New interpretations in Lydian phonology

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§ 1. *Introduction*

In the last few years several interesting new proposals regarding the analysis of the Lydian language have appeared, including new interpretations of entire inscriptions (e.g. Sasseville and Payne 2016; Yakubovich 2017), of individual words and their etymologies (e.g. Sasseville 2018; eDiAna), of morphological categories (e.g. Sasseville 2017, Yakubovich 2019a), and of Lydian historical phonology (e.g. Sasseville 2021a; Oettinger 2021). In this paper I want to add some new proposals regarding the analysis of the synchronic phonology of Lydian, with regard to both its vowel system and its consonant system.[1]

§ 2. *The Lydian vowel system*

The Lydian alphabetic script knows eight graphemes that are generally interpreted as denoting vowels: 𐤠 <a>, 𐤡 <e>, 𐤢 <i>, 𐤣 <o>, 𐤤 <u>, 𐤥 <y>, 𐤦 <ã>, and 𐤧 <ẽ>. Of these, the grapheme *y* is marginally used, being found only a few times in words that are otherwise spelled with *i* (e.g. once *artymuk* (LW 4b: 5), with *y*, instead of 20x *artimu-* 'Artemis', with *i*, cf. Gusmani 1964: 30). It is therefore generally seen as an allograph or a possibly unaccented allophone of *i* (e.g. Melchert 1994: 342–343), and can therefore be left out of consideration here. All other

1. I would like to thank David Sasseville and Ilya Yakubovich for their helpful comments on an earlier draft of this paper.

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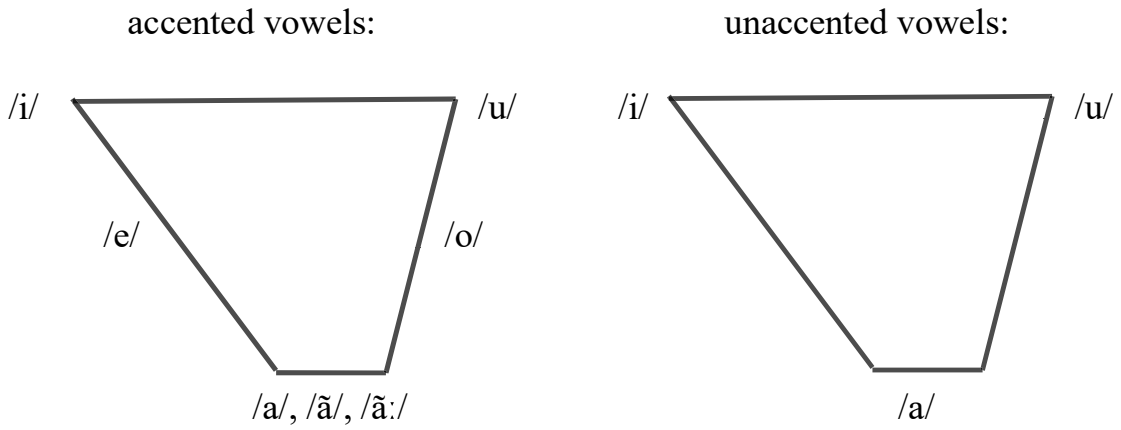
graphemes are generally assumed to represent phonemes, which would mean that Lydian had seven phonemic vowels.

In two brilliant articles by Eichner (1986a; 1986b), it was convincingly shown that the distribution of the vowels show a correlation with accentuation: the vowels *e*, *o*, *ã* and *ẽ* are in principle always accented,[2] whereas the vowels *a*, *i*, and *u* may be accented as well as unaccented.

According to Melchert (1994: 342), the vowel system of Lydian may be analysed as follows:[3]



In this interpretation, Lydian has five non-nasalized vowels (*a* = /a/, *e* = /e/, *i* = /i/, *o* = /o/, *u* = /u/), and two nasalized ones, *ẽ* = /ã/ and *ã* = /ã:/, with the latter two showing a distinction in length. Especially this latter analysis is problematic since, as Melchert notes himself (1994: 434), "vowel length does not appear to be distinctive in Lydian". In the sections to follow, I will therefore re-examine the value of the graphemes *ã* and *ẽ*, as well as the values of the other Lydian vowels, and argue that vowel length may have been distinctive in Lydian after all, which has several consequences for our interpretation of the Lydian vowel system as a whole.

§ 2.1. Lydian *ã* and *ẽ*

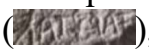
The graphemes *ã* (𐤮) and *ẽ* (𐤩) are generally regarded to represent nasalized vowels (cf. Melchert 1994: 343, with references), but their exact phonetic / phono-

2. Unless they are part of preverbs that have relatively recently univerbated with a verbal form. For instance, *ẽntarfλod* (LW 12: 1) consisted of preverb *ẽn-* + verbal form *tarfλod*, and was probably accented on the *o*, *ẽntarfλo̲d* (in LW 12 also metrically so), leaving *ẽ* in an unaccented syllable.

3. Note that Melchert (1994: 342) does not specifically mention the vowel system for unaccented syllables, but this is implied by his overall treatment of the Lydian vowel system.

logical interpretation is unclear. The main problem is that both vowels alternate with non-nasalized *a*.

