

Hyphenation Patterns for Ancient Greek and Latin Yannis Haralambous

▶ To cite this version:

Yannis Haralambous. Hyphenation Patterns for Ancient Greek and Latin. Tugboat, 1992, 13 (4), pp.457-469. hal-02100339

HAL Id: hal-02100339 https://hal.science/hal-02100339

Submitted on 23 Apr 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers. L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Min-nesota	Min-ne-sota	
Ni-jmegen	Nij-me-gen	
Noethe-rian	Noe-ther-ian	
No-ord-wi-jk-er-hout	Noord-wijker-hout	
Novem-ber	No-vem-ber	
Poincare	Poin-care	
Po-ten-tial-gle-ichung	Po-ten-tial-glei-chung	
rathskeller	raths-kel-ler	
Rie-man-nian	Rie-mann-ian	
Ry-d-berg	Ryd-berg	
schot-tis-che	schot-tische	
Schrodinger	Schro-ding-er	
Schwabacher	Schwa-ba-cher	
Schwarzschild	Schwarz-schild	
Septem-ber	Sep-tem-ber	
Stokess-che	Stokes-sche	
Susque-hanna	Sus-que-han-na	
tech-nis-che	tech-ni-sche	
Ten-nessee	Ten-nes-see	
ve-r-all-ge-mein-erte	ver-all-ge-mein-erte	
Verteilun-gen	Ver-tei-lun-gen	
Wahrschein-lichkeit-s-the-o-rie		
Wahr-schein-lich-keits-the-o-rie		
Werthe-rian	Wer-ther-ian	
Winch-ester	Win-ches-ter	
Yingy-ong Shuxue Jisuan	n Ying-yong Shu-xue Ji-suan	
Zeitschrift	${ m Zeit-schrift}$	

Literate Programming

Errata: Literate Programming, A Practitioner's View TUGboat 13, no. 3, pp. 261-268

Bart Childs

The address lyman.pppl.princeton.edu should have read lyman.pppl.gov (a careless error on my part). The address csseq.cs.tamu.edu no longer permits anonymous ftp. Due to some network breakins from different places, extensive local network changes are being done and relevant sources will be placed on ftp.cs.tamu.edu no later than January 1993. The author will e-mail any desired sources in the meantime.

Bart Childs
 Texas A&M University
 Department of Computer Science
 College Station, TX 77843-3112
 bart@cs.tamu.edu

Philology

Hyphenation patterns for ancient Greek and Latin

Yannis Haralambous

The amount of compound words in ancient Greek makes its hyphenation by computer a quite difficult task; it is impossible to predict all combinations of words. To be efficient, a set of patterns must be accessible to the final user; a scholar must be able to add patterns, according to new words he/she encounters. Use of TEX's \hyphenation primitive is not appropriate since most Greek words are declinable: for each word one would have to add a dozen hyphenation exceptions.

After a short introduction to the concept of hyphenation by TEX the author presents a method for hyphenation of ancient Greek. Using this method, he compiled a list of patterns out of a dictionary [Bai] of 50,000 words. These patterns are presented in a comprehensible format, in a way that scholars can easily determine the patterns that have to be added, to solve specific hyphenation problems.

The same approach is applied to Latin. A list of patterns has been compiled out of a dictionary [B–C]. The size of this list is very small compared to the one of ancient Greek patterns, although Latin also uses compound words.

Finally examples of hyphenated classical texts are given.

1 What do I have to know about hyphenation?

When TEX creates a format like Plain or LaTeX it also reads information from a file called hyphen.tex (or UShyphen.tex, or FRhyphen.tex and so forth) which contains the *hyphenation patterns* for a specific language. These are clusters consisting of letters separated by digits, like x1y2z. The idea is the following:

- if your set of patterns is empty, there is no hyphenation at all.
- if you have a pattern x1y then on every occurrence of the cluster "xy", hyphenation "x-y" will be possible. If the pattern is x1yzw, then the pair of letters "xy" will be hyphenated only when followed by "zw".

- if there is a pattern x1y and a pattern x2yabc, then the pair "xy" will be hyphenated, except when it is followed by "abc". So the digit 2 indicates an exception to the rule "separate x and y".
- the same holds for greater numbers: 3 will be an exception of patterns with number 2, and so on. You can now read [DEK], pp. 449–451, for more details on T_EX's hyphenation algorithm.
- a dot in front of (or behind) a pattern specifies that the latter is valid only at the beginning (or the end) of a word. In this way, for example, .xy2z. will be applied *only* to the word 'xyz'.

Despite the existence of some fundamental rules, hyphenation of a particular language can be very complicated, especially when it depends on etymological criteria. There are two ways to handle this complexity: one can investigate the hidden mechanisms of hyphenation and make patterns correspond to the analytical steps of manual hyphenation; or one can use a "pattern generator" like PATGEN on a sufficiently representative set of already hyphenated words. The choice of the method depends on the nature of the language and on the size of the available set of hyphenated words: theoretically one could create a file containing all words of a particular language in hyphenated form; the pattern generator would then give an *exhaustive* set of patterns. Since it is more probable to have partial sets of words, the "pattern generator" will only produce more or less good approximations. For ancient Greek and Latin, the author has chosen the first method.

