical after πετρ°. Peters (1984, 84) attributes it to influence from Northwest Greek dialects (cf. further n. 8). Brixhe (1996, 63) hesitantly takes πετταρες for a borrowing from Boeotian. — Another interesting form is τεταρακοντα attested in Epidaurus (E), Troizen (T), and possibly Elis ([E] IG IV²,1 106.A64.71, 4th c. — beside τεσσαρ°; [E] IG IV²,1 110.A11f.17, 4th/3rd c.; [E] IG IV²,1 109.II42.144, early 3rd c. —

Agnus-castus' < *$\underset{\frown}{\mu o}\underset{\frown}{i}\underset{\frown}{t\mu o}$- (cf. Peters 1980, 100) in Theophrastus is Attic (for some late forms with sigma that could also be Attic, see DELG, s.u.), which is likely, then the development of *-*R*$t\underset{\frown}{\mu}$- in *t*-dialects was probably /-Rs-/.[90]

The fact that initial *$t\underset{\frown}{\mu}$- shows the same development with *$t\underset{\frown}{i}$- in the *t*-dialects is a strong indication that *$t\underset{\frown}{\mu}$ and *$t\underset{\frown}{i}$ fell together before the fricativization of singleton **ts* (cf. e.g. Lagercrantz 1898, 119; for the phonology, cf. Cowan 1965, 6; Kim 2001, 90 ff.; Kümmel 2007, 175; Bateman 2007, 74; Méndez Dosuna 1994a, 111 n. 17; 2018a). It seems that, after **ts* fricativization, the yod was restored in heteromorphemic *$t\underset{\frown}{i}$ sequences (see p. 21; this assumption is definitely needed if we want to follow Risch's analysis of the dichotomy between -σ- and -σσ-/-ττ- and avoid Allen's theory about the development of *$t\underset{\frown}{i}$- and *-*nt*+$\underset{\frown}{i}$-). Since yod restoration cannot have happened in the case of */-t^{j}t^{j}-/ from *-*tt*$\underset{\frown}{\mu}$-, one would expect intervocalic *-*tt*$\underset{\frown}{\mu}$- to give -σ- in Attic-Ionic and Arcadian. This is not what we find. A way to explain this discrepancy is to assume that palatalization was undone in *[k$^{\underset{\smile}{u}}$et^{j}t$^{j}\underset{\frown}{\mu}$ares] and *[hēmit^{j}t$^{j}\underset{\frown}{\mu}$o-], or that it was blocked altogether in these two words, under the pressure of *$k^{u}et(u)r$° (in the paradigm of the former) and (*)*hēmitu*- (>)> ἥμισυς (similarly Risch 1979, 272; Eichner 1982, 317).[91]

Ruijgh (1997, 564) argues that *$t\underset{\frown}{\mu}$- > σ- is "un fait accompli dans le langage d'Homère". This is probably correct. However, in ι 293, λ 219, and σ 77[92], a short vowel scans long before the word σάρξ 'flesh' < *$t\underset{\frown}{\mu}\underset{\smile}{r}\hat{k}$- (in τ 450 and in *Scut*. 364. 461 lengthening does not occur). This might indicate that the affricate resulting from *$t\underset{\frown}{\mu}$- was still intact until a relatively late period in Ionic (thus essentially Lagercrantz 1898, 61; Chantraine 1948, 179; Risch 1961, 95). If the chronology proposed above is valid, then the preservation of traces of **ts*- < *$t\underset{\frown}{\mu}$- in Homer would entail that **ts*- < *$t\underset{\frown}{i}$- was also preserved in early Ionic. This would be remarkable inasmuch as *$t\underset{\frown}{i}$- > σ- gives the impression of a very early change.

Before making any strong claims about the history of *$t\underset{\frown}{\mu}$ and *$t\underset{\frown}{i}$ based on the three Homeric verses, it is advisable to have a closer look at the material. It should be mentioned from the outset that *$t\underset{\frown}{\mu}$- does not normally lengthen a preceding short vowel in Homer;[93] the examples are numerous (see Lagercrantz 1898, 118 and particularly Perpillou 1976, 52 ff.; ancient *$t\underset{\frown}{i}$-, as

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beside τεσσαρ°; [T] IG IV 823.54.63.7, 4th c.; see further Nieto Izquierdo 2008, 472 f.; also for some 3rd-c. examples of τεταρτο-; for Elean see Minon 2007, 152. 385). τεταρακοντα is a compromise between τεσσαρακοντα and τετορες (Méndez Dosuna 2009, 86; cf. also τετρα°/τεταρ°).

[90] Cf. also ἄλεισο- 'cup' (Hom., Ar., Callim., Ath.) < ?*$h_2l\underset{\frown}{e}i\underset{\frown}{t\mu o}$- (cf. Schulze 1888, 255; Eichner 1982, 317; Neri 2003, 315 ff.). Cret. συνεσσακσαι = *συνεκσάξαι (cf. σάττω 'stuff' < *$t\underset{\frown}{\mu}\underset{\smile}{n}\underset{\frown}{k}\bar{o}$) is worthless.

[91] For forms like Hom. ἐπισσείων and περισσείοντο (perhaps the geminate affricate was early on replaced by -*ss*- under the influence of the simplex here), cf. Hom. τόσσος etc. (Aeolic?).

[92] ι 293 ἔγκατά τε σάρκας τε καὶ ὀστέα μυελόεντα; λ 219 οὐ γὰρ ἔτι σάρκάς τε καὶ ὀστέα ἶνες ἔχουσιν; σ 77 δειδιότα· σάρκες δὲ περιτρομέοντο μέλεσσιν.

[93] ζ 151 #Ἀρτέμιδί σε mentioned by La Roche (1869, 65) is of course irrelevant (cf. Hartel 1873, 56 ff. 74): for well-understood reasons (see Schulze 1892, 229 ff.; Solmsen 1911, 163–165), the dative singular in -ι could scan long in Homer.

expected, does not make position either, see Lagercrantz 1898, 56 f. 62; in P 463 and Ψ 198, a short vowel is lengthened before σεύαιτο < **kl̥̂*°[94]). The fact that σάρξ, which is otherwise rare in the epics[95], is the only word containing **tu̯*- that lengthens preceding short vowels raises doubts about whether the traditional analysis of verses like ι 293 (#ἔγκατά τε σάρκας […]) is correct (cf. Lagercrantz 1898, 61; "Weil anlautendes τϝ- bei Homer einfaches σ- ergiebt […], kann das σ in σάρξ nicht diesen Ursprung haben").

σάρξ does not demand etymological lengthening (thus also Perpillou 1976, 55). Hartel (1873, 74; see also Risch 1961, 95) argues that δειδιότα "ist durch die starke Interpunction entschuldigt" (cf. Φ 474 νηπύτιε̲, ₃| τί νυ). Whether a pause after the arsis could lead to vowel lengthening in Homer (cf. Hartel 1873, 9–11. 77. 89. 93. 101 ff.; Solmsen 1901, 163) has been called into question by Meister (1921, 40–42), but a vowel in the trithemimeres may be lengthened before a simple consonant anyway: cf. e.g. Δ 338 ὦ υἱὲ ₃| Πετεῶο (despite Hartel 1873, 64) and below.

τε̄ at ι 293 possibly originates from verses where τε was 'regularly' lengthened before resonant (Hartel 1873, 74; cf. also κ 238 ῥάβδῳ πεπληγυῖα κατὰ̲ συφεοῖσιν ἐέργνυ·).[96] According to Hartel (1873, 10), there are over fifty such cases in the two epics. Note further that the template #X-τε Y-τε in Homer (cf. ι 293 #ἔγκατά τε σάρκας τε) mostly involves a second member beginning with two consonants (e.g. Δ 49, E 742, Z 48, Θ 162, 326, 340, etc.; compare also #καλή τε μεγάλη τε, #εἶδός τε μέγεθός τε, etc. and Eben 2004, 106 f.); cf. Eben 2004 and n. 96.

ἔτῑ in λ 219, in the strong caesura, could show simple 'Arsisdehnung' at the beginning of the second foot (cf. Solmsen 1901, 140; Hoffmann 1842, 102. 163 f.; Y 434 οἶδα δ' ὅτι̲ ₃| σὺ μὲν ἐσθλός; and δειδιότα above). It should also be mentioned that the formulaic opening phrase in λ 219, οὐ γὰρ ἔτι, which is found four times in total, is always followed by a double consonant in the

[94] Ρ 463 ἀλλ' οὐχ ἥρει φῶτας ὅτε σεύαιτο διώκειν; Ψ 198 ὕλη τε σεύαιτο καήμεναι. ὦκα δὲ Ἶρις. Neither example is decisive (cf. Hoffmann 1842, 103 and below).

[95] σαρκ- is found twice in the Iliad and four times in the Odyssey.

[96] The lengthening of short vowels before words beginning synchronically with resonants is a well-known trait of the Homeric language. Vowels were most frequently lengthened before words going back to **sR*- (> /R-/). But resonant-initial words that never contained **sR*- occasionally also lengthened preceding short vowels; cf. e.g. γ 327 λίσσεσθαι δέ μιν αὐτός, ἵνα̲ νημερτὲς ἐνίσπῃ. As Eben (2004) has shown, examples like ἵνα νημερτὲς in γ 327 should rather not be connected with the phenomenon of resonant lengthening. These are in all probability cases of dictionally-induced *breuis in longo*; cf. e.g. Γ 35 ἂψ δ' ἀνεχώρησεν, ὦχρός τέ μιν εἶλε παρειάς. The formula ἂψ δ' ἀνεχώρησεν et sim. is very frequently found before consonant in Homer (cf. for instance Λ 440 ἂψ δ' ἀνεχωρήσας Σῶκον πρὸς μῦθον ἔειπεν). When this phrase needed to be used with a second half that began with a vowel "the desire to maintain formulaic phrase outweighed the resulting *brevis in longo*" (Eben 2004, 9). According to Eben, this is how most cases of non-etymological resonant lengthening arose in hexametric poetry (for […] ἵνα νημερτὲς ἐνίσπῃ, cf. e.g. Ξ 470, γ 101, δ 330 […] καί μοι νημερτὲς ἐνίσπες).

Iliad.[97] It appears that the sporadic lengthening of short vowels before σάρξ has no linguistic basis.

Nikolai Kazansky (1997) has proposed that the Ahhiyawan name attested in the so-called *Tawagalawa* letter (ca. 1250 BCE, written in New Hittite; e.g. Yakubovich 2010, 89 n. 14 with lit.) as ^{m}*Tawagalawa* (this may be the brother of the king of Ahhiyawa) is to be connected with the PN Σακολᾱ́ς/Σακολᾱ̃ος < **tu̯ako-* (for the etymology of σάκος 'shield' see Lipp 2009, 167 f.; cf. further CEG 14, 166 with lit.). The standard view (due to Emil Forrer) is that ^{m}*Tawagalawa* is related to Gk. Ἐτεοκλῆς (cf. Myc. *e-te-wo-ke-re-we-i-jo*).

Σακολᾱ̃(ο)ς is an extremely rare name in Greek; it is found four times and only in late inscriptions (Macedonia SEG 60:627, 61:506.Col.II F.8, ca. 250–225; Sparta [Fundort] SEG 42:329, ca. 200; Breccia, Egypt, cf. Fraser 2007, 85, late 2nd c.; Larissa Tziafalias / Helly 2013, 229 with n. 201, ca. 225–200).[98] Also, *pace* Kazansky, the inexact rendering of the Greek name in Hittite is not a serious enough reason to reject the traditional interpretation of ^{m}*Tawagalawa* (cf. e.g. Neumann 1996; Janko 2014, 469).

If Kazansky's idea is accepted, then the elimination of initial **tu̯-* must be considered a relatively late change in Greek; perhaps of late Mycenaean or post-Mycenaean date. But this chronology is improbable if **tu̯* and **ti̯* merged before the fricativization of singleton affricates, as is likely.[99] This last assumption entails that **tu̯* was already palatalized in the dialect(s) of the tablets.

As a matter of fact, there is compelling evidence that **tu̯* had already been eliminated in Mycenaean.[100] The form *po-ro-su-re* (close to the ideogram

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[97] Β 141 = Ι 28 οὐ γὰρ ἔτι Τροίην αἱρήσομεν εὐρυάγυιαν; Ε 379 οὐ γὰρ ἔτι Τρώων καὶ Ἀχαιῶν φύλοπις αἰνή.

[98] Hatzopoulos (2010, 358 f.; followed by Tziafalias / Helly ibid.) has no doubts that the first member of Σακολᾱ̃(ο)ς derives from σηκός/σᾱκός m. 'sacred enclosure, precinct, sepulchre, burial-place, pen [for lambs etc.], fold' (this word has no established etymology; a connection with σάττω < **tu̯n̥kio̯* [cf. DELG, 998] is hardly possible). I cannot share his certainty. Frazer's derivation of Σακολᾱ̃ος from Σω-/Σαο- is problematic: what is °κο(λᾱ̃ος)?

[99] The interpretation of Old Persian *takabarā* in *Yaunā takabarā* 'shield-bearing Greeks?' is still disputed (see the discussion in Rollinger 2006 with lit.). It goes without saying that whether *taka°* is to be connected with Greek linguistic material as per Pisani 1964 (who compares σάκος; cf. σακεσφόρος, φερεσσακής) is far from clear.

[100] The PN *Tu-wi-no*, gen. *Tu-wi-no-no*, which is frequently cited against this idea, has no clear interpretation. It could be Σίνων, but σῑ́νομαι 'harm', from which Σίνων is traditionally derived, possibly does not come from **tu̯°* (see Hollifield 1978, 174 and cf. Schwartz 1992, 394). In view of Θυινος (LGPN IIIA), *Tu-wi-no* may well represent [t^{h}uu̯inōn], as per Palmer (see DMic., s.u.). — Even if Leukart's (1994, 112 f. n. 224) derivation of Πῖσα/Πῑ́σᾱ from **pitu̯u̯ā* > **pitu̯ā* > **pisu̯ā* is correct, which is far from clear (see Peters 1999, 148 with n. 8), Myc. *Pi-sa-wa-ta* (: ?Πῖσα/Πῑ́σᾱ) is irrelevant to the discussion of the development of *primary* **tu̯* in Mycenaean, *pace* Leukart (the same applies to the forms adduced by Melena 1983, 262 ff. in support of the view that the sign **82* represents /twa/; on this proposal see further Judson 2016, 162 ff.). — Myc. *o-da-twe*/*tu-we-ta*, *a$_2$-pa-tu-wo-te*, *ke-ke-tu-wo-e*, with a heteromorphemic cluster, are not decisive; cf. *i-qo* vs. *te-tu-ko-wo-a$_{(2)}$* and Allen 1958, 119 n. 31. — Myc. *Ta-wa-ko-to*, *To-wo-ṇạ*[, etc. are obscure.

CAPS = *i-qi-ja* ‘chariot’) in KN Sg 888[101] very likely represents /pōlo(tt)sūrēs/ uel sim. ‘drawn by foals’ (DMic., s.u.; Plath 1994, 54). The second member of this adjective must be related to σῦρω ‘draw’ < **tu̯r̥i̯ō* (Vine 1999, 570 f. reconstructs **tu̯or̥i̯ō*; the first member is probably πῶλος ‘foal’).

Ruijgh (1967, 356) has connected Myc. *a-re-se-si* with ἄλεισον ‘cup’. This is accepted by Aura Jorro (DMic., s.u.). If Schulze’s etymology of ἄλεισον is correct (see n. 90), *a-re-se-si* may be seen as further evidence that **tu̯* had already been palatalized in Mycenaean.[102]

1.3.5 Conclusion

Non-geminate **ts* from any source and in strong prosodic positions became a fricative at an early stage in all of Greek. This change was probably preceded and, in a way, prompted by the fricativization of original **-ts* word-finally. The fact that **ku̯i̯-* gave τ- in Attic and Euboean possibly indicates that in some dialects **ts* was fricativized before the merger of **ti̯* and **ku̯i̯*.

[101] This has been found in the so-called Area of Bull Relief (that is, not in the Room of the Chariot Tablets).

[102] The ϝ in Hsch. τρέ· σέ. Κρῆτες (= τϝέ) (the gloss could be Pamphylian, cf. Brixhe 1996, 51) is probably analogical after the nominative τύ (Brugmann 1897, 311; cf. Sihler 1995, 379; LIPP II, 810; compare Dor. τε < **te* [further e.g. Colvin 1999, 193]). — Achaean (Croton [Crimisa], ca. 475) Ζαο[τ]υχ[ᾶι? has been traced back directly to **tu̯áu̯o°* (cf. σαο-, σω- ‘safe and sound’ and Peters 1980, 290 n. 243) by Méndez Dosuna (2014) (names beginning with *σωτυχ° etc. are not known to me). In an earlier paper (1991, 49 f. with n. 19), the same author derived the first member from **dzōu̯o-* (cf. Cypr. *Zo-wo-*), with analogical vocalism after names in Σα(ϝ)ο- and Φα(ϝ)ο-. This is certainly possible: cf. Hellenistic Cypr. Ζωτυ[χους] (Egetmeyer 2010, 325. 371) and Hom., Hdt. σόος (cf. σάος/σῶς, ζοός/ζώς; compare for example DELG, 1084; Ruijgh 1980, 89; Vine 1999, 593 n. 128). In any case, the reading Ζαο[τ]υχ[ᾶι is not certain; apart from the references in Méndez Dosuna 1991, 50, cf. also IGASMG IV, 130 and Dubois 2002, 157. — It has been proposed that Arcadian ζτεραιον is a dialectal form of σειραῖον ‘joined by a cord, of cord, twisted’ (: σειρᾰ́ ‘rope’ < **tu̯er(H)i̯ᾰ́*; ζτεραιον modifies λῶπος n. ‘mantle’ in the relevant text). Hesychius and other writers cite a form ζειρά/ζειρόν ‘ἱμάτιον’; this has been equated with σειρά (ζειρὰ ἤτοι σειρά: ὥς τινες, ἦν ἔνδυμά τι ὃ ἐπενεδύοντο μετὰ τοὺς χιτῶνας ὥσπερ ἐφαπτίδας). ζειρά/ζειρόν is very likely non-Greek (ζειρα(ι) in two New Phrygian inscriptions seems unrelated, cf. e.g. Brixhe 1982, 241 f.; Orel 1997, 324). The interpretation of ζτεραιον remains uncertain; see the discussion in Duhoux 2006, 42 ff.

2. *$d_{\underline{i}}$ and *$g_{\underline{i}}$

The reflex of *$d_{\underline{i}}$ and *$g_{\underline{i}}$ was (-δ)δ-[103] in Elean (e.g. δικαδοι, θᾱδοι), Laconian (e.g. οπιδομ[ενος, Δ̣ωπυρ[ος; for some forms with <z>, see Striano Corrochano 1989, 136 f.), Boeotian (e.g. επεψᾱφιδδε, μεδδονος, δωει), and Cretan (e.g. δικαδδεν, σαλπινδε[ν], δᾱοι; archaic Cret. εδικαζε etc.; on East and West Cretan, Brause 1909, 140 f.), but (-)ζ-[104] = /(-d)dz-/ or /(-)zd-/[105] in all other dialects (e.g. Att.-Ion. ἐλπίζω, ζῆν, etc.; Myc. has *z*: e.g. *to-pe-za*, *me-zo-e*; on the phonology of the change **d*/$g_{\underline{i}}$ > (-δ)δ-/(-)ζ-, see further Méndez Dosuna 1993, esp. 102).[106] The palatalization of **d* and **g* cannot be earlier than the palatalization of **t* and **k* in Greek; voiced stops do not palatalize unless voiceless ones do. Also, voicing is generally an inhibiting factor for palatalization, and voiced stops tend to be palatalized later than voiceless ones diachronically. See Hall / Hamann 2006; Stephens / Woodard 1986, 143 f.; Crespo 1985, 102 with lit.; cf. Parker 2013, 222 f.

In *d*-dialects, the outcome of word-initial *$\underline{i}$- is δ- (compare for example Cret. δυγον IC IV 75; El. υπαδυγιοις Minon 2007, n° 9; Boeot. δυγαστρον SEG

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[103] On Megarian -δδ- in Aristophanes, cf. Bode 1950, 37 n. 5; Bartoněk 1961, 152; Méndez Dosuna 1993, 90 n. 18; Colvin 1999, 164 f.; 2004, 103. On Lesb. δικατ̣δεσθαι, see Hodot 1990, 28 f.

-δδ- is sometimes written -ττ- in Cretan, Elean, and Laconian inscriptions; cf. e.g. El. αττᾱμιον, νοστιττην = ἀζήμιον, νοστίζειν (cf. also Lac. βλῑμάττομες = βλῑμάζομεν in Ar. *Lys*. 1164; Colvin 1999, 164. 167 corrects this to βλῑμάδδομες); cf. Debrunner 1907, 222 f. 233 f.; Méndez Dosuna 1993, 97 with n. 38. Compare further πέσ(σ)ον· ὄρος· χωρίον Κύπριοι· πεδίον Αἰολεῖς […], perhaps with (/-ss-/ <) (*)/-tts-/ < **-ddz-* (but */-$d^{j}d^{j}$-/ > */-$t^{j}t^{j}$-/ > (*)/-tts-/ > /-ss-/ is also possible; differently Teodorsson 1993, 308 and Weiss 1995, 153: -σ(σ)- = /dz/; further discussion in Egetmeyer 2010, 126). *Pace* Kümmel (2007, 141), -ττ- for -δδ- results from geminate devoicing (for parallels see ibid.), see Méndez Dosuna 1993, 97. 106 f. with n. 57. 86 n. 7; see also Allen 1958, 126 n. 63.

Forms like Hsch. ἐμπαίτονται· ἐμπαίζουσι (< **-pa̯uiddi̯e*/*o-* or **-pa̯uiggi̯e*/*o-*, with 'automatic' degemination after a diphthong) or ὀπίττομαι (= ὀπίζομαι)· οὐ πείθομαι. Βοιωτοί are ambiguous; cf. σαλπίζω vs. σαλπίσσω etc., with secondary devoicing of the stem-final stop after (e.g.) sigmatic forms (cf. e.g. Méndez Dosuna 2005, Barber 2013, 262 ff.). If the premature $\underline{u}$-loss in **pa̯uid-* was early enough (cf. e.g. Cypr. *pa-i-to-se*, contracted Hom. παιδ-; Kostopoulos 2017, 177 f. n. 64 with lit.), ἐμπαίτονται could be taken as a form showing a hypothetical change of sec. */-Rt^{j}-/ to /-Rt-/. However, even if ἐμπαίτονται continues */-pa$\underline{i}t^{j}$o-/, this form in no way proves that (primary) **-Rk$\underline{i}$-* > */-Rt^{j}-/ > /-Rt-/ in some dialects, since secondary */-Rt^{j}-/ could become /-Rt-/ in a *t*-dialect even after the possible (early) fricativization of **-Rts-* < (prim.) **-Rk$\underline{i}$-*.

[104] Compare further -σδ- for -ζ- in Sappho, Alcaeus, Alcman, and Theocritus; cf. e.g. Willi 2012a, 274 f.; Miller 2014, 240.

[105] Probably with degemination of the postconsonantal geminate in intervocalic position (cf. Méndez Dosuna 2007b, 301).

[106] Cret. ϝε̄ρε/o-/ϝηρε/o- probably continues **$\underline{u}$erze*/*o-* < **$\underline{u}$erðe*/*o-* < **$\underline{u}$erde*/*o-* < **$\underline{u}$erĝ$\underline{i}$e*/*o-* (*pace* Brixhe 1996, 104); cf. e.g. Hsch. πῆριξ· πέρδιξ. Κρῆτες (see Bechtel 1923, 671 f. with ref. to Brause; Bartoněk 1961, 156; cf. also Solmsen 1901, 165 n. 1 bottom; *d*-fricativization after /r/ is a common process crosslinguistically, see Kümmel 2007, 58–60). Ion., poet. ἔρδω 'do' probably comes from **$\underline{u}$erzdō* with cluster reduction (Schwyzer 1939, 335; Hawkins 2005, 52).

47:250). In all probability, (*i̯- >) *[ɟ-][107] > *[dʲ-] happened before the depalatalization/affrication of */(-dʲ)dʲ-/ < *d/gi̯ (cf. Méndez Dosuna 1993, 97; Brixhe 1996, 68 bottom; compare also Myc. *ze-u-ke-si* vs. *me-zo-e*). This is confirmed by the double consonant in Boeot. περιδδυγα (SEG 43:212.54).[108]

Unlike in *t*-dialects such as Cretan or Boeotian, *d/gi̯ did not give (-δ)δ- in Attic and Euboean.[109] Bartoněk (1961, 169) and Nagy (1970, 126) assume *mut. mut.* that (*/-dʲdʲ-/ ~) *-*ddz*- had already turned into /-zd-/[110] when */-tʲtʲ-/ (~ *-*tts*-) became /-tt-/ (supposedly under the influence of Boeotian) in these dialects. This is possible. But in Elean and Laconian clusters of voiceless alveolars and velars plus yod yield -σσ-, whereas *d/gi̯ become -δδ-. It appears that affrication did not apply to/was not generalized in both voiced and voiceless groups in some dialects[111] (unless */-tʲtʲ-/ > */-tts-/ occurred prior to *di̯ > */-dʲdʲ-/ in Elean and Laconian).[112]

[107] On *i̯- > *[ɟ-] cf. Kümmel 2007, 159 f. — Melena (2014) has proposed that the strengthening of *i̯- took place after the creation of Linear B. For a critical review of this theory, see recently Judson 2016, 144 f.

[108] Greek palatalized stops were always geminate between vowels.

[109] The *d*-outcome was apparently not unknown in Attica in less formal styles; cf. οστρακιδō, επιτραπεδι̣[α (see Colvin 2004; for possible, similar forms from other dialects see Méndez Dosuna 1993, 89 n. 16 with lit.; Colvin 2004, 103). Wachter (2010, 61 n. 10) asks whether the spelling with -δ- simply indicates that coda [z] was weakened in lower registers in Attic (but cf. Méndez Dosuna 1993, 91 n. 20). He compares the fact that the individual who wrote οστρακιδō initially wrote οτ° instead of οσ°. Weakening of /s/ in coda position before stops is possibly attested in words like ἴστωρ < ϝιστωρ (see Sturm 2018; cf. also Nussbaum 1998, 140 f. n. 146). [-z-] > [-h-] before [-d-] (and [-s-] > [-h-] before [-t-]) entails weakening before all stops, cf. Méndez Dosuna 1993, 94 with lit.

[110] For the metathesis of (*)/-ddz-/ to /-zd-/ and its distribution in Greek cf. Leumann 1959, 162 f.; Méndez Dosuna 1993, 88–95; Hinge 2006, 91 ff.; Teodorsson 1993 (but I do not endorse the radical conclusions of the last two works; incidentally, Boeotian σαλπίδδω, known from a commentary to Dionysius Thrax [παρὰ τοῖς Βοιωτοῖς τὸ σφάζω διὰ δύο δδ σφάδδω καὶ τὸ σαλπίζω σαλπίδδω], is problematic since it presupposes *-*ndz*- > *-*nzd*- > *-*zd*- > -*dd*-, which for various reasons is phonologically doubtful for Boeotian, cf. Méndez Dosuna 1993, 94 and *passim*; the form is probably not real). For the phonology of the change (*)/-(d)dz-/ > /-zd-/, cf. e.g. Steriade 2001, 233–235; Blevins / Garrett 2004, 138 and *passim*.

[111] For varieties like e.g. East Ionic or Arcadian that may mean that affrication of */-tʲtʲ-/ and */-dʲdʲ-/ were two separate events.

[112] Bartoněk (1961, 160. 163) argues that *-*ddz*- (recte: */-dʲdʲ-/) became /-dd-/ in Laconian, Cretan, Boeotian, and Elean because an early fricativization process had led *d towards *ð in these varieties, thus creating a gap in the individual phonological systems. However, not all *d*-dialects show evidence of *d*-fricativization. Bartoněk (1961, 174) also claims that the reason why *-*t*/*ki̯*- and *-*d*/*gi̯*- resulted in -σσ- and -δδ- respectively in Elean and Laconian was because (*/-tʲtʲ-/ ~) *-*tts*- became /-ss-/ before the (alleged) fricativization of *d and consequently before */-dʲdʲ-/ > *-*dd*-. This is pure speculation.

3. Liquids and nasals plus **i̯*

3.1 *-*Ri̯*- and (pre)palatalization

The sequences *-*ar*/*ni̯*- and *-*or*/*ni̯*- became -*ai̯r*/*n*- and -*oi̯r*/*n*- (cf. χαίρω, μοῖρα) (seemingly) in all Greek dialects (but see 3.3.2; on *-*a*/*omi̯*- > -α/οιν-, see ch. 4). Conversely, *-*e*/*i*/*ur*/*ni̯*- gave -*e*/*i*/*urr*/*nn*- in Thessalian and Lesbian (see Blümel 1982, 96–98) and -*ē*/*ī*/*ūr*/*n*- (cf. τείνω, κρῑ́νω, ὀτρῡ́νω) in the rest of Greek (but see 3.3; NB archaic and classical examples of *-*Vr*/*ni̯*- outside Attic-Ionic and Lesbian are extremely rare; cf. e.g. Bechtel 1921 and 1923). This distribution will only make sense if we assume, most notably with Hock (2004) and Operstein (2010), that **r* and **n* before yod underwent so-called prevocalization. This term refers "to phonological processes which have in common the development of a vocalic prearticulation by consonants" (Operstein 2010, 3). Roughly speaking, when the prevocalized segment was (e.g.) palatal or palatalized, the resulting prevowel was palatal (in that case one speaks of prepalatalization). When, e.g., a labialized consonant was prevocalized, the prevowel was labial (prelabialization). For instance, the change of **k*^{h}*ari̯ō* to χαίρω probably involved a mid-stage *[k^{h}a^{j}r^{j}r^{j}ō]. Similarly, a verb like **ageri̯ō* became Att.-Ion. (etc.) ἀγείρω /agērō/ and (Thess.,) Lesb. ἀγέρρω probably via *[age^{j}r^{j}r^{j}ō]. Whether *-*Vr*/*ni̯*- became -*Vi̯r*/*n*- (through segmentalization[113] of the onglide) or -*V̄r*/*n*-/-*Vrr*/*nn*- (through absorption of the onglide by the vowel/loss of the onglide) depended on the articulatory distance between the prevowel and the preceding vowel (on degemination, see sect. 3.2). This interpretation of the Greek data is supported by a considerable amount of crosslinguistic evidence (see Operstein 2010, 83 ff. and *passim*).[114]

Another corroborating argument for a C[onsonant] P[revocalization] analysis of the Greek material is that plain resonants and generally consonants may also prepalatalize under certain circumstances in Greek. Compare e.g. the change of (*)/n/ to /i̯/ in Lesbian, Elean, Theran (Laconian colony), and Cyrenaean (Theran colony) (V = /e/, /a/, /o/), 'dissimilated' Cret. (Arg., Sicil.) μαιτυ(ρ)ς 'witness' < **marturs*, and iterative onomatopoeic *i̯e*/*o*-presents with *i*-reduplication such as μοιμύλλω 'compress the lips, make grimaces, suckle' < **mol-mol-i̯e*/*o*-. The sequence */Vns/ became /Vi̯s/ via *[V^{j}ns] in Lesbian etc. (see further Operstein 2010, 157). The same holds — *mutatis mutandis* — for μαιτυ(ρ)ς and μοιμύλλω < **mol-mol-i̯e*/*o*- (see further Kostopoulos 2017, 179–197).[115]

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[113] For this term see Hock 1991, 119–120.

[114] Traditionally, the processes *-*VRi̯*- > -*V̄R*-, *-*VsR*- > -*V̄R*-, and *-*Vln*- > -*V̄l*- are collectively referred to as 'the first compensatory lengthening'. As it emerges from the above remarks, the change *-*VRi̯*- > *-*V̄R*- is not really a compensatory lengthening and has phonologically very little in common with (e.g.) *-*VsR*- > *-*V̄R*- (it is unlikely that *-*VRi̯*- > -*V̄R*- involved a stage *-*VRh*-: intervocalic *-*i̯*- did not first develop into *-*h*- in its way to zero, and **i̯*- > *h*- is a mirage; see n. 302 and p. 91).

[115] Prepalatalization of plain consonants and prepalatalization of secondarily modified consonants have distinct characteristics. "In the case of plain consonants, CP is essentially a subtype of lenition: it tends to target weak consonants, especially sonorants and fricatives, and weak prosodic positions. […] In secondarily modified consonants, CP seems to function

The absorption of the front prevowel by the back vowel /u/ in words like ὀτρύνω is unexpected under the present approach. Nevertheless, in Midland American English, absorption of the palatal onglide occurs after both [i] and [u] (after [e], [a], and [æ], the prevowel is segmentalized; in southern dialects segmentalization is also found after /u/, see Hock 2004, 161 with n. 14). It should also be mentioned that Attic-Ionic /-ūr/n-/ < *-*ur*/*n̯*- may immediately go back to *-*u̯ir*/*n*-, since the diphthong *-*u̯i*- is monophthongized to *-*ū*- before consonants in Attic-Ionic at least (Ruipérez 1972, 150 f.;[116] however, Lesb. -υρρ/νν- suggests that *-*ur*/*n̯*- gave -ῡρ/ν- without an intermediate stage *-*u̯ir*/*n*-[117]). Note further that in Attic and Ionic, **u* might have already been [y] when the prevowel was absorbed (cf. n. 73).

Prepalatalization points to previously contrastively or contextually palatalized consonants (cf. Operstein 2010, 123 ff. and *passim*), so probably **R* (including **l*) was palatalized in Greek when followed by yod, as did the respective sequences with alveolars and velars. It is relatively clear that the liquids at least had already been palatalized in the Mycenaean period. The evidence for this comes mainly from three facts. First, the 3sg. pres. ind. *a-ke-re* = ἀγείρει shows no trace of the yod (but cf. Ruijgh 1967, 67 with n. 95). Second, the sign *ra₂*, which, together with *ro₂*, is mainly used to denote primary (cf. the comparative *a-ro₂-a* and]*a-ro₂-e* < **ar̯ioh*- 'better') and secondary (*)*Lı̯* sequences, is also found in the aorist participle *a-ke-ra₂-te* /agerrantes/ < **agersantes* (Peters 1989, 78 prefers /angellantes/). If *ra₂* stood for /-(L)Lı̯a-/ at the period when the tablets were written, the use of that sign in a form that contained an intervocalic geminate would be difficult to understand. The form *a-ke-ra₂-te* suggests that *-*LLı̯*- had already become */-L^{j}L^{j}-/ in Mycenaean (cf. Gallavotti 1958, 122; *pace* Dunkel 2002). Third, *ro₂* alternates several times with *ro* in *ku-pa-ro₍₂₎* 'cyperus' (cf. κύπειρος, Alcm. κύπαιρος(*), etc.; but cf. also Ruijgh 1967, 67 n. 93).[118] The spelling *ku-pa-ro* would be rather unexpected for a form (*)*kuparr̯io-*; *ku-pa-ro* most likely represents [kupa$^{(j)}$r$^{(j)}$r$^{(j)}$o-]. Cf. further Heubeck 1979, 245–249.

Another question is whether **L* was palatalized after the creation/adoption of the Linear B script. That would be impossible to know in the present state of our knowledge. Although the original value of *ra₂* and *ro₂* may well have been /-(L)Lı̯a/o-/ (cf. Gallavotti 1958; Lejeune 1976, 204–206; Heubeck 1979; Leukart 1992; Morpurgo Davies 2012, 518–522 with lit.), there are no examples of primary *-*Lı̯a*/*o*- showing alternative spellings with *ra₂*/*ro₂*

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synchronically as an articulatory and perceptual enhancement of the secondary articulation. In contrast to plain CP, which can act on both individual consonants and consonant sets, this type of CP tends to affect all or most of the consonants with the relevant secondary articulation." (Operstein 2010, 21).

[116] For the sound change see e.g. Lejeune 1972, 229 and Miller 2014, 46 f. with lit. The Ionic evidence for */-uı̯C-/ > /-ūC-/ is rather limited.

[117] The few cases of -υρρ/νν- (beside -ῡρ/ν- < *-*ur*/*n̯*-) in Alcaeus are taken as hyperaeolisms by Ruipérez.

[118] A case involving *ra₂* is the obscure personal name *Ta-ra₍₂₎-to*. On *pi-ti-ro₂-we-sa* (: πτίλον; cf. also the PN *Ko-tu-ro₂* ≈ Κοτύλων?), which may contain a singleton liquid, compare on the one hand e.g. Leukart 1992, 389 f. with nn. 21 f. and on the other e.g. García Ramón 2014, 38.

and *ri-ja*(/*ri-jo*)[119] (cf. e.g. García Ramón 2014, 38–40 and *passim*; *-*tri̯a*, which is presupposed by *-ti-ra₂* [cf. *-ti-ri-ja*], comes from PGk. *-*tri̯ja* < PIE *-*trih₂* with syncope in fast speech; see Lejeune 1976, 205; Peters 1980, 215 f.; García Ramón 1984, 248 f.). That Mycenaean probably had /-Li̯-/ from syncope in allegro forms when the script was created does not preclude the possibility that original *-*Li̯*- was already */-LʲLʲ-/ at that time. In other words, *ra₂* could have been created when only secondary /-Li̯-/ (>> /-LʲLʲ-/?) existed in the language, as was perhaps the case with *ta₂* (= /ti̯a/? < *-*ti̯ja*; on this see most recently Judson 2016, 51–55).

If the isolated PN *E-re-pa-i-ro* (cf. also *E-re-pa-ṛọ*) is to be read as /elephai̯rōn/ and be compared with the rare denominative ἐλεφαίρομαι ‘cheat with empty hopes’ (cf. Hom. Ἐλεφήνωρ), as e.g. Neumann (1995, 156) believes, then prepalatalization was already present in Mycenaean (but cf. *a-ro₂-a*, not †*a₃-ro₍₂₎-a*). However, Gotō (1995) has connected ἐλεφαίρομαι with Ved. *valh* (*úpavalhāmasi* etc.) ‘confuse by means of riddles’ (LIV, s.u. **u̯elh₁bʰ*), and if his analysis is correct, the Mycenaean name cannot be related to ἐλεφαίρομαι. Myc. *Ko-i-ṛọ* could be connected with χοῖρος < **kʰori̯os* (on the etymology see further below); cf. *Ko-ro*, Χοιρος, Χοιρων (Melena 2014, 98 voices doubts about this comparison).