ã* ~ *a	*caqrla-*	acc.sg.c. *caqrl**ã**v*	dat.sg. *caqrl**a**λ*
ẽ* ~ *a	*tawsa-*	acc.sg.c. *taws**ẽ**v*	nom.sg.c. *taws**a**s*
	aλa-	dat.pl. *aλ**ẽ**v*	nom.sg.c. *aλ**a**s*, nom.-acc.sg.n. *aλ**a**d*, dat.sg. *aλ**a**λ*

This seems to imply that both *ã* and *ẽ* represent a nasalized *a*-vowel, but what was the distinction between the two? Theoretically, one could assume an accent difference, i.e. /ã́/ vs. /ã/. However, as was mentioned above, Eichner (1986b) has shown that both *ã* and *ẽ* are in principle always accented. Another possibility is to assume a length distinction, i.e. /ã/ vs. /ãː/, and this has indeed been proposed by Melchert (1994: 343). Since the vowel represented by the grapheme *ẽ* "originates in clear cases from a short vowel before nasal in closed syllables", whereas the vowel represented by the grapheme *ã* "originates either in short vowels in open syllables or in long vowels", he proposes that *ẽ* represents a short nasalized [ã], whereas *ã* represents a long nasalized [ãː] (an analysis accepted by e.g. Sasseville 2017: 132). An additional argument may be that in LW 50: 6 the form *asaãv* shows a semi-digraph spelling *aã*, which may be viewed as a parallel to the digraph spelling *aa*, which is generally interpreted as denoting a long [aː] (see section 2.2 below). However, as was mentioned above, thus far it is generally assumed that otherwise vowel length is not a distinctive feature in Lydian. Gérard (2005: 35–36) therefore rejects Melchert's proposal of *ẽ* = /ã/ vs. *ã* = /ãː/, and rather follows a suggestion by Kearns (1992: 302–305), who states that the forms *šarẽtas* (of LW 3: 4), with *ẽ*, and *šaretas* (of LW 50: 7), with *e*, "point to a fluctuation between *ẽ* and *e*" (305), and that *ẽ* should therefore rather be an *e*-vowel, for which he proposes an interpretation "/ẽ/" (Gérard 2005: 26: "[ẽː]"). However, the reading of *šaretas* with *e* in LW 50: 7 can hardly be correct. It goes back to Meier-Brügger (1982: 202), who states that in this form "der vierte Buchstabe wahrscheinlich aus alterem *ẽ* und jungerem *e* verballhornt ist". This interpretation was taken over by Gusmani (1986: 140), who states that in this form "*ẽ* aus *e* korrigiert zu sein [scheint] (oder umgekehrt)". Yet, on the photograph of this inscription as published in Meier-Brügger (1982: 203) (), the fourth letter of this form shows no clear trace of one or more oblique strokes that would fit the vowel *e* (𐤡). Instead, we do see the oblique strokes that fit a reading *ẽ* (𐤴). Compare also the photo of the Abklatsch of this inscription () as published in Buckler (1924: plate XVIII), as well as the drawing of this inscription (𐤣𐤀𐤕𐤴𐤩𐤀𐤬) as produced by Bernard Haussoullier

(*apud* Buckler 1924: 69). Also here, there is no indication of oblique strokes that would match a reading of this sign as *e* (𐤩): instead, we see a relatively clear *ẽ* (𐤲). Note, moreover, that Haussoullier, after noticing that the form *šarẽtas* of LW 50: 7 is identical to the form *šarẽtas* as found on LW 3: 4, does state that "dans l'Inscription du Louvre l'*ẽ* n'est pas aussi net", but there is no remark about this sign resembling an *e*. The reading "*šaretas*" for LW 50: 7 is therefore best forgotten: the form is rather *šarẽtas*, with *ẽ*. This therefore removes any indication that *ẽ* would be a variant of *e*.

We therefore have to return to Melchert's proposal that *ã* and *ẽ* are both nasalized *a*-vowels, with a possible distinction in length: *ã* = /ãː/ vs. *ẽ* = /ã/. It therefore is interesting to investigate to what extent any of the other vowels of Lydian may show indications that could point to a distinction in vowel length.

§ 2.2. Lydian *aa* and *a*

In some Lydian inscriptions, a digraph *aa* (𐤀𐤀) is found, e.g. in *aaraλ* (LW 1: 7), *mruwaad* (LW 11: 1), *isaaλal* (LW 11: 6), etc., but the use of the digraph is not consistent. For instance, the dat.sg. form *qiraaλ* of LW 13: 7 shows a spelling with dipgraph *aa*, whereas all other eight attestations of this form are spelled *qiraλ*, with simplex *a* (𐤀).[4] In the poetic inscriptions, the digraph *aa* is only found in syllables that metrically are expected to have been accented, and it is therefore generally assumed that, phonetically, *aa* represents a long accented vowel [áː] (West 1972: 166; Eichner 1986b: 215–217; Melchert 1994: 343; Melchert 2008: 59). According to Melchert (1994: 369), this length is allophonic, however, and *aa* is a mere allophone of an underlying short accented /á/ (cf. also Melchert 2008: 59: *aa* shows "merely conditioned lenghtening under the accent"). Howeover, Melchert admits that "determining the conditions [of when /á/ surfaces as *aa*] is difficult" (1994: 369). For instance, assuming that an earlier accented short /á/ was allophonically lengthened in open syllables would account for words like *taada-* 'father' and *aara-* 'courtyard', but does not account for forms like *taacdav*, *qašaas*, *tafaas*, *mruwaad*, *qiraaλ*, etc., where *aa* is found in a closed syllable.

To my mind, it may be interesting to investigate the possibility that the length of *aa* = [áː] is in fact phonemic. For instance, in the poetic inscription LW 11, which is the most carefully and beautifully executed inscription in the entire Lydian corpus, we find six forms with the digraph *aa*, and in all these cases the *aa* can metrically be assumed to have been accented (place of accentuation indicated with

4. Including once *qyraλ*, with *y*, but this is irrelevant for the present point.

underlining): *mruwaad* (line 1); *tafaaλ* (line 4); *išaaλal* (line 6); *akšaakmλ* (line 10); *mruwaaλ* (line 12); *waars* (line 12). Next to these, this inscription contains nine forms that contain the simplex vowel *a* that metrically was accented: *sfarwad* (line 1); *wratuλ* (line 3), *cat* (line 6), *šrkaštus* (line 7); *qaλmλad* (line 8); *artimuλ* (line 9); *caqrlaλ* (line 9); *adalλ* (line 10); *fakmλatav* (line 12). The question thus arises: if *aa* is a mere allophone of an underlying short accented /á/, why is this spelling only found in the six words that have *aa*, and not in the other nine ones, which must contain an accented /á/, as well? I therefore want to postulate as a working hypothesis that the vowel spelled *aa* is phonologically long, /aː/ (which is always accented), and that it contrasts with a phonologically short /a/ (which can be accented as well as unaccented), which is always spelled with simplex *a*. Note that the length of *aa* = /aː/ is not consistently expressed in writing: it can also be spelled with simplex *a*, and is then graphically indistinguishable from /a/.[5] From now on, I will cite this vowel as *a(a)*.