2 Why is hyphenation of ancient Greek so difficult for a computer?

As mentioned in TUGboat 11, no. 1, since 1990 patterns have existed for modern Greek (made by the author). What then makes hyphenation of ancient Greek so different? Why is it so difficult?

First of all, because of compound words. The difficulty lies in the fact that components are often altered when composed: $i\pi i$ and $\alpha i\nu \omega$ gives $i\pi \alpha i\nu \omega$ (not $i\pi i\alpha i\nu \omega$) while $i\pi i$ composed with $\beta \alpha \lambda \omega$ produces $i\pi i\beta \alpha \lambda \omega$. Could we hence hyphenate always $i\pi - \alpha$ and $i\pi - ?$ well, actually not, because there is also the case of $i\pi i + i\alpha \lambda \omega = i\pi i\alpha \lambda \omega$ which is hyphenated $i\pi - i\alpha \lambda \lambda \omega$. Then perhaps we could produce patterns for roots, like - $\alpha i\nu$, to insure hyphenation of $i\pi - \alpha i\nu \sigma \zeta$, $\alpha \pi - \alpha i\nu \sigma \varsigma \zeta$, $\phi \varepsilon u \delta - \alpha i\nu \omega$ and so forth? No, because this would produce wrong hyphenation of $i\alpha - \sigma \theta \mu \alpha i - \nu \omega$, $i\gamma - \eta \alpha i - \nu \omega$.

A second problem is declension and diacritics. While the latter are provided to facilitate comprehension of a word, they rather obstruct the work of the computer. Because for the computer α , $\dot{\alpha}$, $\ddot{\alpha}$, $\ddot{\alpha}$, $\dot{\alpha}$, $\dot{\alpha}$, etc., are *distinct* entities. So $\dot{\epsilon}\pi\epsilon i$ and $\dot{\epsilon}\pi\epsilon i$ are to be treated as entirely distinct words. In most languages declension affects only endings of words: здание, здания, зданию, здание, зданием, здании and so forth. In Greek, the root of the word remains mostly the same (except in cases such as $\dot{\delta}$ ἀνήρ, τοῦ ἀνδρός) but the accent migrates: $\dot{\delta}$ ἄνθρωπος, τοῦ ἀνθρώπου. It follows that when creating patterns, one must consider all possible diacritics and their positions.

To illustrate this, here is an example of two words which look very similar but are hyphenated in two different ways:

άψ-ορρος (from åψ and δ ρνυμι) and

άψό-ρροος (or άψόρρους, from αψ and $b \epsilon \omega$).

We will decline them and try to extract the necessary patterns so that $T_{E}X$ can correctly hyphenate them, in all cases¹:

ò	ἄψορρος	ò	ἀψόρροος
τοῦ	ἀψόρρου	τοῦ	άψορρόου
τῷ	ἀψόρρω	τῷ	ἀψορρόω
τόν	ἄψορρον	τόν	ἀψόρροον
ũ	ἄψορρε	ũ	ἀψόρροε
ાં	ἄψορροι	ં	ἀψόρροοι
τῶν	ἀψόρρων	τῶν	άψορρόων
τοῖς	ἀψόρροις	τοῖς	ἀψορρόοις
τοὺς	ἀψόρρους	τοὺς	ἀψορρόους
ũ	ἄψορροι	ũ	ἀψόρροοι

For the word adoppos it would be enough to introduce patterns $\& \psi$ -opp and $\& \psi$ -ópp. In this case, the word ἀψόρροος would be wrongly hyphenated. To distinguish this word we must include an o at the end of the pattern, and hence introduce the pattern άψό-ρρο. This would again change the hyphenation of the genitive case of ἄψορρος, namely ἀψόρρου. For this reason we will rather use the pattern ἀψό-ρροο. This has the advantage of not interfering with the hyphenation of adoppos, but cannot be applied to the vocative case of $\dot{\alpha}\psi \dot{\alpha}\rho\rho \sigma \sigma \zeta$. For this, we need a second pattern $\dot{\alpha}\psi \dot{\phi}$ -ppos, which is actually the whole word. In the remaining cases of $\dot{\alpha}\psi \dot{\alpha}\rho\rho \phi \sigma \zeta$, the accent is on the penultimate syllable ppo. But the word άψορρος is never accented on that syllable, so that an unaccented pattern like à\$0-pp would apply only

¹ The reader should excuse the unusual order of cases: nominative, genitive, dative, accusative, vocative. This order is used in education and scholarly literature, in Greece.

to the genitive, dative and plural accusative cases of $\dot{\alpha}\phi\dot{\alpha}\rho\rho\sigma\sigma\varsigma$.

Using this method, we found five patterns: $\dot{\alpha}\psi$ -opp, $\dot{\alpha}\psi$ -ópp, $\dot{\alpha}\psi$ ó-opo, $\dot{\alpha}\psi$ ó-opo, $\dot{\alpha}\psi$ ó-opo

The reader can verify that with these, all cases of both words are correctly hyphenated.