3.2 *-*V̄Ri̯*-, (de)gemination, and yet more prepalatalization

Hock (2004, 163) argues that degemination in cases like *[-aʲrʲrʲ-] > /-ai̯r-/ and *[-eʲrʲrʲ-] > /-ēr-/ should be seen as “a kind of temporal compensation”[120]. However, geminate resonants were not degeminated after long vowels or diphthongs in Greek.[121] Moreover, degemination possibly affected Att.-Ion. τῡρός ‘cheese’ < *tūri̯o- (with an original long vowel) as well (cf. Myc. *tu-ro₂*[122] PY Un 718.4 ≈ τῡρός, Av. *tūiri-* n. ‘cheeselike milk, whey’, Apabhraṃśa *tūra-* ‘cheese’; further Meier-Brügger 2004). In Thessalian, where resonants were geminated before secondary yod, consonant doubling occurred after both short and long vowels.[123] A change of *[-ūrʲrʲ-] (< *[-ūʲrʲrʲ-]) to

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[119] *ro₂* is probably a Linear B innovation and it never alternates with *ri-jo* in our documents. Melena (2014, 66) tries to explain this by assuming that the creation of *ro₂* took place after the palatalization of the liquids. Judson (2016, 50 n. 136) disagrees: “[s]ince LB did not regularly distinguish geminate consonants, it does not seem likely that a new sign would be created specifically to represent them”. This is correct, but *ro₂* could have been created at the stage /-LʲLʲo-/; e.g. for Risch (1979, 275), Crespo (1985), and Leukart (1994, 27 n. 1) the syllabograms of the *z*-series denoted palatalized stops.

[120] “The new sequence *yR*ʸ and the old *ʸRR*ʸ have the same quantity”.

[121] Cf. (among others) (Alcm.) κλᾶμμα, Hsch. κωμμωνία· κορокοσμία, λῆμμα, πλημμελής, πλημμῡρίς, ῥῖμμα, σκῶμμα, στῦμμα, Aeol. κρᾶννα, Aeol. μῆννος, ἄλλος (= ἠλεός), μᾶλλον, Hsch. κοτήλλουσα· τήλλουσα, τρυγήλλα· τρώγλη, ζώννῡμι, χώννῡμι, etc. Examples with diphthongs are very rare but do exist: cf. χαμαιρριφεῖς (Theophr.), λέλειμμαι, διάλειμμα, ἄλειμμα.

[122] This may also be seen as a syncopated diminutive *tūri̯o- (thus Lejeune 1972, 156; García Ramón 2007, 183 n. 22; Ruijgh 1967, 275 n. 22 is against this interpretation; see also Meissner 2013, 25).

[123] Compare εννιαυτο[(SEG 37:494.9) etc., Απουλλουννιειον (SEG 31:574.6), κῦρρον (= κῦριον; IG IX 2, 517.26.46), Κρανουννιοις (IG IX 2, 461a.7), δουρραντα < ?*δουρεαντα (=

*[-ūr^{j}-] prompted by the absorption of the prevowel would make no real sense.[124]

Operstein (2010) has cogently argued that CP results from temporal realignment of intrasegmental gestures. According to her, consonants are composed of a vocalic (V-) and a consonantal (C-) gesture; when gestural retiming takes place, the latter is normally shortened and the former moves closer toward the nucleus. CP of secondarily modified consonants, in

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δωρούμενον; García Ramón 1987, 139; BCH 59 1935, 37; face 2.22), εκεχειρρᾶν (= ἐκεχειρίᾶν; SEG 53:851.B3), προυρρα (= φρούρια; SEG 37:494.3), δικαστειρρεις (= δικαστηρίοις; ibid., l. 12), Εμπεδδιουννε[ιοι] (SEG 43:311.A1). Compare also the Athenian deme name Κυθήρριος (Schwyzer 1939, 274; Szemerényi 1974, 21).

As far as one can see, *r*-gemination has not applied to χουρα, χουρον, χουροι (cf. χωρία, χωρίον) (SEG 37:494.11; Helly 1970, 251 f. ll. 13. 18. 25. 33. 38; late 3rd c.). Interestingly, a long vowel is involved here, but these forms are too isolated to be of any importance. An example involving /s/ may be Διοννῦσοι, but this could show (sporadic: cf. Διοννῦσσειος, εκκλεισσιαι) geminate simplification in a word with two geminates (thus García Ramón 1987, 118. 136); cf. Κρανουνν-/Κραννουν- (Jacobsohn 1908, 332 f.) and the Latin *mamilla* ('nipple') rule (*mamma* 'breast') (further Ito / Mester 2003, 47 ff.; this does not involve only resonants, cf. *saccus* : *sacellus*). Incidentally, *pace* Solmsen (1909, 262), ἀλληλο- 'one another' << *aḷ̂oaḷ̂o*- (Wackernagel 1890, 294 f.; the second vowel is somehow analogical), which otherwise would be an excellent example of non-gemination after a long vowel, may have undergone a similar process.

Stops are geminated after long vowels (cf. γλῶττα, νῆσσα, etc.) in Greek. Nevertheless, this is not a very strong argument in favour of *-*V̄Rḭ̂*- > *-*V̄RRḭ̂*- (the long alpha in μᾶλλον is best explained as an Attic innovation, see e.g. recently Dieu 2011, 125 ff. with lit.), since *-*V̄RRḭ̂*- is generally 'heavier' than, say, *-*V̄TTḭ̂*- (cf. Ryan 2011; compare the fact that Osthoff's Law does not work with stops; thanks to Gary Miller† for calling Ryan's paper to my attention). In West Germanic, where gemination is otherwise regular before yod, consonant doubling after a long vowel is common only in Upper German dialects (see Simmler 1974, 212 ff. 375; Callender 2007, 190).

[124] It is true that "[t]he length […] of the vowel preceding the triggering consonant may […] affect CP" (Operstein 2010, 13), but there seem to be no languages where CP applies only after short vowels to the exclusion of long ones in Operstein's sample (the opposite phenomenon is certainly attested though; prepalatalization after long vowels is of course very common, see e.g. de Bernardo Stempel 2003, 52 n. 75 with lit. on Celtiberian), and in Lesbian prepalatalization clearly occurs after long vowels as well; cf. 3pl. subj. γραφωισι, γινωσκωισι, etc. < *-*ōnti*, compare Blümel 1982, 53 f. 148 f. (palatalized resonants after diphthong do not show the effects of prepalatalization; cf. ἐλαύνω < **elaṵn̂e*/*o*-).

It is always possible that °κραιρα continues **krāḭ̂ra* < **krāhaḭ̂ra* < **krāharḭ̂a* (Peters 1980, 248 ff.) and not **krāḭ̂ra* < **krā(h)rḭ̂a* (Nussbaum 1986, 241 f.). Nussbaum (2001) considers Hesychian γραιβία ἢ γραιτία. Πανήγυρις. Ταραντῖνοι a derivative of an earlier **grā(h)u̯ḭ̂ā́* (cf. γραῖα, γραῦς 'old woman'; see also Nikolaev 2008, 560). Under this approach, γραιβία would be an example of prepalatalization after a long vowel (Osthoff's Law does not apply to *-*V̄u̯ḭ̂*- sequences), but it seems that Leumann's (*apud* Scheller 1951, 32 n. 1) proposal that the gloss is related to γραῦς is untenable, see Restelli 2000. — **h₃on-er-ḭ̂o*- 'what is in a dream' (> Att.-Ion. ὄνειρος 'dream'; cf. Balles 2000, 151 f.; Nikolaev 2009, 466) has been remodelled to **(h₃)onōrḭ̂o*- in Armenian (cf. *anowrǰ* 'dream') after the collective **h₃nōr*. In theory, Aeol. ὄνοιρος could continue **(h₃)onōrḭ̂o*- as well. Apparently, a similar analogy happened in Cretan ἄναιρον (Hsch. 4334; cf. ἄναρ Hsch. 4534 and ὄναρ; see Peters 1980, 198). In view of zero-grade ἄναιρον, and in the absence of a word †ὄνωρ in Greek (Balles 2000, 151 reconstructs **h₃nōr* for both Armenian and Greek), assuming **onerḭ̂o*- → Aeol. **onərḭ̂o*- (> ὄνοιρος) after **onər* (as per Peters 1980, 198; followed by Balles 2000, 151 n. 22) remains the simplest solution.

particular, is seen by her as "anticipation of the secondary articulation gesture of the consonant (i.e. of the consonant's V-gesture — GK) with respect to its primary constriction gesture" (ibid., 54). Weakening of the C-gesture is the norm in plain CP but it is less frequent in CP of secondarily modified consonants (cf. ibid., 54 f.). In non-geminate consonants, reduction of the C-gesture results in various degrees of weakening and may eventually lead to complete loss of the segment. In geminates, reduction of the C-gesture is always perceived as degemination (ibid., 87). It follows from the above considerations that, in all likelihood, the 'erosion' of the C-gesture of the geminate began at the prepalatalization stage in forms like χαίρω < *[$k^{h}a^{j}r^{j}r^{j}o$-] and τῡρός < *[$tū^{j}r^{j}r^{j}o$-]. This means that degemination has nothing to do with the lengthening of the nucleus per se.

There may be evidence from Greek that degemination can indeed happen at the prepalatalization stage. The forms αλα (= ἄλλα) in l. 2 and συναλαζεσθαι in l. 3 of the well-known Sicyonian bronze tablet from Tzami (ca. 500; phot. in Lolos 2010, 277) are particularly noteworthy. In the (prose) inscription in question (which has been written carefully by a single, experienced cutter, probably in one session; cf. Lolos 2010, 276. 278), geminate lambdas (words with other geminates are not attested) are otherwise written consistently: compare Καλλιβιος (l. 7), Πολλιαδᾱς (l. 7), Καλλικλεῖς (l. 10), Πολλιᾶς (l. 11), Περιλλος (l. 19). Why is it that (-)αλα(-) is written with a singleton (cf. Lejeune 1943, 185 n. 2)?[125] Note that not all of the names above are hypocoristics/show hypocoristic gemination. Καλλιβιος and Καλλικλεῖς at least contain real, etymological geminates: καλλι- results from contamination of *$kal\underset{\frown}{l}$-*V* (cf. perhaps Hom. Δεισήνωρ < *$d\underset{\frown}{u}e\underset{\frown}{i}t\underset{\frown}{i}\bar{a}n\bar{o}r$; cf. Knecht 1946, 21. 23. 25, Von Kamptz 1982, 106) > *$kall\underset{\frown}{i}$-*V* — the Caland variant of *$kal\underset{\frown}{u}$ó- before a vowel — and **kali*-*C*; see Schwyzer 1939, 447 f. n. 6; Peters 1991, 642 n° 901.

Since the writing of geminates in early alphabetic inscriptions is rare, Risch (1987, 7 f.) wonders on the basis of καλλιστεξ[φαν]ō in l. 3 of the Nestor cup (Bartoněk / Buchner 1997, 146 ff.; ca. 735–720)[126] "ob mit λλ in den frühen Belegen nicht eine wirkliche Geminata, sondern eine besondere palatale Aussprache bezeichnet wird". So, as per Risch, there may have been an early convention according to which a palatal/palatalized /l/ was denoted by <λλ>.

This idea is unworkable as far as our case goes: despite the fact that four out of five of the names in our tablet contain -λλι- (that is, [(ʎ)ʎi]?), and that ἀλλο- was probably already depalatalized in the alphabetic period (though see below on Elean), Περιλλος could hardly contain [°(ʎ)ʎ-].[127] Also, speakers are

[125] It is true that all of the written geminates are in anthroponyms, but why should /-ll-/ be written in names to the exclusion of regular vocabulary? All scholars, including recently Lolos (2010, 284. 288. 291), believe that the names attested in our text are simply Sicyonian.

[126] Cf. further e.g. Boeot. χαριϝετταν CEG I, n° 326, 700–675; 6th-c. Lac. περικαλλες IG V,1 231, Boeot. περικαλδες (obviously for περικαλλες) CEG I, n° 335.

[127] Although Kochetov (2011 with lit.) mentions that in Chimalapa Zoque (and some other languages) both progressive and regressive palatalization is attested (according to him, progressive palatalization is mainly found in the Americas), the coexistence of the two in a system is rare. For example, Bateman (2007, 75–77) knows of no cases where the trigger can cause palatalization both when it precedes and when it follows the target (cf. also Bhat 1978,

rarely (if at all) aware of allophonic variation; it is thus unlikely that there was a special way to spell the allophone of /l/ before /i/ in ancient Sicyon. In any case, it is far from clear that Risch's analysis of καλλιστε̣[φαν]ō is correct. First, as Risch himself notes, there is a respectable number of archaic Greek inscriptions where geminates are actually written (see also Immerwahr 1990, 169). Second, the geminate in the form concerned may well be attributed to an already existing, more elaborate, book script, where for example the forms of the letters were relatively smaller and more even, each verse was written on a separate line (as in Nestor's cup; this is also a remarkable feature), and geminate consonants were written consistently (thus most recently Löschhorn 2007, 276 with n. 27; see also Cassio 1994, 190 f., Immerwahr 1990, 2. 19, Burkert *apud* Risch 1987, 9 n. 26, and Heubeck 1979a, 115 f. 164). Note that most of Risch's examples for written geminates in archaic texts (primarily vases) include mythical names/theonyms or occur in hexameters (cf. Löschhorn 2007, 276 n. 27; NAGVI, 232).[128]

If we search for a linguistic explanation of the data, three possibilities immediately present themselves. 1) in some (registers of some) dialects the prevowel in *[-aʲlʲlʲ-] (cf. Cypr. *a-i-la* /ai̯la/ etc.[129], El. αιλοτρια[130], EM αἶλα· ἀντὶ τοῦ ἄλλα. Κύπριοι, Hsch. αἰλότροπον· ἀλλοιότροπον < *al̂i̯-) was absorbed by the nucleus; 2) after degemination, the prevowel was lost in Sicyon; 3) Sicyon (-)αλα(-) represents [(-)aʲl(ʲ)a(-)], with a degeminated sonorant and a (still) subphonemic prevowel.[131]

Before discussing these proposals some general remarks on PGk. *-*l̂i̯*- are in order. Kümmel offers several examples of "spontane Entpalatalisierung von Lateralen" in his 2007 book (p. 206 f.), so if *-*l̂i̯*- became *[-(ʲ)lʲlʲ-] in all of Greek, possibly the reason behind the unexpected outcome of that cluster was that *[-(ʲ)lʲlʲ-] was depalatalized quite rapidly, perhaps even before resonant

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62 f.). Woodard (1997, 153) is against the existence of progressive palatalization in Greek: "[…] typological evidence shows that for any given language, there is a strong tendency for palatalization to be consistently either regressive or progressive and, moreover, that progressive palatalization is far less common than regressive" (but Kochetov 2011, 1673 claims that both types are common).

[128] In a text from Phigaleia, Arcadia (IG V,2 429; manumission, mid-4th c.), with several cases of omitted letters (επ[ιθ]ι<ν>γανε̄ l. 5 [on this cf. NAGVI 232 f. with n. 727], χρ<ε̄>μα|[τα] l. 6, ε̄ν<α>ι l. 7, ε<ι>τ', τ<ι>ς l. 8), we find αλος (l. 8) = ἄλλος next to Ạπολλωνι (l. 9) (on Βασι[τ]ᾱι see Peters 1999, 449 f. with nn. 17 f.). — Risch (1987, 7 n. 19) mentions that eight out of 30 archaic examples with written geminate show -λλ- (for more instances of written -λλ- in archaic vase inscriptions, see NAGVI, 232), but this may have to do with the fact that -λλ- is found in highly productive Καλλι° and in names such as Ἀπόλλων and Ἀχιλλεύς: -ππ- is also written frequently in archaic texts; personal names in Ἱππο-/-ιππ- were of course wildly productive in Greek (cf. NAGVI, 232).

[129] Further Egetmeyer 2010, 123.

[130] αιλοτρια is found in a somewhat carelessly written text and is immediately preceded by αι δ', so a dittography or (less likely in my view) a mistake here would not be out of the question (see e.g. Minon 2007, 358; *-l̂i̯*- normally gives -λλ- in Elean). On the possibility that αιλοτρια represents /alʲlʲ-/ and not /ai̯l-/, see below.

[131] Assuming that **l* was geminated only sporadically in Greek would be completely ad hoc. /l/ before yod (after short vowel) is consistently geminated in all West Germanic languages; see Simmler 1974, 50 ff.

prepalatalization. However, if we assume that *[-$^{(j)}$l^{j}l^{j}-] was depalatalized so early in Greek, it will be difficult to account for (e.g.) prepalatalized *a-i-la* in Cypriot. As a matter of fact, the development of *-*el̥i̯*- in that dialect may even suggest that /-l^{j}l^{j}-/ was preserved until late in some parts of the Greek speaking world. The fact that *-*el̥i̯*- became /-ei̯l-/ instead of */-ēl-/ in Cypriot (cf. *A-pe-i-lo-ni* /apei̯lōni/ < **apel̥i̯ōn*-[132]) possibly indicates that *l*-prepalatalization is a different (probably later) phenomenon from the prepalatalization of other resonants (cf. e.g. *-*er̥i̯*- > *-ēr*-, *-err*- and Danielsson 1903, 380 n. 3); cf. further Danielsson 1903, 378; Cowgill 1969, 22. 24; Viredaz 1983, 153; Brixhe 1996, 83 (Danielsson 1903, 378, following Brugmann, sees the spelling αιλο- vs. αλο- in Elean as an indication that /-l^{j}l^{j}-/ still existed in that dialect[133]). However, as we will see in the next section, there may be evidence that *-*er*/*n̥i̯*- also became -*e̯ir*/*n*- in Greek.

It is possible that Gk. */-l^{j}l^{j}-/ was simply not prepalatalized in all dialects.[134] For example, although [r^{j}], [s^{j}], [ts], and [ɲ] were prepalatalized in certain positions in the history of French, [ʎ] was under no circumstances affected by prepalatalization (see Pope 1934, 92. 130–132; Pierret 1994, 160–162). It seems that in some Greek varieties (Cypriot and partly Elean), */-l^{j}l^{j}-/ was depalatalized by means of prepalatalization (as was the case with the other resonants; cf. further pp. 95 f.), while in others it became /-ll-/ through simple loss of the secondary articulation.

To return to (-)αλα(-), prevowel absorption after /a/ is not attested in the Greek dialects, and a change *[-a^{j}l^{j}l^{j}-] > [-āl-] is improbable from a general viewpoint: a palatal onglide would be easily distinguishable after a low vowel like [a] (cf. e.g. Operstein 2010, 13. 101. 103 f. 133. 147). Hence, the first of the three possible analyses mentioned above is best left aside.

There are two main difficulties with the idea that Sicyon (-)αλα(-) represents [ala] < *[a^{j}l^{j}a] < *[a^{j}l^{j}l^{j}a]. The first centers around the fact that resonants are not normally degeminated in cases of prevowel loss in Greek (cf. geminated Lesb. -ιvv- < *-*in̥i̯*- etc.). The second is that a front prevowel would not be expected to be lost after /a/ (cf. *-*a̯ir*- < *-*ar̥i̯*- etc. and 3.1 above). However, "[a]s a natural consequence of their shortness, prevowels […] are easily dropped in either extremely fast or extremely slow and careful speech"

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[132] The contrast between /apoll-/ and /apei̯l-/ points to *°*li̯*- (*pace* Beekes 2003, 4. 9 n. 11; Myc.]*pe-ro*$_2$[has been connected with the name of Apollo by Ruijgh 1967, 274 and Heubeck 1979, 246). Cf. also [^{D}]*a-ap-pa-li-u-na-aš* in the Hittite Alaksandu treaty (e.g. Watkins 1995, 149; Brown 2004, 246–248; Yakubovich 2010, 122 f.; Miller 2014, 204 with lit.; Bachvarova 2016, 245 ff. with n. 123). Compare further Peters 1989, 211 ("[a]ngesichts seiner gemeingriech. Bezeugung in von Dialekt zu Dialekt variierender Gestalt kann für den Namen sinnvollerweise allein ein schon urgriechischer Ursprung angenommen werden […]").

[133] Cf. the spelling <*ill*> for ([j] <) Vulgar Latin [ʎ] < (*)*li̯* in French (e.g. *paille* 'straw' < Lat. *palea*; cf. Pope 1934, 131; Pierret 1994, 160). — In principle, it is possible that Cypr. °*i-l*° denoted [-$^{(j)}$l^{j}l^{j}-] as well (cf. Danielsson 1903, 378). However, given EM αἶλα and secondarily Hsch. αἰλότροπον, with singleton <λ>, it seems preferable to think that °*i-l*° represented /-ei̯l-/ in Cypriot (forms showing /-ll-/ < *-*li̯*- in that dialect are probably not dialectal; see Egetmeyer 2010, 123 f.).

[134] *Pace* Goidànich 1893, 15 f.; Operstein (2010, 105 n. 8) does not exclude this possibility (cf. also Allen 1958, 117 n. 23; Sheets 1976, 145 f.).

(Operstein 2010, 18; see further ibid., 111 f. 151). Further, as will be discussed in greater detail in 3.3.3.2, it is possible that Aeol. Φανν° = Φαιν°, Κορρ° = Κοιρ°, and Arc. χορο- = χοιρο- attest to an occasional deletion of the prevowel in Greek. It could be argued that the prevowel in (-)αλα(-) was lost in fast speech but after degemination (note that χορο- could represent [k^{h}oro-]).

I cannot find a serious objection against the idea that Sicyon (-)αλα(-) represents [-a^{j}l$^{(j)}$a-]. It may be argued — with all due caution — that in Sicyonian */-l^{j}l^{j}-/ was (sporadically?) prepalatalized, as in Cypriot (and perhaps Elean), and that at the time when the text in question was written, the prevowel had not yet acquired segmental status in that dialect. (As a matter of fact, Meister 1889, 58, followed by Goidànich 1893, 32–35, has proposed that El. αιλ(οτρια) represents [a^{j}l°]; generally, the writing of prevowels is not an uncommon phenomenon, cf. Operstein 2010 and n. 193 below.)

Regardless of whether we choose to follow the second or the third alternative, the fact remains that degemination in Sicyon (and by extension in Greek and perhaps in other languages where geminate prepalatalization occurs) should be assumed to have preceded the segmentalization/absorption of the prevowel.

3.3 The development of *-*er*/*n̥i*-

It is commonly believed that *-*er*/*n̥i*- became -*ēr*/*n*- in non-Aeolic dialects and -*err*/*nn*- in Thessalian and Lesbian. Panagl (1981) has proposed that the original outcome after *-*e* must have been *-*e̯ir*/*n*- in all dialects (cf. Lesbian */ens/ > /eis/; the iota in πρῷρα < ?**prou̯er̥ia* may be analogical, see Peters 1980, 190 f. [Nussbaum 2014, 236 still prefers the reconstruction **prou̯ar̥ia*]). He argues that the vocalism of the present stem in cases like κτείνω is secondary after the sigmatic aorist (cf. e.g. ἔκτεινα < *-*ens*-; cf. further Specht 1931, 98 ff.). The original outcome, according to him, was probably preserved only in isolated forms like feminines in *-*i̯ᾰ̑* (σειρᾰ́ etc.).

A problem with Panagl's account is that the aorists of e.g. κραίνω, ῥαίνω, and μαραίνω were ἔκρᾱνα/ἔκρηνα, ἔρρᾱνα/ἔρρηνα, and ἐμάρᾱνα in (e.g.) Attic-Ionic, and the aorists of φαίνω, σαίρω, σαίνω, and καθαίρω, ἔφηνα, ἔσηρα, ἔσηνα, and ἐκάθηρα respectively. The fact that the alleged extension of the vocalism took place exclusively in cases where the stem vowel was /e/ raises doubts about the validity of Panagl's theory.

The evidence supporting the view that PGk. *-*er*/*n̥i*- became -*ēr*/*n*- outside Aeolic is meagre. The two most commonly cited forms are Arcadian (Tegea) φθηρων (IG V,2 6.A.Col.II.17; ca. 350) and Cret. επιπε̆ρε̄ται in IC IV 72.II.17 (Law Code of Gortyn; 480–450).[135] According to most scholars,

[135] Pre-Eucleidian Att. αποκτενει found in earlier works is probably an aorist subjunctive (see Threatte 1996, 533). — φθεραι, a few lines before φθηρων (l. 8), has been taken by e.g. Solmsen (1897, 452 f.) and Jacobsohn (1910, 83 n. 1) as a 3sg. aor. opt. φθερ(ρ)αι. But there is a real possibility that φθεραι is an engraver's error for (fut.) φθερει, since it is coordinated with 3sg. fut. διακωλυσει in our inscription (see further Lillo 1997 and Peters 2002, 118 with ref. to Thurneysen). In any case, (*)εφθερρα need not have been the only aorist formation from the root in question in Arcadian (cf. on the one hand impf. ωφηλον [pres. οφηλω*] in Dubois 1988

επιπε̆̄ρε̄ται is the 3sg. subjunctive of an unattested denominative *ἐπιπειράομαι (cf. Hsch. ἐπιπείρει· μοιχεύεται ἢ μοιχεύει; πεῖρα ‘attempt’ < *perḭ̂a[136]). Although the passage in which our form is found is a notoriously difficult one, semantically this analysis would make perfect sense (αι κα τᾱ̃ν ελευθερᾱ̃ν επιπε̄̃ρε̄ται ō̃ιπεν would mean something like ‘if someone attempts to have intercourse with a free woman’; for a recent discussion see Genevrois 2017, 254 f.). There are still researchers that believe that επιπε̆̄ρε̄ται is the subjunctive of ἐπιφέρομαι (notably Maffi 1984), but what ἐπιφέρομαι would exactly mean in the relevant context is not quite clear (see Willetts 1965; 1967, 58 f.; for the connection with ἐπιφέρομαι see more generally the objections by Gagarin / Perlman 2016, 346 f.). I think it is relatively safe to assume that επιπε̄̃ρε̄ται is indeed a denominative from πεῖρα.

The development *-*erḭ̂*- > -*ēr*- outside Aeolic is also supported by σηρᾱφόρωι in Alcman fr. 1.92 (cf. σειρᾱφόρος ‘trace-horse’, σειρά ‘rope, cord’ < *tu̯er(H)i̯ā́;[137] for the etymology cf. Solmsen 1909, 127 with reference to Schulze; Scheller 1951, 39 n. 3; Peters 1980, 48. 131 n. 79; 1981, 191 n. 3; Dieu 2016, 284 ff. with n. 98) and by the Euboean proper name Ναυστε̄̃ρε̄ς (IG XII,9 56,288 5th c., Hoffmann 1898, 396; cf. στεῖρα Hom.+ ‘forepart of a ship’s keel’ < *steri̯a, Eichner 1974, 36 ff.; cf. also πρῷρα ‘forepart of a ship’ < *°ri̯a). Note, however, that Ναυστε̄̃ρε̄ς comes from Styra, where also Νεοκλε̄̃δε̄ς (IG XII,9 56,290; 5th c.) and Αριστοκλε̄̃δε̄[ς] (IG XII,9 56,34; 5th c.) are found, which show that /ei̯/ was already monophthongized in the speech of some individuals in 5th-c. Euboean. Finally, cf. perhaps EGud. (s.u. Ἤπειρος) ἄπηρος = ἤπειρος[138] < *h_2āperḭ̂o- (for the etymology cf. Balles 2000, 152; Weiss 2010, 379 f. with n. 91; Neri 2017, 222 f. n. 74).[139]

There are two more examples with nominal -*ē*r- < *-*erḭ̂*- in Greek that seem not to be widely known. The first one is Att. acc. pl. σπε̄̃ρᾱς ‘rounded moulding’ = σπείρας ‘anything twisted, coils, rope, rounded moulding etc.’ (probably from *sperḭ̂a; e.g. Risch 1974, 136; DELG, s.u.; cf. CEG 5, s.u.) in

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II, 61 ff. l. 40 and on the other οφελλονσι in IG V,2.343), so the existence of φθηρων beside φθεραι cannot be used as an argument against Panagl’s proposal.

[136] For the latter see Solmsen 1909, 249; Peters 1981, 191 n. 3; Ruijgh 1985, 111; cf. also Thess. Περρᾱ̃ς, Περραιος (Hom. Πείραιος?) (HPN, 367).

[137] Given the acute in Lithuanian *tvérti* ‘seize, form’, σειρά probably goes back to a *seṭ* root (cf. LIV, 656), so it can only continue *tu̯erHi̯ā́ with Pinault’s law, since *tu̯erHsā́ would have resulted in *tu̯erVsā́ in early Greek (cf. also Peters 1981, 191 n. 3; Dieu 2016, 284 f. n. 98 with lit.).

[138] Ἤπειρος, διὰ τῆς ει διφθόγγου, ἄπερος γὰρ οἱ Αἰολεῖς λέγουσι καὶ ἄπηρος, τρέποντες τὴν ει δίφθογγον εἰς η. […] εἰσὶ δὲ τινὲς τόποι, οἵτινες καλοῦνται Ἤπειροι, ὥσπερ καὶ ἡ γῆ, ἐξ ἐναντίου τῆς Ἰθάκης. ἀλλ’ οἱ Δωριεῖς ἄπηρος λέγουσιν ἀπέραντος.

[139] Cf. further αἰγερο- for αἰγειρο- f. ‘black poplar’ in Com. Adesp. fr. 1276 (cf. DELG, 29 f.; Beekes 2014, 54). — Peters (1989, 74–76) derives the name of Neleus’ daughter, Πηρώ, from (πεῖρα <) *perḭ̂a (for the doublet Νείλεως [< *nehelāu̯os; cf. Νηλεύς, hypoc. of *nehelāu̯os] : Πειρώ see ibid.; for the latter see also EM, s.u. ἐλεγηΐς), assuming that that name shows Messenian vocalism (cf. further the eta of Νηλεύς; as is well known, Νηλεύς was the mythical king of Pylos, and Messenian was of the *Doris seuerior*-type).

IG I^3 386.Col.III.158[140] (408/407, inventory; the meaning here is not clear; see Cavanaugh 1996, 193 and Clinton 2008, 80) and IG I^3 474.64 (409/408; inventory), which I have learned from Frankfurter (1879, 40), and the second is Att. nom. sg. σε̄ρᾱ̄ = σειρά (e.g. Cavanaugh 1996, 141) in IG I^3 387.Col.I.39 (407/406; inventory).[141]

3.3.1]ι̯ανϐρα and the graphemic representation of secondary /ē/ in Corinthian

The grapheme for short /e/ and original long /ē/ was <ϐ> in the Corinthian alphabet. Conversely, the long closed /ę̄/ that has arisen from the early monophthongization of /ei̯/ was denoted by <Ɛ>. The sign for secondary long /ē/ < *ĕ in Corinthian is not known (see Arena 1990 = 1999, 311; NAGVI, 243 f.). Wachter (NAGVI, 243) finds it possible that /e/ and original and secondary /ē/ (from *e) were denoted by the same grapheme in that dialect (that is, <ϐ>; "[a]s is normal in Greece, the spelling seems to concentrate on distinctions of quality rather than quantity"). If this is correct, Corinth.]ι̯ανϐρα = (prob.) °άνειρα on COR 96A[142] (first member Καλλι°, Δηϊ°? NAGVI, 98; 595–570) is possibly another example of the development *-*eri̯*- > -*ēr*-.

It is worth mentioning in connection with Wachter's hypothesis that, according to Peters (1981, 190–192), Corinthian was of the *Doris media*-type (= *seuerior* 1st and 2nd comp. leng., *mitior* contractions and [partly] 3rd comp. leng.; *mitior*-like Corinth. Αυτομεδουσα, Μουσαι, and °βο̣υλος have little evidential value; see NAGVI, 245). Peters has based this conclusion on the form]ι̯ανϐρα and on the name ΚλƐτολᾱ̃ς < *κλεϝε° in IG IV 415 (Oenoe). ΚλƐτολᾱ̃ς happens to not be decisive (NAGVI, 244 n. 796). According to Peters (1991, 569), a further indication that Corinthian originally showed *media* vocalism comes from 3rd-c. Camarina Κληναγο[ρᾱ̃ς < *kleu̯ę̄n° < *kleu̯ehn° (Camarina was a colony of Syracuse, and the latter was a Corinthian colony; on the provenance of the text see SEG 47:1432). It is not very likely that this form preserves the original Corinthian vocalism; for two reasons. First and foremost because of 6th-c. (/early 5th-c.) Κλεινους < *kleu̯ę̄n- on a funerary stele from Camarina (IGASMG V, n° 82; cf. SEG 34.939,1), and second because during most of the 5th century Camarina was under the Geloans (but the Corintho-Syracusan presence in the city hardly ever ceased to exist; cf. OCD, s.u. Camarina): Gela as is well known was a Creto-Rhodian colony, and in both Cretan and Rhodian *-*esR*- yielded -*ę̄R*- (cf. Κληναγο[ρᾱ̃ς).

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[140] In all editions the form has been restored to σπε[ιρ]αι in Col.II.105. Only traces of the epsilon can be seen in the excellent photograph at https://digital.library.cornell.edu/catalog/ss:456700 (last accessed: 30/6/2019).

[141] Σειρήν, which is written Σε̄ρε̄ν on Attic vases (e.g. AVI 2805; 550–525), has been connected with σειρά by some scholars (cf. Solmsen 1909, 126–128; Bader 1994). Luján / Vita (2018) consider Σειρήν a loanword and connect it with Ugaritic (du./pl.) *šrm* 'musician, singer, instrument maker' (for the meaning of Ugaritic *šr*, see especially the reference to Watson *apud* Egetmeyer 2019, 178); cf. Myc. *se-re-mo-ka-ra*- (/sērēmo-/, not /sei̯rēmo-/ as per Luján / Vita 2018 and others). However, the original meaning of Σειρήν/-ῆνες may have been 'bee(s)'; cf. Roscalla 1998, 41 ff.

[142] The numbering of non-Attic vases follows that of NAGVI.

It should be stressed in any case that the change of /ę̄/ to /ę̨/, and more generally the change from *mitior* to *seuerior* vocalism, is not unknown crossdialectically. This change has apparently affected both individual dialects as well as the dialects of colonies whose mother city was *mitior* (see Méndez Dosuna 1985, 274–276; 1991, 38 ff.; 2007, 451 f.). Hence, even if we ignore Κλεινους altogether, Κληναγο[ρᾱς hardly provides any clue as to the original vocalism of Corinthian. In fact, Κλεινους beside later Κληναγο[ρᾱς might even testify to the occurrence of the change in question in Camarina (thus hesitantly Mimbrera Olarte 2012, 68. 93, who also notes that the Doric of Sicily is of the *mitior*-type). However, Κλην° beside Κλειν° is also attested in Cos (*Doris media*; Bartoněk 1966, 52), Cnidos (*media*?), Lipara (colony of Cnidos; for the forms see Mimbrera Olarte 2012, 68), and in late inscriptions from Ithaca, Zacynthos, and Cephallenia (Ruijgh 2007, 397). Bechtel (1923, 602) believes that secondary /ę̄/ became /ę̨/ in those dialects, but wouldn't that mean that primary /ę̄/ also shifted to /ę̨/? According to Mimbrera Olarte (2012, 68. 93), Κληναγο[ρᾱς may well be a foreigner[143]. Ruijgh (2007, 397) has adopted the same strategy in order to explain Κλην° in the Ionian islands.

ϐμι on COR 18a and possibly COR Gr 2 (both 7th c.) would be in favour of the idea that secondary /ē/ from comp. leng. was denoted by <ϐ> in Corinthian (thus Peters 1981, 191). Wachter (NAGVI, 244) rejects this (without reference to Peters), claiming that given (monophthongized) ΠοτΕδᾱ[ν] (COP 3), which is even earlier than ϐμι, it is unlikely that (monophthongized?) Ξμι (which is the regular form of 'I am' in Corinthian[144]) is "the result of a modern intrusion of [eimi] […] into the Corinthian dialect": /e̯imi/ "first had to be monophthongized, together with the [ei] in Poseidon's name, and this must have happened well before such documents as our COP 3, and needed time". However, there is no reason to suppose that the diphthong was transferred as such from the second person singular. The replacement of the original long *e*-vowel of the first person (cf. ϐμι) could have taken place when the original diphthong in the pivot form had been monophthongized. In fact, a change of 1sg. /ę̄mi/ to /ę̨mi/ after 2sg. /ę̄/ (< /e̯i̯/) would arguably be even more trivial than /ę̄mi/ to /e̯imi/ after /e̯i̯/. It is impossible, however, to exclude that the form ϐμι was not written by a foreigner working at Corinth (note that Χοιρασου on COR Gr 2 — which contains ϐμι — represents the oldest attestation of <ΟΥ> for secondary long /o/ in Corinthian) (NAGVI, 244). For ΠϐραΞοθϐν ≈ Πειραιόθεν (: πεῖρα?), which suspiciously shows the same spelling with ϐμι and]ιανϐρα, there are alternative explanations (see NAGVI, 152).

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[143] "Ello no extraña, si se tiene en cuenta que a partir del siglo IV Sicilia fue repoblada varias veces con colonos de muchas partes de Grecia" (p. 68).

[144] Cf. diphthongal (e.g.) Att. ειμι. On this as well as on other dialectal attestations of /e̯imi/, see the references in Peters 1981, 192 n. 8 and see NAGVI, 244, Threatte 2016, SEG 33:568 (Thrace; ca. 500); compare further Bartoněk 1966, 117 n. 285; Blümel 1982, 109 n. 104, Nieto Izquierdo 2008, 27, and the situation in Sicily, where e.g. both ēμι and ειμι are found in Selinous during the archaic period (see Mimbrera Olarte 2012, 66 f. but cf. Willi 2008a, 47 with n. 83).