If it indeed is the case that *a(a)* = /aː/ vs. *a* = /a/, and that the two vowels are distinct in length, this would make way for Melchert's proposal that the distinction between *ã* and *ẽ* was length, /ãː/ vs. /ã/, as well. Moreover, I think it is supported by a new analysis of Lyd. *e* and *o*, which we will turn to now.

§ 2.3. Lydian *e* and *o*

The vowels that are spelled with the graphemes *e* (𐤩) and *o* (𐤏) are generally phonetically interpreted as roughly having had the values [e] and [o], respectively. Since in Lydian personal names written in Greek the vowel *e* is consistently rendered with η (e.g. Lyd. *alikr**e**-* ~ Gr. Αλικρ**η**ς; Lyd. *Kil**e**-* ~ Gr. Κιλ**η**ς; Lyd. *Man**e**-* ~ Gr. Μάν**η**ς; cf. Gérard 2005: 35, fn. 100 for these examples), Melchert (1994: 434) states that *e* perhaps is a long vowel, which would then apply to *o*, too. Moreover, since *e* reflects earlier *i*-diphthongs, and *o* goes back to earlier *u*-diphthongs, Melchert (*ibid.*) suggests that *e* and *o* were "relatively close [= high] mid vowels" (similarly in Melchert 2008: 59: "/e/ and /o/ were relatively high and long phonetically"). Gérard (2005: 35, fn. 100) remarks that Gr. η, although originally a relatively open vowel, [ɛː] (Gérard: "[ę:]"), was raised to [eː] (Gérard: "[ę:]") in the hellenistic period, eventually developing into the high vowel [i] in the 5th c. CE. Following Melchert, he therefore assumes that Lyd. *e* and *o* were long, relatively high mid vowels, which he notes down as "[ę:]" and "[ǫ:]", respectively, which

5. Compare the situation in e.g. Greek, where the length difference between /a/ and /aː/ is not expressed in spelling either: both are spelled with the sign α.

correspond to IPA [eː] and [oː], or possibly even to their raised variants [ẹː] and [ọː].

The question thus arises: if *e* and *o* were indeed phonetically long vowels, could their length have been phonemic? In order to answer this question, we have to investigate the phonetic values of *i* and *u*.

§ 2.4. Lydian *i* and *u*

When it comes to the vowels *i* (𐤲) and *u* (𐤹), it is interesting that there is one word in the Lydian corpus that is twice attested with the digraph spelling *ii*: *iitλ* (LW 22: 5, 10). E.g. Gérard (2005: 38) therefore hesitatingly proposes that this spelling may be interpreted as representing a phonetically long vowel [iː] that was lengthened under the accent. If correct, it would imply that *i* could in some environments represent a phonetically long vowel. However, since this word is not attested with the spelling ***itλ*, and since the digraph *ii* is not found anywhere else in the Lydian corpus, I find it difficult to accept Gérard's proposal. To my mind, it seems best to rather assume that the digraph spelling *ii* represents a disyllabic sequence, and that *iitλ* morphologically consists of a root *i-* + a suffix *-i-* + the ending *-tλ*.

If this analysis of the digraph *ii* is correct, there would in fact be no evidence whatsoever that the vowels *i* and *u* were ever phonetically long. It therefore seems best to assume that they were phonetically short vowels, in all environments. When it comes to their quality, Gérard (2005: 34) points out that Lyd. *i* and *u* often correspond to Gr. ε and ο (e.g. *art**i**mu-* ~ Gr. Ἄρτ**ε**μις; *αλ**i**kšãntru-* ~ Gr. Ἀλ**έ**ξανδρος; *k**u**l**u**-* ~ Gr. Κ**ο**λ**ό**η), and he therefore proposes that they are short, relatively low vowels, which he notes down as "[į] et [ų]". This may be seen as equivalent to the IPA near-high vowels [ɪ] and [ʊ], or maybe even lowered variants of them, [ɪ̝] and [ʊ̝].

§ 2.5. Lydian *e* and *o* vs. *i* and *u*

If it is indeed true that *i* and *u* represent the short, relatively low near-high vowels [ɪ] / [ɪ̝] and [ʊ] / [ʊ̝], this raises the question how they relate to the long, relatively high mid vowels *e* = [eː] / [ẹː] and *o* = [oː] / [ọː], especially with regard to vowel height. In IPA, no intermediate stage between the near-high front vowel [ɪ] and the high-mid front vowel [e] is distinguished, which also goes for the near-high back rounded vowel [ʊ] and the high-mid back rounded vowel [o]. Therefore, the interpretation of *e* and *o* as long, relatively high mid vowels [eː] / [ẹː] and [oː] / [ọː], respectively, would make them –when it comes to vowel height– almost indistinguishable from the relatively low high vowels *i* = [ɪ] / [ɪ̝] and *u* = [ʊ] / [ʊ̝]. However, they would be clearly phonetically distinct from each other through their

length: *i* and *u* are clearly phonetically short vowels, whereas *e* and *o* are generally interpreted as phonetically long vowels.

I therefore want to propose that, at the phonological level, the pair *i* and *u* was distinct from the pair *e* and *o*, not with regard to vowel quality, but only with regard to vowel quantity. This means that we can give the following phonological interpretations of these vowels: *i* = /ɪ/ vs. *e* = /ɪː/, and *u* = /ʊ/ vs. *o* = /ʊː/ (phonetically perhaps [ɪ̨], [ʊ̨], [ɪ̨ː] and [ʊ̨ː], respectively).