The example illustrates another fact: when writing down new patterns, one must constantly compare the newly hyphenated words with the ones which produced the previous patterns, so that conflicts can be avoided.

Finally there are some rare cases where identical words have different meanings and different hyphenations: $\ddot{\alpha}$ -vootoç from $\dot{\alpha}$ and vóotoç, $\ddot{\alpha}$ v-ootoç from $\dot{\alpha}$ v and $\ddot{o}\zeta\omega$; $\dot{\varepsilon}v$ - $\varepsilon\tau\dot{o}\zeta$ from verb $\dot{\varepsilon}v$ - $i\eta\mu$: and $\dot{\varepsilon}$ -v $\varepsilon\tau\dot{o}\zeta$ (Venitian).

3 The fundamental rules of ancient Greek hyphenation, and the corresponding patterns

The Chicago Manual of Style ([Chi], 9.130) asserts that: IN [ancient] GREEK, WORD DIVISION FOL-LOWS RULES THAT ARE STRAIGHTFORWARD AND FAIRLY EASY TO APPLY.

Here are the rules following this quotation in [Chi], and the necessary patterns $(v_n, n \ge 1$ will be vowels and $c_n, n \ge 1$ consonants):

- 1. WHEN A SINGLE CONSONANT OCCURS BE-TWEEN TWO VOWELS, DIVIDE BEFORE THE CONSONANT: v_1-cv_2 . The necessary patterns will be $\alpha 1\beta$, $\alpha 1\gamma$, $\alpha 1\delta$, ... $\omega 1\psi$ where vowels are taken with all possible combinations of accents, spirits, diæresis and subscript iota. These patterns cover also the case of a vowel followed by more than one consonant; this feature will be useful in rule 4.
- 2. IF A CONSONANT IS DOUBLED, OR IF A MUTE IS FOLLOWED BY ITS CORRESPONDING AS-PIRATE, DIVIDE AFTER THE FIRST CONSO-NANT: $v_1c_1-c_2v_2$ for $c_1 = c_2$, or $(c_1, c_2) \in$ $\{(\pi, \varphi), (\tau, \theta), (\varkappa, \chi), (\gamma, \chi)\}$. The patterns will be $2\beta 1\beta, 2\gamma 1\gamma \dots 2\psi 1\psi$ for the first part of the rule, and $2\pi 1\varphi, 2\tau 1\theta, 2\varkappa 1\gamma, 2\gamma 1\chi$ for the second. For grammatical reasons, it would be best to exclude $2\rho 1\rho$ (and $2\dot{\rho}1\dot{\rho}$) from these patterns.
- 3. IF THE COMBINATION OF TWO OR MORE CON-SONANTS BEGINS WITH A LIQUID OR A NASAL, DIVIDE AFTER THE LIQUID OR NASAL [although not stated in the rule, it follows from the examples given in [Chi] that two consecutive nasals should not be separated]: $v_1c_1-c_2\ldots c_nv_2$, for $c_1 \in \{\lambda, \rho, \mu, \nu\}$ but $v_1-c_1\ldots c_nv_2$ if $(c_1, c_2) =$

 (μ, ν) . The required patterns are $2\lambda 1\beta$, $2\lambda 1\gamma \dots 2\nu 1\psi$ (except of course $2\lambda 1\lambda$, $2\rho 1\rho$, $2\mu 1\mu$, $2\nu 1\nu$ which have been taken into account in rule 2), and $2\mu 1\nu$.

- 4. THE DIVISION COMES BEFORE ALL OTHER COMBINATIONS OF TWO OR MORE CONSO-NANTS. We do not need any additional patterns to handle this rule; for example in the word ǎστρον, the cluster ǎσ will be hyphenated because of rule 1, and clusters $\sigma\tau$, $\tau\rho$, $\rho\sigma$ will not be hyphenated, because they do not appear in any previous pattern list. Theoretically, a problem could occur in the case of a combination of 3 or more consonants *containing* a cluster mentioned in rules 2 or 3. But this is highly improbable and should be taken as an exception.
- 5. COMPOUND WORDS ARE DIVIDED INTO THEIR ORIGINAL PARTS; WITHIN EACH PART THE FOREGOING RULES APPLY. The patterns needed to fulfill this rule will be discussed in next section.

It might be interesting to point out that the rules specified by the Academy of Athens in 1939 ([Aca], "Eyxlicit to vou xai oulla bispic) are slightly different from the ones above. According to this set of rules, compound words are separated, except when an eclipse has occurred: $\pi\alpha\rho\epsilon\chi\omega$ is hyphenated as if it was a simple word: $\pi\alpha-\rho\epsilon\chi\omega$, instead of $\pi\alpha\rho-\epsilon\chi\omega$ as suggested in [Chi]. Following the rules of the Academy of Athens would result in a completely different set of patterns, since the eclipse phenomenon occurs very often.