New data that can help us decide how secondary /ē/ was really written in Corinthian are now provided by the oracular lead tablets found in Dodona. A part of these important texts has been recently (re)published by Lhôte 2006. Lhôte 2006, n° 99A (ca. 450), written boustrophedon in the Corinthian alphabet, reads ϐμπορουομϐνοι Ɛς ϐπιδαμνον; = ἐμπορευόμενοι εἰς Ἐπίδαμνον;. In this text, /e/ is as expected written <ϐ>, but secondary /ē/ that has arisen from the second compensatory lengthening is denoted by <Ɛ> in Ɛς < *ens* (as is the case with regular Corinthian Ɛμι).[145, 146] In Δάκαρης et al. 2013, n° 4015 (450–440; Corinthian alphabet), we read οφƐλƐν πϐντ[ϐ] δραχμᾱς ΞϐνϘ[ι]. The present infinitive is quite telling in this case: both the secondary /ē/ from the first compensatory lengthening and the /ē/ from contraction are denoted by <Ɛ>. The same infinitive with the same orthography is also found in 2977B (450–400; Corinthian alphabet, Méndez Dosuna 2016, 134). Yet another example of the use of <Ɛ> for secondary /ē/ in the Corinthian alphabet may be found in 825A (5th c.), if Méndez Dosuna's (2016, 125 f. with n. 28) interpretation of καφƐρϐ as sigmatic aorist of φέρω (plus κᾱ < κα ε-) is correct. A clear case of the use of <Ɛ> for the result of the contraction of */ee/ is h[ϐ]κƐ = ἥκει < *-*ee* in 2242A (500–450, Corinthian alphabet; on the form μϐνƐ see Méndez Dosuna 2008, 73). Another noteworthy form is the infinitive πϘλƐν = πωλεῖν (cf. SEG 60:333; Lejeune 1943; Lolos 2010) from neighbouring Sicyon, where the Corinthian alphabet was used (with slight differences, see LSAG, 138 ff.).

Given these forms, χϐρα = χεῖρα 'hand' < *$\hat{g}^h$*esr*- in 2549A (ca. 450; Corinthian or Corcyrean alphabet) is remarkable. An occasional slip of the engraver would not be out of the question here (cf. θƐο[ς[147] beside γϐνο[ιτο in 1848A, and Ɛ μϐ = ἦ μὴ in 534B [1171B ϐ μϐ]; cf. Lejeune 1945, 104 with n. 4. 105 n. 5), but, in any case, in some Northwest Greek varieties (*mitior*), in East Argolic (*mitior*), and in Syracusan[148], the word for hand occasionally shows *seuerior* vocalism (see Méndez Dosuna 1985, 70 ff. esp. 77 f.; 1991, 41 f.; Nieto Izquierdo 2008, 101 f.).[149] It should also be noted that there is evidence from poetic texts that, beside χειρ-, a stem χερ- existed in Greek (the latter was

[145] Epidamnus, on the Adriatic coast, was a joint colony of Corinth and Corcyra. It seems not very likely that the present text is Corcyrean, since secondary /ē/ is written <ϐι> in Corcyra (cf. e.g. ϝϐιματ[ōν, ϝϐιματα IG IX 1^2, 4, 873.A7.B16; 500–450; ϐποιϐι in IG IX 1^2, 4, 882, 6th c. and Lhôte 2006, n° 139). That the result of the first comp. leng. is written <ϐι> in Corcyra is perhaps another indication that Corinthian was of the *mitior*-type.

[146] ϐς /es/ in Lhôte 2006, n° 98 (ca. 475; before a vowel; Corinthian alphabet) is just the preconsonantal variant of the preposition that has lost its nasal without compensatory lengthening (cf. Lejeune 1972, 131).

[147] <Ɛ> for /e/ is not unknown in areas where the Corinthian alphabet was used: in Cleonae, <Ɛ> = /e/, <ϐ> = /ę̄/, <Ɛι> = /ę̄/ and in Phlius <Ɛ> = /e/, /ę̄/, <ϐ> = /ę̄/. Cf. Lejeune 1945, 104 with n. 5. 105 n. 5.

[148] Sophron χῆρα (Page 1942, 330 n° 73.3).

[149] The exact reason for this is not yet known, but it seems likely that the forms in question were introduced in the individual dialects via technical vocabulary or names of foreigners (cf. Méndez Dosuna 1985, 77), or that the vocalism/paradigm of the morphologically isolated name χείρ was sporadically brought in line with that of θήρ, θηρός in some dialects (thus Ruijgh 1986, 458 f. n. 2; Méndez Dosuna 1991, 42).

extracted from the dative plural χερσί); cf. e.g. Hymn. Hom., Pind., Trag., Simon. χέρα, Soph. χέρες, χερῶν, χεροῖν, etc. (further Wackernagel 1888, 131 ff.). There seems to be no reason to assume that forms like χέρα were confined to poetry.

The above material suggests that /°anēra/, with a secondarily lengthened *e*-vowel, would be written †°ανƐρα in Corinthian (cf. Att. <EI> = /ē/ and NAGVI, 243). This entails that]ι̣ανϐρα on our vase cannot be taken as an example of the development *-*eri̯*- > -*ēr*-; at least not without additional hypotheses.

]ι̣ανϐρα possibly represents Aeolic-like /°anerra/ (see NAGVI, 244. 301 f. 340 f.; cf. e.g. Μοισαι, Πνοτομεδοισα, but cf. also below on Arc. χορο- = χοιρο-).[150] It could also be that the <ϐ> here is due to a slip made by a foreigner working at Corinth, who ignored the standard orthography of the word (cf. ibid., 244. 301 f.).[151] If that was the case, it would not necessarily mean that the original outcome of *-*eri̯*- was -*ēr*- in Corinthian: there may be evidence that *-*eri̯*- also gave -*ei̯r*- in Greek (see imm. below), and, as mentioned previously, *ē* < *ei̯* was written <Ɛ> in the Corinthian alphabet.

3.3.2 Some interesting forms

3.3.2.1 Old Attic <°ANEIPA>

On several Attic vases from the archaic and classical periods, the name Δηϊάνειρα < *°*aneri̯a* (cf. Sommer 1934, 41) is unexpectedly written with <EI>. The relevant forms are Δ̄ειαν[ε]ιρα (AVI 6268; AVI: 560–550, B[eazley] A[rchive] P[ottery] D[atabase][152]: 575–525; Prometheus painter), Δ̄ιανειρα (AVI 3623; AVI: 525–500, BAPD: 525–475; Oltos), Δ̄ιανειρα (AVI 6514; AVI: 500–475, BAPD: 500–450, Louvre: ca. 480; Siren), Δ̄ιανειρα (AVI 5462; AVI: 450–425, BAPD: 475–425; Group of Polygnotos), Δηιανειρα (AVI 5657; AVI: late 5th c., BAPD: 450–400, The Met[153]: 420–410; Meidias [Ionic alphabet[154]]), Δ̄ειανειρα (AVI 2689; AVI: 410–400, BAPD 450–400, MFA: 420–410; Aristophanes), and Δ̄ειανειρα (AVI 2690; AVI: 410–400, BAPD: 450–400, MFA: 420–410; Aristophanes); compare also Αντιανε[ιρα] (AVI 5473; ca. 420), Ιλαε[ι]ρα (AVI 1754; 425–400; Meidias), and E]ῠπατειρα[...] (AVI 1683; undated).

Although the writing of /ē/ with <EI> is generally very uncommon before 450 (cf. Threatte 1980, 174 f.; 1996, 512), it is not unknown in the late 6th

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[150] Wachter (2016, 151 n. 44) corrects Att. Δᾱινανερα on AVI 4455 (525–500; Ambrosius painter) to Δᾱι{ν}ανερ(ρ)α. According to him, this form is to be compared with Corinth.]ι̣ανϐρα. Given Att. σ̄ρᾱ etc., the analysis Δᾱι{ν}ανρ̄α is also possible (cf. further 3.3.1). — That]ι̣ανϐρα represents [°ane$^{\text{l}}$ra] seems less likely to me; for this last interpretation cf. n. 193 and Sicyon (-)αλα(-) discussed in 3.2 above.

[151] Yet another possibility is that the painter was a speaker of *Doris seuerior* (uel sim.) or *media* and he wrote the form as he pronounced it. In that case,]ι̣ανϐρα would be a possible example of the change *-*eri̯*- > -*ēr*-.

[152] https://www.beazley.ox.ac.uk/pottery/default.htm (last accessed: 30/6/2019).

[153] The Met = The Metropolitan Museum of New York; MFA = Museum of Fine Arts Boston.

[154] But this is irrelevant to the question of whether <EI> here represents /ē/ or /ei̯/ (cf. Threatte 1980, 173; Wachter 1991, 110 f.).

century (especially in private texts[155]). Almost all of our 6th-c. (Attic) examples of <ΕΙ> for /ē̩/ come from vases. In all nine cases the relevant form is εποιει.[156, 157] However, five of these nine forms have been written by the same individual; the famous painter Oltos (AVI 2351, 3621, 4590, 6379, 8162; all dated 525–500 by AVI).[158] Also, Oltos was not an Athenian (Kretschmer 1894, 74; cf. also Masson 1990, 508; Dubois 2008, 188; on the hypothesis that he was non-Greek see Chiarini 2018, 197 ff. with lit.), and the same is true of Chelis, who wrote εποιει on AVI 5301 (525–500).[159] Note in connection with this that in some parts of Greece (as for example in Corcyra and Cleonae; for the former cf. nn. 145 and 197, for the latter cf. the present infinitive ειμεν in IG IV 1607[160]; cf. LSAG, 148)[161], the writing of /ē̩/ with <ΕΙ> was a very early convention.[162]

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[155] The Attic vase inscriptions were not of course official documents of the Attic state and they were not written by trained scribes (cf. Threatte 1980, 2).

[156] On Threatte's 6th-c. examples see Wachter 1991, 110 f. n. 101. The editors of IG I^3 insist that in 1214 (= I^2 983; ca. 525) εποιε̄ and not εποιει is the correct reading (cf. Threatte 1980, 174 n° 2). Immerwahr transcribes Ευχειρος (HNP, 470) in AVI 4316 (550–525). Nevertheless, in both available photographs the text clearly reads <ΕΥΧΕΡΟΣ>. — Recently, Lazzeroni (2014) tried to show that the imperative πιει in the formaula χαιρε και πιει ([…]) contains a long closed /ē̩/. This is impossible: πιει is attested numerous times in 6th-c. Attic vases and it is always written <ΠΙΕΙ> (cf. e.g. Solmsen 1899, 348; "Attisch πίει hat echten Diphthong in der Endung, wie die ausnahmslose Schreibung ΠΙΕΙ beweist"). The two instances of <ΠΙΕ> in AVI 6300 and 8094 (no phot.) are probably careless omissions.

[157] This is unexpected, since the orthography of inflectional endings is relatively conservative in Greek inscriptions; compare Threatte 1980, 16. 200. 386; Brixhe 1989; Stüber 1996, 29 f. (from the ca. 45 examples of <ΕΙ> for /ē̩/ before ca. 400 listed in Threatte 1980, 174 f. and 1996, 709, an ending is involved in ten).

[158] The years 525 to 500 are the years of Oltos' activity. — Immerwahr (1990, 61) on the basis of several misspellings of potter names calls Oltos' spelling and writing "poor". Later on in his book (p. 173 f.), he is not sure about Oltos' possible partial illiteracy, since his "errors are more restricted" in comparison with those of Lydos and Makron. According to Wachter (2016), Oltos generally writes "gut attisch". — Δᾱιανειρα on AVI 3623, which is our second earliest example, has been written by Oltos (who may have also written εποιε̄, instead of his usual εποιει, on AVI 3253). Given the other attestations of the name, this fact is of little importance. Compare also with respect to this the remarks of Threatte (1980, 6): "[t]he attribution of vases in Beazley's catalogs makes it convenient to refer to dipinti on groups of vases by the name of the painter. This is purely a matter of convenience and does not necessarily imply that all the inscriptions were executed by the painter himself. It would be naive to assume that the inscriptions were not sometimes put on by a helper, and rarely different hands can be recognized in the same signature". On this last fact see also e.g. Immerwahr 1990, 52. 116 n. 22. 174 with n. 6.

[159] The three remaining forms are found in AVI 0950 (AVI: 550–525, BAPD: 550–500; Nikosthenes potter, painter unidentified; no photograph), AVI 2067a (painter unidentified; 525–500) and in CEG I, n° 42 (525–500). Another example of εποιει may exist in AVI 6760 (525–500). According to the BAPD, all of the late 6th c. examples cited above could well belong to the first quarter of the 5th century.

[160] Differently Arena 1990 = 1999, 296 n. 105. 311 (hypercorrection after occasional spellings "di carattere dotto" like Corinth. Ποτϐιδᾶν, on which see of course NAGVI, 268).

[161] Compare further the colonial law of Chaleion (IG IX,1² 3:718; Locris 500–475), 6th-c. εποιϐι (SEG 51:742) from Ambracia, 6th-c. με[λ]ε̣ιν and ειναι (SEG 43:633) from Casmenae (Syracusan colony), and 6th/early 5th-c. Κλεινους from Camarina (see 3.3.1). — There are some early cases of <-ΟΥ> in the genitive singular of *o*-stems in Selinous and in Syracusan

At any rate, [epoi̯i̯ę̄] is found ca. 40 times in Attic epigraphic texts of the 6th and 5th centuries, and its regular orthography was εποιε̄ during that period[163]; the existence of ca. 10 examples with the spelling <ΕΙ> is statistically unsurprising. Contrariwise, epigraphic °ανειρα is only found eight times in Attic, and almost always it is written with epsilon and iota.[164] The use of <ΕΙ> in our forms is too consistent to ignore (according to Wachter 2016, 151 n. 44, Old Attic <°ΑΝΕΙΡΑ> represents diphthongal /°aneı̯ra/; cf. also Heubeck 1980, 285 and NAGVI, 98. 244: *-*er*/*nı̯*- > Gk. -*eı̯r*/*n*-). Also, if we saw Δε̄ιαν[ε]ιρα[165], from the first half of the 6th century/mid-6th century, as an instance of <ΕΙ> for /ę̄/, this would make the form in question the earliest example of that orthography in the whole Attic corpus.[166]

3.3.2.2 Old Ionic <ΠΕΙΝΕ/Ο->

Two other forms that apparently go against the traditional theory about the result of *-*er*/*nı̯*- in Greek come from an ostracon found in the northernmost Greek colony, namely the so-called Taganrog settlement (now under water) in the sea of Azov (north-east coast of the Black Sea).[167] In a beautifully inscribed graffito dated between 550 and 525 (but more towards the middle of the century) we find 2sg. pres. imp. <ΠΕΙΝΗ> and 1sg. pres. ind. <ΠΕΙΝΩ> (see Vinogradov 1999). Greek πεινάω is probably a denominative of πείνη (= Att. πεῖνα) ‘hunger, longing for’ < *pen̥i̯ā (Peters 1980, 131 n. 79. 175 n. 126; cf.

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colonies, but this phenomenon has probably a phonological explanation (see Arena 1987, 10–14; the pronunciation was [ū]).

[162] Wachter (1991, 110 f. n. 101) proposes hesitantly that the orthography of [epoi̯i̯ę̄] may have been influenced by the 3sg. pres. ποιεῖ (“particularly since the augment may have to be elided”). This idea is not very attractive.

[163] 6th c.: AVI 1101 (ca. 570–560), 3253, 4749, 5048, 5790, 6333, 7263, 6621?; 5th c.: 2675, 2876, 3120, 3242?, 3821, 4399, 4646, 4771b, 5014, 6687; 18 cases in total, plus ca. two dozen in inscriptions.

[164] In view of the clearly redundant first nu in Δᾱινανερα (525–500) and the fact that the second (and last) word in the relevant vase (AVI 4455), Νέσσος, is written Νισος (the vocalism of πίσυρες cannot be compared with that of Νισος, *pace* Wachter 2016, 151 n. 44; cf. e.g. Eichner 1982, 371–373), the missing iota in the first form is of little importance. Generally, Ambrosius’ inscriptions are rather sloppy, compare Αριστῡμυμος for Αριστῡνυμος (AVI 5402), Κραλαισχος for Καλαισχρος (AVI 5926), and Σατρυβς for Σατυρος (AVI 8107). Note further that Ambrosius has also written Ποσεδῡν for expected Ποσειδῡν on AVI 3588 (525–500; <Ε> for /ei̯/?).

[165] This reading by C. J. Ruijgh was recently accepted by Wachter (2016, 150). For two good quality photographs, more or less confirming the (former) existence of <ΕΙ>, see Kluiver 1995 (esp. fig. 31) and https://weblimc.org/page/monument/2086430 (last accessed: 30/6/2019).

[166] The name of the Muse Κλειώ contains a metrically lengthened first syllable (for some unlengthened variants see Wachter 1991, 110 with n. 100 and AVI 1993, 3490, 3492, 4285, 5463, 8169). Whether this name is written with (Wachter 1991) or without iota (Threatte 1996, 262) on the famous François vase (AVI 3576; AVI: 570–560, BAPD: 600–550; phot. in Cristofani 1981, 186 fig. 197) is irrelevant to the present discussion (*pace* Wachter 1991, 108 ff.): as Peters (1991, 690k f.) has proposed, the <ει> in Κλειώ was probably pronounced [-ei̯i̯-], since metrically lengthened /o/ in prevocalic position is written <οι> in Homer.

[167] The Greek colony in Taganrog was probably established in the late 7th/early 6th century (e.g. Treister / Vinogradov 1993, 551; Tsetskhladze 1997, 42; Koshelenko / Kuznetsov 1998, 255).

also Watkins 1985, 615; differently CEG 5, s.u. πείνη: denom. from πεῖνα; on this, as well as on the supposed priority of Att. ἀλήθειᾰ over Hom. ἀληθείη < *-*esi̯i̯ā*, cf. Solmsen 1909, 236 ff. esp. 254 f., Sommer 1977, 319 f.).[168] The alphabet and (probably) the dialect of the text are East Ionic (the pottery found in Taganrog comes primarily from Ionia; cf. e.g. Kopylov 1999, 3). If **peni̯ā* became (*)*pēnᾰ̄* in non-Aeolic dialects, the use of <EI> here is remarkable. <EI> for /ē̯/ was very rare in East Ionic even in the 5th century (as far as I know, there are no forms from the 6th century showing this orthography); the writing of /ē̯/ with <EI> only became frequent after ca. 400 (see Wachter 1991, 111 with n. 105; Stüber 1996, 28 f.).

However, there is evidence that the monophthongization of /ei̯/ to /ē̯/ started quite early in some Ionic varieties (compare e.g. ἔπεν from Miletus; cf. SEG 15:674; 550–475), and the mother city of Taganrog (recte: Kremnoi? see the literature in Dally et al. 2006, 275 n. 6) and thus the specific Ionic variety spoken there is not really known (cf. e.g. Tsetskhladze 1994, 119).[169] If Taganrog was colonized by, say, Milesians (thus hesitantly Kopylov 1999; but Tsetskhladze 1998, 22 with n. 77 considers it possible that the mother city was Clazomenae), as was Berezan (ca. 645; Tsetskhladze 1994, 117 f.; Kopylov 1999, 7) and other places on the north-west (the Taganrog settlement was on the north-east) coast of the Black Sea (most of the Greek cities in the Black sea area seem to have been either Milesian or Megarian colonies), perhaps πειν- here is an early case of <EI> for /ē̯/.

But it seems reasonable to think that at least in the early stages of the monophthongization, the most common orthographies in monophthongizing varieties were the traditional one (i.e. /ē̯/ < /ei̯/ = <EI>, /ē̯/ < lengthened **e* = <E>) and the phonetic one (i.e. <E> for /ē̯/ from any source). For instance, in the two famous letters from Emporion and Berezan (cf. SEG 53:1153; Dubois 1996, n° 23; late 6th c.), which were written by non-professionals, the phonetic

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[168] πείνη was a verbal abstract in *-*i̯ah₂* possibly to the root seen in Greek πόνος ‘work, labour, stress, trouble, pain’ and πένομαι ‘toil, work, (posthom.) be poor’. The semantics are not impeccable (Risch 1974, 167 bottom, for example, is sceptical about that etymology), but a parallel seems to exist in PGmc. **χunχru-*/**χungru-* (cf. Goth. *hūhrus*, OIcel. *hungr*, OE *hungor*, OHG *hungar* ‘hunger’) and e.g. Photius κένκει (*sic*)· πεινᾷ: it is likely that these forms are to be connected with Lith. *keñkti* ‘harm, injure’ and *kankà* ‘torture, suffering’ (: **kenk* ‘make suffer’[?]; see Schulze 1888, 270 and most importantly Neri 2003, 292 ff.). We should bear in mind that there were no roots of the type **CeRR* in PIE (cf. Schindler 1972, 5), so in order to derive πείνη from something like **pei̯n(i̯)ah₂*, or even to consider it “post-verbaux” (DELG, 289), we would need a considerable number of additional hypotheses apart from reconstructing a completely unattested root; this makes the idea that πειν- continues original **pei̯n-* rather unlikely.

[169] Cf. further the archaic cases of <E> for /ei̯/ from Berezan, Olbia, and Emporion (East Ionic colonies) briefly discussed below (n. 201), and monophthongized Leucas (Corinthian colony; Strabo 10.452, see also Graham 1964, 30 with n. 3. 31 n. 2) Φιλοκλεδᾱ < *°*kleu̯i*° (early 5th c.? Méndez Dosuna 1982, 77 f.) and Ambracia (Corinthian colony) κατεχε = κατέχει (ca. 550; cf. SEG 44:463). — “An inverse spelling generally indicates absolute neutralization (total merger). In this case, as /ei/ was becoming /ē/, /ē/ could be spelled EI, but remaining [ei] retained the conservative spelling EI. The inverse spelling, whereby original /ei/ is spelled E, signals complete merger” (Miller 2014, 47 n. 24).

spelling is found throughout (cf. n. 201). Another example: the diphthong /ai̯/ merged with /e/ during the imperial period in Attic (cf. Miller 2014, 53); the spelling of /e/ with <AI> is "much less common" than the spelling of old /ai̯/ with <E> in Attic inscriptions of the 2nd and 3rd centuries CE (Threatte 1980, 294).

All this is in accordance with the earliest inscriptional evidence from Berezan. Despite the fact that /ei̯/ is written <E> in the Berezan letter (Dubois 1996, n° 23), which implies monophthongization, the use of <EI> for /ē̩/ in Berezan (and nearby Olbia; colony of Miletus) during the early 6th and early 5th centuries is limited. The main evidence for this spelling comes from forms of ειμι (see Dubois 1996, n° 29 [Olbia, 5th c.]. 32. 39. 55. 76. 91; SEG 32:727. 729; Berezan, ca. 550–500)[170], which, however, despite ēμι in n° 90 (550–525, Berezan; for Att. ēμι cf. Threatte 1980, 176 and e.g. AVI 0012, 0374, 1248, 1117), may well contain a genuine diphthong (cf. p. 44 above; NAGVI, 244; Threatte 2016). The PN(?)]ξεινε̩[(SEG 32:728) from Berezan, which is dated ca. 500, is perhaps too fragmentary to be given much weight. The next earliest examples that I can find are actually quite late; these are Dubois 1996, n° 10 (400–350, θειναι; cf. also n° 16), 14 (375–350; several cases, but also ωνε̄σθαι in l. 28[171]), 15 (375–350, εισαγηι, εισπλουν), and 25 (ca. 350, χαιρειν, εις) (all Olbia).

Additionally, in Berezan and Olbia the distinction between <EI> /ei̯/ and <E> /ē̩/ is firmly maintained; cf. SEG 48:988 (Berezan, 550–510; ειπαι, αγει, ēναι, υπανε̄ται, and possibly]ελλε̄ν), Dubois 1996, n° 31 (Olbia, ca. 500; εθελει βενε̄ν), 38 (Berezan, 550–525; μηδε̄ς, κλεψει), and SEG 54:694 (letter of Apatorius; Olbia, late 6th c.; Ηρακλειδεω, Ηρακλειδην, ēναι, επ[ι]θēναι, κε̄νοι, εικοσιν). (Compare further Dubois 1996, n° 4 [Olbia, ca. 450; παρēναι].)

Although the text in the Taganrog ostracon was perhaps metrical and possibly contained the poetic adjective κῡ́διμος (see Vinogradov 1999), it would be unsatisfactory to take the <EI> in <ΠΕΙΝΕ/Ο-> as a literary feature (cf. NAGVI, 335 f. and pp. 52 f. below): the text where <ΠΕΙΝΕ/Ο-> is found does not seem to reflect any known poetic passage[172], numerous metrical archaic inscriptions simply make use of <E> for the secondary long /ē̩/ (cf. CEG I), and Att. <°ΑΝΕΙΡΑ> rather speaks against this interpretation.

The simplest way to interpret the <EI> in Ion. πεινη and πεινω is to take it as representing the diphthong /ei̯/.[173]

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[170] Cf. also ειμι on IOD 9 (late 6th c.; NAGVI, 213) from another Milesian colony in the Black Sea, Kepoi.

[171] Cf. also (e.g.) αργυριō επισημου in l. 5 and Dubois 1996, 32.

[172] But Wachter (in NAGVI, 335) sees a literary feature even in Χοιρασου in COR Gr 2 (7th-c.), which is found in a quite fragmentary context (Χοιρασου hā ϙοτυλᾱ̣ ε̣̄μι) and for which nothing (or very little) really speaks for a poetic form.

[173] 'Laconian' 3pl. pres. πεινῶντι (for †πην-) (thus codd.) in Xen. *Hell*. 1.1.23 is interesting, but the correct Laconian form would end in -ᾶντι and in the same passage we find 'Lac.' δρᾶν instead of expected *δρῆν. — Another form that is worth mentioning is Ionic (Teos) ηπειρον (469–459; LSAG, 345 n° 62 l. A9 f.). /ē̩/ is represented by <E> in this inscription, but κείνου is written κεινō in B7 f. — In Alcman, apart from σηρᾱφόρωι, there are several other words that possibly contained old **-eri̯-*. Those with an established etymology always show <-ειρ->

3.3.2.3 Δάειρα/Δαῖρα

The name of the goddess Δάειρα (Pherecyd.+; IG II² 1496.103; 331/330) quite likely contains the suffix -ειρα that is seen in e.g. Gk. πί̯ειρα 'fatty, rich' < **piHu̯erih₂* (e.g. DELG, 245; Nikolaev 2019, 793; for the suffix see Peters 1980, esp. 187 ff.). The default assumption would be that the alternative form Δαῖρα (Aesch.+; IG I³ 250.16, 450–430), known from Attic inscriptions and Attic/Atticising writers, is a contracted version of earlier Δάειρα (thus Nikolaev 2019, 791; cf. τῑμᾷς < **-aei̯s* etc.). If this is so, then the resulting *i̯*-diphthong strongly suggests that the <ει> in Δάειρα represented a real diphthong and not a long closed /ē̞/.

3.3.3 **-er/ni̯-* > *-ei̯r/n-*?

Let us now explore the idea that **-er/ni̯-* gave both *-ēr/n- and -ei̯r/n-* outside Aeolic.

If there was one environment where oscillation between segmentalization and absorption of the prevowel would not be particularly surprising, that would be after the close-mid vowel /e/ (cf. Panagl 1981, 332): the articulatory distance between /e/ and a palatal prevowel was neither great, nor inconsiderable.

Segmentalization after /e/ is far from uncommon crosslinguistically (cf. Operstein 2010), and is certainly not unknown in Greek: **-eli̯-* becomes *-ei̯l-* in Cypriot (cf. *A-pe-i-lo-ni*), (*)/-ens/ gives /-ei̯s/ in Lesbian (for examples see Schwyzer 1939, 287; Lejeune 1972, 129 f.; Hodot 1990, 75), and I have argued elsewhere (Kostopoulos 2017, 180–186) that the aorist stem ἐνεικ- (cf. Att. ἐνεγκ-) < **enenk-*, which contains a genuine diphthong in Ionic at least, is the result of (plain consonant) prepalatalization.

It should further be noted that in Modern Irish prevocalized resonants show all three possible outcomes after e.g. [a], according to dialect. For example, in Ulster (north) *teann* 'tighten' is pronounced [t^{jh}aN:], without prevocalization (cf. Aeol. -ερρ-), in South Connaught/Connacht (west) the same word is [t^{jh}a:N], with absorption of the prevowel (cf. Arc. φθηρων), and in Munster (south) *teann* is pronounced [t^{jh}aun], with segmentalization of the prevowel (cf. Ion. πεινω) (see e.g. Ó Baoill 1980, 104).

(papyri: ὀνείρων, αὐειρομέναι, τείρει; citations: ἀγείρηις, ὄνειρον, βωτιανείρηι, ῥύτειρα). The result of compensatory lengthening in Alcman papyri is mostly denoted by <η>, while in citations there is variation between <ει> and <η>. For this reason, Hinge (2006, 29; further 22 ff.) argues that **-er/ni̯-* possibly gave *-ei̯r/n-* in Alcman. This is indeed a possibility, especially in the light of the material presented in this section, but Alcman papyri also contain forms like εἴμεν (accent *sic*) *ante correcturam* (ἦμεν *p.corr.*), οὐδείς, πασεῖν (a.c.), δραμείται (accent *sic*), and μ[ι]γεῖσα. Further, as Cassio (2007) has shown, the 'interpretatio Laconica' of Alcman's text and language in general may not be as old as it has been thought to be, so a secondary long <ε> in an ancient Alcman manuscript could have been transcribed <ει> by some later scholars. Although I remain sceptical about the evidential value of Alc. τείρει, ὄνειρον, etc., it is certainly an interesting coincidence that forms which seem to point to a development **-eri̯-* > *-ei̯r-* (also) exist in Alcman (for a new theory and discussion of previous proposals concerning the reason behind the use of digraphs in Alcman and Theocritus, see Willi 2012a with lit.).

From a general perspective, then, it would be perfectly acceptable to assume that *-*er*/*nḭ*- gave -*eḭr*/*n*- in some dialects of Greek. However, *-*erḭ*- has clearly become -*ēr*- in Att. σ̄ρᾱ and σπ̄ρᾱς, which casts doubt on the hypothesis that <°ANEIPA> contained a genuine diphthong.[174] If <°ANEIPA> really represents /°anẹ̄ra/, then much of the attraction of the diphthongization theory is lost (although there is nothing wrong with the idea that *-*er*/*nḭ*- developed differently in Attic and Ionic[175]). But it is actually not impossible to reconcile <°ANEIPA> with σ̄ρᾱ and σπ̄ρᾱς. The various ways that this can be done are explored in the following sections.

3.3.3.1 <°ANEIPA> does not presuppose Att. -*eḭr*/*n*- < *-*er*/*nḭ*-

Δᾱιανειρα (e.g. in AVI 6514) clearly contains a non-Attic, apparently Doric, phonological element: according to Wachter (2016, 149 ff.), choral poetry was a "literarischer Modetrend" (p. 152) from ca. 540 until 450 in Attica (cf. further e.g. 'Att.' Καλλιοπᾱ). Δᾱιανειρα on Attic vases was possibly not a hybrid form with both Doric and Attic phonological characteristics (but such an analysis cannot be excluded); it must have been pronounced in the way it was normally pronounced by poets such as Bacchylides (where in fact this name is found twice); that is, (I suppose) [dāiḭaneḭra].

The digraph in mid-6th-c. Δ̄ειαν[ε]ιρα could be seen as an occasional poetic spelling of /ẹ̄/.[176] Wachter (NAGVI, 335; see also Wachter 1991, 111 f.) has argued that the writing of digraphs for secondary long vowels was probably an innovation first introduced in poetic texts: "[…] there was one situation where a form which rendered quantity as accurately as possible was of great advantage: in reading metrical poetry written in a difficult idiom". Although one may disagree with Wachter about the exact reason why the orthographic convention was adopted in the first place (cf. Allen 1987, 72), it is indeed possible that the digraph in forms such as Corinth. late 6th-c. -αγγειλᾱς (COP

[174] Unless /eḭ/ was monophthongized earlier before liquids (see 3.3.3.3 below), the possibility that σπ̄ρᾱς and σ̄ρᾱ show <E> for original /eḭ/ is vanishingly small. First of all, the two forms are found in three different texts, and in all of them the original diphthong is consistently written <EI> (/ẹ̄/ is almost always denoted by <E>; σπε[ιρ]α may have been written in Col.II.105 of IG I^3 386, but cf. also Πειραιευς in l. 2 and Threatte 1980, 173 ff. esp. 175 n° 33). Our forms would be the only examples showing <E> for /eḭ/ in the relevant inscriptions. Second, the spelling of /eḭ/ with <E> is generally rare in Attic, and before the 4th century it is almost entirely found in private texts. There is only one case of <E> for /eḭ/ in public documents from the 5th century (see Threatte 1980, 300 n° 5 = IG I³ 264; for IG I^2 107.2 see now IG I^3 108.2; on προε̄ρε̄μενο̣[ι]ς and ε̄ρε̄μενō̄ι, see Kostopoulos 2017, 165 f.), and even "in the decrees and inventories of the first half of the fourth century B.C. in which there is great variation between E and EI for [e·] there is almost universal retention of EI as grapheme for the original diphthong" (ibid.).

[175] In the absence of evidence for a change *-*er*/*nḭ*- > -*ēr*/*n*- in (East) Ionic (it is possible that Eub. Ναυστε̄ρε̄ς originally contained a diphthong), East Ion. <ΠΕΙΝΕ/Ο-> is not really problematic.

[176] But there seems to be indirect evidence through the μεταγραμματισμός of the Epics in the Ionic Alphabet (ca. 400) that when the Homeric poems at least were transliterated into the Old Attic alphabet, probably in the late 6th century, no digraphs were used for the secondarily lengthened *e*- and *o*-vowels; see Heubeck 1979a, 168; Peters 1991, 353v; West 2001, 21–23.

1A), "in a hexameter line containing a highly archaic formula also attested in epic" (NAGVI, 335), is "a reflection of written poetic texts" (ibid., 121; differently Arena 1990 = 1999, 296 n. 105. 311).[177] It is thinkable that from places like Corcyra or Cleonae, where, thanks to the early monophthongization of /eį̯/, /ę̄/ was written <EI> from an early date, that orthography soon spread among poetic circles as a convenient aid to recitation (cf. NAGVI, 336). Compare especially εποιει in the metrical part of CEG I, n° 42 (6th c.; Attica) beside εποιε̄ in the signature (see also Jeffery 1962, 127).

Alternatively, Δε̄ιαν[ε]ιρα could in essence be East Ionic. This form is found in a scene where Hercules (written Hε̄ρακλε̣̄[ς], with a non-East Ionic aspirate; cf. also NAGVI, 334b) kills Nessos. Labels to heroic scenes "are taken from epic tales and some of them show various linguistic features which point to literary language" (NAGVI, 331 f.).[178] Ionic Δηϊάνειρα is attested in the Hesiodic Catalogue of Women[179] (NB fr. 25.17 ff. is our earliest attestation of the myth of Nessos, see NAGVI, 292) and °άνειρα was common in the Homeric poems (for East Ionic echoes on non-Attic vases, see NAGVI, 332 f.; cf. also 333–335). Even if the name Δηϊάνειρα was not introduced in Attica via an East Ionic tradition — i.e. if a form [dēiį̯anẹ̄ra] was current in Attic during the 6th century,[180] it cannot be excluded that an East Ionic form was used on our vase. For a possible parallel see NAGVI, 178b. 333(11).

Late-5th-c. Δε̄ιανειρα and Δηιανειρα (3× in total) can be taken as instances of <EI> for /ę̄/. Unfortunately, assuming that the (relatively obscure) theonym Δάειρα/Δαῖρα is anything else but Attic would simply go beyond the evidence.

3.3.3.2 The two outcomes belong to different registers

It is difficult to find cases where prevowels show a double treatment after certain vowels in the same linguistic system, not least because — as it emerges from Operstein 2010 — the number of languages where diphthongization and lengthening are in complementary distribution is not particularly large.[181] However, sequences of sonorant plus yod apparently develop in two ways after **a* and **o* in Aeolic (and elsewhere). More specifically, there is evidence that in Thessalian and Lesbian **-anį̯-* and **-orį̯-* have become *-ann-* and *-orr-* in some words (for Thess. **-onį̯-* > **-oį̯n-*, cf. κοινος < **komį̯o-*; for attestations

[177] Cf. especially Heubeck 1979a, 115 f. with n. 629. 164.

[178] All of the scenes on our vases are heroic. I copy the relevant text from AVI; 6268, Heracles and Nessus. 6514, Heracles receives the boy Hyllos from Deianeira; at left, Athena; at right, Oineus. 5657, Heracles and Deianeira. 5462, Heracles and the centaur Eurytion. 3623, Heracles and Nessos; at right, Deianeira. 2689 and 2690, Heracles and Nessus.

[179] fr. 25.17 Merkelbach / West 1967 = 16.17 Hirschberger 2004.

[180] "Im 6. Jahrhundert […] dominieren […] die ionisch-attischen Formen, die einerseits die […] altattische Mythentradition reflektieren, andererseits die «homerische» Tradition, die damals von den in Ionien ausgebildeten Rhapsoden verbreitet wurde und in vielen Fällen sprachlich mit der attischen übereinstimmte" (Wachter 2016, 151).

[181] "The patterns of alternation between the two outcomes clearly warrant a separate investigation, but there is no sufficient comparative data available for this to be pursued in the present study" (Operstein 2010, 83).

see Blümel 1982, 100 n. 97). Compare the names Kyme or Phocaea Φανναγορᾱς and Erythrae Φαννοθεμις[182] (cf. Garbrah 1978, 15. 42. 63. 145; LGPN VB, 443; cf. also SEG 29:1149, 8:510; on Aeolisms in Ionic see Hodot 1990, 25 n. 78 and esp. Hualde Pascual 1997 and Santiago Álvarez 1999),[183] as well as several Thessalian and Macedonian (cf. Peters 2000, 383 n. 26 with lit.) names with /(-)korr-/ (cf. κοίρανος) < **kor̥i̯-* as first or second member, such as Κορρᾱγος etc. (see Arena 1965; Heubeck 1978; Peters 1980, 170 f.; García Ramón 2007, 182; cf. also Boeot. Κορραγιδης, Κορριναδᾱς, Epir. Κορραδᾱς).

Another form showing -ορρ- for expected -οιρ- is μόρραν in a commentary on Sappho found in the Cologne papyrus collection (Gronewald 1974). This may be taken as a hyperaeolism, but given East Aeol. Φανν° it is attractive to simply consider it genuine.

It should also be mentioned that in Sappho and Alcaeus some forms containing ancient *-*ur*/*n̥i̯*- show the unexpected development /-ūr/n-/ (the long quantity of the upsilon can be confirmed only in some cases; cf. Hamm 1957, 16); compare especially μεγαλύνεο, which notably is first attested in the Lesbian poets.