One may object to the interpretation of Lyd. *e* and *o* as the near-high vowels /ɪː/ and /ʊː/ that these vowels are written with the graphemes 𐤩 and 𐤏, respectively, which are graphically cognate to the Greek mid vowels ε = [e] and ο = [o]. However, a similar situation is found in Lycian, where the vowel *i* and *u*, which phonetically probably were near-high, [ɪ] and [ʊ], respectively, are spelled with the graphemes 𐤴 and 𐤏, which are graphically cognate with Gr. ε and ο, as well.

In order to substantiate this new phonological analysis of Lydian *e* and *o*, we may treat the question whether they make sense from an etymological point of view. We will therefore discuss per vowel several etymological origins.

§ 2.5.1. Lydian *e*: etymologies

One of the main sources of Lyd. *e* consists of original *i*-diphthongs: **Vi* > Lyd. *e*. With the traditional interpretation of *e* as /e/ = [eː] / [ę̝ː], this amounts to assuming that diphthongs of the shape **Vi* were monophthongized into a long, high-mid front vowel [eː] / [ę̝ː]. With the new interpretation of *e* as /ɪː/, we only have to assume that the monophthongization product of earlier **Vi* was a slightly higher vowel, /ɪː/, than previously thought. This seems unproblematic to me.

The Lydian pronoun *eš-* 'this' is traditionally derived from a preform **h₁ós-i* (~ Hitt. *aši* 'this (nom.sg.c.)'), through umlaut: **h₁ós-i* would first yield **ási*, which, with umlaut, yielded pre-Lyd. **ési*, which then developed into Lyd. *eš-* [éːç-] / [ę́ːç-] (Melchert 1994: 345, 367, with references).[6] With the new interpretation of *e* as /ɪː/, we can still invoke umlaut, but the exact path of developments changes. We would first have to assume that **h₁ósi* yielded **ā́si*, with a long **ā* (as it did in Hittite: *aši* = /ʔā́si/; Kloekhorst 2014: 382). Then we may assume that **ā́si* through umlaut yielded pre-Lyd. **ḗsi*, the **ḗ* of which was raised, yielding Lyd. *eš-* = /íːç-/. It is important to keep apart the development of pre-Lyd. **ḗ* to /ɪː/ in **ḗsi* > *eš-* /íːç-/ 'this' from the development of PIE / PAnat. **ē*, which in Lydian yielded *i* /ɪ/, as

6. See Melchert (2009: 158–160), however, for an –in my view less attractive– alternative scenario for the prehistory of Lyd. *eš-*.

seems to have happened in **pḗr* > Lyd. *pira-* /píra-/ 'house'.[7] We may therefore assume the following chronology. First, PIE **ē* > pre-Lyd. **ī*, after which PIE **h₁ósi* > **ā́si* was umlauted to pre-Lyd. **ḗsi*. Second, pre-Lyd. **ī* was shortened to Lyd. *i* = /ɪ/, after which pre-Lyd. **ḗsi* underwent raising to Lyd. *eš-* = /ɪːç-/. In fact, the relationship between the developments pre-Lyd. **ī* > Lyd. /ɪ/ and pre-Lyd. **ē* > Lyd. /ɪː/ can be viewed as a standard type of pull chain.

We can conclude that from an etymological point of view the synchronic interpretation of *e* as /ɪː/ is unproblematic.

§ 2.5.2. Lydian *o*: etymologies

One of the main sources of Lyd. *o* consists of *u*-diphthongs: **Vu* > Lyd. *o*. With the traditional interpretation of *o* as /o/ = [oː] / [o̜ː], this amounts to assuming that diphthongs of the shape **Vu* were monophthongized into a long, high-mid back rounded vowel [o̜ː] / [o̜ː]. With the new interpretation of *o* as /ʊː/, we only have to assume that the monophthongization product of earlier **Vu* was a slightly higher vowel, /ʊː/, than previously thought. This seems unproblematic to me.

The Lydian conjunction *kot* 'where, as' is generally derived from a preform **kʷód-He* (~ Hitt. *kuu̯atta* 'where'), with preservation of **o* after **Kʷ* (Melchert 1994: 368), whereas normally **ó* yielded Lyd. *a*. With the new interpretation of Lyd. *o* as /ʊː/, the phonological development of *kot* < **kʷod-He* can be rephrased as follows. First, quasi-PIE **kʷód-He* yielded PAnat. **kʷótʔo*, which developed into pre-Lyd. **kʷṓtta*. Although pre-Lyd. **ṓ* in general was lowered and unrounded to **ā́*, this did not happen after **Kʷ*, where the rounded character of **ṓ* was retained: pre-Lyd. **kʷṓtta* > **kṓt*. Then, we have to assume that long **ṓ* was raised, due to which **kṓt* > Lyd. *kot* = /kʊ́ːt/. This raising of pre-Lyd. **ō* > Lyd. /ʊː/ may be seen as parallel to the raising of pre-Lyd. **ē* > Lyd. /ɪː/ as we saw above in *eš-* 'this'.

The Lydian verbal form *fa-korfid* 'he undertakes(?)' is more difficult to account for. According to Melchert (1994: 346), *-korfid* reflects PIE **kérp-i̯e-ti*, through **kárpid*, showing a development **a* > *o* "between dorsal & labial (?)". This latter sound law is very specific and does not, therefore, immediately convince. Gérard (2005: 106), who translates *fa-korfid* as "he damages", assumes that *-korfi-* reflects PIE **gʰr̥bh₂-i̯é-*, which first would have yielded **kurp-yé-*, in which an analogical accent shift to **kúrp-ye-* took place, after which **kúrp-ye-* regularly yielded Lyd. *-korfi-*. A third analysis is offered by Sasseville (2021b: 331–332),