The patterns we have introduced thus far are not sufficient for fundamental hyphenation. We still must introduce two families of patterns:

- Pairs of vowels are to be separated, except in the case of diphthongs. This leads to patterns $\alpha 1 \alpha$, $\alpha 1 \varepsilon$, $\alpha 1 \eta$, $\alpha 1 \tilde{\iota} \dots \omega 1 \omega$ including all diacriticized vowels.
- In Greek, the smallest part of a word remaining on a line is a syllable. This may shock a TEX user, but hyphenations like ἀ-προσάρμοστος and ἐπιδειχνύ-ω are allowed, and can frequently be found in books. The problem is that by setting \lefthyphenmin and \righthyphenmin equal to 1, one can eventually separate single consonants, which do not form syllables: δῶρο-ν is TEXnically allowed, since \righthyphenmin=1, but should be avoided. For this we just have to introduce patterns 2β., 2δ. ... 2ψ. [or even 6β., 6δ. ... 6ψ. to be sure that no forthcoming exception will affect them].

What remains now are patterns concerning separation of compound words, according to rule 5. These are described in the following section.

4 Hyphenation of ancient Greek compound words

No puede combinar unos caracteres **dhcmrlchtdj** que la divina Biblioteca no haya previsto y que en alguna de sus lenguas secretas no encierren un terrible sentido...

writes J. L. Borges in the "Biblioteca de Babel"; the situation is similar for ancient (or modern) Greek compound words. By combining words one can easily exceed Mark Twain's

"Mekkamuselmannenmassenmenchenmördermohrenmuttermarmormonumentenmachen",

given in [DEK], p. 451. As already pointed out, one could make patterns out of all possible roots, so that any possible combination of them is correctly hyphenated. The problem is, though, that the combinations of letters forming these roots can also occur inside single words, and only by their meaning can one decide if a particular root is present in a word: $\pi \epsilon \nu \tau \dot{\eta} \rho \eta \varsigma$ is formed by $\pi \epsilon \nu \tau$ - and $-\eta \rho$ - (from $\check{\alpha} \rho \omega$). The words $\tau \rho \dot{\eta} \rho \eta \varsigma$, $\mu \circ \nu \dot{\eta} \rho \eta \varsigma$, $\tau \epsilon \iota \chi \dot{\eta} \rho \eta \varsigma$, all contain the same root $-\eta \rho$ -. But introducing a pattern $3\eta 4\rho 3$ would cause tremendous problems, since thousands of words contain the cluster $\eta \rho$, hyphenated as $\eta -\rho$: $\tau \epsilon \kappa \mu \dot{\eta} - \rho \iota \circ \nu$, $\sigma \tau \dot{\eta} - \rho \iota \gamma \mu \alpha$, $\pi \eta - \rho \dot{\omega}$ and so forth. The fact is that such patterns should be avoided, or introduced only after extensive investigation.

The author has chosen a different method. Instead of introducing patterns for roots of words, only beginnings of words are taken into account. In this way, when writing for example .24v3 one can be sure that only words beginning with the prefix ∂v will be affected. Exceptions to this rule can easily be found by consulting the dictionary. This method is very effective in hyphenating the most frequent words, but fails when new compound words are to be hyphenated: $\partial \pi$ -auv $\tilde{\omega}$ and $\varkappa \alpha \tau$ -auv $\tilde{\omega}$ will be correctly hyphenated (since patterns $\partial \pi$ - and $\varkappa \alpha \tau$ - $\varepsilon \pi$ -auv $\tilde{\omega}$, unless of course the user adds a new pattern $\varkappa \alpha \tau$ - $\varepsilon \pi$ to the list in section 5.

Another advantage of this method is the fact that, contrary to most pattern lists, such a list is easily comprehensible, and hence can be completed easily by the final user himself (who does not have to be a TEX-guru). This comes from the fact that — except for the fundamental patterns explained in the previous section — all patterns are beginnings of

words. By checking in the list, one can instantly verify why a specific word is hyphenated in a particular way; once this is understood, one can add the necessary pattern(s) to remedy to the situation. This is highly inadvisable for a pattern file created by a "pattern generator", where a simple change can have very strange and obscure results (until now pattern files always started with the most categorical phrase [NOT TO BE CHANGED IN ANY WAY!]).

To facilitate even more the comprehension of this list of patterns, the author has chosen to present it in a very special format. Here is a sample excerpt of the pattern list which the reader can find in next section:

αὐτό-σσ(υτος), αὐτο-σσ(ύτου)

ἄφ-, ἀφ-

- ά-φάν(εια), ά-φαν(ής)
 - ἀφ-ανδ(άνω)

The words $\alpha \vartheta \tau \delta \cdot \sigma \sigma (\vartheta \tau \sigma \varsigma)$ and $\alpha \vartheta \tau \sigma \cdot \sigma \sigma (\vartheta \tau \sigma \upsilon)$ constitute one entry. In both cases, the patterns themselves are given in straight characters: $\alpha \vartheta \tau \delta \cdot \sigma \sigma$ and $\alpha \vartheta \tau \sigma \cdot \sigma \sigma$. The slanted endings between parentheses are *just possible examples*, which justify the existence of these patterns. It is important that the reader realizes that *these examples are not unique* but just indicative. So only what is written in straight letters will appear as a pattern.