The correctness of Arena's and Heubeck's interpretation of Φανν° and Κορρ° is perhaps now confirmed by a new Arcadian bronze tablet from the archaic period (ca. 500; see Heinrichs 2015; Carbon / Clackson 2016; BE 2016, n° 214). In lines 4, 5, and 13 (cf. also χο[in l. 1) of that important inscription, the word χοῖρος 'pig, piglet' (< **g*^{h}*or̥i̯o*-; see Heubeck 1978, 97; Mastrelli 1994; CEG 3, s.u. with lit.; Nussbaum *apud* Meier-Brügger 2004, 255; cf. further Thess. Χορριουνειος, see García Ramón 2007a, 56)[184] is written χορο- (the exact forms are acc. sg. χορον and acc. dual χορō). The non-notation of the geminate liquid is certainly not unexpected in this archaic text[185]: cf. especially 7× ορ̆ἔν(-) 'male' < **h*$_2$*u̯r̥sḗn*[186]. (The word for 'pig' was also χοιρος in Arcadian, cf. the name Χοιροθυων in IG V 429; cf. Dubois 1988 II, 261.)

The tablet under discussion is an ancient copy of a text written probably on some perishable material. "[T]he copyist was […] not familiar with the Arkadic idiom, [and] the master text(s) he had before him was/were at least

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[182] "Φαννόθεμις continua un piú antico Φανόθεμις (cfr. Φανόδικος), adattato alla forma Φανναγόρας" (Arena 1965, 441).

[183] Hoffmann (1898, 582) connects Φανν° with φαεννό- (similarly e.g. Hodot 1990, 87 n. 224). But, although Φαεννης is attested in Lesbian, φαεννό-/φαεινό- is otherwise very rare in Greek personal names (cf. HPN, 440 f.; Arena 1965, 440 n. 3 is explicitly against the comparison with φαεννό-). Also, the existence of Φαιναγορᾱς and Φαναγορᾱς/ης as well as of (Ion.) Φανοθεμις (for the last name see LGPN I and VA) rather speaks for a connection with φαίνω (cf. also Blümel 1982, 97).

[184] On Myc. *K*/*ko-ro(-)* (and *Ko-i-ro*) cf. Ruijgh 2004, 13; García Ramón 2010, 85; Melena 2014, 24. 98.

[185] Heinrichs (2015) and Carbon / Clackson (2016) believe that <XOPO-> represents χō̆ρο-.

[186] Incidentally, this form confirms that Arc. τορρεντερον should be read as τ'ορρεντερον (with elision), and that "das Arkad. neben ἀρσεν- 'männlich' […] auch noch eine Variante mit ὸ- gekannt hat […]", as Peters (1993, 380) thought 26 years ago (cf. now also Thess. ορσεν n., García Ramón 2007b, 105 f.; for the lack of digamma in the Arcadian form, both contamination with **ersḗn* and early loss before /o/ are possible, cf. Peters 1993, 378 ff.; on ϝōφλε̄κοσι etc. see most recently Dubois 2012).

partially written not clearly enough or even faded or otherwise damaged in places" (Heinrichs 2015, 26 f.). χορο- is found thrice in our document, so despite Heinrichs' remarks this form is almost certainly real. The three editors, as well as Dubois *apud* BE 2016, n° 214, also take χορο- at face value.

On the basis of Κορρ° and of unmistakably Aeolic forms like μάγοιρος and ὄνοιρος, Peters (1980, 171 n. 122) has plausibly suggested that *-*or̯i̯*- probably yielded both -*oi̯r*- and -*orr*- in that dialect group.[187] It is imaginable that under certain circumstances, as for example in fast speech, prevowels were weakly articulated in some languages. If prevowels were weaker in fast speech in Greek, then their perceptual saliency was probably diminished even after /a/ and /o/ (palatal prevowels are usually particularly prominent after these vowels; see Operstein 2010, e.g. 13. 101. 103 f.; on weakly articulated prevowels, see ibid., 104. 111). That could have easily led to their occasional loss in Aeolic and Arcadian (cf. Operstein 2010, 18 with lit.; see further ibid., 111 f. 151 and pp. 40 f. above). Recall that the prevowel was lost in Aeolic in cases where it was difficult to be distinguished from the preceding nucleus, cf. *-*er*/*n̯i̯*- > -ερρ/νν- (further Arena 1965, 439; Blümel 1982, 96–98).[188]

It may be suggested that in normal speech the prevowel was salient enough to be taken as a diphthongal glide in Attic even after /e/, while in fast speech the weakly articulated prevowel was perceived as extra length in that dialect. In other words, it would be possible to conjecture that in lower registers the outcome was a long vowel, while in more formal speech the prevowel acquired segmental status in Attic-Ionic (cf. Forssman 1975, esp. 31; Duhoux 1987, esp. 188 f.). In poetry, where the elevated style called for a less colloquial tone, diphthongal forms must have been rather frequent. The name of Deianeira (and other names in °άνειρα) was probably known to the painters mainly through (oral) poetry and/or epic tales (cf. NAGVI, 296b. 331). Perhaps

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[187] Hickey (2011, 269) notes that Modern Irish *tinn* 'sick, sore' is pronounced both [t̪aɪŋʲ] and [t̪iːŋʲ] in county Cork (that is, /i/ was apparently either lengthened or diphthongized in parts of the Irish south; for prevocalization in Irish see Operstein 2010, 86 f.). He notes further that both [mɑːlˠ] and [mɑʊχ] are found for [malˠ] 'slow' in West Irish dialects, but perhaps 'West Irish' is a rather broad term for our purposes (cf. Ó Siadhail 1989, 2 ff.; Hickey 2011, 119 ff.). Finally, although [a] is lengthened before a preconsonantal nasal in West Galway (which can be further divided into Cois Fhairrge and West Connemara), in Cois Fhairrge a diphthong is seen in a small number of forms (see Ó Siadhail 1989, 53 f.). Unfortunately, I am not qualified to judge whether the Irish and the Attic-Ionic forms are really comparable.

[188] Alternatively, prepalatalization was an optional rule in some dialects (optional prevocalization of secondarily modified consonants is not uncommon crosslinguistically; see e.g. Ó Siadhail 1989, 49–56; Operstein 2010, 117 with lit.). — It could be argued that σερᾶ and σπερᾶς show loss of the prevowel, but this is unconvincing since the Aeolic examples rather suggest that prevowel loss does not involve degemination, and forms like *σερά and *σπέρα are otherwise not attested in Greek (though note αἰγερο- = αἰγειρο- [see n. 139] and Eustathius Comm. Od. II, p. 277.38–40: σειραὶ τοίνυν ἐλέγοντό τινες πεπλεγμέναι διὰ σχοίνων, φυτῶν δηλαδή. ἐντεῦθεν δὲ εἰλῆφθαι δοκεῖ καὶ ἡ ἰδιωτικῶς **σέρα** ἡ τὰς θύρας κλείουσα, πάλαι μὲν σχοῖνος οὖσα, καὶ αὐτὸ εἰπεῖν σειρὰ πλεκτή· ὕστερον δὲ καὶ ἐπὶ ξυλίνων μοχλῶν τῶν ἐντὸς παρανοουμένη ἢ παραφθειρομένη, ἵνα ᾖ ὥς περ δειρὰ δέρη, οὕτω καὶ σειρὰ **σέρα** τὸ ἰδιωτικόν).

the way they wrote that name conformed to the way it was pronounced by the bards/storytellers. This analysis is not contradicted by Att. Δαῖρα.

3.3.3.3 Early monophthongization of /ei̯/ before liquids/resonants

There is a general consensus that in the American south /ai̯/ is most frequently monophthongized before liquids ("as in [fa:r] 'fire'"), less frequently before nasals ("as in [ta:m] 'time'") and voiced stops ("as in [ta:d] 'tide'") (in that order), and rarely before voiceless stops ("as in [ta:t] 'tight'") (Schilling Estes 1996, 115; see also e.g. Hazen 2000; Bowie 2001, 333 ff.; Fridland 2003, 280 f.; Bernstein 2006, 214; Johnstone et al. 2015, 22).[189] Similarly, in African American English, *ai̯*-monophthongization is most common before liquids; monophthongization is less likely to happen before nasals (which are less sonorous than liquids), and is quite uncommon before stops (see Mendoza-Denton et al. 2003, 117 ff.; Thomas 2007, 460 f. with lit.). Finally, in Lancaster County, Pennsylvania, where one of the several dialects of so-called Pennsylvania Dutch (i.e. German) is spoken, monophthongization of /ai̯/ to /ɛ̄/ (this change is not to be attributed to contact with English) occurs only before liquids, according to Louden (1997, 81).[190]

Hence, it seems that the sonority hierarchy can play a central role in monophthongization (thus explicitly Mendoza-Denton et al. 2003, 117). Now /ei̯/ was monophthongized to /ę̄/ in Attic at a relatively early date. As e.g. the example of *ai̯*-monophthongization mainly before liquids in the speech of African and southern white Americans suggests, the change of /ei̯/ to /ę̄/ in Attica may have started in specific environments. More precisely, it is possible that, originally, *ei̯*-monophthongization in Attic was predominantly[191] found

[189] *ai̯*-monophthongization is common before voiceless stops in some parts of the American south (and among certain social groups; see Thomas 1995, 151 f.). According to Thomas (1995, 152) and de Lacy / Kingston (2013, 323) the pattern with monophthongization only before voiced consonants is probably older. *ai̯*-monophthongization is also common word-finally, though this has been seen as an extension of the original pattern (i.e. before voiced consonants) by de Lacy / Kingston (2013, 323). Monophthongization in the southern U.S. primarily depends on the environment. Some studies have shown that other factors may also play a role in the occurrence of monophthongization, such as sex, age, educational background, etc. (cf. e.g. Bowie ibid.; Greene 2010; [J.] Thomas 2013 with lit.). The existence of a syllable boundary between the diphthong and the following consonant has also been shown to affect monophthongization in some regions (see Hazen 2004, 65 ff.). "The exact relationship between syllable position and sonorance of the following sound is not entirely easy to describe[;] […] tautosyllabic liquids and voiced obstruents favor /ay/-monophthongization more than their nontautosyllabic counterparts, while the reverse is true for nasals and voiceless obstruents" (Bowie 2001, 333 [ff.]).

[190] In Pennsylvania Dutch, [ai̯] has been monophthongized in almost all environments among midwestern Amish communities (the diphthong is still found only before [ə] and [ɐ]; Louden 1997, 81). — The monophthongization of PGmc. **ai̯* in West and North Germanic was also a context-sensitive process; see e.g. the overview in Versloot 2017, 284–288 with lit.

[191] Cf. Πῖσισρατος on a sherd from the Athenian Agora (archaic, mid-6th c.? cf. Vanderpool 1949, 405–408; Threatte 1980, 190), δοκις = δοκεῖς (AVI 2994; 550–525), and Ταλῑ̄δ[ε̄ς]/Ταλε̄δε̄ς (AVI 7537, 7587; 550–525) for *Ταλειδε̄ς (see Threatte 1980, 191). Note that original **-ei̯L-* was very rare to non-existent in Greek (there were no roots of the type *CeRR* in PIE, and liquid-initial suffixes were not many); cf. further n. 192 sec. par.

before liquids (the vowel shift /ę̄/ > /ī/ in Attic also originated in certain phonological contexts; see Wackernagel 1909; Threatte 1980, 190 ff.; 1996, 710 f.; Hawkins 2012, 152–154; cf. also Flemming 2003). If /ei̯/ > /ę̄/ began earlier before /L/ than before other consonants, then it was possibly completed earlier in that environment as well.

If so, *-*er*/*ni̯*- possibly gave -*ei̯r*/*n*- in Attic, and σπερᾶ and σπερᾶς perhaps indicate that the monophthongization was already at a quite advanced stage before /r/ in that dialect by the late 5th century.[192, 193]

Appendix: A note on ἀμείνων

As is known, ἀμείνων, the suppletive comparative of ἀγαθός, contains a genuine diphthong.[194] The default assumption would be that ἀμείνων continues

[192] Peters (1981, 190 n. 3 with lit.) connects Πειραιεύς with πεῖρα 'attempt, trial, experience' < *per̯ia. The former cannot be derived directly from the latter, so Peters derives Πειραιεύς from an unattested *pērā (with long *ā) < *per̯iā (from which πειράω was derived; πεῖρα would then be a backformation from πειράω; on this last point see already Sommer 1948, 118). On a semantic level, the connection between Πειραιεύς and πεῖρα is not immediately apparent. If περαιαδ[on AVI 0465 (early 6th c.) and Περαδō on AVI 6251 (600–550) have anything to do with Πειραιεύς, then this last word in the interpretation of Peters would hardly fit the present theory (Peters 1989, 75, building on Guarducci, compares Τίμαιος : Τῑμάδης with Hom. Πείραιος and our Περαδō [: Πērαδēς*?], cf. also Peters 1980, 175 n. 126; Jeffery [cf. LSAG, 70; followed by LGPN II] thinks that the name was Περάδης*; Immerwahr 1990, 13 n° 35 considers it possible that it was Περρράδης*). For Πειραιεύς, compare further on the one hand Att. Πει̯[ραιευς in IG I³ 346.67 (431/430, old Attic alphabet; beside κλῖναι Χῑōργēς, […] [κλῖναι Μῑλēσιōργ]ēς) and Πειραιει in IG I³ 370.63 (inventories; 418/7–415/4), and on the other Πērαι- in e.g. IG I³ 455 (ca. 445), 363 (ca. 440), 319 (432/1), and 294 (432/1).

According to Peters (1991, 353v), Att. ὀφειλε/ο- /op^{h}ę̄le/o-/ had a secondary variant /op^{h}ei̯le/o-/ in Attic-Ionic (the question of the origin of the alleged diphthong here is left open by him). The only texts that contain <ΟΦΕΙΛ-> without any other trace of <ΕΙ> for /ę̄/ are IG I³ 245 (470–460), 256 (440–430; οφε|[ι]λετω beside τελēν etc.), and 161 (435–405; ο]φειλēν; the orthography of suffixes is frequently quite conservative, see n. 157 and esp. Brixhe 1989, 35 on late 5th/early 4th-c. Ion. οφειλēν; Thasos οφειλēν beside ēναι in IG XII Suppl. 347 [after 386/5] is perhaps too late to be given much weight). Importantly, these are all public documents, but they are also quite short, so we cannot be certain that the <ΕΙ> here is not merely a digraph representing /ę̄/. Threatte (1980, 174; 1996, 680) considers the early examples of <ΟΦΕΙΛ-> as instances of <ΕΙ> for /ę̄/. In any case, I do not think that the possible existence of /op^{h}ei̯l-/ between 460 and 430 in Attic would pose major problems for the present theory.

[193] It is not uncommon for prevowels to be recorded in writing (see Operstein 2010, e.g. 52. 103. 141 f.). To mention a familiar case, the 'weightless' vowel produced by *i*- and *u*-epenthesis is systematically written in Avestan (e.g. *bara^{i}tī*; see Hoffmann / Forssman 2004, 51 ff.). It is theoretically possible that, in the 6th century, Attic at least still preserved prepalatalized resonants, and that Att. °<ΑΝΕΙΡΑ> denotes [°ane^{j}r$^{(j)}$a]. However, chronologically this idea has little to recommend it. Moreover, the proposal that Attic speakers(/listeners) were able to hear a distinct sound after the vowel until ca. the mid-5th century seems to me to be in direct conflict with the (subsequent) change (*)[-e^{j}r/n-] > -*ēr*/*n*-. By reading Operstein (2010, 84 f.), one may form the impression that a similar situation is attested in (Middle) Scots, where e.g. the result of *l*-prevocalization after /a/ is denoted by *au*/*aw*, but later surfaces as /ā/. *au*/*aw* from prevocalization fell together with the original diphthong at some point and was subsequently monophthongized; see Macafee 2003, 141. 148.

**amen-i̯oh-* (cf. Panagl 1981, 333). This analysis was relatively popular during the 19th century, but owing mainly to the diphthong in Attic and elsewhere it has now been abandoned (a recent discussion of the etymology of ἀμείνων can be found in Dieu 2011, 47 ff.). If <°ANEIPA> really contains a diphthong and is (at least in part) genuine Attic (thus Wachter 2016, 151 n. 44), which is possible, (Classical) Attic /amei̯n°/ does not decisively exclude the reconstruction **amenī̯*°.[195]

A somewhat unexpected fact is that the adverb ἄμεινον is written ca. fifteen times αμ̄ενον in the new Dodona tablets. The non-Corinthian, -Megarian, etc. (cf. Bartoněk 1966, 78; LSAG, 132 f.) cases of such a spelling that I can find are 2810A (500–450; Euboean[196] or Locrian alphabet; contains Ionic-looking ναυ]κλ̄ρε[ō̄ν, but cf. Méndez Dosuna 2018, 275), 3708A (mid-5th c.; alphabet of an Elean colony in Epirus), 62A (late 5th c.), 3325A ("Epirotan or Corcyraean version of the Corinthian script", Méndez Dosuna 2016, 136[197]; late 5th c.), 643A (ca. 400), 2261A (ca. 400; beside ει /ei̯/ 'if'; Méndez Dosuna 2018, 268. 278: Doric with Attic features?)[198] 2651A (400–350; the long closed /ē̯/ in [Doric] ε]ϛειται is spelled with <EI>, but the reading here is uncertain), 2584A (400–350; apocopated περί, long ᾱ̄: Doric, Thessalian[199]?), 2938A (400–350; beside ει 'if'), 2813A (400–350), 4143B (400–350), 1157B (4th c.), 3135A (late 4th c.; non-Att.-Ion. πρᾱ̄σσοιμ[ι), 551A (ca. 350; /ē̯/ in [ε]σσειτα(ι) is written with <EI>), Lhôte 2006, n° 100 (400–375; Ionic, beside ει 'if'), 103 (400–375; Attic, beside ει 'if').[200] n° 607 (early 5th c.) contains another example, but συνκ̄εμενον in l. 2 shows <E> for /ei̯/. 734A (450–400) reads]μενον, but this may represent]μενō̄ν.

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[194] Cf. the material in Hoffmann 1898, 389; Meisterhans 1900, 36 n. 193 (mainly Attic-Ionic). To the forms found in these works one may add e.g. IGASMG I 73 (7th/6th c.; Selinous) and SEG 34:972 (450–425; Selinous); cf. further Δάκαρης et al. 2013.

[195] Regardless of whether we choose to analyze <°ANEIPA> along the lines of 3.3.3.3: in the beginning, *ei̯*-monophthongization may have been found mainly or only before liquids (which are more sonorous than nasals), as is the case *mutatis mutandis* in e.g. African American English.

[196] On *ei̯*-monophthongization in Euboean, see p. 42.

[197] /ei̯/ was monophthongized quite early in Corcyrean, but /ei̯/ and /ē̯/ were normally written <ϐι> in that dialect (note also Προκλϐιδᾱ̄ς LSAG, 229 n° 8, probably from the Corinthian colony Anactorion in Acarnania), cf. Mhϐιξιος in IG IX 1^2, 4, 881 (6th c.) or Λεξϐιατᾱ̄ς in IG IX 1^2, 4, 883 (5th c.), and see n. 145 (cf. also NAGVI, 336). There is evidence for *ei̯*-monophthongization in Epirus; cf. Ambracia κατεχΕ mentioned above (n. 169; but from Ambracia cf. also 6th-c. εποιϐι SEG 51:742) and ϐτυμοκλΕδᾱ̄ς < *°*kleu̯i*° (Dodona; ca. 500? LSAG, 230 n° 14; perhaps from one of the Corinthian colonies near or at Epirus, cf. further Lhôte 2006, 332–334).

[198] ἐπίλοιπον has been written επιλοπον here, but ἄμεινον has been written αμ̄ενον twice (l. 4 (α)μ̄ενον and l. 5 α[μ]ε̄ν̣ο̣ν), so a careless omission seems unlikely (despite the missing alpha in (α)μ̄ενον).

[199] In that case, if ἄμεινον contained **-enī̯-*, one would normally expect †αμεννον here.

[200] In Attic, the writing of secondarily lengthened /e/ with <E> is very common until ca. 375. Conversely, "[t]he use of E for the inherited diphthong ει remains exceedingly rare in all types of texts" during the period 403–375 (see Threatte 1980, 177 ff.). The situation in (East) Ionic is quite similar (see Stüber 1996, 28–30).

It seems most likely that all instances of αμ̄ενον in the oracular tablets of Dodona show <E> for original /ei̯/. Admittedly, the writing of <E> for /ei̯/ is a rare phenomenon in the Greek dialects and in the Dodona documents[201] (though the monophthongization of /ei̯/ is clearly not), but ἄμεινον happens to be a very frequent word in our corpus (cf. Méndez Dosuna 2018, 272; "[u]ncontroversially, the probability of a word being misspelled is directly proportional to its frequency in a given corpus"), and our texts "were often scribbled in a rush by non-professional writers" […] and "composed ex tempore by inquirers who had a poor command of writing" (ibid., 267. 270; cf. the countless misspellings in the corpus).[202] On the other hand, if we trust the index in Δάκαρης et al. 2013, more frequent words than ἄμεινον, e.g. εἰ 'if', never show the spelling <E> in the new Dodona tablets, and the same applies to words of medium frequency like ἔπειτα (though see the four examples of ε̄τε cited above; εἴτε is another word of medium frequency in the corpus). This evidence is not probative, but it urges caution.

Before closing the discussion of ἀμειν-, Arc. Αμηνεᾶς (IG V,2 229) deserves mention. Most 19th-c. scholars connected this name with ἀμείνων (see e.g. Meister 1889, 95). Under this approach, the name Αμηνεᾶς would be a hypocoristic of a widespread name like *Αμηνοκλης (cf. Ἀμεινοκλῆς), and the Arcadian equivalent of Boeotian Αμεινεᾶς (IG VII 2587, undated) and Attic (etc.) Αμεινιᾶς (IG I³ 641, 510–500; IG I³ 1279, ca. 480).[203]

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[201] For Attic, for example, with its huge epigraphical record, Threatte (1980, 300 f.; 1996, 671. 729) was able to cite less than 25 certain cases (to these add AVI 7322, 3588). From Laconian only three examples are known (see Striano Corrochano 1989, 74; but see also ibid., 41 ff.). For Ionic we have two Euboean forms (or three; Cassio 1994, 192 and *passim*), one from Miletus, two in a business letter from Emporion (colony of Massalia; Massalia was a colony of Phocaea; cf. SEG 53:1153, 530–500; ξ̄κοσι and perhaps κελευξ̄), and ca. seven from Berezan and nearby Olbia (cf. Dubois 1996, n° 23 [Berezan letter, 550–500; SEG 57:693]. 42 ["[e]xercice scolaire"]. 52. 102). Note also Αμ̄ενο[on a 6th/5th-c. vase from Naucratis (cf. Hoffmann 1898, 389. 424 f.; Bechtel 1924, 34; Stüber 1996, 30; on the possibility that Naucratis was established by Milesians, see most recently Demetriou 2012, 109 ff. with lit.; the dialect of Naucratis was East Ionic, cf. NAGVI, 214 ff.). Selinous, Thera, Argos, Lesbos, and Pamphylia provide us with one case each, see Mimbrera Olarte 2012, 90; Domínguez Casado 2014, 127 (on τε̄δε see Bechtel 1923, 545); Nieto Izquierdo 2008, 121; Hodot 1990, 70 f.; Brixhe 1976, 39 (the interpretation of the Pamphylian form is uncertain).

After a full search of the exhaustive index of Δάκαρης et al. 2013, I was able to find only ten instances of the spelling in question in the (4216) Dodona tablets. These are: συνκε̄μενον in 607 (early 5th c.) mentioned above, the 1pl. optative σωθε̄μες = σωθεῖμεν in 419A (500–450), Φε̄διᾶς in 1433A (450–400), επε̄γον[τι] in 4079A (late 5th c.; ἐπείγω has no established etymology), ε̄τε = εἴτε in 2589A (late 5th c.), 1403B (late 5th c.), 1174A (early 4th c.), 986B (early 4th c.), and αυτε̄ = αὐτεῖ in 1246A (late 5th c.) and 3315A (ca. 400) (but cf. also Cret. αυτη; cf. Bechtel 1923, 760 f.; Bile 1988, 212 f. with n. 230). (On the supposed αε̄θαλ(ου)ς in 1108A see Méndez Dosuna 2016, 126 f.)

[202] Of course most cases of the spelling <E> = /ē/ < /ei̯/ in Greek come from private documents.

[203] Cypriot *A-me-ni-ja* < **-eā-* is ambiguous and nowadays (unlike during the 19th century; see e.g. Schulze 1897, 894) it is usually connected with Thess. Αμενεᾶς (on which see below) rather than Arcadian Αμηνεᾶς. I suspect that there is no linguistic reason for this: Bechtel has arbitrarily corrected Arc. Αμηνεᾶς to Αμ(ει)νεᾶς in SGDI, n° 1242, and although this correction was never taken seriously (see e.g. Meister 1889, 95; Schulze 1897, 894), Bechtel (1921, 405) has not mentioned the Arcadian name in his discussion of *A-me-ni-ja*, and thus the

However, Schulze (1897, 894) disassociated Αμηνεᾶς from ἀμείνων and connected the former with East Aeol. Αμενναμενος. This last name seems to be an aorist participle of an unattested *ἀμενέω built to ἀμενής ‘without μένος’ (Bechtel 1921, 92; cf. φιλέω, δατέομαι : φῖλαι, δάσσασθαι). On the basis of names such as Αλεξαμενος beside Αλεξεᾶς, Αλεξιᾶς, and Αμυνναμενος beside Αμυνεᾶς, Αμυνιᾶς, one could argue (with Schulze) that Αμηνεᾶς is the hypocoristic of an unattested Arcadian *Αμηναμενος (= Αμενναμενος). This may be further supported by Thessalian Αμενεᾶς, which Schulze and others correct to Αμεν(ν)εᾶς (but geminates are otherwise consistently written in the inscription where Αμενεᾶς is found; Bechtel 1917, 6 f. derives Αμενεᾶς directly from ἀμενής and compares Thess. Αμενισκος).[204]

3.3.4 Conclusions on *-*er*/*n̥i̯*-

Despite the fact that our knowledge about ‘Taganrog’ phonology and orthography is very limited, it is possible to argue on the basis of Taganrog (Old Ionic) <ΠΕΙΝΕ/Ο-> that **e* was diphthongized when before *-*r*/*n̥i̯*- in some parts of the Greek speaking world. This proposal also gains support from Old Attic <ΔΑ/ΕΙΑΝΕΙΡΑ>. However, late-5th-c. Att. σε̄ρᾱ and σπε̄ρᾱς suggest that *-*er*/*n̥i̯*- became -*ēr*/*n*- in Attic. In view of these facts, it was proposed above that Δᾱ̂ιανειρα is a Doric form. Δε̄ιαν[ε]ιρα could be East Ionic or it could contain an early instance of <ΕΙ> for /e̯/ in a poetic/literary context (cf. 6th-c. Corinth. -αγγειλᾱς). The late-5th-c. examples of <°ΑΝΕΙΡΑ> can be seen as cases of <ΕΙ> for /e̯/. Another approach would be to assume that *-*er*/*n̥i̯*- yielded -*ēr*/*n*- in lower registers but -*e̯ir*/*n*- in more formal styles of Attic. Alternatively, it can be argued that *-*er*/*n̥i̯*- originally gave -*e̯ir*/*n*- in Attic-Ionic, and that the well-known Attic monophthongization of /ei̯/ started earlier before resonants.

On the evidence of Att. σε̄ρᾱ, Arc. φθηρων, Cret. πε̄ρα*, and Lesb. -ερρ/νν- (which supports the idea that the prevowel was — in some dialects at least — not easily distinguishable after /e/), it is clear that the original outcome of *-*er*/*n̥i̯*- was -*ēr*/*n*- in some Greek dialects.

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old comparison was forgotten (especially since Dubois has not discussed the Arcadian name in his grammar). The comparison of *A-me-ni-ja* with Arc. Αμηνεᾶς is therefore still valid.

[204] Masson (1996, 96 n. 51) finds the connection of Αμενεᾶς with ἀμενής “très peu satisfaisant pour la sémantique”. He proposes to connect the forms with μένος and interprets the α- as an “*a*-augmentatif”.

4. **pi̯ (and *mi̯)*

Glide hardening in sequences of labial plus yod is relatively common in palatalizing languages; cf. e.g. Modern Cypriot sg. κουπί [kupi] 'paddle' : pl. κουπιά [kupcɐ] (SMGk. [kupçɐ]), Kirundi /fj/ : [fc], etc. (see further Newton 1972; Kümmel 2007, 153 f.; Kochetov 2016; Baltazani et al. 2016).[205] Proto-Greek **pi̯* (> Gk. ππ[206]) most probably underwent glide hardening to *[(-p)pc-] (< *[(-p)pç-]; cf. Newton 1972, 170; Kümmel 2007, 153 f.) at some stage (cf. Brixhe 1996, 70). In intervocalic position, this change must have been followed by degemination of the preconsonantal geminate (cf. Schindler 1967, 246; Méndez Dosuna 2007b, 301 n. 57; Noreen 1923, 207; Pająk 2010, 271 ff.). At a later point, *[c] in *[pc] was probably perceived as */tʲ/ (cf. **p^{h}ulakʷi̯ō* > φυλάττω etc.).[207] A problem with this analysis is that postconsonantal */tʲ/ (< **ti̯*) would not be expected to be depalatalized in all of Greek.

According to Kochetov (2016, 3), sequences of consonant plus palatal consonant are marked and tend to be avoided (no examples are offered by Kochetov in support of this claim; preconsonantal palatalized consonants — which are also marked — are frequently depalatalized crosslinguistically, see Kochetov 2002, e.g. 31). Baker (2004, 130 with n. 21), on the basis of distributional evidence from Spanish and French, posits a markedness constraint *CC^{pal} in order to account for the unexpected change /kʎ-/, /pʎ-/, /fʎ-/ > /ʎ-/ in initial position in Romance. It might be argued that *[pc] > */ptʲ/ postdates the early fricativization of singleton affricates, and that palatals were depalatalized after a consonant in later Greek. But in such case one would perhaps expect *-*Rki̯*- to give /-Rt-/ in Ionic:[208] the contrast between Att. τ- and Ion. σ- suggests that */tʲ-/ < **ki̯*- was preserved until quite late in Attic-Ionic, and if my remarks on p. 26 are on the right track, that would mean that */-Rtʲ-/ < *-*Rki̯*- was also preserved until late in that dialect group. Kümmel (2007, 153. 206) does not seem to exclude the possibility of a direct change of *[pc] to */pt/ as regards Greek.

PGk. **mi̯* also underwent glide hardening. For a form like βαίνω (**mi̯* also occurs in κοινός and perhaps in χλαῖνα [cf. χλαμύς]; for the latter, Ruijgh 1985, 112; Rosół 2013, 107–109 with lit.; but see now also Garnier 2017) we have to assume the following sequence of sound changes; **g^{u}m̥i̯ō* > *[g^{u}am$^{(j)}$nō][209] > *[g^{u}a^{j}m^{j}nō] or perhaps *[g^{u}a^{j}nnō][210] > */g^{u}ai̯nō/ (cf. further

[205] For the phonetics/phonology of this process see Baltazani et al. 2016 and the references in Arvaniti 2010, 107 n. 1. See also Miller 2010, 181.

[206] Most of the available material regarding this development can be found in Debrunner 1907, 207 ff.

[207] I would assume that *[pc] > */ptʲ/ happened at a time when Greek still possessed palatalized alveolars/consonants (such sounds were preserved until quite late; see Méndez Dosuna 1993, 99 f. with n. 45. 102).

[208] But it should be noted that *preconsonantal* /tʲ/ is generally more liable to depalatalization before heterorganic consonants; see Kochetov 2002, 29–31.

[209] With a contextually palatalized labial.

[210] Hock (2009, 91) cites a "S. Ital. *venneñña*" (cf. Lat. *uindēmia*, Fr. *vendanger*, It. *vendemmia*).

Brixhe 1996, 70 f.; Hock 2009; Operstein 2010, 75. 97. 110 f. 115 f.; Bateman 2007, 100 ff.).

Hock 2006 (similarly Risch 1979, 274. 277) considers the change *$p\underset{\frown}{i}$ > /pt/ (et sim.) a case of dental insertion (he reconstructs */p^j/ > */pt^j/ > /pt/ and compares e.g. "W Ukr. $p^y > pt^y$" and Czech "m^y > mñ"). He believes that this process was motivated by the markedness of palatalized labials. If this is correct, then labials were palatalized in prehistoric Greek.

However, in Modern Greek, sequences of alveolar(/dental), labial, and rhotic plus yod undergo glide hardening[211], but secondary palatalization is not attested in that language (Baltazani et al. 2016) and full/place-changing palatalization of labials and rhotics is highly disputed (see e.g. Bateman 2007; 2010; Hall 2000, e.g. 4). This means that, although (e.g.) [pj] becomes [pç] in Standard Modern Greek, MGk. [p] was probably not palatalized before [j] (this is of course the *communis opinio* among scholars).[212] It seems that palatalization and glide hardening are employed complementarily in Modern Greek and its dialects, with the latter being found with consonants that avoid palatalization (cf. Kochetov 2016; Baltazani et al. 2016).[213] Thus, if the ancient Greek change results from glide hardening, as is possible (and in my view most likely), then Gk. *$p\underset{\frown}{i}$ > /pt/ quite likely did not involve a mid-stage *[p^j]. The same applies *mut*. *mut*. to the change *-$m\underset{\frown}{i}$- > -$\underset{\frown}{i}n$-.

As for when *$p\underset{\frown}{i}$ was eliminated with respect to the creation of the Linear B script, only speculations can be made (words containing original *$p\underset{\frown}{i}$ are not attested in Mycenaean). As is well known, 'complex' syllabograms have the structure *C*$\underset{\frown}{U}$*V* in Linear B (cf. e.g. *dwo*, *nwa*). The sign *pte* is unique in being the only one with a structure *CCV*. Lejeune (1976) and others have argued on the basis of this fact that at the time of the creation of the syllabary *$p\underset{\frown}{i}$ was still /p$\underset{\frown}{i}$/ in Mycenaean (secondary palatalization of labials presupposes palatalization of coronals, dorsals, or both; see Bateman 2007, 51. 53. 62). Judson (2017, 124–126) voices doubts about whether *pte* really started life as */p$\underset{\frown}{i}$e/ (for example, *pte* is probably a Linear B innovation and *$p\underset{\frown}{i}e$ is primarily found in verbal forms, which are rarely used in the tablets; what would be the motivation for the creation of a sign $p\underset{\frown}{i}e$ in the first place?). I must say that I share her scepticism.

[211] /n/ and /l/ are an exception to this; cf. SMG εννιά [eɲɐ] 'nine', ελιά [eʎɐ] 'olive, mole', etc.

[212] Labials, /r/, and most alveolars are normally not palatalized in other palatalizing environments (e.g. before /i/). /s/, /z/, /l/, and /n/ (or /l/ and /n/ alone) are palatalized in some varieties, cf. e.g. Newton 1972; Baltazani et al. 2016; see also the previous footnote.

[213] Kochetov further mentions that glide hardening also affects sequences of labials plus /$\underset{\frown}{u}$/ in Kirundi.

5. *u̯i̯*

5.1 The outcome of *u̯i̯*

The sequence *-u̯i̯- becomes either -i̯i̯-[214] or -i̯u̯- in Greek. Compare Myc. *i-je-re-ja* uel sim. < *-ĕu̯ia[215] and Hsch., EM 28,7 αἰβετός· ἀ(ἰ)ετός. Περγαῖοι[216] < *$h_2$au̯i̯etó-.[217] The -ει- in forms like εὐρεῖα is a genuine diphthong (e.g. Jacobsohn 1910, 165; Forssman 1975, 15): cf. the denominatives in -ειω < *-eu̯i̯ō in Elean[218] (Schmidt 1899; Minon 2007, 396 f.; cf. also Dodona μαστειēι Lhôte 2006, n° 29; note that there were several Elean colonies in Epirus, e.g. Pandosia[219]), Arc. ēμιτειαν[220] (Carbon / Clackson 2016, l. 17; ca. 500), Cret. θēλεια in IC IV 65 (beg. 5th c.), θēλειαι in the Law Code of Gortyn (IC IV 72.Col.X 50 f. 54; ca. 480–450), and θēλει[αν in IC I viii 4*.a16 (mid-5th c.), Att. ταχειᾱς in the state decree IG I^3 34.27 (448/447; Old Attic alphabet), hιερεια and θēλεια in the deme law IG I³ 250.A5. 23. 27 f. B33 (ca. 450–430), hιερεια in the sacred law IG I³ 255.B11. 14 (ca. 430), and finally Epid. hēμιτειαν, θēλειαν in IG IV²,1 40.9; IV²,1 41.4.10 (law, late 5th c.;

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[214] Hom. νάει (ζ 292), νάουσιν (Φ 197) [ă] (< *nau̯i̯e/o-; cf. Hsch. ναύει· ῥέει, βλύζει; διαναῦσαι· διαπλεῦσαι; ναῖον ι 222) and δάηται [ă] at Y 316 = Φ 375 (: δαίω ‘light up, kindle’ < *dau̯i̯e/o-; cf. e.g. δεδαυμένος) possibly show [-i̯i̯-] > [-i̯-] with subsequent loss of the singleton glide as per Chantraine 1948, 167 and Allen 1987, 82; cf. Hom., Att. ἀεί [ă] (see DELG, 42b) < *ai̯u̯ei̯ and see also Bechtel 1908, 210 f. and Sjölund 1938, 35–38 (differently Schulze 1888, 258; 1892, 51; Crespo 1977, 89 ff.).