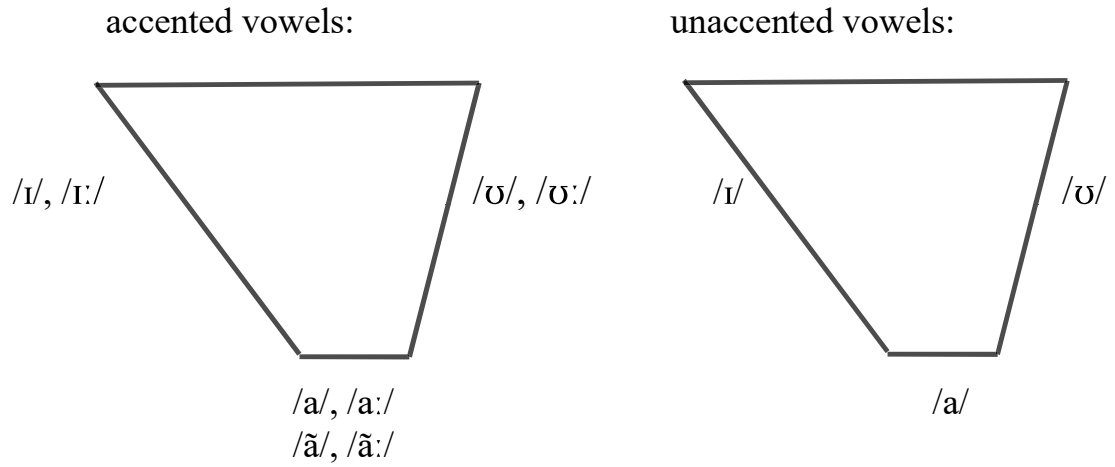
7. Sasseville (2017: 139[20]) proposed to analyse Lyd. *pira-* as reflecting a preform **pr̥(n)ó-*, but it is unclear to me how the nasal would have disappeared. An analysis as **pḗr-* + *-o-* seems therefore preferable to me.

who translates this verb as “to attempt (*vel sim.*)” and proposes a reconstruction *k^w*órp-i̯e-ti*, but notes himself that an “*o*-grade is however unparalleled in this type of formation”. It must be admitted that a synchronic analysis of Lyd. *-korfi-* as /-kʊ́ːrfi-/, with a long accented /ʊ́ː/, does not really elucidate the former two of the etymological proposals listed above: in both cases the PIE input is a vowel of which it is not easy to see how it could have become (phonologically!) long in Lydian. The third etymological proposal would in principle be more in line with a synchronic analysis /-kʊ́ːrfi-/, since PIE accented **ó* seems to have developed into a long vowel already in Proto-Anatolian times. Nevertheless, as stressed by Sasseville himself, a reconstruction *k^w*órp-i̯e/o-* has its own difficulties. Be all this as it may, it may be helpful to realize that in Lydian a sequence *ur*, with short /ʊ/ preceding *r*, is very rare in general. We only find it four times: (1.) *asturkoš* (LW 44: 12), which seems to be a by-form of the more often attested *astrko-*; (2.) *muršụcv* or *murṭẹcv* (LW 62: 5), the interpretation of which is unclear; (3.) *murwaad* (LW 80: 13), which seems to be an error for the much more often attested *mru(waa)-*; and (4.) [...]*urdo*[...] (LW 100), of unclear interpretation. It therefore seems fair to say that a sequence *ur* was phonotactically absent in Lydian. This gives way to assuming that any earlier sequence **ur* = */ʊr/ had undergone lengthening to /ʊːr/, i.e. *or*. In this way, it is easier to understand how a stem *-korfi-* = /-kʊ́ːrfi-/, with a long /ʊː/, could derive from an earlier */-kʊ́rfi-/, with short /ʊ/, which then may either go back to **KérP-i̯e-* (with Melchert) or to **Kr̥̍P-i̯e-* (with Gérard).

We can conclude that from an etymological point of view the synchronic interpretation of *o* as /ʊː/ is unproblematic.

§ 2.6. The Lydian vowel system: a new interpretation

All in all, I want to propose the following, new phonological interpretation of the Lydian vowels: *a* = /a/; *a(a)* = /aː/; *i* = /ɪ/; *e* = /ɪː/; *u* = /ʊ/; *o* = /ʊː/; *ẽ* = /ã/; and *ã* = /ãː/. Together, they form the following vowel system:



We can thus conclude that Lydian had a three vowel system, with one high front vowel slot, one high back vowel slot, and one low vowel slot. All vowels may be long or short (/ɪ/ vs. /ɪː/, /ʊ/ vs. /ʊː/, /a/ vs. /aː/), and the low vowel may be nasalized or not (/a/ and /aː/ vs. /ã/ and /ãː/). A striking advantage of this phonological interpretation over previous ones is that the relationship between the system of accented vowels and the system of unaccented vowels is a very clear one: in principle, the two systems are identical, except for the fact that in unaccented position, all vowels are short and non-nasalized.[8] Another interesting aspect of this phonological interpretation is that it is in principle identical to the vowel system of Luwian (except for the nasalized vowels).

§ 3. *The Lydian consonant system*

When it comes to consonants, the Lydian alphabetic script knows the following eighteen graphemes that are generally interpreted as denoting consonants: 𐤠 <c>; 𐤡 <d>; 𐤢 <f>; 𐤣 <g>; 𐤤 <k>; 𐤥 <l>; 𐤦 <λ>; 𐤧 <m>; 𐤨 <n>; 𐤩 <v>; 𐤪 <p> (previously transliterated <b>); 𐤫 <q>; 𐤬 <r>; 𐤭 <s> (previously transliterated <ś>); 𐤮 <š> (previously transliterated <s>); 𐤯 <t>; 𐤰 <τ>; 𐤱 <w> (previously transliterated <v>). Of these, the sign *g* (𐤣) is only rarely found, and will be left out of consideration in this article.[9]

8. Except in preverbs that have (relatively recently) univerbated with verbal stems: there we do find unaccented long and nasalized vowels; cf. footnote 2.