The entry $\check{\alpha}\varphi$ -, $\grave{\alpha}\varphi$ - is called a *rule*. Because of its frequency, the author has preferred not to give any example, and to present it "as a general rule". The symbol \blacklozenge introduces exceptions, and exceptions to exceptions. The difference is shown by indentation. In this case, $\grave{\alpha}$ - $\varphi \acute{\alpha} \lambda$ is an exception to $\grave{\alpha}\varphi$ -, and $\grave{\alpha}\varphi \acute{\alpha} \lambda \circ \upsilon$ (genitive case of $\check{\alpha}\varphi \alpha \lambda \circ \varsigma$) is an example of a word starting with this cluster. $\grave{\alpha}\varphi - \acute{\alpha} \lambda \lambda$ is an exception to $\grave{\alpha} - \varphi \acute{\alpha} \lambda$, and $\grave{\alpha}\varphi \acute{\alpha} \lambda \diamond \varphi \alpha \imath \delta$.

Let's take a look to the concrete realization of these patterns: since $\dot{\alpha}\varphi$ - is an exception to the fundamental hyphenation rules, the pattern can for example be $.\dot{\alpha}2\varphi 1$; the exception $\dot{\alpha}-\varphi\dot{\alpha}\lambda$ could be expressed as "if $\dot{\alpha}\varphi$ is followed by $\dot{\alpha}\lambda$, do not cut between φ and $\dot{\alpha}$, but do cut between $\dot{\alpha}$ and φ ". This leads us to the pattern $.\dot{\alpha}3\varphi 2\dot{\alpha}\lambda$. The reader can verify that the further exception $\dot{\alpha}\varphi$ - $\dot{\alpha}\lambda\lambda$ requires a pattern like $.\dot{\alpha}4\varphi 3\dot{\alpha}\lambda\lambda$.

In the next section, the complete list of patterns extracted from [Bai] is presented, in the format explained above.

5 Patterns for ancient Greek compound words

ἀγαπ-ήν(ωρ), ἀγαπ-ην(όρων) ἀγελ-άρ(χης), ἀγελ-αρ(χῶν) ἄγρ-υ(πνος), ἀγρ-ύ(πνου) ἀγχ-ώ(μαλος), ἀγχ-ω(μάλου) ἀγων-ά(ρχης), ἀγων-α(ρχῶν) αἰχμ-άλ(ωτος), αἰχμ-αλ(ώτου) ἀκρ-ών(υχος), ἀκρ-ων(ύχου) ἀκρ-ώρ(εια), ἀκρ-ωρ(είας) ἀλέξ-αν(δρος), ἀλεξ-άν(δρου), ἀλεξ-αν(δρινός) άμ-α(ξα), ἁμ-ά(ξης), ἁμ-α(ξ $\tilde{\omega}$ ν) ἀμβλ-ω(πὸς) άμπ-έχ (ω) , ἀμφ-έξ (ω) ἀμπ-ί(σχω), ἀμπ-ι(σχνέομαι) ἀμφ-αγ(απάζω) **ἀμφ-αρ(αβέω**) άμφ-έ $\pi(\omega)$ ἀμφέρχ(ομαι) ἀμφ-ή(χης), ἀμφ-η(χῶν) άμφ-ιάχ(ω) **ἀμφ-ιζά(νω**) ἀμφίσ-β(αινα), ἀμφισ-β(ατέω) άμφ-ίστ(ημι), άμφ-ιστ(ήσω) ♦ ἀμφί-στο (μος), ἀμφι-στό (μου) άμφ-ου(δις), άμφ-ού(δεως) άμφ-ωτ $(o\varsigma)$, άμφ-ώτ(ov), άμφ-ωτ $(l\varsigma)$ άν-αγνο(ς), άν-αγνε, ἀν-άγνο(υ), ἀν-άγνω ἀν-αγο(ρεύω) άν-άγω, άν-αγώ(γιον), άν-αγω(γή) ἀν-άδελ(φος), ἀν-αδέλ(φου) άν-αεί(ρω) άν-αθρέ(ω) åν-αι(μος), dν-αί(νομαι), dν-αt(σσω), dν-αι(μωτί) άν-άκαν(θος), άν-ακάν(θου), άν-ακαν(θίνου) ἀν-αχέο(μαι), ἀν-αχέε(σαι) ἀν-αχο(ῦμαι) $\dot{\alpha}v - \alpha \varkappa \omega \chi(\dot{\eta})$ ἀν-αλαλ(άζω) $dv - d\lambda \gamma (\eta \tau o \varsigma), dv - a\lambda \gamma (\eta \varsigma)$ $dv-\alpha\lambda\eta\theta(\eta\varsigma), dv-\alpha\lambda\eta\theta(\varsigma\varsigma)$ $\alpha v - \alpha \lambda i (\sigma x \omega)$ άν-αλχ(ις), ἀν-άλχ(ιδος), ἀν-αλχ(εία) ἀν-αλλ(οίωτος) åν-αλμ(ος), åν-άλμ(ου) $dv-\alpha\lambda\delta(\omega)$ ἀνα-λόγ(ως) άν-αλτ(ος), άν-άλτ(ου), άν-αλτ(έστερος) άν-άλω(τος), ἀν-αλώ(του) άν-αμάξ(ευτος), άν-αμαξ(εύτου) άν-αμάρ(τητος), άν-αμαρ(τήτου) άν-άμβ(ατος), άν-αμβ(άτου) ἀν-αμφ(ίλογος) άν-ανδ(ρος), ἀν-άνδ(ρου), ἀν-ανδ(ρία) άν-αντ(ίρρητος) $\tilde{\alpha} v - \alpha v \tau(\alpha), \ \dot{\alpha} v - \dot{\alpha} v \tau(\eta \varsigma)$