[215] Haug (2002, 116 f.) believes that the first resonant in */-eu̯i̯h$_2$/ was lost already in PIE by Stang’s Law (cf. *g^{u}ou̯ms > *g^{u}ō(n)s) and rejects the idea of a pre-Mycenaean change *-u̯i̯- > -i̯i̯- (according to him, the preservation of the yod in later Greek as well as the short [e] in -εια are analogical). But the *m in *g^{u}ou̯m(s) (or *n in *g^{u}ou̯ns) was phonetically consonantal (cf. most recently Zair 2018, 280–282 with lit.), while the */i̯/ in */-eu̯i̯h$_2$/ was realized as *[i]. It is impossible to derive Myc. *-e-ja* from */-eu̯i̯h$_2$/ via Stang’s Law. — On the basis of the old idea that the suffix -εύς has been borrowed from an unknown non-IE language (this theory was recently revived by Meissner 2016; see also Judson 2016, 61 n. 68 with lit.), Ruijgh (1967, 248) tries to account for the missing /u̯/ in Mycenaean °*e-ja* by assuming that the suffix -εια is prehellenic, and not the continuation of PGk. *-eu̯i̯a. As most scholars in the field of IE studies, I find the idea of a non-IE -εύς hard to accept (see Schindler 1976 and most recently Olsen 2019). But in any case, taking what clearly seems like a native feminine suffix (cf. -εια < *-esi̯a) as a borrowing from an unknown source is — to say the least — highly counterintuitive. — Myc. *qa-si-*]*re-wi-jo-te*, if relevant, is of course secondary (e.g. Risch 1979, 273 f.; Peters 1980, 215).

[216] αἰβετός in Hesychius is a conjecture for transmitted αἴμετος (see the apparatus in Cunningham 2018, s.u.).

[217] Macedo (2017) traces the Mycenaean divine epithet *a-re-ja* (dat. sg.) back to an action noun (*alei̯i̯a <) *aleu̯i̯a ‘defense, warding off’ (to the root *$h_2$leu̯ ‘keep away, ward off’). He compares Aphrodite Συμμαχίᾱ, Demeter Ὁμόνοια, Zeus Κεραυνός, etc. The form *a-re-ja* is associated with Hermes; until a case with a masculine GN beside a feminine noun is found, Macedo’s analysis will remain highly speculative (or is *a-re-ja* to be understood as masc. [alei̯i̯ā-]? cf. Leukart 1994, 210–213).

[218] /u̯/ is unstable word-internally in Elean (cf. Minon 2007, 359 ff.), so verbal forms showing -ειε/o- in archaic Elean inscriptions hardly support the idea that the original outcome of *-eu̯i̯- was [-ei̯i̯-] in the dialect of Elis.

[219] According to Solmsen (1904, 166 n. 1), the inflection in -ειω was possibly not confined to Elean but was a characteristic of other Northwest Greek dialects as well.

[220] Digamma-less ēμιτειαν possibly suggests that *-u̯i̯- became -i̯i̯- in Arcadian (as in Mycenaean), but cf. also n. 222.

/o̱/ = <ο> and <ου>, /ō̱/ = <ο>).[221] For later Ionic -εα for -ια see Smyth 1894, 197 ff. Lesbian forms like εὔρηα = εὑρεῖα in no way support the conclusion that *-*eu̯i̯*- yielded /-ē̱i̯-/ in some dialects: [-ei̯i̯-] from any source (cf. ἀρήων, Πενθιληο-, for the latter see Peters 1980, 324) was at some point monophthongized in the language of Aeolic poetry; see Forssman 1975 and Nikolaev 2012, 184 n. 143 (*pace* Slings 1979, 250). Attic ἱερέᾱ (Ion. ἱερέη, ἱερῆ) is irrelevant, since it continues *-*ĕ̯u̯ā* (see Schulze 1892, 488 ff. and Sommer 1977, 312 ff.; cf. also Solmsen 1909, 252 n. 1; Forssman 1975, 33 n. 2; Threatte 1980, 315; Stüber 1996, 92 f. with lit.; Balles 2008, 235).[222]

The forms *di-u-jo* (PY Tn 316, Hand 44) beside *di-wi-jo*, and *di-u-ja* (PY Tn 316; Cn 1287, Hand 31; cf. also *di-u-ja-jo-qe* PY Tn 316; *di-u-ja-wo* TH Of 26) beside *di-wi-ja* probably continue original **di̯u̯i̯os* and **di̯u̯i̯ā* as per Heubeck (1963; 1970), Schindler (1976, 352), Peters (1980, 216 f. with n. 168), Dunkel (1991, 15 n. 47); García Ramón (2014, 36 n. 8. cf. also 38), and Melena (2014, 100 f.) (*pace* e.g. Ruijgh 1967, 130 f.; Risch 1974, 135 n. 120; Viredaz 1983, 176; Leukart 1994, 175–177 with lit.; Hajnal 1995, 43 ff.).[223]

According to (e.g.) Killen (2004, 220 f.), *Ka-ra-wi-ja* in the new Thebes tablets (TH Fq 169.4 and possibly 207.1 and 228.2) is undoubtedly a variant spelling of *Ka-ra-u-ja* in MY Fu 711.8 ("note that the commodities issued on Fu 711 include barley (HORD) and flour (FAR), which are the two commodities listed on the Fq tablets"). Most Mycenaeologists believe that *Ka-ra-wi-ja*/*Ka-ra-u-ja* is to be compared with later Greek γραῖα 'old woman' (< **grāu̯i̯ă̯* < **grāhu̯i̯ă̯* [Nussbaum 2001[224]] or perhaps **grai̯u̯i̯a* [Peters 1980, 135; cf. also Nikolaev 2008, 560 with lit. and Höfler 2017]), and that it is either a theonym/anthroponym (cf. SEG 58:1873) or an appellative (cf. e.g. Killen 2004, 220 f. and 2006, 103 n. 71. 105 with lit. [title? name of a divinity? for the latter cf. also Ruijgh 2004, 9]; Duhoux 2005, 9; Bernabé 2012, 194; Melena 2014, 100 f. ["adjective based on /graus/"]; further literature in Aura Jorro 2017, 259). The two forms could also be connected with the theonym Κλαῖα < ?**klāu̯i̯ā* (Heubeck 1979, 241 n. 10; compare Myc. *ka-ra-wi-po-ro*, *ka-ra-wi-ko* : κλείς 'key'; the sanctuary of that goddess was in Messene according to Pausanias (9.3)). This is rejected by Aura Jorro (2017, 259).

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[221] πλατειᾱ<ι> in l. 4 of an early 5th-century lead tablet probably from southeast Sicily (cf. SEG 57:905; ca. 470 or slightly later) is found next to the infinitive ειμειν (l. 3).

[222] ιερεᾶι in l. 13 of the new Arcadian inscription discussed on pp. 54 f. is to be connected with Att.-Ion. ἱερέᾱ/ἱερέη (*pace* Clackson *apud* Carbon / Clackson 2016, 142; cf. diphthongal ēμιτειαν < *-*eu̯i̯a*- in l. 17). This assumption seems somewhat problematic, since /u̯/ is consistently written in all positions in our inscription (cf. οϝι, αϝεθ<λα>, ϝετει, ενϝοτοι, κορϝον, Γενεσϝαν, Διϝονῦσōι, etc.). However, in lines 1 and 2 of the same text we find digamma-less nom. pl. κρεα [ᾱ/ă] (cf. Peters 1980, 262 f. with n. 217 with lit.; Nussbaum 1998, 70) < **kreu̯aha* (it seems that aspiration anticipation did not affect **u̯*, cf. ἔαρ 'spring' < **u̯ehər* and Nussbaum 1998, 139 ff. n. 146; notice that both ιερεᾶι and κρεα continue *-*ĕ̯u̯ă̯*(-)).

[223] "[I]t is possible that Mycenaean scribes were more prone to write allegro forms than were the writers of later centuries" (Cowgill 1966, 89). — The /-u̯i̯-/ cluster in the comparative *me-wi-jo-e*/*me-u-jo* /mei̯.u̯i̯o-/ (≈ μείων) is most likely secondary (see Peters 1980, 217 n. 168; Hellemans 2005, 152–154; Dieu 2011, 579 ff.; Barber 2013, 176 f.). — On **di̯u̯i̯os* beside **di̯u̯i̯os* in Greek see Jacobsohn 1910, 163 ff. with lit.

[224] Thanks to Alan Nussbaum for sending me this handout.

If *Ka-ra-wi-ja*/*Ka-ra-u-ja* is a personal name or an adjective based on γραῦς (cf. Myc. *ka-ra-we*), which is likely, then this word probably continues *°*u̯i̯ā* and is thus irrelevant to the present discussion. This is the least costly assumption, but *-wi-j*° is widely attested in Mycenaean, whereas *-u-j*° is mainly found in perfect participles, in the word for 'son', and in the few forms discussed in this section. On the other hand, syncope is relatively common in Mycenaean and in Mycenaean proper names (cf. Leukart 1994, esp. the cross-references on p. 28 n. 1); cf. *Ke-ra-u-jo*, *Pa-ra-u-jo*, *Po-ro-u-jo* (which quite possibly contained *-i̯o- at some earlier stage), and *Au-ja-to* beside *Au-wi-ja-to* (see Hellemans 2005, 148 with lit.).

If *Ka-ra-wi-ja*/*Ka-ra-u-ja* is really the Mycenaean equivalent of alphabetic Greek γραῖα, then the preservation of the sequence *-u̯i̯- in this word will be hard to explain. Hellemans (2005, 152) proposes that the change */-u̯i̯-/ > /-i̯i̯-/ only affected high frequency vocabulary first (cf. also Viredaz 1983, 180; Hajnal 1995, 45 with n. 44), but our data do not give the impression that *-u̯i̯- was in the process of becoming /-i̯i̯-/ in Mycenaean. It would be theoretically possible to consider *Ka-ra-wi-ja*/*Ka-ra-u-ja* a historical spelling, or to attribute the preservation of the cluster here to the inherent conservatism of proper names/theonyms, but that would be pure conjecture. Until more is known about *Ka-ra-wi-ja*/*Ka-ra-u-ja*, it seems prudent not to base any conclusions on these two forms.[225]

5.2 The historical phonology of *-u̯i̯- > -i̯i̯-/-i̯u̯-

It has been argued that PGk. *-u̯i̯- was assimilated to -i̯i̯- after vowels other than **a* and **o* and that the sequences *-au̯i̯- and *-ou̯i̯- were metathesized to -ai̯u̯- and (*)-oi̯u̯- (cf. esp. Scherer 1967, 329 and Peters 1980, 217 n. 168; compare further Hermann 1923, 41; Heubeck 1963; 1970; Risch 1974, 135 n. 120).[226] If *-u̯i̯- became -i̯i̯- and -i̯u̯- via assimilation and metathesis, it is unlikely that the application of the one or the other change depended on the quality of the preceding vowel. Perhaps *-u̯i̯- was assimilated only in certain dialects and metathesized in others, but for reasons to be discussed in a moment, it seems improbable that -i̯i̯- and -i̯u̯- result from assimilation and metathesis.

Theoretically, if -ειᾰ continues *-ēu̯i̯a and not *-ĕu̯i̯a (both are possible, see Schindler 1976, 352[227]), and a sequence *-V̄u̯i̯- was syllabified *-V̄.u̯i̯- in Greek (thus Miller 1994, 8),[228] the change *-u̯i̯- > -i̯i̯- might be seen as a

[225] *de-wi-jo*/*de-u-jo-i* have not yet received a satisfying interpretation (see the lit. in Hellemans 2005, 146). On *qe-te-jo*, *qe-te-o*, *qe-te-a*$_2$, if these forms are to be compared with the verbal adjectives in -τέος, cf. Malzahn 2002; Pike 2006; Willi 2009a. It is unclear whether]*ka-wi-ja* and *ka-u-ja*[are the same word (see Hellemans 2005, 147).

[226] Ruipérez (1990), who was one of the main supporters of the theory that Myc. °*e-ja* is irrelevant to the question of the treatment of *-u̯i̯- (see Ruipérez 1966), thought that *-*e*/*iu̯i̯*- gave *-*ē*/*īu̯*- (despite Elean -ειω [-ei̯i̯ō] < *e*u̯i̯ō*).

[227] Solmsen (1909, 253) opted for *-*ĕu̯i̯a*; Sommer (1977, 323 n. 1) preferred the reconstruction *-*ēu̯i̯a*.

[228] Osthoff's Law has failed to apply to κρημνός. Miller attributes this fact to syllabification, claiming that the consonantal cluster in *-V̄*mn*- (and *-V̄u̯i̯-; cf. ᾠόν < *ōu̯i̯óm*, but this could

regressive assimilation motivated by a phonotactic constraint against tautosyllabic *$\underset{\frown}{\mu\underset{\frown}{\imath}}$ sequences: cf. the epenthesis in the Corinthian hapax ϝιōκΕ ‘pursues’ (NAGVI, 114 f.) < *$\underset{\frown}{\mu\underset{\frown}{\imath}}\bar{o}k$-[229] and perhaps cases like Hom. αὐερύω < (*)$a\underset{\frown}{\mu\mu}$° < *$an$-$\underset{\frown}{\mu}$° and Hes. 2sg. aor. opt. καυάξαις < (*)$ka\underset{\frown}{\mu\mu}$° < *$kat$-$\underset{\frown}{\mu}$°[230] (cf. also Byrd 2015, 225).[231] In order to account for αἰβετός, it may be further argued that *$\underset{\frown}{\mu}$ after short vowels was ultimately palatalized and prepalatalized before yod (a metathesis *$a\underset{\frown}{\mu}.\underset{\frown}{\mu\imath}et\acute{o}$- > (*)$a\underset{\frown}{\imath\mu}et\acute{o}$- cannot be ruled out[232]). However, if *-$V\underset{\frown}{\mu\imath}V$- was geminated to *-$V\underset{\frown}{\mu\mu\imath}V$- in Greek, as was probably the case in West Germanic (see e.g. Thórhallsdóttir 1993, 216 ff. 243 ff.; Ringe / Taylor 2014, 53; but see also Callender 2006, 66 f.; Murray 2000, 230 f. with lit.), /$\underset{\frown}{\mu\imath}$/ was an acceptable syllable onset in early Greek.[233] In any case, the present scenario is based on too many hypotheses that are currently impossible to prove and thus lacks credibility.

As is well known, *$\underset{\frown}{\mu}$ was palatalized in Tocharian and Old Irish in certain contexts (Pinault 2008, 444 f.; Cowgill 1967; McCone 1996, 131; see also Ringe / Taylor 2014, 53 on West Germanic); palatalization was a

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have become *$\bar{o}\underset{\frown}{\imath\imath}om$ before the application of OL) was tautosyllabic. Peters (1980, 332. cf. also 256) sees *-$\bar{V}mn$- only as a potential Osthoff environment (cf. *$mes\bar{a}mri\underset{\frown}{\imath}\bar{a}$ > Ion. μεσαμβρίη), since as is well known *m frequently behaves as an obstruent in Indo-European; see further the recent discussions in Cooper 2013, 11 f. and 2015, 317 ff. and in Zair 2018 (cf. e.g. forms like σμῑκρός — with an unexpectedly preserved sibilant — beside μῑκρός; cf. further Solmsen 1888, 84–86). On Miller’s proposal, particularly in connection with Osthoff’s Law, see Simkin 2003, 191 ff.

[229] Peters 1980, 138 n. 92. 99; 1989, 255 (cf. (ϝ)ἰωκή [see DELG, s.u.], (ϝ)ἵεμαι [ῑ], etc.).

[230] Cf. further Schulze 1892, 56 ff.; Schwyzer 1939, 224. 407.

[231] ϝιōκΕ suggests that (tautosyllabic) *$\underset{\frown}{\mu\imath}$ ceased to be an acceptable syllable onset at some point in Greek (cf. Peters 1980, 136 f.; for epenthesis as a repair strategy in Greek, cf. πότνια etc. in the interpretation of Peters 1980, but on πότνια and the like see also Kim 2004, 112 f. n. 23; “[…] the best examples of reflexes of the “doubly consonantal” *#$\underset{\frown}{\mu\imath}$- are in languages where *$\underset{\frown}{\mu}$- developed to [β] or [v] (e.g. Skt. *vya*-): this may not be accidental” Simkin 2003, 195 n. 259). The same conclusion may be drawn from the problematic trisyllabic ὤϊον in Sappho (if from *$\bar{o}.\underset{\frown}{\mu\imath}om$), but, as Schindler (1969) has suggested, this form could continue ὤεον.

It could be argued that heteromorphemic *-$\underset{\frown}{\mu\imath}$- in *-$\bar{e}\underset{\frown}{\mu\imath}a$ was resolved via assimilation, while tautomorphemic *$\underset{\frown}{\mu\imath}$- in ϝιōκΕ via epenthesis. However, the assumption that illicit clusters could be eliminated through different repair strategies depending on the presence or absence of a morpheme boundary is difficult to verify. In Greek, stop clusters that go against the ideal order for segments in the sonority hierarchy (see e.g. Miller 1994, 7; Devine / Stephens 1994, 22–25) are eliminated through regressive assimilation or cluster simplification in derived environments. Compare *$H\underset{\frown}{\imath}od$-$k^{\mu}id$ (cf. Ved. *yác cit*, YAv. *yaṯcit*) > *hok-$k^{\mu}id$ > Aeol. ὅ/ὅττι, Att. ὅτι, *$H\underset{\frown}{\imath}od$-$k^{\mu}o$- > *$hok$-$k^{\mu}o$- > Hom., Aeol. ὅππως, Att. ὅπως (cf. also Hom. κακ-κείοντες, Myc. *po-pi* [pop$^{(h)}$p^{h}i] < *pod-$p^{h}i$, *ko-ru-pi-qe* [korup$^{(h)}$p^{h}i-] < *$korut^{h}$-$p^{h}i$, etc.); cf. Ruijgh 1977, 261. Contrariwise, illicit clusters that are found within morphemes are removed via metathesis (cf. also δοῦπος < *$gdo\underset{\frown}{\mu}pos$; /dg/ was not a permissible syllable onset): cf. e.g. τίκτω < *$titk\bar{o}$ (: *$tek\hat{}$) (on Φιλοσκῆτ[etc. see Jasanoff 2018, esp. 138 and n. 9 above). Nevertheless, it is impossible to know whether *T+K > T+T and *TK > KT ever applied complementarily on a synchronic level.

[232] Cf. tautomorphemic *TK > KT, -*ddz*- > -*zd*-, but also *$\underset{\frown}{\mu\imath}\bar{o}k$- > (*)$\underset{\frown}{\mu\imath\imath}\bar{o}k$-.

[233] Incidentally, it is questionable whether gemination would occur in the sequence */-V̄$\underset{\frown}{\mu}.\underset{\frown}{\imath}$V-/, despite words like γλῶσσα < *$gl\bar{o}k^{h}\underset{\frown}{\imath}a$: /$\underset{\frown}{\mu}$/ is more sonorous than /r/, /l/, /n/, and /m/, and generally increased sonority is associated with greater weight (see Ryan 2011).

widespread phenomenon in (the prehistory of) both languages. Most stops and resonants were palatalized before yod in Greek. It would make sense to think that *$\underset{\frown}{u}$ also underwent palatalization in that position (thus Danielsson 1903, 383; Hermann 1923, 41; Allen 1958, 116 n. 23; Stang 1957, 31; Diver 1958; Cowgill 1969; López Eire 1969, 10; Ruipérez 1972, 145; Sheets 1976, e.g. 108, Risch 1979, 272. 276 [somewhat hesitantly]; García Ramón 1985, 115 n. 2; Hock 2004, 160).[234] The palatalization hypothesis is strongly supported by 'metathesized' αἰβετός (cf. also Crespo 1977, 89 f.):[235] as argued above, *-*R*$\underset{\frown}{i}$- > -$\underset{\frown}{i}$*R*- in Greek probably results from prepalatalization of previously palatalized segments. Importantly, in Ossetic, which is a palatalizing and prepalatalizing language, *-$\underset{\frown}{u}\underset{\frown}{i}$- is also 'metathesized' to (*)-$\underset{\frown}{i}\underset{\frown}{u}$-, see Cheung 2002, 97 ff. esp. 102. 116 f. Compare further the remarks of Operstein (2010, 100):

> "The question which naturally arises is how to choose between the metathesis and CP accounts when the intermediate stages are not documented. I suggest that in such cases it is necessary to consider the place of the process in the overall phonological tendencies of the language. The aim here is to see whether the process is isolated at a given historical period or whether it forms part of a more general tendency. Based on the evidence assembled here, CP of secondarily modified consonants is usually not an isolated phenomenon in the language's phonology but tends to affect all or most of the relevant consonants and frequently cooccurs with either depalatalization or umlaut. […] If, for example, it is known that the language is in the process of losing secondary palatalization, the surface Cj transposition is more likely to be the result of CP than metathesis".

Under the assumption that *$\underset{\frown}{u}$ was palatalized and prepalatalized in Greek, Myc. *i-je-re-ja* (et sim.; cf. also Myc. *-di-jo-* in the interpretation of Heubeck 1963, 199 and 1970, 67) is a problematic form: if the prevowel was absorbed by the nucleus in the position after **e*, or if it was segmentalized, then the expected form would be †*i-je-re-wa*.[236] Hermann (1923, 41) proposed (*mut. mut.*) that */-u̯$^{\text{j}}$u̯$^{\text{j}}$-/ (phonetically, that was probably *[-qq-][237]) was "weiter palatalisiert" to -$\underset{\frown}{i}\underset{\frown}{i}$- after front vowels (cf. diphthongal εὐρεῖα). According to him, */-u̯$^{\text{j}}$u̯$^{\text{j}}$-/ regularly became -$\underset{\frown}{i}\underset{\frown}{u}$- after **a* and **o* (cf. αἰβετός) via

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[234] Melena (1978) has speculatively proposed that the sign **79* of the Mycenaean syllabary represented /u̯$^{\text{j}}$u̯$^{\text{j}}$o/ (my notation). For a recent, balanced discussion on the possible value of **79*, see Judson 2016, 157–161.

[235] On Διδαιϝῶν and αμοιϝᾶν, cf. Heubeck 1970, 68; NAGVI, 41 f. 121 f.; Miller 2014, 223.

[236] /u̯/ is preserved in all positions in Mycenaean, including after diphthongs (cf. *a*$_3$*-wo-ro* ≈ αἰόλος 'shining, spotted'; see Leukart 1994, 222; Tichy 1983, 347 f.; cf. also epigraphical αιϝει).

[237] This is the consonantal counterpart of the front rounded vowel [y]; cf. Fr. *huit* etc. (compare further e.g. Kümmel 2007, 164. 220. 265. 267. 278).

'epenthesis'.[238] The change /-u̯ʲu̯ʲ-/ > /-i̯i̯-/ is typologically uncontroversial, cf. Kümmel 2007, 278 (compare further the palatalization of the labiovelars before front vowels, and the neutralization of *$K^{u̯}$ before yod[239]; cf. e.g. Stephens / Woodard 1986). The development /-u̯ʲu̯ʲ-/ > /-i̯i̯-/ after front vowels is phonetically plausible.[240] Unfortunately, no exact parallels to this change are known to me (despite Kümmel 2007, 278. 403 ad fin.).

It is also possible that */-u̯ʲu̯ʲ-/ became -*i̯u̯*- or -*i̯i̯*- (after any vowel) depending on the dialect (cf. Ruijgh 1967, 67;[241] on *(-)*au̯i̯*- > (-)*ai̯u̯*- in Attic, cf. further Wackernagel 1885a, 276–279[242]). In Greek and other languages palatalized labials (but **u̯* was a labiovelar) were possibly "introduced by an earlier cross-the-board consonant palatalization; […] by over-extension of the (more) natural process of palatalization of non-labials" (Hock 2006, 444). Palatalized labials are marked and diachronically unstable, and tend to be eliminated more rapidly than other palatalized segments (cf. e.g. Bateman 2011; Hock 2006, Kochetov 2002; Operstein 2010 all with lit.; cf. also ch. 4). It may be argued that in some dialects *[-$^{(j)}$u̯ʲu̯ʲ-] was early on unrounded to -*i̯i̯*-, while in others (e.g. Attic-Ionic, Pamphylian) it was simply depalatalized with concomitant segmentalization of the onglide (after any vowel; for this prepalatalization pattern, see further p. 96). Both these changes must have occurred earlier than the depalatalization of other resonants (cf. the different prepalatalization patterns), and may be seen as outcomes of the inherent instability of palatalized labials.

5.3 Conclusion

More data from the archaic and Mycenaean periods will be needed in order to decide under what circumstances *-u̯i̯- became -i̯i̯- and/or -i̯u̯- in Greek. Currently, it is impossible to be certain about what really happened, but with what we know the idea that -i̯i̯- and -i̯u̯- are the immediate results of *[-ʲ(u̯ʲ)u̯ʲ-] seems to work best. Hermann was possibly right in thinking that */-u̯ʲu̯ʲ-/ was unrounded to -i̯i̯- only after front vowels. However, -i̯i̯- and -i̯u̯- could well be just different reflexes of *-u̯i̯- in different dialects.

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[238] For some inconclusive evidence for the change */-au̯i̯-/ > /-ai̯u̯-/ in Mycenaean, see Peters 1980, 323 Add. ad p. 73; see also Leukart 1994, 123 f.

[239] via *[K$^{u̯}$i̯] > *[K$^{u̯}$i̯] > *[K^{ʲ}i̯].

[240] If Hermann's account is correct, the problematic *Ka-ra-wi-ja*/*Ka-ra-u-ja* could perhaps be taken as representing something close to [grāu̯(u̯)a].

[241] In a posthumously published, possibly unfinished, and undated article, Sommer [d. 1962] (1977, 324 n. 1) reconstructs *-*eu̯i̯*° > *-*ei̯u̯*°, but without reference to Myc. °*e-ja*.

[242] If Att.-Ion. ᾠόν continues *[ōu̯ʲóm] (cf. nn. 228 and 233), and *[ōu̯ʲóm] became *[ōi̯óm] directly already in pre-Mycenaean times, this could hardly have developed into a diphthongal ᾠόν (on diphthongal οἰωνός in non-Attic writers, if from **ōu̯i̯ōno*-, see Peters 1980, 294 ff. esp. 305).

6. The development of **sḭ*

6.1 **sḭ* after **e*, **u*, or **i*

The sequence **-esḭ-* became *-eḭḭ-* in Greek (cf. Peters 1984a, 99* f. with lit. and Méndez Dosuna 1984, 458 f.). Compare Hom., Lesb. τελείω < **telesḭ̄o*, desiderative formations in -σείω < **-sesḭ̄o* (Hollifield 1982)[243], Boeot. Θε̄βαγενειᾱς (6th c.; SEG 58:484) < **°genesḭa(-)*, Πατροκλεια (5th c.; SEG 25:544; cf. Πατροκλης) < **°kleu̯esḭa* (cf. Hes. Κλέεια; Gk. /-eeḭ-/ > /-eḭ-/, cf. ποιεῖς), Att. Δε̄ιμενεια (early 6th c.; AVI 0322; cf. Δᾱιμενης) < **°menesḭa*,[244] Φρασικλειᾱς (mid-6th c.; IG I^3 1261), Εργοκλεια (525–510? IG I^3 615), Χαρικλεια (470–450? IG I^3 858), Ἰφιγενεια (AVI 6051, 500–475; AVI 4649, 475–450), Selinous Αριστοκλειᾱς (550–525; AVI 6031, IGASMG I 57; beside ε̄μι), Πᾱσικρα[τ]ειαν < **°kratesḭa(-)* (ca. 450; IG XIV 268.5 f.), Epid. Δᾱικρατεια (6th/5th c.; IG IV^2,1 140; cf. Δᾱικρατης/Δηικρατης), Camarina Τῑμοκρατειαν (ca. 480–450; IGASMG II 127), Thess. Τῑμοκρατεια (4th c.; IG IX,2 1227.9) (for the morphology of the names see Solmsen 1909, 248 ff.; on °κρατηα etc. see Dobias-Lalou 2005).

τέλειος and τέλεος have different histories and neither contained **-sḭ-*: the former continues **telesiḭos* and the latter **telesu̯os* (see Hermann 1923, 49 f.; Ruijgh 1967, 201; 1977, 257; Peters 1980, 88 ff. n. 40 with lit.; Nussbaum 1998, 41. 47 f.).[245] The suffix **-ḭo-* in isolated and clearly archaic formations like Hsch. ἄειρον· ἄρρητον (: **u̯erh$_1$*) is a reduced form of **-iḭo-* in long forms, and it was never productive in Greek (see Balles 2000, 154 ff. and *passim*, and cf. Ruijgh 1967, 198 f.; Peters 1980, 131 n. 79 with lit.). The hapax Hom. κήδεος Ψ 160 (beside κήδειος), which at any rate comes from **kādesiḭos* and not **kādesḭos* (Ruijgh 1967, 198 ff. 213 n. 6; 1977, 256; Wathelet 1970, 135 f. n. 22; cf. e.g. Hom. tetrasyllabic αἰδόϊος, see LfgrE, s.u.), has probably lost its [-i̯(i̯)-] secondarily (see Bechtel 1908, 210 f.; Allen 1987, 81 ff.; cf. also n. 214[246]). Alternatively, that form started out simply as a possessive formation ending in **-eh-ó-* (Peters, p.c.). As for ἐπιτήδειος vs. Hdt. ἐπιτήδεος (cf. ἐπιτηδές/ἐπίτηδες), where most likely **-iḭo-* was found (cf. Peters 1980, 131 f. n. 79; Balles 2000, 145. 154–157), the loss of the second member of a diphthong before a vowel is certainly not unknown in Herodotus and in

[243] A recent alternative analysis is that of Kölligan (2018), who derives the verbs in -σείω from *u*-stem adjectives built to unreduplicated *s*-presents/desideratives of the type Ved. *d(h)akṣu-* 'burning'. He finds evidence for this class of adjectives in the relatively obscure Myc. term *e-wi-su*° and in alphabetic φαῦλος 'cheap, easy' and αἴσυλος* 'unseemly, evil'. **-seu̯iḭō* > **-seiḭō* would be expected to be remade analogically to **-seu̯u̯ō* after the aorist and future and perhaps after the weak stem of its nominal basis in e.g. Attic-Ionic, cf. -εύω << **-eu̯iḭō* (El. -ειω). This did not happen here. If I understand correctly, Kölligan (p. 102) attributes this fact to a presumable lack of sigmatic forms in verbs in **-seu̯iḭō*. This fails to convince me.

[244] /ē̯/ is shortened before /o/ and /a/ in Attic-Ionic; see Peters 1980, 87 ff. n. 40.

[245] On the suffix **-u̯o-* cf. García Ramón 2000; Rieken / Sasseville 2014; Oettinger 2017 with lit.

[246] Wathelet (1970, 134 n. 17; see also Haug 2002, 92) unconvincingly assumes pressure from the adjectives of material.

Classical Ionic (see Smyth 1894, 197 ff.; Hoffmann 1898, 528 ff.; cf. also Méndez Dosuna 1985, 44 ff. 116 f. with lit.).

As Hermann Jacobsohn (1910, 111 f. n. 1) has convincingly argued, τελέω et sim. (ἀκέομαι Hom.+, cf. Hom., Pind., Ap. Rhod. ἀκειόμενος, ἄκος; νεικέω Hom., Hdt., cf. Hom., Hes., etc. νεικείω, νεῖκος; αἰδέομαι Hom.+, cf. αἰδεσ(σ)-, αἰδώς, Meissner 2006, 151 f.; perhaps ἀρκέω Hom.+, cf. ἀρκεσ(σ)-, Alc. ἄρκος n., Klingenschmitt 1982, 236) are rather analogical after primary verbs in -έω/-εσ(σ)α (similarly Ruijgh 1967, 214; Crespo 1977, 84 f.; Peters 1980, 142 f. n. 96; 1984a, 99*; Wathelet 1970, 136; Ruijgh 1977, 257 considers τελέω a primary verb); thus, ἐκάλεσ(σ)α : καλέω :: ἐτέλεσ(σ)α : X, where X = τελέω.

The -έω presents with aorists in -ησα instead of -εσ(σ)α, which are found beside *s*-stem nouns (cf. ῥῑγέω/-ησα, ῥῖγος), are not relevant to the question of the development of **-s̯i̯-* in Greek. The prototypical representatives of this type of verbs continued stative formations in **-eh₁-* (cf. Watkins 1973, esp. 88 ff.; Peters 1980, 90–92; 1991, 616; Jasanoff 2004, 132. 144 ff. 149). The -έω verbs (with aor. in -ησα) from compound *s*-stem adjectives[247] are also irrelevant (*pace* Blanc 2018, 29 f., who derives these verbs from **-es̯i̯ō*): it is clear "daß die Komposita bei der Bildung ihrer verbalen Ableitungen […] bloß analogisch dem bei den unkomponierten *s*-Stämmen gültigen synchronischen Muster gefolgt sind" (Peters 2007, 264).[248]

It seems safe to conclude that **-es(+)i̯-* became *-ei̯i̯-* in Greek (on ἐμεῖο beside ἐμέο see pp. 82 f.).

The development of PGk. **-us̯i̯-* and **-is̯i̯-* presents no problems. The former, which is mainly preserved in feminine perfect participles, yields -υι- (cf. εἰδυῖα etc.; cf. also Peters 1984a, 99*).[249] As expected, the latter gives -ῑ- (cf. e.g. κονί̓ω 'cover with dust' < **konis̯i̯ō*, Schulze 1892, 352 ff.; on ὀίω, ὀίομαι see Solmsen 1901, 60 ff.).

The word ὑμήν [ŭ] 'membrane' (: **s̯i̯eu̯H* 'nähen'; LIV, 545; for the short root vowel cf. Bader 1990, 34 f.; Rasmussen 1989, 118; Steer 2014, 342 ff.) does not constitute reliable evidence for the development of initial **s̯i̯-* in

[247] For the Homeric attestations see Fawcett Tucker 1990, 27 f. 35 f.; for later Greek see Blanc 2018, 30.

[248] But see also Peters' (2007) analysis of (compounded) ἀπίθησε. — ἀκήδεσεν (with -εσ-) at Ξ 427 (cf. ἀκηδής, Hom. impf. ἀκήδεις, Aesch. pres. imp. ἀκήδει) is probably secondary after the type τελέω (note further Soph. ἀκηδήσοι and Hom. ἀποκηδήσαντε Ψ 413; cf. Risch 1974, 308; Fawcett Tucker 1990, 37 with n. 25). — *Pace* Blanc (2018, 31. 32 n. 30), present participles such as (e.g.) ἀφραδέοντι (I 32; ἀφραδέουσι η 294; cf. Hom. ἀφραδής), περισθενέων (χ 368; cf. Pind. περισθενής), Hom. δυσμενέων (cf. Hom. δυσμενής), ὑπερμενέοντες (τ 62; cf. Hom. ὑπερμενής), ὀλιγηπελέων (O 24. 245, ε 457, τ 356; cf. Hsch. εὐηπελεῖς· πρᾷοι. εὐήνιοι), or ὀλιγοδρανέων (O 246, Π 843, X 337; cf. Ar. ὀλιγοδρανέες) are metrically convenient (further Blanc 2018, 31 f.) artificial creations (NB corresponding finite forms in -έω are either not found or are later); see Leumann 1950, 116 f. with n. 83; Risch 1974, 308; Fawcett Tucker 1990, 183 n. 242; Meissner 2006, 212 ff.

[249] For Att. (Thphr., Phot.) μῦα 'fly' (cf. μυῖα, Hom.+) < **mus̯i̯a* (mentioned as a problematic form by Barber 2013, 114 n. 76) as well as on Att. ὀπύω (Ar.+; Hom., Cret. ὀπυίω; cf. EDHIL, 299 with lit.) and other Att. ι-less forms, see e.g. Lejeune 1972, 247.

Greek, since the root **s̯ieu̯H* had a *i̯*-less variant in some branches; see Rasmussen 1989, 109–119.[250]

6.2 **-asi̯-*

As far as **-asi̯-* is concerned, our main evidence comes from the following verbs: ναίω ‘dwell’ < **nasi̯e/o-* (Hom.+; cf. Hom. ἀπενάσσατο; on the synchronic and diachronic relationship between the two forms as well as on the phonology and morphology of the former see García Ramón 2004), (ἐπ-)ἀγαίομαι ‘to be indignant at, admire’ (Hom.+; cf. Hom. ἄγαμαι, ἠγάσσατο, ἀγάσσασθαι, ἀγαυός ‘noble, glorious’ < **agas-u̯o-* [: **meĝ-h₂-*][251]), γεραίομαι (cf. γέρας ‘gift, present’; this is a dubious hapax in Nicander *Al*. 396, see Gow / Scholfield 1953), Arat. διχαίω = διχάζω ‘divide in two’ (διχάσαι is attested quite late; cf. also διχάω [also in Aratus]), Cret. θωαιω ‘penalize’ (cf. also Att. pres. θοᾶν, fut. θῳασει, IG I³ 4.7.12; II² 1362.14), Nik., Arat. ἰσαίομαι ‘resemble’ = ἰσάζομαι (for ἰσάω* see Peters 1980, 144 n. 96. 326 ad fin.), κεραίω ‘mix’ (Hom., Delph.; cf. κεράσ(σ)αι, Hom.+), Cret. (απο)λαγαιω ‘release’ (cf. Cret., Hsch. λαγάσ(σ)αι), λιλαίομαι ‘desire earnestly’ < **lilasi̯e/o-* (Solmsen 1888, 107; Tichy 1983, 230; for further bibliography see Dieu 2012[252]), and μαίομαι ‘seek after, seek for’ (Hom.+, poetic)[253] (for more verbs of this type see Schmidt 1885, 294 and Specht 1931, 40; see also generally Reichelt 1909, 84 ff.). μαίομαι is now also attested in a new prose inscription from Aspendos (ca. 300; see Brixhe / Tekoğlu 2000, 46 f.; the form is the 3pl. imp. ισμαιοδυ = *εἰσμαίοντον).

Most of these verbs have been created secondarily on the model of verbs like ναίω : νάσσαι, ἀγαίομαι : ἀγάσσασθαι, and δαίομαι[254] : δά(σ)σασθαι (Hom.+) ‘divide, distribute (e.g. κρέα)’, after their aorist (/future), and thus do not continue **-asi̯-* directly (cf. Schmidt 1885, 294; Schulze 1892, 366 n. 2;

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[250] *Contra* Parker (2008, 449), Aeolic ἴα f. ‘one’ continues **si̯i̯°* (< **s̯i̯°*), not **i̯i̯°* (< **s̯i̯°*) (see Peters 1980, 132 n. 80. 133 n. 81; Eichner 2015, 20; Neri 2018, 261 f. with lit.). — *Pace* e.g. Rasmussen (1989, 118), κασσύω/καττύω ‘stitch’ (cf. ὑμήν) can hardly continue **kat-s̯i̯ū-*. First of all, it is unlikely that this verb contained the apocopated form of the preposition κατά (see Kretschmer 1909, 52 f.). Also, **kat-s̯i̯ū-* would be expected to become **kasū-* in Attic-Ionic (via */°tts$^{(j)}$°/) (cf. Lagercrantz 1898, 114). The same applies to **kat-sū-* (without **i̯*). It could be supposed that **kat(t)-sū-* was a relatively late creation and that its affricate fell together with **-tts-* from heteromorphemic clusters, but that would involve the assumption that the change **s-* > *h-* took place after the fricativization of original **-tts-* in East Greek, which is possible but questionable. A hypothetical **kat-h(i̯)ū-* would not easily lead to κασσ/ττῡ-. Perpillou (CEG 3, s.u. κασσύω) supposes that **s̯i̯ū-* became **i̯ū-*, with loss of the word-initial sibilant, and reconstructs **kati̯ū-*. **i̯ū-* would normally give †ζῡ- in Greek; did secondary **i̯-* behave differently (cf. ὑμήν)? Beekes (2014, 152) considers κασσύω/καττύω a word of Pre-Greek origin.