9. It is found only four times in the entire Lydian corpus, seemingly as a variant of *k* (e.g. *qig* in LW 54: 4 instead of expected *qik*). There is no real pressing indication that this sign must necessarily

According to Melchert (1994: 330–341; 2008), the Lydian consonants form the following phonological system:

	labial	dental	palatal	velar	labiovelar
stops	/p/ (*p*)	/t/ (*t*)		/k/ (*k*)	/k^{w}/ (*q*)
affricates		/t͡s/ (*τ*)			
		/d͡z/ (*c*)			
fricatives	/f/ (*f*)	/s/ (*s*)	/ç/ (*š*)		
	/v/ (*w*)	/ð/ (*d*)			
nasals	/m/ (*m*)	/n/ (*n*)			
		/ν/ (*v*)			
liquids		/r/ (*r*)			
		/l/ (*l*)	/λ/ (*λ*)		

A remarkable aspect of this interpretation is that on the one hand Lydian would show a single stop series (/p/, /t/, /k/, /k^{w}/), whereas affricates and (some of the) fricatives show a voice distinction (/t͡s/ vs. /d͡z/; /f/ vs. /v/; /s/ vs. /ð/).

In the following sections I will discuss the present analyses of the Lydian consonants, and for some of them propose alternative interpretations.

§ 3.1. Lydian *p*, *t*, *k*, and *q*

The interpretation of Lyd. *p* (𐤡), *t* (𐤮), *k* (𐤣), and *q* (𐤧) as representing stops, i.e. /p/, /t/, /k/, and /k^{w}/, respectively, seems generally accepted.[10] Moreover, it is generally acknowledged that in e.g. *alikšãn**t**ru* = Gr. Ἀλέξαν**δ**ρος 'Alexander' the letter *t* renders Greek voiced δ = [d], which implies that Lyd. *t* could represent both [t] and [d], with the latter probably being an allophone in at least post-nasal position, but possibly in other specific phonetic environments as well: /t/ = [t~d]. It thus is an interesting possibility to assume that the other stops may have had similar voiced allophones as well. In fact, in the case of /p/, it would explain why this con-

represent a voiced consonant, and its transliteration as *g* is therefore a mere convention. The existence of this sign cannot therefore be used to argue for the existence of a phonemic pair /k/ vs. /g/.

10. E.g. Melchert (1994: 330–341); 2008; Gérard (2005: 56–58).

sonant is written with 𐤁, the letter that is graphically cognate to e.g. Gr. β = [b], which in turn supports the idea that Lydian /p/ represents the allophonic voice pair [p~b]. We may therefore assume that this was the case in the other stops as well: /k/ = [k~g][11] and /k^{w}/ = [k^{w}~g^{w}].

§ 3.2. Lydian *d*

On the basis of the correspondence between Lydian *sfar**d**-*, Aram. *spr**d*** and Gr. Σάρ**δ**εις 'Sardis', the grapheme 𐤣 has since Littmann (1916: 5) been transliterated as *d*. Nevertheless, it has in the meantime become clear that, phonetically, *d* can hardly represent a voiced stop [d], since Gr. δ [d] is in Lydian rather taken over as *l*, as can be seen in the theonyms ***l**ews* < Gr.dial. **Δ**έυς 'Zeus' and ***l**amẽtru-* < Gr.dial. **Δ**αμάτηρ 'Demeter'. Moreover, in Greek personal names rendered in the Lydian alphabet, δ surfaces as *t*, as in *alikšãn**t**ru* < Gr. Ἀλέξαν**δ**ρος 'Alexander'. It is therefore generally assumed that, instead of a voiced stop, Lydian *d* rather represents a voiced dental fricative /ð/.[12]

To my mind, however, *d* = /ð/ may have had a voiceless allophone, as well, for which there are two indications. First, the nom.-acc.sg.n. ending *-d* (e.g. *qid* 'what') has in the pronouns *ed-* 'that(?)' and *eš-* 'this' been despirantisized to *-t*: *edt* and *ešt*. The outcome *-t* seems to imply that in these forms the ending *-d* originally was voiceless, *[-θ]: e.g. *ešt* 'this' = [íːçt] < *[íːçθ]. Second, a voiceless interpretation of *d* would also fit better for the stem-final *d* of the pronominal stem *ed-* 'that(?)' in the forms nom.sg.c. *edš* and nom.-acc.sg.n. *edt*. These may then be interpreted as [íːθç] and [íːθt], respectively (the latter from earlier *[íːθθ][13]), with voiceless [θ].

I therefore propose that *d* could represent both a voiced and a voiceless dental fricative, which were allophonically distributed. It then make sense to phonologically interpret *d* as an underlyingly voiceless fricative, /θ/, which could phonetically be rendered as [θ~ð].

11. See footnote 9 for the sign *g*.

12. E.g. Melchert (1994: 335), with references. Oreshko's recent proposal (2019) that *d* should be transliterated <j> and interpreted as [j] is based on a series of unconvincing arguments and can hardly be taken seriously.

13. Ultimately probably from a syncopated preform *[íːθɪθ], with a stem *[íːθɪ-] that must be postulated for the nom.sg. form *edš* [íːθç] as well in order to explain its palatalized ending [-ç] < *-*s*, i.e. *edš* [íːθç] < *[íːθɪç] < *[íːθɪs].

§ 3.3. Lydian *f* and *w*

According to Melchert (1994: 334), the graphemes *f* (𐤈) and *w* (𐤁) form a voice pair of labiodental fricatives, [f] vs. [v], as can be seen from the alternation between *f* and *w* in *le**f**s* ~ *le**w**s* 'Zeus'. He assumes that the original form of this theonym was *lews* [levs] (borrowed from Gr. Δέυς), in which [v] was devoiced to [f] due to the adjacent *s*, yielding *lefs* [lefs]. An alternative interpretation is offered by Gérard (2005: 61), who points to the alternation between *f* and *p* in *fẽnšli**f**id* ~ *fẽnšli**p**id* 'he damages', which he uses as an argument to interpret *f* as a bilabial fricative, [ɸ]. Moreover, Gérard (2005: 61) argues that in the form *puwas* (LW 46: 3), which morphologically consists of *pu* 'or' + =*as* 'he', the *w* functions as a glide between *u* and *a*, and therefore phonetically probably is the labial-velar approximant [w]. This idea is supported by the fact that the 1sg.pres. ending *-u* has the postvocalic allomorph *-w*, which much better fits a phonetic interpretation [w] than Melchert's [v] (*pace* Melchert 1994: 334). Moreover, Gérard's interpretation of *f* as [ɸ] and of *w* as [w] can also explain the alternation between *lefs* and *lews*. If we assume that a devoicing of [w] in [lews] yielded the voiceless labial-velar fricative [ʍ], it is only a small step away from a further development into the voiceless labial fricative [ɸ]. All in all, we can conclude that Gérard's interpretation of *f* as [ɸ] and of *w* as [w] is superior over Melchert's analysis of these graphemes as [f] and [v].