 $dv - d\xi_1(o_{\zeta}), dv - d\xi_1(o_U), dv - d\xi_1(o_{\zeta})$ άν-απλό(ω) άν-αποδε(ίχτως) άν-απόδρ(αστος), άν-αποδρ(άστου) άν-άποι(νος), άν-αποί(νου) άν-απόλα(υστος), άν-απολα(ύστου) άν-απόσ(τατος), άν-αποσ(τάτου) $\dot{\alpha}$ ν- $\dot{\alpha}$ πτ(ω), $\dot{\alpha}$ ν- $\dot{\alpha}$ ψ(ω) άν-αρ(θρος), άν-άρ(θρου), άν-αρ(ίθμητος) ἀν-άσκη(τος), ἀν-ασκή(του) $dv - \alpha \tau o(\varsigma), dv - \alpha \tau o(v), dv - \alpha \tau \omega(v)$ \blacklozenge $\dot{\alpha}\nu\alpha$ - $\tau o\lambda(\dot{\eta})$ άν-αυ(δος), άν-αύ(γητος), άν-αυ(γήτου) 🔶 ἄ-ναυς άν-αφρόδ(ιτος), άν-αφροδ(ίτου) ἀνδρ-άγ(ρια), ἀνδρ-αγ(αθέω) ἀνδρ-αχ(θής) ἀνδρ-είχ (ελος), ἀνδρ-ειχ (έλου) ἀνδρ-ηλ(άτης) **ἄν-ε**, **ἀν-έ**, **ἀν-ε** 🔶 ἆ-νευ ά-νέφε(λος), ά-νεφέ(λου) ♦ ἀ-νεψ(ιὰ) ắv-ŋ, ảv-ή, ảv-ñ, ảv-ŋ ά-νήρ, ά-νήρ άνθ- ἄν-θεμ(ον), ἀν-θέμ(ιον), ἀν-θεμ(ίζομαι) • $dv - \theta \epsilon \omega$, $dv - \theta \epsilon \epsilon (\iota \varsigma)$, $dv - \theta \epsilon \delta (\mu \epsilon v)$ ἀν-θῶ(μεν), ἀν-θεῖ(τε), ἀν-θοῦ(σι) ἀν-θήσ(εως), ἀν-θηρ(ὸς) ἀν-θί(ζω), ἀν-θι(νὸς) ἀνθό-(χροχος), ἀνθο-(χρόχου) ἀνθ-ομ(ολογοῦμαι) ἀνθ-οπ(λίζω)
 ἀνθ-οσ(μία)
 ἀν-θρ(αχεύς) άν-ι, άν-ί, άν-ι ἀ-νίκη(τος), ἀ-νική(του) \blacklozenge ά-νιπτό(πους) • \tilde{a} -vi $\pi(\tau o \varsigma)$, \dot{a} -vi $\pi \tau o(v)$, \dot{a} -vi $\pi \tau \omega(v)$ ắv-o, ảv-ó, ảv-o ά-νόη(τος), ά-νοή(του) ♦ ἄ-νοο(ς), ἀ-νόο(υ) ♦ ἄ-νοσ(ος), ἀ-νόσ(ου) ἀν-όσι(ος), ἀν-οσί(ου) ♦ ἀ-νουθ(έτητος) άντ-ά, άντ-α άντ-έ, άντ-ε άν-τείν(ω) άντ-ή, άντ-η ἀντ-ισό(ω) ἀντ-ισχ(υρίζομαι) åντ-0, åντ-υ, άντ-ω ắν-υ, ἀν-ύ, ἀν-υ

α-νυμφ(ος), α-νύμφ(ευτος), α-νυμφ(εύτου)

Φ α⁻νύω, α⁻νύο(υν), α⁻νύε(ις) άν-ώ. άν-ω \blacklozenge $\dot{\alpha}\nu\omega$ - $\varphi\epsilon\rho(\dot{\eta}\varsigma)$ ἀπ-ά, ἀπ-α • $\dot{\alpha}$ - $\pi\alpha\gamma\dot{\eta}(\varsigma)$, $\dot{\alpha}$ - $\pi\alpha\gamma\dot{\eta}(\varsigma)$, $\dot{\alpha}$ - $\pi\alpha\gamma\sigma(\tilde{\upsilon}\varsigma)$, $\dot{\alpha}$ - $\pi\alpha\gamma\omega(\nu)$ ά-παγέ(ς), ά-παγὲ(ς), ά-παγε(ῖ), ά-παγῆ