[251] Pisani *apud* LfgrE I, s.u.; Peters 1980, 88 n. 40; Ruijgh 1991, 137; cf. τέλεος < **teles-u̯o-*.

[252] Dieu (2012) derives λιλαίομαι from a root **leh₂u̯* (cf. ἀπολαύω ‘enjoy’).

[253] See Solmsen 1888, 107 f.; Chantraine 1948, 370; Risch 1974, 335; Hackstein 2002, 179; Neumann 2005; and especially García Ramón 2012, 152–154. 156 f. 160 f. with lit. and *passim*; further references and discussion in Minon 2007, 391 n. 126. 527.

[254] For the diphthong here cf. LIV, 103 f.; Solmsen 1888, 108 n. 1.

1897, 900 n. 2; Meister 1921, 99; Bechtel 1923, 746; Specht 1931, 40; Risch 1974, 248. 257. 335; Ruijgh 1991, 137 f.).

Distracted Hom. γελώω-/γελώο- (γελώοντες σ 111, γελώωντες/γελώοντες υ 390; 3pl. impf. γελώων υ 347) presupposes a contracted stem γελω- that originally contained a long syllable before the thematic vowel (so γελώω- cannot be connected with γελάω; the distracted form of this verb is as expected γελοω- in Homer); cf. Szemerényi 1967, 79 f.[255] Peters (1980, 144 n. 96) connects Theocr. (I 90) 3pl. γελᾶντι[256] and Arg. διεγελα and καταγελαμενος[257] (IG IV²,1 121.35.123) with Hom. γελώω-, reconstructing **gelāō̄* < **gelasi̯ō̄* (Hock 1971, 455 and Ruijgh 1992, 446 f. trace the Argolic forms back to an athematic **gelămi*;[258] Hock also compares πεινῆν and διψῆν and wonders whether "we might be dealing […] with a verb with presumably archaic retention of an inflection in **-āe/o-*). Given Theocr. παρελᾶντα (cf. ἐλάω) and some athematic-looking, Doric, epigraphic forms (for which see e.g. Schwyzer 1939, 681 f.), Peters (1980, 326 ad fin.) also reconstructs a thematic (**elāe/o-* <) **elasi̯e/o-*[259]. In 1984 he further proposed that the Theocr. indicatives ἔρᾱσαι and ἔρᾱται continue thematic **erasi̯e/o-* (see Peters 1984a, 100*; with secondary, Lesbian-like accent for (*)ἐρᾶσαι/-ται[260]). Based on this material, Peters argues that the original outcome of **-asi̯V-* outside Aeolic was **-āi̯V-* > **-āV-*.[261]

He believes (1984a, 100*) that in the non-Aeolic dialects the diphthongal outcome was found only when **si̯* stood after **e* or **u* (Peters 1989, 130 attributes the gen. sg. -οιο in Achaean Τελεσοιο̲, Κα..κοιο [6th c.][262], and γαμοιο to "äol. Substratwirkung"; in my view, -οιο here could represent an archaism; cf. Appendix I). But why should the quality of the preceding vowel play a role on whether assimilation or compensatory lengthening would occur? Admittedly, as has been discussed above, it is theoretically possible that

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[255] Differently Ehrlich 1908, 114: "[d]ie unregelmässige Zerdehnung ist das Wagniss eines jüngeren Rhapsoden".

[256] uu.ll. γελεῦντι and γελῶντι, see Molinos Tejada 1990, 288.

[257] For expected *διεγελη < **-ae*, *καταγελωμενος < **-ao-* (cf. γελάω). The argolic forms could not contain /ā/ from contracted /-ăe/ and /-ăo-/ as Szemerényi (1967, 84) argues.

[258] On Alc. γέλαν (3pl. impf.; *pace* e.g. Barton 1990–1991, 36 n. 30) and Sappho γελαίσας (fem. pres. prtc.), see Hock 1971, 72. 454; Peters 1980, 326; 1998, 592 n. 27 with ref. to Sommer 1977, 229.

[259] "Die […] dor. ἐλα-Formen werden von γελα- nicht zu trennen sein: **elasi̯e/o-* oder rein formale Analogie nach γελᾱ-."

[260] In fact, ἐρᾶσαι is found in the Palatine manuscript and ἐρᾶται in a papyrus from ca. 500 CE (see further Molinos Tejada 1990, 288; Gow 1952 II, 19). These are both *lectiones faciliores*.

[261] Peters (1998, 591 f. nn. 25 f.) sees further evidence for this development in the verbs κεράω/κεράομαι, ἀγάομαι, ἐράομαι, and γελάω (Hom.+; cf. also Sappho μάομαι beside aor. μασ(σ)-) ("[…] Stämme auf **-āi̯e/o-* […] haben im ion.-att. Bereich passim die Flexion der viel häufigeren **-ăi̯e/o-*Präsentien angenommen […]"). These are rather analogical after the respective aorists (which are all already Homeric), on the model of verbs of the type **°C/R-i̯ō̄* : **°C/R-sa*; see Nussbaum 1998, 12 n. 8; Meister 1921, 90 ff.; Risch 1974, 248. 257. 320; Fawcett Tucker 1990, 206 f. 209.

[262] Despite doubts raised by Arena, Heubeck, and Wachter (see NAGVI, 157), and although the interpretation of Τελεσοιο̲ and Κα..κοιο remains uncertain, these two forms can hardly be anything else than (hypocoristic?) personal names, see Rizakis 2008, 253.

*-*e̯u̯i̯*- underwent ‘assimilation’ and *-*au̯i̯*- was ‘metathesized’ in the Greek dialects, but *pace* Peters (1984a, 100*)[263] this ‘assimilation’ is not comparable to the assimilation envisaged by him (and others), since it allegedly occurred via a mid-stage */-e̯u̯ʲu̯ʲ-/. In any case, the two patterns could not be connected, since *-*au̯i̯*- was ‘metathesized’ but *-*ahi̯*- supposedly yielded *-*āi̯*-.

According to Peters (1980, 144 n. 96), (ἐπ)ἀγαίομαι, λιλαίομαι, and ναίω, which are only attested in Homer and in later poets,[264] as well as γεραίομαι, διχαίω, and ἰσαίομαι in Nicander and Aratus are all Aeolic. κεραίω in a Delphic prose inscription from the 5th century is attributed to Aeolic influence in Delphi by Peters (thus already Solmsen 1906, 216; cf. also Shipp 1972, 49). Similarly, (απο)λαγαιω and θωαιω, which are only attested in Cretan prose inscriptions, are seen as “Äolismen” by him. (Pamph. ισμαιοδυ is found beside [e.g.] πετρακις and according to some ancient authors Side was colonized by Cymeans; cf. further Brixhe / Tekoğlu 2000, 52 f. with lit.; Brixhe 1976, 148 n. 1.)

The possibility that none of the forms above is ‘echtdialektisch’ does not seem very likely (similarly Hajnal 1988, 75). It is perhaps possible that all the verbs found in the Homeric epics (and later poetry) are Aeolic, and that those attested only in (Apollonius Rhodius,) Aratus and Nicander have been created by analogy with words of Aeolic origin, but the idea that Delph. κεραιᾶται, Pamph. ισμαιοδυ, and exclusively Cretan (απο)λαγαιω and θωαιω do not preserve the original outcome of *-*asi̯*- in these dialects lacks conviction.

It is highly questionable whether Aeolic elements are found in Delphic inscriptions; all supposed Aeolisms are either shared vocabulary or innovations that could have arisen independently in Delphic: cf. the opt. περιιειεν (cf. Hom. ἴειεν, see Sommer 1977, 200 with n. 23; Peters 1980, 105); δίδημι for δέω (see Solmsen 1906, 217; this is also attested in Attic, see Threatte 1996, 518 f.); the use of thematic endings in the pluperfect (cf. 3pl. εφεστᾱκεον and e.g. Cypr. 1sg.(/3pl.) plup. *o-mo-mo-ko-ne*; εφεστᾱκεον was built on a possible 3sg. */ep^{h}estākee/ ~ */ep^{h}estākē̯/, cf. Schulze 1897, 899 n. 1; Ringe 1984, 204 f. 508 f.; Hom. ἠνώγεον, Nussbaum 1987, 248–250), the word τᾱγός ‘commander, ruler’, and the dat. pl. in -εσσι[265] (on the idea that this need not be Aeolic, see e.g. Méndez Dosuna 1985, 482; Parker 2008, 447; Cassio 2018, esp. 194 f.; cf.

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[263] “[…] so kann man i.ü. das Verhalten von *-*u̯i̯*- und weiter jenes von *-*r*/*ni̯*- als Parallele anführen”. The fact that *-*er*/*ni̯*- patterns with *-*ur*/*ni̯*-, and *-*ar*/*ni̯*- with *-*or*/*ni̯*- in Greek cannot be used as an argument in favour of Peters’ analysis.

[264] ἀγαιόμενοι is found in Hdt. 8.69 (Wilson 2015), but the u.l. ἀγεό- is the *lectio difficilior* (Rosén has printed ἀγεόμενοι in his 1997 Teubner edition). The form with epsilon probably shows the well-known (partial) shift from -άω to -έω inflection, which is common in Ionic (and other Greek dialects; thus Hoffmann 1898, 267; doubts by Jacobsohn 1910, 94 n. 2; differently Fritsch 1888, 39); cf. Hom. ἀγάομαι, Smyth 1894, 566 ff., Bechtel 1924, 40, Schwyzer 1939, 681 n. 5, Méndez Dosuna 1985, 223–225 with lit. (compare further EGud. ἀγέομαι οὖν ἠγάσμην […] and Hsch. ἀγεόμενοι· θαυμάζοντες).

[265] This, as is well known, is not only found in Aeolic (and Delphic), but also in Pamphylian, Argolic, Locrian, Elean, Cyrenaean, Geloan, Selinous, and in Corinthian colonies in Magna Graecia (for the data and references, see García Ramón 1990, 134 ff. with n. 3; Peters 2000, 380 f.). For (e.g.) Peters (2000, 387 and *passim*; see also 1986 and Miller 1982, 76), -εσσι is “eine exklusive Neuerung einer […] Stufe des Uräol.”.

also García Ramón 1990, 143–145 with n. 30. 153 f. n. 56; Willi 2008a, 129 n. 42).

The existence of Aeolic elements in Cretan is no less controversial: the intrusion of -μεν in the thematic verbs (cf. Cret. [π]ροϝειμεμεν; Hajnal 1988, 73 compares athematic Cret. etc. ϝειπα-, but see also Cret. inf. ζ/[δ]ᾱμιᾱμε̆ν[266]) is certainly a trait of the Aeolic dialects, but clearly not a feature that could not have emerged independently in Cretan; cf. García Ramón 1973, 267–269; Parker 2008, 458; Nikolaev 2013, 84 n. 18; see further the discusison in Hock 1971, 472 ff. ("[t]hematic *-men* […] can hardly be an old 'Central' Greek feature"). The infinitives εμην (IC IV 47.Col.A 19; early 5th century; beside αλλο-) and εμεν (IC I xvi 5.15; 150–100; geminates are normally written in this text) < **esmen* have been thought to represent Aeolic-like /em(m)ĕn/, with non-notation of the geminate (Hajnal 1988, 73 f. considers it possible that Cret. εμην stands for /ḗmḗn/), but the assumption that [-mm-] happened to not be written in these two forms is unfounded (despite Bile 1988, 155), and the same word is also spelled ημην and ημεν (with the expected orthography) in the two inscriptions. Further, a parallel case is attested in Rhodian: in a 4th-c. tablet found in Dodona, the infinitive of the verb 'be' appears as εμειν (see Lhôte 2006, 187 with lit.; "[l]a solution d'une influence de substrat est absolument exclue" Wathelet 1970, 200 n. 125[267]). The old law term αβλοπια = ἀβλαβία, with an *o*-colour reflex of **l̥* between labials, need not be taken as an Aeolic form in Cretan, see van Beek 2013, 298 f. On ιᾱι, which has been connected with ἴα (= μία) (cf. Chantraine 1948, 259), cf. Peters 1980, 102 with n. 48 with lit. 132 n. 80; Hajnal 1988, 74.[268]

As for Peters' **gelāō* < **-asi̯ō*, in my view Theocr. γελᾶντι and Arg. διεγελα and καταγελαμενος can hardly be relevant to our problem. It is well known that verbs in -αω occasionally show -ᾱ(-) instead of expected -η(-) and -ω(-) (this corresponds to Att. -ᾱ(-) and -ω(-)) in the Doric dialects (for a possible Arcadian example see Dubois 1988 I, 149 f.; cf. also 'Boeotian' φῡσᾶτε and φῡσᾶντες in Ar. *Ach*.).[269] Compare among other forms Epich. ὀπτᾶντες, τελευτᾶσα[270], Sophr. ἐπεγγυάμενοι, Epir. inf. τῑμᾶν, Acarn. σῡλᾱ[ν], Theocr. ἀμάντεσσι (: ἀμάω), 3pl. Dod. τῑμᾶντι (Lhôte 2006, n° 68; mid-4th–3rd c.), 3pl. βοᾶντι (Heraclides Milesius[271] *apud* Eustathius), and νῑκᾶντι (Peloponnesian proverb *apud* Pollux) (cf. Ahrens 1843, 197; Méndez Dosuna

[266] This could also be taken as an Aeolic-looking athematic form.
[267] On the hypothesis of an Aeolic substrate in Rhodes, see Peters 1991, 570 f.; Nussbaum 2019, esp. 457 f. with n. 71. 459 n. 77.
[268] According to Peters (1989, 7–9), the hypothesis of an Aeolic substrate in Cretan is further supported by Cret. (Orph.) εζι = ἐσσί (hypercorrect spelling on the basis of a hypothetical rule 'substr. -σσ- = Cret. -ζ- /-tts-/'; cf. κυπ/φαριζος in the same texts) (this is rejected by Genevrois 2015, 285 n. 123) and Cret. βωλομαι beside Lesb. βόλλομαι (cf. West Gk. δει/ηλομαι). See further Peters 1986, 316 f. n. 46.
[269] For the origin of this -ᾱ(-), cf. Thieme 1980, 132; Méndez Dosuna 1985, 227; Dubois 1988 I, 150 with lit.; Peters 1991, 618.
[270] fr. 113.390 τε]λευτᾶσ' ὁλκὰς […].
[271] On this less known grammarian see DNP, s.u.

1985, 225; Molinos Tejada 1990, 80. 83).[272] These forms make it unlikely that the origin of the alpha in γελᾶντι etc. should be sought in the internal history of this verb.

γελᾶντι, therefore, in one of Theocritus' Doric poems, could just be another form of the type τῑμᾱ́ντι, as e.g. Méndez Dosuna (1985, 227) suggests (see also Hock 1971, 450 f. 454 and cf. Wackernagel 1887a, 237). Accordingly, Theocr. παρελᾶντα beside apparently athematic forms in Doric is worthless. Peters' proposal about ἔρᾱσαι/-ται is pure conjecture. As Snell (1958) has argued (not cited by Peters) the two forms, though indicatives, are probably based on Sappho subj. (ὅττω τις) ἔρᾱται (on which see most recently Waanders 2003, 17 f.): "[…] da solcher Konjunktiv ohne Modalpartikel später außer Gebrauch kam, und da an der Sappho-Stelle schließlich auch der Indikativ hätte stehen können, nahm Theokrit ihn als solchen".[273]

The only indication that γελᾶντι should not be compared with τῑμᾱ́ντι etc. comes from Hom. γελώω-/γελώο- (Hippoc. γελῆν is ambiguous, cf. Smyth 1894, 526 f. n. 2), which however could simply be seen as a distracted form (for contracted *γελω- < *γελωο-) of a denominative from γέλως[274] (Wackernagel 1885, 87 f.; Schmidt 1889, 142; Brugmann 1913, 355; Szemerényi 1967, 81; Risch 1974, 329 ["oder statt γελοιῶντες -οίων (so Eust.)"[275]]; Crespo 1977, 87 [but see also 56]; Ruijgh 1992, 446 n. 32). In that case, the vocalism should be taken as analogical (for expected *γελοίω < **gelŏs̯i̯ō*; with short stem vowel, cf. γελοῖος etc. < **-ŏs̯i̯o-*) after γέλως; compare e.g. ἰδρώω < **s(u̯)idros̯i̯ō* (for the short stem vowel, cf. e.g. acc. sg. ἰδρῶ K 574 in the fifth foot, i.e. in place of *ἰδρόα), with -ω- after ἰδρώς[276] (cf. Szemerényi 1967, 79. 81; Peters 1984a, 100*). Accordingly, I see no reason to

[272] Other relevant finite forms may be the Elean optatives 3sg. μᾱ́ιτο (: μάομαι; cf. τῑμῷτο), σῡλᾱ́ιε̄/ᾱ́ (cf. τῑμώ̣η), and the recently published απ<ο>λᾱ́βᾱιτο (: ?λωβάομαι; for the correction see Méndez Dosuna 2009, 81). Minon (2007, 404; see also 396 with n. 157) believes that the thematic vowel was dropped (with hyphaeresis) in these optatives (cf. ενποιοι < *ενποιεοι; Hock 1971, 390). I do not understand her objections to the interpretation given above. That there is evidence for -ᾱ̃ε/ο- inflection in Elean seems irrelevant to me, since 'irregular' -ᾱ(-) in the -άω verbs in Doric was sporadic anyway (cf. Méndez Dosuna 1985, 221 f.). μᾱ́ιτο and σῡλᾱ́ιε̄/ᾱ́ have also been taken as showing Aeolic inflection, see Hock 1971, 392 ff. with lit.

[273] For Parmenides' weird 3rd sg. ind. παρίστᾱται, transmitted by Aristotle ("whose memory for poetry was as lamentable as his talent for composing it"; West 1966, 68), Theophrastus' παρέστηκεν is to be preferred (thus Snell 1958 with reference to H. Fränkel; Coxon 2009, 4. 95. 379; Alonso Déniz 2010, building on Passa 2009 — who promotes the reading παρίστᾱται, attributes the lengthening to the possible existence of a 3pl. *ἱστᾶται < *ἱστάαται, cf. the analogical 3pl. Ion. τιθέαται; but the short /a/ was strongly supported by 1sg. παρίσταμαι). A supposed ind. κρέμᾱται in the Carmina Anacreontea (17.17) has been compared with ἔρᾱσαι/-ται by Schwyzer (1939, 681 n. 8), but this form does not seem to exist; it is actually κρεμᾶται, see the edition of West (1993).

[274] On γέλως as an old *s*-stem, see Solmsen 1888, 109 and most recently Meissner 2006, 134 ff. with lit.

[275] On Eustathius' γελοιω- (as well as on *Hymn*. *Hom*. *Ven*. 49 γελοιήσασα) see Peters 1998, 592 n. 27.

[276] Barber (2013, 300) sets up the following proportion; τελεσ- : τελέω :: ἰδρωσ- : X, where X = ἰδρώω.

reject the old idea (e.g. Jacobsohn 1910, 166 f. with n. 1) that *-*as̯i̯*- gave -*a̯i̯i̯*- in all Greek dialects.[277]

6.3 *-*os̯i̯*-

As is well known, the genitive singular of thematic stems is -οι(ο) in East Thessalian and (in part) Homer, but -ου/-ω in Attic-Ionic, Arcadian, Cypriot, Doric, Lesbian, and Boeotian. According to everyone in the field, the former continues directly the PIE gen. sg. *-*os̯i̯o*. A theory going back to the famous paper of Kiparsky (1967) holds that tautomorphemic *-*Vs̯i̯*- yielded -*Va̯i̯i̯*- in the Aeolic dialects, but *-*V̄i̯*- in the rest of Greek. Heteromorphemic *-*Vs̯i̯*- gave everywhere -*Vi̯i̯*- according to Kiparsky. A similar theory is that of Nussbaum 1985 (this is known to me mainly through the work of Crist 1998, 55 f.; see also Jones 2008, 96 f.). Nussbaum proposes that tautomorphemic *-*Vs̯i̯V*- yielded *-*V̌hV*- everywhere in Greek, and that Thessalian -οιο indicates that *-*os̯i̯o* was resegmented as *-*os*+*i̯o* in Aeolic. In a similar vein, Wathelet (1970, 138 f. with table 3) argues (without reference to Kiparsky) that tautomorphemic *-*s̯i̯*- became *-*h*- via */-s^{j}-/, while heteromorphemic *-*s̯i̯*- became *-*i̯i̯*- in all dialects. According to Wathelet, Aeolic and Mycenaean -*oi̯i̯o* points to a resegmentation *-*os*+*i̯o* in these dialects.[278]

Wathelet's theory does not work. Gemination is earlier than palatalization; if we assume that **s* was palatalized before yod, the reconstruction *-*s̯i̯*- > *-*ss̯i̯*- is difficult to avoid. Crucially, */-s^{j}s^{j}-/ could only result in -*ss*-, -*i̯s*-, or -*i̯i̯*- (< -*i̯h*-) in Greek (assuming */-oh^{j}h^{j}o/ > */-oo/ would

[277] As has been suggested by Pott, Att. ἀκροῶμαι 'listen to' must contain the adjective ἀκρο- 'topmost, outermost' and a form of οὖς 'ear'; cf. Myc. *a-ko-ro-we(-e)* 'with pointed ears' (this adjective refers to cows; see further de Lamberterie 2009, 103–108). De Lamberterie (2009, 108 f.) proposes that ἀκροῶμαι derives from *akrohu̯ahi̯e/o-, with dissimilatory loss of the first aspirate (which is not uncontroversial; but cf. also *ou̯os discussed on p. 79). According to him, the element *-ohu̯ah- is an analogical creation on the basis of *ohu̯as, allegedly continued in the secondary nom. sg. Simon., Orph., οὖας, Sophr. ὦας (cf. Hom. οὔατος; τέρας, -ατος): "[à] partir de là (i.e. *ohu̯as — GK) s'est développé, en composition, un second membre *-ohϝah- parallèle à *-ohϝεh- […]" (cf. e.g. *akrohu̯eh-, Myc. *a-ko-ro-we*). οὖας and ὦας are only marginally attested in Greek and, according to Poltera (1997, 137), the former is "sans doute" a "création *metri causa*". At any rate, the two forms do not seem very old; they could have been formed at any time independently. According to Peters (p.c.), and I consider this as the most promising solution, ἀκροάομαι is a derivative from an *akrōu̯sā-, an abstract derived from a thematic possessive compound *akrōu̯s-ó- 'the one who strains his ears/listens carefully' (cf. also de Lamberterie 2009, 108) ← 'the one having protruding/pointed ears' (on *°ou̯s- for expected *°ou̯ses-, cf. Peters 1980, 296). — I cannot follow Peters (1994; 1994a, A-106 f.) in reconstructing *ga̯i̯a/*gāi̯a (< *gasi̯a) as the immediate preforms of Gk. γαῖα/γῆ 'earth'. A recent discussion of the etymology of γαῖα/γῆ can be found in Willi 2007.

[278] Jones (2008, 96) proposes that non-Thessalian -ου/-ω has arisen via "*-*osyo* > *-*ohyo* > *-*ohho* > *-*oho* > -*oo* > -*ō*" (it is not absolutely clear whether this analysis is his or Nussbaum's). Since we do not really know what the development of intervocalic *-*hh*- was in Greek, the degemination/simplification of *-*hh*- to *-*h*- in reconstructed *-*ohho* remains an ad hoc supposition. Also, the change *-*ohyo* > *-*ohho* seems unlikely to me on phonological grounds. — Hajnal's (1995, 48–51; similarly Hellemans 2005, 77. 83) proposal of a monophthongization "[-*oiyo*] > /-*ōi̯o*/" is ad hoc: prevocalic diphthongs are normally not monophthongized in Greek.

not be a good idea; cf. sect. 6.4). Wathelet's proposal would also fail to account for the fact that -ου is more frequent in the pronouns in Homer (see further Ruipérez 1979 and below).

A problem with all three theories is that the outcome of *-*sR*- in Greek does not depend on the existence of a morpheme boundary between the sibilant and the resonant: cf. e.g. χειλιο- < *$\hat{g}^h$*esl*- and εἶμα < *$\underset{\frown}{\mu}$*es-mn̥*. ἔννῡμι (= Ion. εἵνῡμι) and the like are different, since here the /s/ was probably restored after verbal and nominal forms where the sigma stood before obstruent (cf. e.g. Hom. perf. ἔσται, plpf. ἔστο, ἔσθος n., etc.); compare e.g. Πελοπόννησος < *Πέλοπος νῆσος[279] (see Brugmann 1885; Solmsen 1888, 73 f.; Wackernagel 1890, 295; Peters 1980, 143 n. 96; García Ramón 1982, 112–117; Cassio 1994, 201). Even if we grant that *s or *h was normally restored after the aorist or after the nominal basis in *$teles\underset{\frown}{i}\bar{o}$, *°$genes\underset{\frown}{i}a$, etc., it will still be impossible to explain the diphthong in desideratives in -σείω < *-$ses\underset{\frown}{i}\bar{o}$ and in isolated *$mus\underset{\frown}{i}a$ > μυῖα. In any case, the resegmentation *-os+$\underset{\frown}{i}o$, proposed by Wathelet and Nussbaum, is not well motivated (despite the nominative in /-os/; García Ramón 1975, 47; Ruipérez 1979, 286 n. 17; Haug 2002, 77 n. 25).

An important issue raised by Méndez Dosuna (1984, 459) against Kiparsky's idea (see also Malikouti-Drachman 1975, 147; Peters 1989, 129; Jones 2008, 96 n. 202) is that in the dialects of the *Doris media*-type (*seuerior* 1st and 2nd comp. leng., *mitior* contractions and [partly] 3rd comp. leng.) the genitive singular of the *o*-stems always appears as <-OY> when written in the Ionic alphabet (cf. e.g. Domínguez Casado 2014, 113 for Theran; further Bartoněk 1966, 52 f.). If Greek -ου went back to *-$\bar{o}\underset{\frown}{i}o$ < *-$os\underset{\frown}{i}o$, then *-$\bar{o}o$ would be expected to give -$\bar{o}$ (= <-Ω>) in the dialects of the *Doris media*. The outcome -ου clearly points to a contraction involving the sequence *-$\breve{o}\breve{o}$. Note further that in Theran, the genitive singular is almost always (except once) denoted by <-O> /-o̱/, not <-Θ> /-o̱/ in the archaic period[280] (see Domínguez Casado 2014, 86–89); compare further the similar situation in Melos (Bechtel 1923, 559; LSAG, 308. 413 n° 25b pl. 62[281]).

Hom. ὀκρυοέσσης (Z 344) and ὀκρυόεντος (I 64), beside κρυόεις, have probably arisen via reanalysis of a syntagm *-οδ̆ κρυ° (Leumann 1950, 49 f.; see the recent, useful discussion in Reece 2009, 81–88). These two forms provide further evidence for the existence of a genitive singular (*)-ŏŏ in early Greek.

The eighteen verses of the #Ἰλίου προπάροιθε(ν)-type also support the idea that -ου goes back simply to (*)-ŏŏ. Willi (2009, 249 f.) among others sees metrical lengthening or a special form of diectasis in such cases; that is, he prefers to read Ἴλῑου (Kiparsky reads *Ἴλῐ̆ŏ̄, with a φύσει μακρόν /ō/). However, it is improbable that the original form of the formula ὁμοΐου πτολέμοιο# was *ὁμοΐ̆ŏ̄ πτολέμοιο#, since — with few explainable exceptions — πτ- (< *p-) only appears after a short vowel in Homer. ὁμοΐου πτολέμοιο# rather goes back to *ὁμοΐ̆οο πτολέμοιο# (see Jacobsohn 1909, 268 f.; 1910, 86

[279] Cf. also later ζῶσμα for ζῶμα (: *$\underset{\frown}{i}es$).
[280] But frequently /o̱/ is written <O> and /ŏ/ is written <Θ> in Theran inscriptions.
[281] In that dialect, <C> = /o̱/ and <O> = /o̱/.

n. 1; cf. Chantraine 1948, 110; Peters 1989, 21; Wachter 2015, 76. 85 n. 24; West prints ὁμοιΐοο in both his editions, see West 1998–2000 and 2017). More important are the objections by West (1992, 174);

> "[A]nyone who seeks to account for Homer's Ἰλίου and Αἰόλου in this way (i.e. by positing *Ἰλῑου etc. — GK) must explain (a) why the licence is only used in the genitive singular […]; why never molossic Ἰλίωι […], etc? And (b) why the following word almost always begins with two consonants, if not to lengthen the second o of -oo. In two of the three exceptions the following word begins μέγα-, which is equally capable of lengthening a preceding short open syllable. The remaining case is *Iliad* ii 731 Ἀσκληπιού δύο παῖδε".

It may be possible to claim that *-o̯o* was shortened to *-ŏo* in Attic-Ionic (cf. Peters 1980, 87 ff. n. 40; *pace* Haug 2002, 87), but the genitive singular would be the only known example of this sound change, and the Doric *-ŏŏ would still remain difficult to understand under this approach.

-ου is most frequently found in the thesis in the Homeric epics, it is the only genitive ending used with words of the (metrical) type ἀγαυός, ἀσάμινθος, ἀργυρόηλος, and ἄγριος, and is consistently avoided with words like ἀγαθός, Ἀλκίνοος, and ἄνθρωπος. This may lead to the conclusion that the immediate preform of this ending was *-ŏŏ (Platt 1897; Magnien 1922). The peculiar absence of -ου in the thesis of the fifth foot in Homer (but cf. δήμου φῆμις# at ξ 239[282]), where two shorts are normally required, though hard to neglect, does not necessarily speak in favour of *-ōo (or *-oō). The ending (*)-oo was probably already contracted when the Iliad and the Odyssey were composed (Magnien 1922, 170 f.; Chantraine 1948, 46 f.).[283] "Le génitif -οιο, *-oo constitue une alternance antique; il a été une forme vivante dans la poésie, antérieure à l'Iliade et à l'Odyssée" (Magnien 1922, 170). According to Durante (1971, 52 n. 1), this conclusion is also supported by 'instrumentals' like Ἰλιόφι (κλυτὰ τείχεα) at Φ 295: although the cretic in Ἰλίου could have easily been avoided by using (*)Ἰλίοο instead, the bards preferred to create purely artificial forms like Ἰλιόφι (cf. Chantraine 1948, 238 f.).

According to Kiparsky (1967, 632; 2017, 118), the reconstruction *-os̯i̯o > *-ōi̯o > *ōo (supposedly > *-oō) is supported by the verse end Ἀσκληπιού δύο παῖδε at B 731 and by ὅου (for οὗ) at B 325 and α 70. However, it is more likely that the iota of Ἀσκληπιοῦ has been lengthened for metrical reasons (thus Haug 2002, 86; differently Crespo 1977, 43 f.; cf. also Cowgill 1969, 26): metrical lengthening was a common strategy to accommodate an original cretic

[282] Willi (2009, 263 n. 13) notes that "the same passage shows an uncommon number of further examples of spondees in the fifth foot (Od 14.246, 14.252, 14.256)".

[283] Like-vowel contraction after *h*-loss was already completed in Homer; see Peters 1980, 257–260 (Peters 1980, 250–286 dates the change [*/V_ihV_i/ >] */V_i+V_i/ > /$\bar{V}_i$/ before the fronting of *ā to *ǣ in Attic-Ionic). — Haug's (2002, 86 f.) attempt to explain the absence of -ου in the thesis of the fifth foot fails to convince me (similarly Willi 2009, 263 n. 13).

to the hexameter (see the discussion in Schulze 1892, 275 ff. and Danielsson 1897, 51 ff.; cf. further e.g. Corc. gen. sg. Τλᾱσῑᾱϝο in IG IX,1 867, with a metrically lengthened /i/). In fact, that Ἀσκληπιοῦ contains an artificially lengthened /i/ was also the view of an early authority such as Herodian ("οὕτως ἐκτατέον διὰ τὸ μέτρον"; Hdn. *Περὶ Ἰλιακῆς Προσ*. 3,2.36.38; see further the apparatus in West's 1998 edition).

As far as the "Monstrum" (Bechtel 1908, 99) ὅου (gen. sg. rel. pron.) goes, the most down to earth assumption seems to be that this is a hybrid form based on later contracted οὗ and on the original form (*)ὅο (which in fact is a u.l. at α 70[284]); cf. Wackernagel 1878, 267; Meyer 1896, 528; Bechtel 1908, 99 with lit.; Jacobsohn 1910, 173 n. 1. 178 n. 1; St. West 1988, 84; Forssman 1991, 280 (West in both his editions prints ὅο; see West 1998–2000; 2017). (On Hom. ἕης for ἧς, which Haug 2002, 97 attributes to diectasis — as have done Brugmann and Ehrlich before him, see rather Forssman 1991, 280 f. and cf. Jacobsohn 1910, 178 n. 1 with lit.).

At any rate, Kiparsky's quantitative metathesis (recte: synizesis with compensatory lengthening of the following vowel) of *-*ōo* to *-*oō* is unlikely on phonological grounds (cf. Méndez Dosuna 1993b esp. 109 f.; Haug 2002, 85), and e.g. *-*ǭo*-, as several other vowel sequences, does not undergo quantitative metathesis in Greek (see e.g. Peters 1980, 251 n. 208).

The hiatus at Λ 109 (#Ἄντιφον αὖ παρὰ οὗς ἔλασε ξίφει […]) is not unparalleled in Homer (see Knös 1872, 47 f.), but in any case it could be explained without assuming a change *$\bar{o}o$ > *$o\bar{o}$ (*pace* Kiparsky 1967, 631). If the original text was *[…] παρ' οᾱς […], which is unclear (cf. West 2001, 211 with lit.), then possibly what we have here is another case of a form *$\breve{o}\underline{u}os$ 'ear' as in Aeol. (Balbilla) ωατα (for *ουατα) and mid-4th-c. Coan ουατα (for *ωατα; Coan was of the *Doris media*-type), which presuppose /ǭs/* and /o͞s/* (< *$\breve{o}\underline{u}os$) respectively (for this interpretation of the two forms see Peters 1991, 541[285]; the short vowel in *$\breve{o}\underline{u}os$ may have been generalized from the presumably dissimilated weak stem *$o\underline{u}eh$- < *$o\underline{u}heh$-[286]). In that case, Hom. *οᾱς would simply show lengthening in the penthemimeres (cf. Hoffmann 1842, 102; Meister 1921, 41 with n. 1; Wackernagel 1888, 141; Szemerényi 1967, 55 n. 29; Cowgill 1969, 26; Haug 2002, 85); cf. e.g. B 507 οἵ τε πολυστάφυλον$_5$| Ἄρνην, Γ 310 ἦ ῥα, καὶ ἐς δίφρον$_5$| ἄρνας. Due mainly to the irreducible οὗς at Y 473 and (perhaps) Λ 109 (as opposed to uncontracted Hom. ουατ-), Fischer (1996) and Haug (2002, 85 f.) trace the Greek word for 'ear' back to a root noun (see further the bibliography in NIL, 340 f. n. 1). But *$\breve{o}\underline{u}os$ among other forms supports an *s*-stem analysis and de Lamberterie

[284] If I understand correctly, Reece (2009, 83. 86) takes ὅο for a conjecture of an early copyist.
[285] Differently, but in my view unconvincingly, Szemerényi 1967, 52. 55. 56 with n. 33. 69.
[286] It is not clear (to me) what happened to primary *h…h in Greek, cf. Ruijgh 1967, 45 n. 6; Nussbaum 1998, 140 n. 146 with lit.; Jatteau 2016, 528–530 with lit. Perhaps palatalization played a role in (Ar., Soph., Hdn.) αὔω 'ξηραίνω' < *$h_2su\underline{s}ie$/*o*- (with so-called *Hauchumsprung*; Peters 1980, 11; LIV, 285; de Lamberterie 2009, 92 n. 35; cf. also LIV$^{add.}$, s.u. *$h_2se\underline{u}s$; secondary *-$\underline{ui}$- apparently gave -υ-).

(2009, 111 n. 87) is explicitly against the reconstruction of a root noun for Greek (see also Peters 1980, 58 ff.).

Pace Willi (2009, 264; cf. also the references on p. 267 n. 15), the high number of 'irreducible' pronominal -ου in Homer (cf. Chantraine 1948, 46. 166) does not necessarily point to the existence of (elided) *-*ōh*' (supposedly from *-*ōi̯o*). The weakening of the aspirate in *-*oho*[287] (if this is the correct preform of the ending; more on this below) could well have started earlier in the pronominal domain resulting in more instances of pronominal /-ō/ in Homer: as is well known, reductive changes, assimilations, and vowel shifts at least tend to affect high-frequency vocabulary/function words first in linguistic systems (cf. e.g. Bybee 2001; Phillips 2006, esp. 58–76; Manker 2017). For example, Tocharian B *ñiś* 'I' is exceptionally more frequent than *ñäś* 'I' in the classical language, which makes it probable that the personal pronoun was affected earlier than regular vocabulary by the late change *ä* > *i* next to palatal consonants. Similarly, the gen. sg. of the demonstrative pronoun, *cpi*, is frequently (and unexpectedly) *cwi* in Classical Tocharian B. Again, the weakening of *p* to *w*, which is a change confined to late texts, seems to have applied earlier to pronouns (see Peyrot 2008, 56. 90. 197 with ref. to Stumpf; Kim 2009, 739). Cf. also p. 82 ad fin.