If *f* is indeed the labial fricative [ɸ], one may wonder to what extent this fricative behaved parallel to the dental fricative *d* /θ/, for which voice was an allophonic feature, [θ~ð]. This would imply that next to its voiceless value [ɸ], the grapheme *f* could have a voiced allophone, [β]. In fact, such a situation would neatly explain the shape of the letter *f* (𐤈), which according to Adiego (2018: 150–1) was adapted from an original *beta*-sign. It therefore seems attractive to assume that *f* = /ɸ/ could allophonically be voiced, [ɸ~β].

§ 3.4. Lydian *s* and *š*

The interpretation of the graphemes *s* (𐤎) and *š* (𐤓) as denoting the alveolar and palatal fricatives /s/ and /ç/, respectively, is nowadays generally accepted, and needs no further comment. Given the allophonic voicing of the other fricatives treated thus far, we may consider the possibility that these consonants, too, had voiced allophones, [z] and [ʝ], respectively, but at present I know of no good arguments in favor of this.

§ 3.5. Lydian *τ*

The grapheme *τ* (𐤑) represents a sound that derives from earlier *t* + *s*. For instance, the particle =*(i)τ* represents a combination of the particles =*(i)t* + =*s*. It

therefore is generally assumed that *τ* phonetically was a dental affricate [t͡s].[14] Yet, the phonemic status of this sound is not fully clear to me: does it represent an affricate phoneme /t͡s/? Or is it merely a way of writing the biphonemic combination /t/ + /s/? Moreover, in e.g. *καττadmẽs*, which is generally viewed as deriving from **kat* + *šadmẽs* 'inscription', the geminate spelling *-ττ-* represents a combination of earlier *t* + *š*. Does this mean that geminate *ττ* represents [t͡ɕ] or [c͡ɕ]? And if so, what is then the difference with the clusters spelled *-tš-* as found in *katšarlokid* 'destroys (vel sim.)' (attested thus three times, always with *-tš-*)? Ilya Yakubovich (pers.comm.) proposes that *καττadmẽs*, being a nominal form, may have undergone fusion earlier than the verbal form *katšarlokid*, and that in this way the discrepancy between the two forms may be explained. This is indeed an interesting possibility, and may then imply that we have to synchronically distinguish monophonemic *-ττ-* = [c͡ɕ] from biphonemic *-tš-* = [tɕ]. However, it may be clear that more research is needed.

§ 3.6. Lydian *c*

The grapheme *c* (↑) represents a sound that derives from an earlier dental stop before a high vowel, like in Lyd. *ciw-* 'god' < PIE **dieu̯-* and Lyd. *-cuwe-* 'to erect' ~ CLuw. *tūu̯a-* 'to place', HLuw. *tuwa-* 'id.', Lyc. *tuwe-* 'to place (upright)'. According to Melchert (1994: 333), since "[t]he only clear source of [...] *c* is assibilated **d*$^{(h)}$" and because of "[p]arallelism with *τ*", the grapheme *c* should be interpreted as "a voiced dental/palatal affricate" /d͡z/, which would then form the voiced counterpart of *τ* = /t͡s/. This interpretation is followed by e.g. Gérard (2005: 59–60).

To my mind, this interpretation can hardly be correct, however. The unconditioned outcome of initial PIE **d*$^{(h)}$- in Lydian was a voiceless stop *t-*, e.g. *taac-* 'votive offering' < **d*^{h}*eh*$_1$*-ti-*.[15] This development is also found in the Luwic branch and thus may have been a shared innovation, which would imply that it took place before the split-off of Lydian. Yet, the change of earlier **TV*^{high}- > Lyd. *cV-* is a specifically Lydian development: it cannot be found in Luwic, cf. examples like Lyd. *ciw-* 'god' ~ CLuw. *tiu̯-*, HLuw. *tiw-* (where *t-* has been retained) and Lyd. *-cuwe-* 'to erect' ~ CLuw. *tūu̯a-*, Lyc. *tuwe-* (also with retention of *t-*).[16] It therefore

14. Melchert (1994: 333); Gérard (2005: 58–59).

15. E.g. Melchert (1994: 358).

16. If Mil. *ziwi-* indeed means 'god' or 'deity' and would reflect **diu̯-* or **di̯eu̯-* with an assibilation of **d-* before **i* or **i̯* (thus Sasseville 2021c: 182, with footnote 22), this is at best a parallel development to the Lydian palatalization of **TV*^{high}- > *cV-*. The two developments can hardly be viewed as a common innovation of the two languages.

is quite likely that the development *TV^{high}- > Lyd. *cV*- postdates the development of PIE initial *$d^{(h)}$- > voiceless *t*-. It then makes sense that Lyd. *c*- is a voiceless consonant, too. Moreover, Melchert himself (2004: 74) has in the meantime argued that Lyd. *-cuwe*-, CLuw. *tūu̯a*-, HLuw. *tuwa*-, Lyc. *tuwe*- reflect a preform *$steh_2u$-, with PIE voiceless *t*. This, too, would imply that the *c* of *-cuwe*- should have been voiceless rather than voiced.