 ^φ -πάθ(εια), ^φ -παθ(είας)
 ^φ
 ἀ-πάλα(μνος), ἀ-παλά(μνου) ά-πάρ(θενος), ά-παρ(θένου) ἀπ-αρί(θμητος), ἀπ-αρι(θμέω)
 ^φ ⁻πάτω(ρ), ^φ ⁻πάτο(ρος)
 ^φ
 ^φ $\dot{\alpha}\pi$ -έδο(μαι), $\dot{\alpha}\pi$ -εδό(μεθα), $\dot{\alpha}\pi$ -έδε(ισθε) $lpha \pi$ -e $\theta i (\zeta \omega)$ ἀπ-ειχ(άζω) $\dot{\alpha}\pi$ -είλ(ημα), $\dot{\alpha}\pi$ -ειλ(έω) ἄπ-ει ά-πειρ(ος) $\dot{\alpha}\pi$ -εί $\pi(o\mu\epsilon\nu)$, $\dot{\alpha}\pi$ -εĩ $(\pi o\nu)$ $\dot{\alpha}\pi$ -είρ $\gamma(\omega)$, $\dot{\alpha}\pi$ -ειρ $\gamma(\dot{\alpha}\theta\omega)$ ἀπ-έκ(δυνον), ἀπ-εκ(δύνω) ἀπ-έλ(αυνον), ἀπ-ελ(αύνω)
 à-πέλε(θρος)
 $\dot{\alpha}\pi$ - $\dot{\epsilon}\mu(\epsilon\sigma\sigma\alpha), \dot{\alpha}\pi$ - $\epsilon\mu(\dot{\epsilon}\omega)$ άπ-έν (επον), άπ-εν (έπω) ♦ α-πένθ(ητος), α-πενθ(ής) ἀπ-έο(ιχα) **ἀπ-έρασ(ις)**, ἀπ-εράσ(εως) ἀπ-έργ(ω), ἀπ-εργ(άζομαι) $d\pi - \epsilon \rho \delta(\omega)$ άπερ-εί, άπερ-εί **ἀπ-ερε**(ίδω) $\dot{\alpha}$ π-ερύ($x\omega$), $\dot{\alpha}$ π-ερυ(θ ριά ω) ἀπ-έρχ(ομαι), ἀπ-ερχ(όμεθα) ἀπ-έρω(τος), ἀπ-ερώ(του), ἀπ-ερω(έω) åπ-εσθ(έοµαι) **ἀπ-ευθύ(νω**) ἀπ-ευν(άζω) ἀπ-εύχ(ομαι), ἀπ-ευχ(όμεθα) **ἀπ-ευω(νίζω)** άπ-εφ $(\theta o \varsigma)$, άπ-έφ $(\theta o \upsilon)$, άπ-εφ $(\theta \epsilon \sigma \tau \epsilon \rho o \varsigma)$ ἀπ-έχ(θομαι), ἀπ-εχ(θαίρω) ἀπ-ήγ(γελον) ἀπ-ηλ(εγέως) ἀπ-ήω(ρος), ἀπ-ηώ(ρου) $\dot{\alpha}\pi$ -i $\dot{\alpha}(\lambda\lambda\omega)$ **ἀ**π-ιπ(πόω) $d\pi$ -is($\delta\omega$) ἀπ-ίστ(ημι) ἀπ-ίσχ(ω), ἀπ-ισχ(υρίζομαι) άπ-οιχ(ος), ἀπ-οίχ(ου), ἀπ-οιχ(έω) ἀπ-οιμ(ώζω) $d\pi$ -όλλυ($\mu\iota$), $d\pi$ -ολλύ(ω)

άπ-ολοφ(ύρομαι) ἀπ-ομόρ(γνυμι) $d\pi$ -oviv($\eta\mu\iota$) ἀπ-ονυχ(ίζω) åπ-οξύν(ω) ăπ-οπτ(ος), ἀπ-όπτ(ου) ἀπό-πτολ(ις) $\dot{\alpha}\pi$ -op, $\dot{\alpha}\pi$ -óp, $\dot{\alpha}\pi$ -op ἀ-πόρθ(ητος), ἀ-πορθ(ήτου) ♦ ἀπό-ρρ(ευσις), ἀπό-ρ(ῥευσις), ἀπο-ρρ(αθυμέω), ἀπο-ὀ(ῥαθυμέω) ά-πόρφυ(ρος), ά-πορφύ(ρου) ἀπ-οσιό(ομαι), ἀπ-οσιο(ῦμαι) ἄπ-ου, ἀπ-ού, ἀπ-ου 🔶 ἄ-πους, ἄ-που ἀπ-οχετ(εύω) $d\pi$ -οχυρ(όω) ǎ π-oψι(ς), & π-óψε(ως) $d \pi - \omega (\delta \epsilon \omega)$ ἀργυρ-ώ(νητος), ἀργυρ-ω(νήτου) άρμ-άμ(αξα), ἁρμ-αμ(άξης) άρχ-ηγέτ $(\eta\varsigma)$, άρχ-ηγετ $(\tilde{\omega}\nu)$ $dp\chi-\eta\gamma\delta(\varsigma), dp\chi-\eta\gamma\delta(\varsigma), dp\chi-\eta\gamma\delta(\tilde{u})$ ἀρχ-ηγέ, ἀρχ-ηγὲ, ἀρχ-ηγῶ(ν) ἀρχ-ιε(ρεὺς) ά-στεργ-άν(ωρ), ά-στεργ-αν(όρων) αύθ- αὐθι-(γενής) **αὔτ-**, αὐτ-🔶 αὐτί-χα ♦ αὐτό-(βουλος), αὐτο-(βοεί) αὐτ-όπτ(ης) αὐτ-όρο (φος), αὐτ-ορό (φου) αὐτό-σσ(υτος), αὐτο-σσ(ύτου) ắφ-, ἀφ-
 ^{*} α-φαλ(ος), α-φάλ(ου)
 ♦ ἀφ-άλλ(ομαι) ἀ-φάν(εια), ἀ-φαν(ής) ἀφ-ανδ(άνω) ἄ-φαρ, ἀ-φάρ(μαχτος), ἀ-φαρ(μάχτου) ἀφ-αρπ(άζω)
 ^{*} ⁴-φατ(ος), ^{*} ⁴-φάτ(ου)
 ἄ-φε(ρτος), ἀ-φέ(ρτου), ἀ-φε(γγής) ἀφ-εί(ργω) ἀφ-έλ(χω) α