In conclusion, -ου/-ω comes from *-ŏŏ; Kiparsky's analysis should be abandoned (similarly e.g. Cowgill 1969, Ruipérez 1972, 152 ff.; García Ramón 1975, 70. 100; 1985, 118; Peters 1980, 142 f. n. 96). Since PGk. *-*si̯*- became -*i̯i̯*- after **e*, **a*, and **u*, and PIE *-*osi̯o* became -*oi̯i̯o* in Thessalian and Mycenaean, then, *per implicationem*, *-*osi̯*- resulted in -*oi̯i̯*- in Greek.[288] -ου/-ω cannot be the regular outcome of *-*osi̯o*.

Appendix I: The difficult case of the genitive in -ου/-ω

The question of the origin of -ου/-ω is quite complex. That PIE had a genitive singular ending *-*eso*/-*oso* is now accepted by several scholars (see recently Melchert 2012 with lit., Harðarson 2016 with lit., Neri 2017a, 78; 2018; Bonmann 2017, 137; Jasanoff 2019, 49 with n. 7 is still sceptical about whether *-*eso*/-*oso* was really a PIE ending). Importantly, traces of both *-*osi̯o* and *-*eso*/-*oso* have been claimed to exist in Anatolian (cf. e.g. HLuv. /-asi/, Lyc. -*Vhe*), and Carian in particular may preserve traces of both endings (see Melchert 2012). It is possible, then, that originally the *o*-stem genitive singular also had two forms in Greek.[289]

However, the situation in that language is complicated by two facts; 1) the genitive in -οιο is disproportionately more frequent in the nominal than in

[287] Dunkel (LIPP II, 782) derives Greek τοῦ from **téso*. This is impossible: **téso* would have given †τέο/τεῦ in Ionic (cf. Smyth 1894, 251 ff.; Stüber 1996, 60–63) and †τιο in (e.g.) Boeotian (cf. Blümel 1982, 41 f.; Méndez Dosuna 1993a), see Ruipérez 1979, 288.

[288] Peters (p.c.) prefers now (cf. 1984, 100*) to derive χρόᾱ from *k^hrosi̯i̯ā* rather than *k^hrosi̯ā* (cf. Solmsen 1901, 116).

[289] On the question whether Greek had an *o*-stem genitive singular in *-*os* (cf. Hittite, Palaic, and HLuvian gen. sg. /-as/), compare on the one hand Duhoux 2017 and on the other Thompson 2017 (both with lit.).

the pronominal domain in Homer; 2) -ου in the Iliad is more frequent in the pronouns than in the nouns; see Ruipérez 1979, 289 ff. (the figures given by Ruipérez for selected parts of the Iliad are 100× -οιο in the nouns/adjectives vs. 22× -οιο in the pronouns/article, and 119× -ου in the pronouns/article vs. 57× -ου in the nouns/adjectives). It seems that, initially, Greek somehow had *-*oho* in the pronouns but *-*ohi̯o* (or the like) in the nouns.[290] Further evidence corroborating the view that -ου/-ω was originally a pronominal ending in Greek may be provided by τō γαμοιο in the still unpublished Achaean inscription B 1292 (inventory number; Olympia museum) found in Olympia (see Peters 1989, 128; Siewert 2014, 155 with n. 50), and perhaps by Thess. κēνō beside πολεμοιο in an inscription from Pherae (thus Ruipérez 1979; cf. SEG 23:415; 450–425).[291]

I cannot follow Ruipérez (1979, 290 f.), García Ramón (1975, 70), Lillo (1985), and Peters (1989, 128) in reconstructing an original system with *-*oso* in the pronouns and *-*osi̯o* in the (*o*-stem) nouns and adjectives. If this is not how the endings were distributed in the protolanguage, which is unlikely (cf. e.g. LIPP II, 780; Bonmann 2017; Neri 2018; compare for instance late-PIE **tósi̯o*[292]), then it is very difficult to understand how such a pattern could have emerged during the internal history of Greek.[293] Further, it is highly questionable whether such an asymmetric distribution could have been preserved for thousands of years in Greek to be clearly observable in Homer and to have left traces in alphabetic dialect inscriptions. In Mycenaean, contrary to expectations, no such pattern seems to exist; -*oi̯i̯o* is the only ending unambiguously found in the tablets (see below). The equation between Ved. gen. sg. *tásya* and Hom. τοῖο, the rarity of τοῖο in Homer (which rather speaks for an archaism), and the fact that Thess. and Myc. -*oi̯i̯o* in the pronouns can hardly have replaced an earlier *-*oho* (see further p. 87) strongly support the idea that *-*osi̯o* was originally both a nominal *and* a pronominal ending in Greek (cf. e.g. Jacobsohn 1910, 171 n. 1).

Now if we do not want to follow Willi's (2009) ingenious but hardly correct (cf. pp. 76 ff.) explanation of the Homeric data (generalization of elided **tōh*' < **tōi̯o* < **tosi̯o*), and if we do not want to assume that pronominal *-*osi̯o* and a hypothetical nominal *-*oso* were lost during the prehistory of Greek, there seems to remain only one way to approach the problem of the Greek

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[290] Risch (*apud* Ruipérez 1979, 292) does not believe that Ruipérez's statistics make the reconstruction of a pronominal ending *-*oso* unavoidable: given that nouns and adjectives are more frequent than pronouns in formulas, an old ending would be more likely to be preserved in the nominal domain. According to Risch, (*)-oo comes from -οιο with loss of the glide perhaps in colloquial speech.

[291] But this document may contain non-Thessalian features: compare the aspirate and the Attic-Ionic-like long /ē/ in hīρēνāς (cf. Lac. hīρᾶνᾶν) in l. 7, as well as aspirated χαυτōι in l. 4 (see further Blümel 1982, 88–90. 242).

[292] **tósi̯o* probably continues ***tósmi̯o* (cf. Ved. dat. sg. *tásmai*, abl. sg. *tásmāt*, etc.), with application of a version of the *asnō* rule; cf. Gippert 2004; Byrd 2015, 20; Bonmann 2017, 138. 177 f.; Neri 2017a, 52 f.; 2018.

[293] "[…] [E]s ist nicht ersichtlich, wie ein solches Nebeneinander auf einzeldialektaler Neuerung beruhen könnte" (Peters 1989, 129).

o-stem genitive singular. This is to hypothesize that in some dialects PGk. *-*osi̯o* somehow became (*)-oo in the pronouns and from there spread to the nouns.

Theoretically, it is not impossible to derive pronominal -ου from *-*osi̯o*. Pronouns and function words tend to be reduced more than content words in everyday speech (e.g. Bybee 2001, 60–62; Jurafsky et al. 2001), and there are regular, reductive sound changes that target only function words to the exclusion of content words[294] (see e.g. recently Manker 2017). It could be argued that a special reductive process affected pronouns during the early history of Greek, whereby prevocalic diphthongs completely lost their second element. Nevertheless, diphthongs before vowels — and [-oi̯i̯o-] in particular — are normally preserved in other pronouns; cf. e.g. τοῖος 'such, such like' (rare in prose), τοιόσδε, τοιούτος 'such as this', ποῖος 'of what kind?'. It seems that the pronominal status of τοῖο could not have been the key factor for its hypothetical reduction.

According to Schmidt (1905, 36 f.), Hom. μευ, σευ, εὑ come from *μειο, *σειο, *εἱο with loss of the second element of the diphthong in enclitic position; contracted (non-enclitic) ἐμεῦ (etc.) < ἐμέο is a compromise between ἐμεῖο < **emesi̯o* and (unstressed) μευ < (*)μεο (Jacobsohn 1910, 168 f. has endorsed Schmidt's proposal). Beekes (1986), with good reason (since the statistics are quite remarkable, see ibid., 365), cannot understand why an unstressed *μειο (*σειο, *εἱο) is never found in Homer. If we follow Schmidt, however (whose paper is not cited by Beekes), the absence of *μειο is completely unsurprising (cf. Schmidt's wording, "ἐμεῖο, σεῖο, εἷο stehen nur im hochtone, die enklitischen formen haben nie ει"). I tend to see the absence of unstressed *μειο as a strong argument in favour of Schmidt's analysis (cf. further Jacobsohn's 1910, 167 ff. account on τέο = τίνος; cf. GAv. *cahiiā* < *k^{μ}*esi̯o* [diff. LIPP II, 452 n. 2. 456] rather than OCS *česo*[295]).

Postulating with Schmidt a change *-*Vi̯i̯V*- > *-*Vi̯V*- (uel sim.) in unstressed forms seems to be a legitimate solution to the problem of *μειο. It is well-known that unstressed forms of pronouns and clitics in general can be phonologically reduced; and not necessarily through regular sound change. For instance, in certain *h*-preserving dialects of Greek, the nom. sg./pl. of the article has lost its initial aspirate. In (e.g.) Boeotian, where the sequence /āo/ remains uncontracted until quite late, the gen. pl. of the feminine article is τᾱ̃ν < *τᾱ̃ων, while the gen. pl. of *ā*-stems ends in -ᾱ̃ων (see further Méndez Dosuna 1993b, 116 n. 39; Lejeune 1972, 268; for the accentual profile of the definite article, see Devine / Stephens 1994, 356–361). Dutch *zij* 'she, they',

[294] To name a well-known example, English /θ/ weakened to /ð/ word-initially in function words but not in content words; compare on the one hand pronouns like *thou*, *thy*, the article *the*, the demonstratives *this* and *that*, and on the other nouns such as *thunder* or *thumb*, the verbs *think* and *thaw*, adjectives like *thorough* and *thin*, etc.

[295] On τέο cf. also Schmidt 1905, 35; Hermann 1923, 32 f.; Szemerényi 1956, 197 f.; Strunk 1957, 72 n. 162; Ruipérez 1972, 154; Peters 1980, 268 n. 223; Ruijgh 1985, 133; Haug 2002, 99; Hawkins 2013, 101 n. 327; LIPP II, 458; Neri 2017, 78; and below (Hermann, Ruijgh, Hawkins, Dunkel, and Neri equate τέο with *česo*). According to Forssman (1980a), Lesb. ὅτ-τω (cf. Lesb. ὅττις = ὅστις, Hom. ὅττεο/ὅτ(τ)ευ) perhaps continues *-*k^{μ}oso*.

and *wij* ‘we’ have the reduced variants *zə* and *wə* respectively (Gerritsen / Jansen 1980, 42). English *him* is pronounced [ɪm] instead of [hɪm] in enclitic position; as e.g. in *I met him* [mɛt ɪm], for [mɛt hɪm], with a non-clitic pronoun. Degemination under weak stress is perhaps attested in OHG *demu* and OS *themu* (dat. sg. masc./neut. of the dem. pronoun) << **þammū* (cf. Go. *þamma*); cf. Hirt 1932, 82; Prokosch 1939, 269; Stiles 2013, 25; Harðarson 2016, 155; Fulk 2018, 196.[296] See generally e.g. Hock 1991, 87 and Anderson 2005, 11 and *passim* with ref. mainly to Zwicky.

Beekes, following Schwyzer and Rix, believes that ἐμεῖο shows metrical lengthening (σεῖο and εἷο, according to him, are secondary after ἐμεῖο). The absence of *μειο would be easy to understand under this approach: the creation of a metrically lengthened *μειο would make no sense, since (*)μεο would scan normally. But the lengthening of the middle of three short vowels would be rather unique in Greek, since ἑῆος is a special case (cf. Nussbaum 1998, 155 ff.). Haug (2002, 97; without citing Schmidt) proposes that Hom. ἐμεῦ (etc.) comes from **emesi̯o* with *°*esi̯*° > *°*ēi̯*° as per Kiparsky (1967) and possibly shortening of the long vowel after the accusative ἐμέ. ἐμεῖο, according to him, represents either unshortened /emē̆o/ or Aeolic /emei̯i̯o/. But, as explained in the previous section, there are reasons to doubt that Kiparsky’s account on the development of PGk. *-*si̯*- is correct.[297] Wachter (2015, 103 n. 38) proposes that the variants without iota are analogical after τέο, the (rare) genitive singular of the interrogative pronoun. According to Ruijgh (1978, 305 f.), ἐμεῖο is analogical after τοῖο (cf. also Chantraine 1948, 265). Haug’s, Wachter’s, and Ruijgh’s theories fail to account for the absence of unstressed *μειο, *σειο, and *εἷο in Homer.

If ἐμέο/ἐμεῦ (et sim.) has arisen in the way envisaged by Schmidt, we could assume that (*)-οο in the pronouns is analogical on the model of pronominal genitives like ἐμέο (ἐμεῦ), σέο (σεῦ), and ἕο (εὗ). That is, (e.g.) **emei̯i̯o* : **(e)mei̯o* :: **toi̯i̯o* : X, where X = **toi̯o*. Jacobsohn (1910, 171 n. 1 ad init.) has proposed exactly that, but only to dismiss it later on in the same footnote (p. 173). His idea would straightforwardly explain why -ου is more frequent in the pronouns. The reason why -οιο is so marginal in the pronominal domain would not be very easy to understand under his approach (in Homer, the distribution of ἐμεῖο and μευ is clearly more balanced), but I do not consider this a very serious objection to the present account.

Schmidt (1905, 37 f.) believes that τοῦ comes from **tosi̯o* with loss of the “ι” in proclitic position (similarly Schwyzer 1939, 273; Strunk 1957, 72 n. 162; López Eire 1969, 9–18; Ruipérez 1972, 153 f.; Ruijgh 1977, 257). Jacobsohn (1910, 171 n. 1; and subsequent scholars) rightly takes issue with this theory: although the use of the demonstrative as an article (i.e. as a

[296] Certain phonological peculiarities of Indo-European pronouns have been attributed to irregular reduction “im Schwachton” by Klingenschmitt; see e.g. 1987, 188; 1994, 362.

[297] Haug (2002, 100–103), building on Schwyzer, proposes that Hom. ἑῆος comes from **seu̯esi̯o-*; again with *°*esi̯*° > *°*ēi̯*°. However, *-*esu̯*- results in -η- in Homer only when followed by **e* or **i* (cf. Hom. τελήεις < **telesu̯ent-*); otherwise the outcome of that sequence is denoted by <-ει->, see Peters 1986, 305 with n. 6. On ἑῆος see rather Nussbaum 1998.

proclitic) was probably a regular feature of Homer's vernacular, it is clear that the Homeric language lacked that feature (Wackernagel 1928, 128; Leumann 1950, 12 n. 2). This, coupled with the fact that -ου is found in highly archaic passages in the epics, makes Schmidt's proposal difficult to accept (that the demonstrative retained its deictic value until quite late in Greek is now also suggested by the Mycenaean tablets, where instances of e.g. /to-/ used as an article are not found; cf. also Morpurgo Davies 1968a)[298].

A last alternative to the problem of the *o*-stem genitive would be to follow Ruijgh (1967, 74; cf. also 1977, 257), who has proposed that (*)-*oo* was created on the basis of the *ā*-stem genitive in (*)-*ā(h)o*. Given that the genitive in -ου is more frequent in the pronouns in Homer, this analysis would involve the hypothesis that the analogy started in syntagms like **toi̯i̯o tami̯i̯āho* → **toho tami̯i̯āho* uel sim. Ruijgh's approach would also explain why -οιο is so rare in the pronouns.

If -ου/-ω is really analogical after the genitive singular of masculine *ā*-stems (or after **(e)mei̯o*), that would also explain the existence of -ου/-ω in Lesbian and West Thessalian, since that ending could have easily come into being at anytime during the internal history of these varieties; as it possibly happened in several other dialects (Lesbian -ω is usually atrributed to borrowing from neighbouring Ionic varieties; thus most recently Willi 2009[299]). Since most scholars believe that (*)-*āho* was based on **-oho*, it behoves us to investigate in more detail the history of the masc. *ā*-stem genitive.

Appendix II: The difficult case of the genitive in -ᾱο

i. Introduction

As is well known, the genitive singular of masculine *ā*-stems is (*)-*ā(h)o* in dialects other than Attic (Ionic has -εω < **-āo*) (for a useful, though dated, overview, see Meyer 1896, 446 ff.). This case form replaced the original genitive singular in **-ās* < **-ah₂(a)s* (Duhoux 2017, 162 f. sees now traces of **-ās* in Mycenaean *A-e-ri-qo-ta* in PY An 657.11 f. and in *Pi-ro-i-ta* KN V(7) 1523.5b). The origin of (*)-*ā(h)o* is not very clear. It was initially thought that it was formed by analogy with the *o*-stem genitive when that was still uncontracted, but in Mycenaean the genitive singular of masc. *ā*-stems is *-a-o* while that of the *o*-stems is *-o-jo*. The latter would be expected to be †*-o-o* if the above assumption were right (cf. Geiss 1956; the default extractee from *[-oi̯.i̯o] would be *[-i̯o]).[300] There have been numerous attempts to explain how

[298] The use of the demonstrative as an article is extremely rare in Pamphylian. "Il est […] possible qu'en pamphylien l'ancien démonstratif ὁ, ἁ, τό ne soit jamais devenu un véritable « article »" (Brixhe 1976, 126).

[299] "Cette hypothèse est peu vraisemblable ; on sait que la morphologie est particulièrement résistante aux emprunts, et le lesbien n'est pas á un tel degré imbibé d'éléments ioniens que l'on s'attende á trouver une désinence empruntée" (Haug 2002, 87 f.; cf. also Cowgill 1969, 25 bottom). — Blümel (1982, 72 f. 240), followed by Peters (1984, 86), tentatively traces -ω back to **-oi̯i̯o* < **-osi̯o* on the basis of a sporadic but relatively early Lesbian change of the sequence (*)[-ai̯i̯ă(-)] to /-ā(-)/ (see also Hodot 1990, 223 and Peters 1994, 203).

[300] As Lejeune (1965, 20) points out, a similar problem is posed by East Thessalian -ᾱ(ο) beside -οι(ο).

(*)-*ā(h)o* was formed. However, as highlighted by Hellemans (2005, 81 ff.) and Willi (2009), most of them have been unsuccessful.

Miller (2014, 338 n. 142) still follows the suggestion of Lucidi *apud* Morpurgo Davies 1968, 17 n. 1 (that is, nom. */-os/ : gen. */-osyo/ :: nom. */-ā/ : gen. X, where X = */-āyo/), but the complete absence of †-*a̯-jo* spellings in Mycenaean, even in Pylos where the material adjectives in *-e-jo* have no *i̯*-less variants, makes this idea very difficult to accept (see Peters 1984, 86 n. 10; a list of Mycenaean genitives in *-a-o* can be found in Willi 2009, 268). It could be suggested that **i̯* was lost earlier after long vowels (cf. Szemerényi 1956, 199; Haug 2002, 94 f.), but in the absence of evidence for the existence of such a process in Greek, this idea is ad hoc. Lejeune (1965, 20) supposes that -ᾱο results from contamination between gen. pl. *-*āhōn* and (nominal) (*)/-oo/[301] or (*)[-o(i̯)i̯o].

A new theory (Neri 2018, 259 f.; cf. also Shields 2005, 236 f.) traces Gk. -ᾱο back to thematic hypostases based on the old genitive singular in *-*ah₂(a)s* (via the postposition **e*/*o* → Zugehörigkeits-, Possessivsuffix? originally with a deictic value ‘da; dazu, dahin’; cf. PIE gen. sg. *-*os* and *-*oso*). This analysis is certainly workable, but if **oso* was not a Proto-Greek ending, as I believe, then much of its attraction is lost.

There is no point in presenting and discussing every single idea that has been proposed thus far, since this has largely been done by Willi and Hellemans. It is worthwhile, however, to discuss the new theory advanced by Willi, as well as Lillo’s analysis, since this is now favoured by most scholars.

ii. Willi’s proposal

Willi argues that the *ā*-stem genitive was created at a time when Kiparsky’s *-*ōi̯o* had become *-*ōho*. According to him, the newly created ending was regularly denoted by *-a-o* in Mycenaean, while for the old *o*-stem genitive a conservative spelling was used, i.e. *-o-jo*.

Willi’s account should be modified to some extent: intervocalic *-*i̯*- probably did not develop to *-*h*- in its way to zero in Greek (see Hamp 1960, 192, Cowgill 1969, Hellemans 2005, 114–117, Kümmel 2007, 146 n. 87; Bozzone 2013, Melena 2014, 76),[302] so the *ā*-stem genitive should be assumed to have been based on an ending *-*ŏ̯o*. Further, as I explained above, Kiparsky’s analysis can hardly be correct. If one wanted to operate with a Mycenaean ending with single yod, one might hypothesize that in that dialect

[301] According to him, this ending was subsequently lost in both Mycenaean and (East) Thessalian.

[302] A change of /-Vi̯V-/ to /-VhV-/ would be a case of fortition. In weak prosodic positions, fortitions are rather uncommon. For instance, in the numerous examples of *i̯*-loss between vowels catalogued in Kümmel 2007, 126 ff., there is not a single case where /i̯/ has become /h/ in its way to zero. The hypothesis that intervocalic yod became an aspirate before being completely lost in Greek is mainly based on the unlikely assumption (cf. ch. 3 and sect. 3.1 in particular) that *-*e*/*i*/*uRi̯*- > -*ē*/*ī*/*ūR*- is the result of compensatory lengthening (via *-*e*/*i*/*uRh*- > *-*e*/*i*/*uhR*-), and on the outdated idea that PGk. **i̯*- partly became **h*- (more on this change below, p. 91; for the evidence pointing to /-i̯-/ > /-h-/ in Mycenaean, see Bozzone 2013, 19–22 and Hellemans 2005, 49 f. 115. 123 f.).

the genitive singular had the reduced form [-oi̯o] (< -*oi̯̯o* uel sim.); this could be compared with later Greek (*)-oo (cf. Appendix I).

Not everyone in the field of Mycenaean studies is certain that the elimination of intervocalic *-*i̯*- had already started/was complete in Mycenaean. For example, Hellemans (2005, 108 ff.) concludes that it had not (but without discussing Myc. [KN, PY] *o-u-* = οὐ < **h₂ói̯u*; cf. LIPP II, 352 ff. with n. 19 and ref. to Cowgill). Ruijgh (1967, 64) believes that "*y* était *en train*[303] d'évoluer vers *h*". Despite Willi's efforts, it still requires a leap of faith to believe that *-o-jo* is a historical spelling, and the lack of orthographic variants with *-o-o* is suspicious if *-o-jo* represented [-oo]. Further, the replacement of *-*ās* by (*)-*āho* does not give the impression of a late change. Finally, since *-*osi̯o* gave -*oi̯̯o* in East Thessalian, it will be difficult to account for Thess./Aeol. -ᾱο under Willi's approach. Willi considers Aeol. -ᾱο a borrowing from non-Aeolic varieties.

iii. Lillo's proposal

Lillo (1985, 250–256; 1987, 91 f.; see also Gallavotti 1968, 48) believes that the source of the *ā*-stem genitive is the genitive singular of the demonstrative pronoun, viz. **toho* (cf. possible syntagms like **toho tamiās* etc.). This theory has been hesitantly adopted by e.g. Peters (1989, 128), Leukart (1994, 43), and García Ramón (2017, 658).

However, although it cannot be denied that the pronominal inflection has played an important role in the development of the nominal inflection in the Indo-European languages, as far as the masculine *ā*-stems go, it seems that for the most part these have closely followed patterns found in the nominal domain, and more precisely in the *o*-stems (despite the situation in Mycenaean, Méndez Dosuna 1982, 65 and Hawkins 2013, 101 n. 327 insist that -ᾱο was somehow created after nominal (*)-ο(ι)ο): for example, the nominative plural of masc. *ā*-stems was formed by analogy with the *o*-stems (as in Latin, cf. e.g. Weiss 2009, 235; differently, but less economically, e.g. Meiser 1998, 132); in some dialects (as in Latin, *mut*. *mut*.), -ᾱσι/-ησι, i.e. what was synchronically the dative plural, was reformed to -αις after the corresponding case form of the *o*-stems, -οις; the accusative plural -ανς (e.g. in Cretan), for expected */-ās/ < **-ah₂m*/*ns* (cf. e.g. Ved. -*āḥ*), shows influence from the *o*-stem accusative plural in -ονς; the nominative/accusative dual ending -ω (< **-oh₁*) of the *ā*-stems has been taken over from the *o*-stems.[304]

In Latin, as is well known, the genitive marker *-ī* has been extended from the *o*- to the *ā*-stems (cf. *-āī*). In Phrygian, where masculine *ā*-stems are found next to feminine ones, the contracted form of the *o*-stem genitive, *-ō*, has been extended to the masc. *ā*-stems. Also, in that language, the original genitive singular has been replaced by *-āvo* by analogy with the (alternative) *o*-stem

[303] My emphasis.

[304] During the prehistory of the Attic dialect, the old ending of the masculine *ā*-stems (cf. Ion. -εω) was replaced by the genitive singular of the *o*-stems (cf. e.g. Att. ὁ ποιητής, τοῦ ποιητοῦ). This change probably involved the substitution of /-(e)ǭ/ by /-(e)ō/, cf. Szemerényi 1956, 206–208; Nussbaum 1998, 63 n. 217.

genitive singular in *-ovo* (the °*v*° between the two vowels is probably a transitional glide); cf. e.g. Orel 1997, 26. 51. 395; Brixhe 2004, 51.

If Lillo's account were correct, one would expect the pronominal genitive singular to be /-oho/ in Mycenaean. However, pronouns in the genitive case normally show *-o-jo* in that dialect: cf. *au-to-jo* (PY Eb 156.2; Hand 41) = αὐτοῖο (Hom.+), *to-jo(-qe)* (TH Fq 214, 239, etc.; Gp 150, 235; PY Eb 156; Hand 41) ≈ τοῖό τε (Hom.), *to-so-jo*[305] (PY Er 312.2; Hand 24) = *τόσ(σ)οιο, *wo-jo* (PY Eb 472.B; Hand 41) = οἷο (Hom.+).

It has been proposed that *to-so-o* in KN Od 666 (Hand 115) and PY Xa 1342 (Class iii), and *to-o* in PY Un 1321 (Hand 34) represent genitive singulars (see the references in DMic., s.uu.), but this is uncertain ("*[c]erto* è solo il gen. in *-o-jo*"; Bonfante 1984, 188). In KN Od 666, it is not clear whether we should read] *to-so o* LANA 14 or] *to-so-o* LANA 14; the editors have opted for the first reading. Since the element *jo-*/*o-* (always prefixed) is usually found in headings, *to-so-o qe-*[in the heading of PY Xa 1342 (as well as *to-so-o* in KN Od 666) is interpreted as /tos(s)on hō(s)/ by Melena (2014, 125) and others. The form *to-o* (and *to-so-o*, but "mit Vorbehalten") has been considered an ablative in /-ō/ by Hajnal (1995, 37. 266 with n. 348).[306]

One might suppose that the pronominal genitive became *-*oh̯io*/(*)-*oî̯io* in Mycenaean and East Thessalian (cf. e.g. Gallavotti 1968, 48; García Ramón 1975, 70. 100; Ruipérez 1979, 291), but this is counterintuitive: it presupposes that a hypothetical **toho tamiās* led to **toho tamii̯āho*, but that **toho logoh̯io*(/*logoî̯io*) led to **toh̯io*(/*toî̯io*) *logoh̯io*(/*logoî̯io*); despite the rhyming *ā*-stem genitive in (*)-*āho*. Analogy generally aims at making a paradigm less complex than it already is, and marked case forms tend to be replaced diachronically, not to be extended to new items (cf. Mańczak 1958; Fertig 2013). It may be no coincidence that *-*oî̯io*, unlike *-*ō*, is only marginally attested in Greek. Since high frequency words, such as pronouns, tend to resist morphological change (e.g. Bybee 2001), it is apriori more likely that pronominal *-*oî̯io* (cf. Myc., Thess., Hom. [toî̯(i̯o)], Ved. *tásya*) in two conservative Greek dialects like Mycenaean and East Thessalian[307] represents an archaism.[308]

iv. Gk. *-*oî̯ho*?

In section 6.4 it will be argued that PGk. **s* was palatalized and possibly prepalatalized when followed by **î̯*. There are some difficulties with the latter assumption, but since our current understanding of the workings of prepalatalization in Greek is quite limited, and the origin of the *ā*-stem genitive

[305] Differently Ruipérez 1992 with lit.; Moralejo 1993, 31.

[306] The interpretation of Myc. *to-e* = ?*to-me* < **tosmei̯* (cf. Ved. dat. sg. *tásmai*) is marked by difficulties (cf. the lit. in DMic., s.u.). Beekes (1986, 370 f.) argues that that form presupposes the existence of a Mycenaean genitive singular */toso/. This need not be the case; cf. Ruijgh 1985, 134–136; Hajnal 1995, 138 n. 176.

[307] On the archaic character of East Thessalian see García Ramón 1975, 99.

[308] Pronominal endings have certainly changed in (e.g.) the history of Greek, but most times this has happened in cases where a highly marked ending was replaced by another, less marked one (cf. e.g. the replacement of dat. sg. **tosmōi̯* by **tōi̯* or of gen. pl. **toi̯sōm* by **tōm*).

still poses problems, it may be worthwhile to investigate the possibility that (*)-*āho* was created at a time when the genitive in *-*os̯o* was *-*oi̯ho*.

Given the dative/locative plural in *-*āhi* next to *-*oi̯hi* in the *ā*- and *o*-stems respectively, as well as the dative singular in /-ōi̯/ (with what would seem synchronically as a bimoraic version of the stem vowel plus the dative singular ending[309]), it is likely that a possible *-*oi̯ho* would have been thought to contain *-*oi̯*-, a diphthongal version of the stem vowel, plus a genitive marker *-*ho* in early Greek. According to most scholars (including Wackernagel 1903; Morpurgo Davies 1976 [with p. 183 n. 8]; and García Ramón 1990; Lazzeroni e.g. 1988 and Cassio e.g. 2018 are some notable exceptions), the dative plural -εσσι in Aeolic and other dialects was based on a proportion -οι : -οισι :: -ες : X, where X = -εσσι (for a slightly different account, whose acceptance does not affect the present argument, see Peters 2000). If this is the correct analysis, then -οισι was indeed thought to contain an element /-oi̯-/ plus the ending /-si/ in Greek.

The simplest rule[310] that could be abstracted from a form like **log-oi̯-ho* would be "to form the genitive, add *-ho* to the genitive stem". This rule would produce a form like e.g. **tamii̯āho* straightforwardly.[311] For a similar process, compare the extension of the marker *-ī* from the *o*- (cf. e.g. *dominī*) to the *ā*-stems (cf. e.g. *terrae* < (*)-*āī*) in Latin. Yet another parallel comes from Young Avestan. In that language, the *-t̯* of the *a*-stem abl. sg. *-āt̯* was attached directly to the existing stem of the ablative in other stem classes (cf. e.g. *-ōit̯* for *-ōiš** < *-*ai̯š* in the *i*-stems, *-aot̯* for *-aoš*/-*əuš* < *-*auš* in the *u*-stems, or *-at̯* for (*)-*as*/*-ah* in the *s*-stems; see further Hoffmann / Forssman 2004, 116 ff.).

F. W. Householder (1961, 186 f. with n. 3) argued that the *o*-stem genitive singular was *-*oi̯so* in early Greek. He unconvincingly traced that ending back to *-*os̯o*, with metathesis on the basis of 1) a possible, but

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[309] Compare the analogical ablative singulars (e.g.) *-īd* and *-ūd* of the *i*- and *u*-stems in Italic. These were based on the old *o*-stem ablative singular (*)-*ōd*; obviously the speakers of the old Italic dialects analyzed (*)-*ōd* as containing a long stem vowel plus an ablative marker /d/. Compare further the similar situation in Celtiberian; see e.g. Villar 1997, 920–925.

[310] In the sense of Ringe 2007; Ringe / Eska 2013, 152 ff. with lit.; cf. also Miller 2010, 97 ff. with lit. On proportional analogy and analogy in general, compare further the remarks of Miller (2010, 98); "it makes no more sense to constrain analogy than it does to talk about constraining the brain. There is no denying that analogy is to some extent constrained by the language system in which it operates. But the fact remains that any links the mind/brain can make will produce valid analogies. Whatever constitutes a cognitively identifiable relationship is subject to possible analogical influence".

[311] Myc. *-o-jo* cannot represent /-oi̯ho/. /-oi̯ho/ would be written †-*o-o* in Mycenaean (see Ruipérez 1979, 285 f.). *-o-jo* probably stands for [-oi̯i̯o] (e.g. Heubeck 1979, 241; Risch 1979, 272; if so, and if *-oi̯i̯o* continues *-*oi̯ho*, the change of *-*i̯h*- to *-i̯i̯*- was already accomplished by the time of our earliest records; cf. Ruipérez 1972, 158; López Eire 1972, 274 f.: Myc. °*o-i* = [-oi̯i̯i] < *-*oi̯hi*). *Pace* Haug (2002, 83), the lack of the spelling †-*o-i-jo* is not at all surprising: the writing of prevocalic diphthongs as <*V-i-jV*> is an extremely rare phenomenon in Mycenaean. As a matter of fact, the only clear case is *ke-ra-i-ja-pi* in KN Sd <4450>.a. However, the same scribe has written *ke-ra-ja-pi* ten times, and *ke-ra-ja-pi* is always followed by *o-pi-i-ja-pi* (with an intervocalic aspirate), which makes it plausible that *ke-ra-i-ja-pi* is just a case of dittography (Nussbaum 1986, 40). All other examples of the spelling <*V-i-jV*> may or certainly involve an intervocalic /h/ (see Melena 2014, 92–98).

unattested, instrumental plural *-*oi̯p*^{h}*i* (with a secondary diphthong after *-*ŏi̯s*), and 2) the locative plural *-*oi̯si* (he did not exclude Diver's 1958, 24 scenario about a regular change of *-*osi̯o* to *-*oi̯so*, however). According to him, the genitive in (*)-*āho* was based on a proportion dat./loc. pl. *-*oi̯si* : gen. sg. *-*oi̯so* :: dat./loc. pl. *-*āsi* : X, where X = *-*āso*.[312]

Eska (1995, 42; see also Eska / Wallace 2001, 80 f.; Watkins 2001, 220–222) has proposed that the Lepontic genitive singular -*oiso* results from contamination between *-*osi̯o* and the pronominal gen. pl. *-*oi̯sōm* (cf. Celtib. **śoišum**).[313] Similarly, Neri (2018, 259) suggests that the diphthong in -*oiso* (he tentatively derives this ending from *-*oso*, see also Watkins 1999, 8)[314] is analogical after the pronominal element *-*oi̯*-. The old explanation of the Lepontic ending (still supported in de Bernardo Stempel 2007, 166 n. 148; see further De Simone 1992, 21 and the references in Eska 1995, 42) is that -*oiso* is a 'metathesized' variant of *-*osi̯o*. This is rejected by Eska (1995, 42) on the grounds that the cluster *-*si̯*- remains intact in Lepontic. However, the names **Tisiui** and **Aesia** mentioned by him in support of this assumption probably go back to *-*sii̯*-, not *-*si̯*-.

It is interesting that a quite similar problem exists in Messapic and perhaps in Venetic[315]. In the former language, the genitive singular of *a*- and *(i)i̯a*-stems is -*aihi* and -*ihi* respectively. De Simone 1992 (see now also De Simone 2013, 57 ff.), followed by Eska / Wallace 2001, derives the Messapic ending from (thematic) *-*o*-*ī*, connecting it with the genitive in (*)-*ī* found in Italic and Celtic. As several scholars have argued (see Orioles 1991, 165; Matzinger 2005, 40; 2014[316], 34–36; Gusmani 2006; Prosdocimi 2006; Ciceri 2012) — and I mostly share their reservations — De Simone's proposal is difficult to accept. The Messapic genitive singular is best explained, with Gusmani (1976, 147 ff.; 2006) and Matzinger (2005, 39 f.), as deriving directly from PIE *-*osi̯o*. It could be that the diphthong in the Messapic ending is also analogical after pronominal *-*oi̯*-, but it may be more prudent to assume that it is Lautgesetzlich. Matzinger reconstructs the following sequence of sound changes; *-*ahi̯a* > *-*ahi̯e* > *-*ai̯hi̯e* > (dissimilation) *-*ai̯hę* (Neri 2017a, 78 reconstructs *-*ai̯hi̯ə*) > -*aihi* (on **e* > *i*, cf. *Zīs* 'Zeus' < *-*di̯ēs*[317]). Assuming dissimilation is not needed: prepalatalization presupposes contrastively or

[312] Willi (2009, 245) voices doubts about "whether the locative plural would have been a firm enough basis for an analogical proportion" to work. Compare, however, Hill 2007, 95 f. (who, incidentally, does not believe in non-proportional analogy).

[313] De Bernardo Stempel (2007, 166 n. 148) rejects Eska's idea as implausible. The proposal has been provisionally accepted by e.g. Schrijver (1997, 16), Watkins (1999 and 2001), and Neri (2017a, 78).

[314] *-*Vsi̯o* is not unknown in Celtic; see e.g. Schrijver 1995, 319.

[315] Eska / Wallace (1999) argue that the Venetic inscription *Oderzo 7, where the form *kaialoiso* is found, should rather be considered Lepontic (this is accepted by Watkins 2001, 220), but de Bernardo Stempel (2007, 166 n. 148), with reference to K. H. Schmidt, still follows the traditional view and considers it Venetic.

[316] The new, published version of this work is unfortunately not available to me.

[317] Matzinger (2014, 24) asks whether *$\bar{e}$ > $\bar{\imath}$ here was conditioned by the preceding palatal glide. That would also support his analysis of the genitive.

contextually palatalized consonants, and yod absorption after palatals is commonplace (cf. also Operstein 2010, e.g. 100 ad init.). If I understand correctly, Neri supposes that unaccented *_e_ was reduced to *_ə_ and then zero in word-final position. Yet another approach would be to assume a change of *°_hi̯i_ to °_hi_.

De Simone (1992; cf. also 1972, 165 f.) objects that *-_si̯_- does not become -_i̯h_- in Messapic under any circumstances, and that the expected outcome of *-_osi̯o_ in that language would be *-_aš(š)e_. However, all examples adduced by him in favour of such a development rather continue *-_si̯i̯_-, not *-_si̯_- (Peters 1998a, M-21 n° M165).