Given the fact that *c* reflects the outcome of earlier *tV^{high}-, and thus must have been a palatalized version of *t*, it seems most cogent to me to assume that it phonetically was a voiceless palatal stop [c].[17]

§ 3.7. Lydian *m*, *n*, and *v*

Lydian knows three graphemes that denote nasal consonants: *m* (𐤌), *n* (𐤍), and *v* (𐤅). The interpretation of *m* and *n* as /m/ and /n/, respectively, is generally accepted and needs no further comment. The interpretation of *v* is not fully clear, however. As Melchert (1994: 339) cogently argues, its distribution shows some correlation with word-final position (including cases where *v* is found word-medially, but originally probably was word-final, like dat.pl. *ešvav* < **ešv* + reiterated *-av*). On the basis of this correlation, one may hesitatingly consider the possibility that *v* denoted a velar nasal, /ŋ/ (cf. the fact that in some dialects of Spanish any word-final nasal was velarized to [ŋ]).

From metrical texts it is clear that all nasal consonants could allophonically be syllabic: [n̩], [m̩], [ŋ̩][?].

§ 3.8. Lydian *r*, *l*, and *λ*

Finally, we have to consider three liquids: *r* (𐤓), *l* (𐤋), and *λ* (𐤕). Of these, *r* and *l* are generally interpreted as /r/ and /l/, respectively, and need no further comment.[18] The grapheme *λ* is generally interpreted as a palatal lateral [ʎ], which indeed fits one of its etymological sources, *-*lḭ*- (Lyd. *aλa*- 'other' < **alḭo*-), as well as the equation between Lyd. *aλikšãntru* and Gr. Ἀλέξανδρος 'Alexander'. In

17. See also Yakobuvich (2005: 77, note 11), who on the basis of a different argument argues for a voiceless interpretation of *c*, proposing it may represent "a laminal affricate [tʃ], or even a palatalized stop [tʲ]".

18. Sasseville (2021a) has argued that Lyd. *l* phonetically was a flap, [ɾ], which is based on his proposal to explain the 3sg.pret.act. ending *-l* as the outcome of earlier *-*ɾa* < *-*da* < lenited *-*do* < PIE *-*to*. Since Sasseville's overall scenario for the development of the 3sg. verbal endings in Lydian (2021a: 642–644) is too convulated to be credible, for the time being I do not see any reason to adopt his view that Lyd. *l* = [ɾ].

word-final position, one of the sources of -*λ* seems to be *-*Vi̯*, however (Kloekhorst 2012),[19] and one may wonder if this has consequences for its synchronic phonetic / phonological interpretation. If earlier *-*li̯*- and *-*i̯* indeed merged into a single consonant, it is more likely that that consonant is a palatal approximant [j] than a palatal lateral [λ] (cf. the situation in Standard Spanish, where earlier /λ/, spelled *ll*, merged with /j/, spelled *y*, into /j/). From a comparative graphological point of view, it may be interesting that the shape of the sign 𐤚 seems relatively close to the shape of the Old Phrygian *yod*-sign as found on inscription B-07 from Daskyleion: 𐤚.[20] One may therefore wonder whether Lyd. *λ* should not rather be interpreted as a palatal approximant /j/ = [j]. Or perhaps we can postulate a synchronic phoneme /j/ that had two allophones, [λ~j]? More research is needed.

From metrical texts it is clear that the liquids could allophonically be syllabic: [r̩], [l̩], [λ̩]?.

§ 3.9. The Lydian consonant system: a new interpretation

Taken all preceding sections into account, I assume the following phonological interpretations (including several new ones) of the Lydian consonants: *c* = /c/; *d* = /θ/; *f* = /ɸ/; *k* = /k/, *l* = /l/; *λ* = /λ/ or /j/?; *m* = /m/; *n* = /n/; *v* = /ŋ/?; *p* = /p/; *q* = /kʷ/; *r* = /r/; *s* = /s/; *š* = /ç/; *t* = /t/; *τ* = /t͡s/?; *ττ* = /c͡ɕ/?; and *w* = /w/. Together, these phonemes form the following consonant system of Lydian:

19. This is primarily based on the idea that the Lyd. dat.sg. ending -*λ* reflects PIE *-*Vi̯* and that the dat.sg. form of the enclitic 3rd person pronoun -*mλ* goes back to PIE *-*smVi̯*. See Sasseville 2021a for the alternative view that Lyd. dat.sg. -*λ* reflects the PAnat. abl. ending *-*odi*, but this etymology is incompatible with the fact that the Lyd. lenited 3sg.pres.act. ending -*d* can straightforwardly be derived from PAnat. *-*Vdi*, the lenited outcome of PIE *-*ti*. Sasseville's own account to explain Lyd. 3sg.pres.act. -*d* (2021a: 642–644) seems hardly credible to me. Another source for Lyd. word-final -*λ* may be *-*ri*, cf. Melchert's proposal to derive 3sg.pres.midd. -*taλ* < *-*tori* (2006; but note that Kloekhorst (2012) alternatively proposes a preform *-*toi̯*), and Yakubovich's analysis of Lyd. *p*(*a*)*λ*- as a cognate of CLuw. *parī* 'forth, away' and Lyc. *pri* (2017: 284[19]; 2019b: 400). To my mind, these latter proposals are less secure, however.

20. Brixhe (2004: 73–85). This drawing of the *yod*-sign of B-07 is based on a photograph of the inscription made by the author in the summer of 2012. Since at Daskyleion also Lydian texts have been found, it is an interesting possibility that the Lydian and Phrygian alphabets have had interactions with each other.

	labial	dental	alveolar	palatal	velar	labiovelar
stops	/p/	/t/		/c/	/k/	/k^{w}/
affricate		/t͡s/(?)		/c͡ɛ/?		
fricatives	/ɸ/	/θ/	/s/	/ç/		
approximants				/j/?		/w/
nasals	/m/	/n/		↕	/ŋ/?	
liquids		/r/		↕		
		/l/		/λ/?		

Note that in this system, there is no phonemic voice distinction. However, all stops and probably all fricatives could allophonically be voiced (/p/ = [p~b]; /t/ = [t~d]; /c/ = [c~ɟ]; /k/ = [k~g]; /k^{w}/ = [k^{w}~g^{w}]; /ɸ/ = [ɸ~β]; /θ/ = [θ~ð]; /s/ = [s~z]?; /ç/ = [ç~ʝ]?).

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