An analogical PGk. *-_oi̯si̯o_ would be expected to give -_oi̯i̯o_ via *_oi̯ho_ (< */oi̯hʲo/) in later Greek. However, the introduction of *-_oi̯_- to the genitive singular is not a well-motivated change. It would arguably be bold to assume that it happened twice (or thrice) independently (cf. Eska / Wallace 1999, 127; unless this analogy was somehow prompted by the postconsonantal *_i̯_). Prosdocimi (2006, 1429 n. 14b) and Gusmani (2006, 202) have tentatively connected Gk. -οιο with the Lepontic and Messapic genitives, reconstructing an Indo-European variant *-_oi̯s(i̯)o_. This is rather hypothetical.

v. Final remark

To return to Ruijgh's idea about the origin of the genitive in (*)-oo, if (*)-_āho_ was based on our hypothetical (*-_osi̯o_ >) *-_oi̯ho_ (> -_oi̯i̯o_) (or if (*)-_āho_ ultimately goes back to Proto-Greek *-_ah₂so_ as per Neri), then (*)-oo could indeed be an innovation of some Greek dialects produced by analogy with the genitive in (*)-_āho_ (perhaps at a time when *-_osi̯o_ was still *-_oi̯ho_). In that case, (*)-oo would go back to *-_oho_.

6.4 The sound change *-_si̯_- > -_i̯i̯_-

PGk. *-_si̯_- could have become -_i̯i̯_- via either *-_ssi̯_- or *-_(h)hi̯_-. It is convenient to discuss the former possibility first.

In West Germanic, where gemination before *_i̯_ is extremely common, PWGmc. *-_si̯_- clearly underwent consonant doubling (see e.g. Simmler 1974, 102 ff. 230 f.; Ringe / Taylor 2014, 51). Similarly, /s/ is geminated before secondary yod in Thessalian; cf. e.g. Thess. γυμνασσαρχεισαντα, δαμοσσος, the PN Μνᾱσσᾱς for Μνᾱσιᾱς* (with absorption of the /i̯/), or εκκλεισσιαι (cf. further Hermann 1923, 38; Méndez Dosuna 1994a; García Ramón 2011, 127).

Gemination before (primary) yod is probably a pre-Mycenaean sound change: alveolar palatalization postdates it and is at the same time pre-Mycenaean; also, the Linear B sign *ra₂*, which was mainly used to denote secondary but probably also primary /Li̯/ sequences (cf. e.g. *a-ro₂-a*), is also used to denote the geminate liquid in the aorist participle *a-ke-ra₂-te* /agerrantes/ < *_agersantes_.[318]

[318] As witnessed by Greek ἵππος 'horse' < *_h₁əkku̯os_ < *_h₁ku̯ós_, gemination before *_u̯_ at least predates the merger of PIE *-_ku̯_- with *-_kᵘ_- in Greek. That merger is probably of pre-Mycenaean date (see Kostopoulos 2017, 186 ff. with nn. 91. 94 with lit.). — Gemination before *_u̯_ is a quite restricted sound change in Greek, as in Germanic (cf. Ringe / Taylor 2014,

The recent, important paper by Bozzone (2013) opens new possibilities for the chronology of gemination (and palatalization) in Greek. Bozzone argues convincingly that Gk. *h-* < **H̯i-* (Peters 1976; García Ramón 1999a with ref. to Schindler) results from palatalization of the first laryngeal before yod (similarly, the aspirate of ἵππος is seen by her — to my mind correctly — as the result of the palatalization of **h₁-* before **i*; for this idea see already Ambrosini 1991, 59): **h₁* was palatalized to *[ç] when followed by **i̯*, and *[ç] eventually merged with (*)*h* < **s* (possibly after having been phonemicized as */hʲ/). According to Bozzone, the laryngeal was lost without trace in the groups **h₂i̯-* and **h₃i̯-* (cf. already Kümmel 2007, 161: "?*h > *ç /_j>0 *urgr. (alter **h₁*, wenn [h], >> h)"; compare also Ittzés 2012 with lit.). This last idea may gain support from a new theory, according to which Pinault's Law (**-CH̯iV-* > **-Ci̯V-*) only affected tautosyllabic **-h₂i̯-* and **-h₃i̯-* (but not **-h₁i̯-*; see Byrd 2015, 208 ff. esp. 233 ff.): "if the onset sequence **$_{\sigma}$[h$_{2/3}$i̯- were blocked in PIE[319], then it follows that the word-initial sequence **#h$_{2/3}$i̯- was blocked as well" (ibid., 234).

Following Bozzone, Kümmel, and Byrd (2015, 234), I believe that **h₁i̯-* > *h-* in Greek is best understood as the result of palatalization (*pace* Neri 2018, 260 f. n. 24).[320] It appears that this process should be seen in the broader context of the Greek palatalizations. There seem to be no phonological systems where [h] is palatalized to the exclusion of all other consonants (in all likelihood, **h₁* was phonetically [h]; see e.g. Kümmel 2007, 161. 327–336; Bozzone 2013, 14 f.; Byrd 2015, 222 n. 51).[321] As it emerges from Ruhlen (1975), but also from Bhat (1978) and Bateman (2007), glottals are not common palatalization targets. /hʲ/ frequently occurs in strongly palatalizing languages, such as Romanian and Japanese (cf. further Bessell 1992, 46 f.). This makes it likely that *h*-palatalization crucially depends on the existence of other palatalized consonants in the phonological system. Generally, certain implicational hierarchies apply to palatalization. For example, it is recognized that the existence of palatalized labials (which are rare crosslinguistically)

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50). As far as one can see, originally it occurred only with stops; cf. ἵππος, τέττ/σσαρες, etc. (for isolated later cases involving resonants see Méndez Dosuna 1994a; *pace* Leukart 1999, it is not very likely that *-no*(-) in Myc. *se-ri-no* and *Sa-ri-no-te* represents /-nno-/ < /-nu̯o-/: gemination could not have resulted in loss of the /u̯/ in Mycenaean, the two changes are not related; it could be, as Leukart himself points out [p. 360], that /-nu̯o-/ et sim. was occasionally pronounced /-nʷo-/ in fast speech). Hence, the fact that **-su̯-* did not become **-ssu̯-* in Greek proves nothing about the treatment of PGk. **s* before yod with regard to gemination: for example, PGk. **l* was geminated before **i̯*, but not before **u̯*.

[319] According to Lipp (2009, 449 ff.), Pinault's Law did not operate in the proto-language but was a later development of individual branches.

[320] In internal position, **h₁* was lost before **i̯* with subsequent lengthening of the preceding vowel (as did **h₂* and **h₃*; cf. e.g. ὗει [ῡ] Hom.+ 'send down rain, to rain' < **suh₂-i̯e/o-*; LIV, 545): compare for instance the long augment in the 3sg. impf. Hom. ἤιε(ν)/ἦε(ν) << **ēi̯e(n)* < **e-h₁ei̯-* (: **h₁ei̯* 'go'; cf. Ved. 3pl. *āyan*; Peters 1980, 103–106). This leads to the unsurprising conclusion that **h₁* was retained longer in initial position in Greek (cf. Peters 1980, 118. 193 n. 149).

[321] On the "odd" case of Nenema, an Austro-Tai language where /hʲ/ is apparently the only palatalized phoneme, see Bessell 1992, 46.

presupposes that coronals and dorsals also palatalize; similarly, under specific circumstances, dorsal palatalization entails coronal palatalization (see Bateman 2007; see also e.g. Hall / Hamann 2006 on *d*-affrication/assibilation).

It seems likely that the palatalization of *h_1 took place at a time when alveolar stops at least were also palatalized before *$\underset{\frown}{i}$. Since gemination predates palatalization, it follows that gemination occurred at a time when laryngeals were still part of the phonological system of Greek.[322]

So, there are real possibilities that PGk. *-*s$\underset{\frown}{i}$-* first became *-*ss$\underset{\frown}{i}$-*. Now, as is well established in the literature, geminates do not lenite (see e.g. Kirchner 2000; 2001; Blevins 2004a, 183 f.; see also sect. 1.2.2). Therefore, it is highly doubtful whether our reconstructed *-*ss$\underset{\frown}{i}$-* could ever have become *-*hh$\underset{\frown}{i}$-* (and then ultimately *-*$\underset{\frown}{\underset{\frown}{ii}}$-*) by regular sound change. Assuming degemination here is theoretically possible, but heteromorphemic *-*s*+*s*- remains intact in most dialects (unlike in PIE, cf. e.g. *h_1*és-si* 'you are' > *h_1*ési*), and (primary) tautomorphemic *-*ss*- does not exist in Greek as far as I am aware.

As emphasized by Malikouti-Drachman (1975, 147 f. n. 29), it is possible to analyze the Greek *-*s$\underset{\frown}{i}$-* sequences both from the perspective of **sR* as well as from that of *$C\underset{\frown}{i}$ clusters. Highly influential scholars such as Jacob Wackernagel (1881, 268), Wilhelm Schulze (1892, 61 n. 2), Johannes Schmidt (1899, 306), and Karl Brugmann (1913, 82; "möglich") believed that *-*s$\underset{\frown}{i}$-* underwent '$\underset{\frown}{i}$-metathesis' in Greek. In recent years, this analysis has been adopted by William Diver (1958, 24) and Simon Slings (1979, 250 n. 31) (see also Hajnal 1988, 75 n. 67; Kazansky 2019).

The consonants that are most susceptible to palatalization among apicals are the sibilants and the nasals (Bhat 1978, 71; cf. further Kümmel 2007, 252. 257 f.; Bateman 2007; and Operstein 2010, 155). Bateman (2007, 56) reports that in Karok, a Hokan language spoken in California, /s/ is the only phoneme that palatalizes. Although sibilant palatalization is crosslinguistically less widespread than, say, velar palatalization, it is more frequent than the palatalization of rhotics or labials. Importantly, rhotics and *$\underset{\frown}{u}$ were probably palatalized in Greek, which makes it likely that — perhaps with the exception of **p* (see ch. 4) — palatalization applied across the board in that language (Hock 2004).

It is possible, then, that PGk. *-*s$\underset{\frown}{i}$-* became */-s^{j}s^{j}-/ at some point.[323] Given the Greek data of the historical period, the only reasonable way to proceed from */-Vs^{j}s^{j}V-/ would be to assume prepalatalization of the sibilant.[324] Prepalatalization is very common in Greek, and /s/ (either plain or

[322] Solmsen (1897a, 49 n. 1) conjectures (*mut*. *mut*.) that gemination before yod preceded the devoicing of the IE mediae aspiratae. He bases this idea on the fact that PIE *D^h has voiced reflexes in Macedonian, and on geminated forms like Maced. (etc.) Κορρᾱγος < *kor$\underset{\frown}{i}$°. Though most common with obstruents, gemination before /$\underset{\frown}{i}$/ and resonants in general is fairly trivial crosslinguistically (cf. Kümmel 2007, 178), so in principle *-*R$\underset{\frown}{i}$-* > *-*RR$\underset{\frown}{i}$-* could have happened independently in Greek and Macedonian.

[323] On the possibility that /s/ from any source was palatalized before secondary yod in Mycenaean, see Hellemans 2005, 84 f. with lit.

[324] Cf. the sporadic prepalatalization of plain /s/ before /t/ in cases like Boeot. αιστεα (see further Schwyzer 1939, 276; Peters 1991, 567 with lit.).

palatalized) is one of the most frequently prepalatalizing consonants across languages (see Kümmel 2007, 265; Operstein 2010, 153 ff.). For example, "in Southern American English, with its fairly extensive prepalatalization, the most frequent trigger seems to be the palatoalveolar sibilant /ʃ/" (Operstein 2010, 146). Languages where (*)/s^{j}/ or (*)/ʃ/ is or was at some point prepalatalized include standard Estonian, Gallo-Romance, some Provençal dialects, Middle English and some present day varieties of English, Daco-Romanian, Majorcan Catalan, Portuguese, and Spanish (cf. also the prepalatalization of Lat. *sj* in some Ligurian dialects; Operstein 2010, 18. 101. 112 f. 116–120 with lit. 141 f.). Interestingly, in Portuguese (and Spanish), "no prepalatalization is attested in consonant-yod sequences involving velars and most alveolars" (ibid., 118–120).

Provided that *[-V^{j}s^{j}V-] > *[-V^{j}h^{j}V-] is a legitimate Greek sound change, the reconstruction *[-Vss̯iV-] > *[-V^{j}s^{j}s^{j}V-] > *[-V^{j}s^{j}V-] > *[-V^{j}h^{j}V-] > *[-Vi̯hV-] > (assimilation)[325] [-Vi̯i̯V-] requires the assumption that palatalization and prepalatalization (which probably resulted in degemination quite rapidly) happened before the completion of the change *-*VsV*- > *-*VhV*-.[326] Chronologically, this seems perfectly possible. However, we cannot be certain about whether a hypothetical *[-V^{j}s^{j}V-] would have become *[-V^{j}h^{j}V-] in Greek. If we reconstruct *[-V^{j}s^{j}s^{j}V-] > *[-Vi̯sV-] > *[-Vi̯hV-] instead, then we are forced to assume that palatalization, prepalatalization, prevowel segmentalization, and probably depalatalization took place before the completion of *s*-aspiration (debuccalization) in sequences like *-*i̯s*-, *-*u̯s*-, etc. These are many changes, and *-*i̯s*- > *-*i̯h*- is apparently rather old (cf. Danielsson 1903, 382). Another difficulty with this account is that depalatalization of */-s^{j}s^{j}-/ should be seen as a very early process; perhaps significantly earlier than the depalatalization of e.g. the resonants (cf. Ruipérez 1979, 286 n. 16).[327]

Although hard evidence supporting the chronology *-*si̯*- > *-*hi̯*- is missing, and gemination is a manifestly old sound change, it is worthwhile to have a closer look at the traditional analysis.[328] If it was *-*hi̯*- that became -*i̯i̯*-, we need to determine the phonological mechanism whereby this change happened. *-*Vhr*-, *-*Vhl*-, *-*Vhm*-, *-*Vhn*-, and *-*Vhu̯*- all result in Aeolic -*VRR*- and non-Aeolic -*V̄R*-. There must be a specific reason why

[325] Kiparsky 1967, 620. 630. 634; differently Cowgill 1969, 25.

[326] According to Méndez Dosuna (1996, 100 f.), *-*sR*- > *-*hR*- is earlier than *-*VsV*- > *-*VhV*-. The latter change must have been later than the introduction of the name of the Ligurians in Greek, cf. Λίγυες (Lat. *Ligures*; for some details about the chronology of *-*VsV*- > *-*VhV*-, see Doria 1979, 134 f. with lit.).

[327] On the other hand, Kümmel (2007, 267 f.) notes that "spontane" depalatalization of coronals is particularly common with sibilants (on the special status of /r^{j}/, see Hall 2000 and cf. Hall / Hamann 2010, both with lit.).

[328] If gemination was earlier than the loss of *h_1 in initial position (see pp. 91 f.), and *s*-aspiration was earlier than gemination (as implied by the reconstruction *-*si̯*- > *-*hi̯*-), it follows that at some point *h_1 (= [h]?) and *h < *s coexisted in Greek. The fact that these two sounds developed differently may be accounted for by assuming that they were phonetically different; cf. further Bozzone 2013, 15 f.

*-*h̯i̯*- was the only cluster that behaved differently.[329] Any theory that traces the history of the sequence *-*si̯*- should accurately account for this fact.

If we follow the familiar idea that *-*hR*- was assimilated in all dialects with subsequent degemination and compensatory lengthening, it is possible to attribute the discrepancy to the assimilation itself (see Cowgill 1969, 23), since *-*i̯i̯*- (from any source) does not degeminate with lengthening of the preceding vowel in non-Aeolic dialects. But one of the reasons why the supposed pan-Greek assimilation of *-*hR*- to *-*RR*- is doubtful is exactly this lack of degemination in *-*i̯i̯*- (see Peters 1986, 313; cf. also Malikouti-Drachman 1975, 146). Kümmel (2007, 136 n. 74) proposes that *-*i̯i̯*- between vowels was retained because, unlike *-*u̯u̯*-[330], it was considered part of a diphthong (cf. also Hettrich 1989, 39 f.; Miller 2014, 310. 338).[331] However, -λλ- < */-lʲlʲ-/ was not degeminated either (cf. further Ruijgh 1978a, 421; Kümmel asks whether the feature PALATALIZATION blocked degemination in this case; cf. also Viredaz 1983, 153). Peters (1991a) has convincingly derived the geminate in Gk. ἐννέα 'nine' from *-*enu̯n(-V)*-, with loss of the **u̯* already in Proto-Greek as in **poli̯ă̆* < **polu̯i̯ă̆* (cf. πολλ°). If he is right (but the °*nn*° here looks old anyway), the preservation of the geminate in the numeral for 'nine' in non-Aeolic dialects will remain unexplained under the assumption that the change of *-*VhR*- to -*V̄R*- involved a mid-stage *-*VRR*- (cf. ibid., 309). Another old, preserved geminate is found in the word Dor., Ion. (, Att.) γέννᾱ/ă̆ 'descent, birth' (and its derivatives), which Hackstein (2002a, 2 f.) has plausibly derived from **ĝenh₁-mn-ah₂* (cf. **ĝénh₁-mn̥* > Ved. *jánima* 'origin, birth') > **ĝen-mn-ah₂* (on the loss of the laryngeal see Byrd 2015, 88 ff. esp. 107 ff.) > **ĝennah₂* (on *-*Cmn*- > *-*Cn*- see Nussbaum 2010).

Crosslinguistically, the most common sound change that affects the sequence /hi̯/ is palatalization. [ç] and [hʲ] are (/were) the palatal allophones of /h/ in palatalizing environments in numerous languages; e.g. Avestan (Hoffmann / Forssman 2004, 107; cf. Kümmel 2007, 161), Japanese (e.g. Tanaka 2014), Korean (e.g. Shin et al. 2013, 77), Romanian (e.g. Chitoran 2001, 10. 188), Modern English (cf. e.g. the pronunciation [çuːmən] for /hjuːmən/), Modern Icelandic (Haugen 1984, 336 f.; see also Vrieland 2014 on Faroese), Modern Welsh (T. A. Watkins 1993, 301), Amharic (Bateman 2007, 310), etc. As in several languages, /hj/ is 'palatalized' to [ʃ] in Kirundi (Kochetov 2016, 8 f. with lit.), obviously via a mid-stage [ç]. Since Greek is a strongly palatalizing language, it would seem plausible to assume that Gk. **h* was palatalized before yod (similarly Danielsson 1903, 382; Malikouti-Drachman 1975, 149; Risch 1979, 272. 276; Hock 2004, 160; cf.

[329] The development of *-*h̯i̯*- and *-*hR*- was different even under an approach like that of Peters or Kiparsky.

[330] /u̯/ according to him was/is more consonantal in Greek and other languages (/u̯/ and /i̯/ are usually considered sounds of equal sonority; see e.g. Parker 2002, 240; cf. also ibid., 262).

[331] Ruipérez's (1972, 153. 164. 169) hypothesis is unconvincing: the second **i̯* in *-*ViiV*- was not intervocalic (similarly Szemerényi *apud* Ruipérez 1972, 169), and it would not be expected to be lost in all dialects before the supposed application of degemination. Ruijgh (1967, 64 n. 78) believes that *-*hR*- > *-*RR*- was not pan-Greek, but that *-*h̯i̯*- was assimilated in all dialects before the first CL.

also Stang 1957, 31 f.; Diver 1958, e.g. 8; Katičić 1959, 130; Hellemans 2005, 77).

Danielsson (1903, 382) (similarly Hock 2004, 159 f.) assumes (*mut. mut.*) *[-hʲhʲ-][332] > *[-j̊j̊-] (which is trivial; at least with singletons) and then merger with -i̯i̯-.[333] This is the most efficient way to analyze the change *-si̯- > -i̯i̯-. Gk. */hʲ-/ < *h₁i̯- fell together with /h/ in initial position. I am not sure that this can be seen as a drawback to Danielsson's proposal (I take it that */hʲ-/ < *h₁i̯- and */-hʲhʲ-/ < *-si̯- merged at some point).[334]

Greek *-i̯i̯- (< *-hi̯-) could be derived from */-hʲhʲ-/ also via *[-ʲhʲhʲ-]/*[-ʲçç-] > *-i̯h- (cf. Operstein 2010, 23): 'weak' palatalized consonants were normally prepalatalized in Greek, and "palatals of all manners of articulation are among the most frequent triggers of prepalatalization" (ibid., 139).[335] *ç*-prepalatalization occurs e.g. in Old English, Tsakonian, in other varieties of Modern Greek (cf. e.g. Peloponnesian [eʲç(i)s] έχεις), as well as in Romance, Celtic, and Scandinavian languages (Operstein 2010, 23. 38. 108. 114; Kümmel 2007, 88). Two close parallels to the proposed change *-hi̯- > *-i̯h- are found in the Slovene dialect spoken in Črni vrh, where /-hi̯-/ is palatalized to */-hʲ-/ and prepalatalized (with subsequent depalatalization) to /-i̯h-/ (see Greenberg 2000, 144 f.; Kümmel 2007, 265. 409), and in Khotanese, where */-hi̯-/ > */-hʲ-/ > /-i̯h-/ with 'Umlaut' of the preceding vowel (see Hitch 1990, 182–189. esp. 189; Kümmel 2007, 265. 362).

A potential difficulty with the idea that */-hʲhʲ-/ was prepalatalized in Greek is that *-si̯- resulted in -i̯i̯- after any vowel and in all dialects (contrast Aeol. -*e*/*i*/*urr*/*nn*- and non-Aeol. -*ē*/*ī*/*ūr*/*n*- < *-*e*/*i*/*ur*/*ni̯*-). Nevertheless, phonemicization/absorption/loss of the onglide may well have occurred at different periods and at different rates in different consonants/consonant groups. Synchronically, CP of secondarily modified consonants acts as a perceptual enhancement of the secondary articulation; i.e. as a way of

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[332] Hock reconstructs *[-ʲhhʲ-].

[333] Although consonant strength seems to have played a role in gemination before yod (the scope of this process is not well understood; cf. e.g. Vennemann 1988; Denton 1999; Callender 2006 with lit.; 2007; Goblirsch 2018, 48 ff. with lit.), the default assumption would be that Gk. *-hi̯- became *-hhi̯-, so in what follows I will assume that **h* was also affected by gemination (on the position of laryngeals in the sonority scale see Hume / Odden 1996, 357 ff.; Parker 2002, 240 and *passim*; and Walker 2011, 1839). On the whole question cf. also Méndez Dosuna 1987. (If **h* was geminated, the sound change that 'bled' CL in the sequence *-hi̯- may have been gemination rather than palatalization.)

If *-hi̯- was not geminated, *[-ç-] (< *-si̯-) would be expected to give pre-Mycenaean *-i̯- under Danielsson's approach. Pre-Mycenaean *-i̯- is normally lost in later Greek. A reconstruction *[-ʲç-] > *-i̯h- > *-i̯i̯- (see below) would be acceptable, since prepalatalization of singleton consonants does not always result in loss of the prevocalized segment.

[334] Lack of prepalatalization in initial position is attested in Huaraz Quechua (Peru); see Operstein 2010, 225.

[335] Original Gk. *-i̯h- (< *-i̯s-) gives -i̯i̯- (cf. σείω 'shake' < **tu̯ei̯sō*). In principle, since *-hi̯- becomes -i̯i̯- according to my analysis, original *-i̯h- might have become -i̯i̯- via metathesized *-hi̯- (cf. *-u̯h- > *-hu̯- etc.) and subsequent palatalization (Kiparsky 1967, 630, who believes that *-hi̯- and *-i̯h- had different outcomes, assumes that *-i̯h- was not metathesized; see further Peters 1980, 309). In that case, there will be no independent support for the hypothetical change of secondary *-i̯h- (< */-hʲhʲ-/) to -i̯i̯-.

maintaining and improving the contrast between palatalized and the respective non-palatalized segments (see Operstein 2010, 10. 102. 103. 106. 109, etc.). Gradually, this can have the opposite effect in that the secondary articulation may be lost on the consonant and the prevowel may become the only surface exponent of it (ibid., 21). This leads, eventually, to the phonemicization[336], absorption, or loss of the synchronically unmotivated onglide. Depalatalization was probably a gradual process, we would not expect all consonants to lose their secondary articulation at the same time (see below on Cypr. */-lʲlʲ-/; judging from the uniform outcome of */-ʰʲhʲhʲ-/, the depal. of this sound must be earlier than that of */-rʲrʲ-/ and *-nʲnʲ-/[337]).

If prevowel phonemicization applied at different periods in different consonant groups, the contrasting prepalatalization patterns of *[-ʲrʲrʲ-] and *[-ʲnʲnʲ-] on the one hand and *[-ʲhʲhʲ-] (and *[-ʲu̯ʲu̯ʲ-]? see 5.2) on the other would be far from surprising: chronologically distinct prepalatalization processes can have different results in Greek. For example, the prevowel in the sequence *[-eʲnʲnʲ-] was lost in Lesbian, but early Lesbian *[eʲns] (< **ens*) resulted in /eis/ in that dialect. In Cypriot, *[-ʲlʲlʲ-] apparently becomes /-il-/ after any vowel, and not only after /a/ and /o/ (compare *A-pe-i-lo-ni* /apeilōni/ < **apeliōn-* and *a-i-la* /aila/ < **alia*). It would be possible to claim that the reason behind this discrepancy is that */-lʲlʲ-/ and */-rʲrʲ-/, */-nʲnʲ-/ were depalatalized at different periods in Cypriot (see further p. 40). The Cypriot and Lesbian cases also provide good inner-Greek parallels for the pattern with segmentalization after all vowels (of course, this pattern is far from unknown crosslinguistically; see Operstein 2010, e.g. 112).

6.5 Conclusions

PGk. *-*si*- most probably gave -*ii*- in all dialects and in all environments. **s* was probably palatalized before yod. The change *-*si*- > -*ii*- may have involved the following stages; 1) *-*ssi*- > */-sʲsʲ-/ > *-*ih*-, 2) *-*hi*- > */-hʲhʲ-/ > *-*ih*-, 3) *-*hi*- > */-hʲhʲ-/ > *[-ʃʃ-]. Currently, the third alternative seems more straightforward in terms of Greek historical phonology.

[336] Hock (1991, 119 f.) plausibly suggests that segmentalization results from wrong timing of articulatory gestures.

[337] According to Bozzone (2013), */hʲ-/ < **h₁i*- was still partially distinct from /h/ in Mycenaean. If that was so, depalatalization possibly progressed more slowly in non-prepalatalized segments. That would make sense if the above analysis of prevocalization/prepalatalization is correct. With regard to the present problem, nothing would be gained by following Danielsson's approach.

7. The chronology of *i̯*-loss after consonants relative to other sound changes

As has long been recognized, the Indo-European voiced aspirates had already been devoiced by the time of the palatalization of voiced stops; cf. e.g. μέσ(σ)ος < **med^{h}i̯os*, θάπτω (: **d^{h}emb^{h}*). Since stop palatalization is pre-Mycenaean, the devoicing was probably a pre-Mycenaean phenomenon as well. This assumption is corroborated by the fact that **d^{h}*, unlike **d*, is written with the *t*-series in Linear B (cf. e.g. *tu-ka-te-re* /t^{h}ugatrei̯/).[338]

Since **Ci̯* clusters arising from the process **-ih$_2$ > *-i̯a* (on which see Peters 1980, 127–129) behave exactly as the primary ones regarding gemination and palatalization, it seems reasonable to assume that the change of **-ih$_2$* to **-i̯a* happened before the application of gemination and stop/resonant palatalization, or at least while these changes were still active in Greek. The geminate in forms like βῆσσα and γλῶσσα strongly suggests that the loss of preconsonantal laryngeals was earlier than (the second) palatalization (compare also **h$_1$i̯- > h-* vs. **-Vh$_1$i̯- > *-V̄i̯-*; see further n. 320).[339, 340]

Since **h$_1$* was probably palatalized before **i̯* in initial position, it was tentatively proposed in section 6.4 that (stop) palatalization is earlier than the loss of laryngeals word-initially.

The reason why the sequences **-si̯-* and **-sR-* develop differently in Greek may in essence be chronological. It could be that **h* before yod was geminated and perhaps (/ or) palatalized earlier than the so-called first compensatory lengthening.

It is frequently mentioned that Grassmann's Law was later than the palatalization of stops. This may be illustrated by forms such as θάσσων (cf. ταχύς) or θάπτω (cf. τάφος). Barber (2013, 106) argues that the contrast between plain and aspirated stops might have been neutralized before **i̯* in Greek. At any rate, that Grassmann's law applied at a period posterior to the loss of postconsonantal **i̯* can be established on independent grounds, since the former is most likely post-Mycenaean (e.g. Ruijgh 1967, 44–46; Miller 1977; Plath 2002 with lit.; de Lamberterie 2012, 347 ff.[341]).

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[338] On the proposal that **b^{h}* was still intact in Mycenaean at the time of the adoption of Linear B (Melena 1987, 227 ff.; Hajnal 1993; Ittzés 2009, esp. 296 f.), see the critique by Thompson (2006, 111 ff.) and Judson (2016, 28 ff.; 2017a); cf. also Beekes 2014, 125.

[339] According to Neri (2017, esp. 343), the Wetter-Regel (traditionally **-VHTRV- > -VTRV-*) would not normally apply to a form like **glóh$_3$g^{h}-i̯a* (further Neri 2003, 324 n. 1150; 2017, 328 f.). Therefore, the loss of the laryngeal in e.g. γλῶσσα could have happened either at the **-ih$_2$* or at the **-i̯a* stage.

[340] Dor. κάρρων does not provide decisive evidence for the chronology of palatalization with regard to the vocalization of the liquids (*pace* Moralejo 1993, 31 f.): this word could go back to **kr̥ti̯os > *kartʲos* > */kartʲos/, but also to (e.g.) **kr̥ti̯os > *kr̥ttʲos* > **[kr̥tʲtʲos] > *[kar(tʲ)tʲos]*, with degemination of the postconsonantal geminate. Incidentally, the early fricativization of the affricate in the word in question must have taken place after the vocalization of **r̥* in the position between consonants/stops (the fricativization of */tsʲ-/* from **ti̯-*, **ki̯-*, and **tu̯-*, which must have been a rather early event, possibly postdates the change of **s-* to **h-*; unless weakening only affected */s-/* to the exclusion of */sʲ-/*).

[341] Nussbaum (1986, 184 f. n. 53) is sceptical about this chronology. However, the scribe who wrote (°)*ka-ra-a-pi* < **k̂r̥h$_2$sn̥b^{h}i* instead of †(°)*ka-ra-a$_2$-pi* in PY Ta 708.2 and 722.2 (i.e. Hand

8. Overall conclusions

There is no apparent reason to doubt that Risch's analysis of the (East Greek) contrast between -σ- and -σσ-/-ττ- (as in τόσος, βλίττω/ἐρέσσω, etc.) is in general terms correct (but, phonologically, the change */-tts-/ > (*)/-ss-/, which allegedly happened twice in dialects like East Ionic, would be rather unlikely; cf. also the unexpected consonantism of Ion. τεπο- and φύζαν). When clusters of **t* plus yod were separated by a synchronically transparent morpheme boundary (cf. **mlit-i̯e/o-* vs. **toti̯o-*), the yod was restored and palatalization was undone. Heteromorphemic **ti̯* clusters were eliminated at a later stage, possibly when other consonants underwent palatalization. Despite the fact that the effects of Risch's first palatalization are still observable only in Attic-Ionic and Arcadian, the restoration of the yod in heteromorphemic sequences need not have been a strictly East Greek phenomenon. For example, that **-ti̯-*, **-tts-*, and **-t/k+i̯-* show the same outcome in non-East Greek may be an indication that e.g. in *s*-dialects the results of the two palatalization processes merged before the affrication of */-tʲtʲ-/ < (tautom.) **-ti̯-*.

Singleton */tʲ/ < **ti̯* (in initial position and after consonants) becomes /s/ in all Greek dialects. It is most likely that */tʲ-/ > /s-/ and */-Ctʲ-/ > /-Cs-/ are not two separate phonological events. Primary **ts* after consonants also becomes /-Cs-/ in all of Greek; it seems that at some point singleton **ts* from any source was fricativized to /s/. This change is possibly an extension of the process (word-final) **-ts* > /-s/. Its application interrupted the normal development of the sounds involved (cf. e.g. */(-C)tʲ-/ > Boeot. /(-C)s-/). In my view, the reason why **ki̯-* and **-Rki̯-* pattern with **ti̯-* and **-Cti̯-* in Cretan and (probably) Boeotian, but not in Attic[342], possibly boils down to chronology: (*/ts/ <) */tʲ/ (< */kʲ/) < **ki̯* must have fallen together with (*/ts/ <) */tʲ/ < **ti̯* in some dialects (e.g. Cretan) before the fricativization of singleton **ts* (and perhaps before **-ts* > /-s/). In Attic, and possibly in East Greek and other *s*-dialects, fricativization applied before the merger of the two sounds, and */tʲ/ (< */kʲ/) < **ki̯* simply followed the development of intervocalic */-tʲtʲ-/ (< **-ki̯-*, **-t+i̯-*) in the relevant dialects; i.e. it was either depalatalized (Attic), or affricated (and later fricativized). The early fricativization of singleton affricates probably preceded the second palatalization, since it affects both **ti̯-* and **-t+i̯-*, and tautomorphemic **ti̯* cannot have been phonetically identical with heteromorphemic **ti̯* after the application of the second palatalization.

The palatalization of **d* and **g* cannot have happened earlier than that of **t* and **k*; palatalization of voiced alveolars presupposes palatalization of voiceless ones. *[ɟ-] < **i̯-* became */dʲ-/ > /d-/ in the *d*-dialects. The change of *[ɟ-] to */dʲ-/ must have happened before the depalatalization of */(-dʲ)dʲ-/ < **d/gi̯*. This is confirmed by Boeot. περιδδυγα.

Palatalized resonants (including sporadically */-lʲlʲ-/) were prepalatalized in Greek. Generally, the prevowel was either absorbed by the nucleus (after degemination) or was lost (without deg.) when the preceding vowel was /e/, /i/,

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2) also wrote *we-a-re-ja* instead of †*we-a₂-re-ja* (cf. *we-a₂-re-jo*; PY Ta 714.1, Hand 2!) in Ta 642.1, cf. Melena 2014, 76.

[342] The evidence pointing to a development **-Rki̯-* > *-Rs-* in that dialect is inconclusive.

or /u/, depending on the dialect. Otherwise, the prevowel surfaced as [i̯]. Exceptions to this rule do exist however; most notably in Aeolic (cf. Φανν° = Φαιν°, Κορρ° = Κοιρ°) but also in Arcadian (cf. χορο- = χοιρο-). The palatalization of the liquids and nasals may but need not have taken place after the creation of Linear B.

*-*er*/*ni̯*- is commonly thought to become -*ēr*/*n*- in dialects other than Thessalian and Lesbian. In Classical Attic (and other dialects) there is clear evidence supporting this view. However, Δᾱ/ᾱιανειρα on 6th-c./early 5th-c. Attic vases and πεινε/ο- on a 6th-c. East-Ionic ostracon (cf. also Att. Δαῖρα, prob. from Δάειρα) are not consistent with the traditional theory. It is possible to argue on this evidence that *-*er*/*ni̯*- yielded both -*ēr*/*n*- *and* -*ei̯r*/*n*- in Greek, but further research will be needed on this matter.

In the light of Sicyon αλα and συναλαζεσθαι (cf. ἀλλο-), with an unexpected singleton consonant, it may be proposed that */-lʲlʲ-/ in some dialects was still prepalatalized and possibly still palatalized in the late archaic period (cf. also El. αιλ- beside αλ-). Alternatively, the prevowel in (-)αλα(-) was lost in fast speech (cf. Φανν°, Κορρ°), but after the occurrence of degemination. On the basis of the two Sicyonian forms, it can be argued that degemination happened at the prepalatalization stage in Greek. That */-lʲlʲ-/ was depalatalized later than the other resonants is perhaps also suggested by Cypr. /-ei̯l-/ < *-*eli̯*- for expected */-ēl-/.

PGk. *p*i̯* became /pt/ probably via (?*/ptʲ/ <) *[pc] (similarly, *-*mi̯*- > -*i̯n*- via *-*mn̥*-). It is unclear whether PGk. **p* and **m* were palatalized before yod. The existence of the sign *pte* in Linear B is not a strong argument for a late date of the change *p*i̯* > /pt/ (cf. further Judson 2017, 124–126).

*-*u̯i̯*- developed to -*i̯i̯*- and/or -*i̯u̯*-. -*i̯i̯*- (as in Myc. *i-je-re-ja*; Att.-Ion. -ειᾰ < *-*eu̯i̯a* is ambiguous) is probably the immediate result of */-u̯ʲu̯ʲ-/ (cf. e.g. prepalatalized αἰβετός). The change */-u̯ʲu̯ʲ-/ > -*i̯i̯*- presumably happened only after front vowels, but it could also be that in certain dialects */-u̯ʲu̯ʲ-/ was unrounded to -*i̯i̯*- regardless of the phonetic environment. *u̯i̯ > -*i̯u̯*- (via *[-ʲu̯ʲu̯ʲ-]) was either confined to the position after **a* and **o*, or happened after any vowel and was characteristic only of certain dialects.

PGk. *-*si̯*- becomes -*i̯i̯*- in all of Greek. Verbs like τελέω, where the cluster seems to have been lost without a trace, are secondary. The genitive in -ου comes from (*)-ŏŏ and cannot represent the regular outcome of *-*osi̯o*. It is likely that **s* was palatalized before yod at some point in its history. More specifically, palatalization presumably affected *-*ssi̯*- (in which case -*i̯i̯*- must result from prepalatalization of */-sʲsʲ-/) or perhaps more likely *-*hhi̯*-. In the latter case, the changes that eventually led to -*i̯i̯*- could have been *[-hʲhʲ-] > *[-ʲ̊ʲ̊-] or *[-hʲhʲ-] > *[-ʲhʲhʲ-] > *-*i̯h*-.

The order in which the individual sequences were palatalized is difficult to pin down. Typological and inner-Greek considerations suggest that alveolars were palatalized earlier than velars and other consonants in Greek (cf. the restoration of the yod/the second palatalization in East Greek and perhaps the divergent outcome of *-*ti̯*- vs. *-*ki̯*- in Attic and elsewhere). Diver (1958, 6) believes "that when the palatalization began in Greek it affected equally all

consonants standing before *y*". According to him, it is less likely that palatalization "affected various consonants at distinctly separated times". If we leave aside the special case of the alveolars (and perhaps the labials; cf. Hock 2006, 444), there are currently no reasons to challenge Diver's claim.

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