 φθ(ιτος), α

 φθ(ίτου)

 ♦ α⁻φίλ(ως), α⁻φιλ(όχαλος) ἄ-φλ(οιος), ἀ-φλ(έγμαντος) • $\mathring{\alpha}$ - $\varphi \circ \beta(o \zeta)$, $\mathring{\alpha}$ - $\varphi \circ \beta(\eta \tau o \zeta)$, $\mathring{\alpha}$ - $\varphi \circ \beta(\eta \tau o \upsilon)$ ἀ-φόρ(ητος), ἀ-φορ(ήτου) • ά-φορο (ς) , ά-φόρο (υ) , ά-φόρω (υ) ἄ-φρ(ουρος), ἀ-φρ(άσμων) ἄ-φυ(χτος), ἀ-φύ(λαχτος), ἀ-φυ(ής) άφ-υβ(ρίζω) ♦ ἀφ-υπ(νίζω) $å\psi$ -ορρ(ος), $\dot{a}\psi$ -ορ($\dot{\rho}$ ος), $\dot{a}\psi$ -όρρ($o\upsilon$), $\dot{a}\psi$ -όρ($\dot{\rho}$ ου) ♦ ἀψό-ρροο(ς), ἀψό-ρροε, ἀψο-ρρό(ου) ἀψό-ἐρόοο(ς), ἀψό-ἐρόοε, ἀψο-ἐρό(ου) βαλαν-ά(γρα), βαλαν-α(γρῶν)

462

TUGboat, Volume 13 (1992), No. 4

βαλλ-α(χράδαι) βητ-ά(ρμων), βητ-α(ρμώνων) βλοσυρ- $\omega(\pi i \delta o \zeta)$, βλοσυρ- $\tilde{\omega}(\pi i \zeta)$, βλοσυρ- $\omega(\pi i \delta \omega v)$ βοιωτ-ά(ρχης), βοιωτ-α(ρχία) βόσ-π(ορος), βοσ-π(όρου) βούλ-α(ρχος), βουλ-ά(ρχου) γαμψ-(ῶνυξ) γεροντ-αγ (ωγέω) γιγαντ-ολ(έτης) γλαυχ-ώ $\pi(i\delta o \zeta)$, γλαυχ- $\tilde{\omega}\pi(i \zeta)$, γλαυχ- $\omega\pi(\dot{o} \zeta)$ γονυχαμψ-επ(ίχυρτος) γονυχαλυσ-ά(γρυπνα) γοργ-ώ(πιδος), γοργ- $\tilde{\omega}(\pi i \varsigma)$, γοργ- $\omega(\pi \delta \varsigma)$ δεισ-ή $(v\omega \rho)$, δεισ-η $(v \delta \rho \omega v)$ δευτερ-αγ(ωνιστής) δεχ-ή(μερος), δεχ-η(μέρου) δημ-αγ(ωγός) δήμ-αρ(χος), δημ-άρ(χου), δημ-αρ(χικός) δημ-ωφ(ελής) δισ-θ(ανής) δισσ-ά(ρχαι), δισσ-α(ρχῶν) δισ-ύπ (ατος), δισ-υπ (άτου) δισ-χ(ίλιοι) δουρ-η(νεχής) δύσ-, δυσ- δύ-σις, δύ-σε(ως), δύ-σιν δωδεχάδ-αρ(χος), δωδεχαδ-άρ(χου) δωδέχ-αρ(χος), δωδεχ-άρ(χου), δωδεχ-έ(της) εἰχόσ-ο(ρος), εἰχοσ-ό(ρου) είλ-άρ $(\chi\eta\varsigma)$, είλ-αρ $(\chi\widetilde{\omega}\nu)$ ະໂσ-, ະໄσ-🔶 εἶ-σω έχ-εχ(ειρία) έλίχ- $\omega(\phi)$, έλιχ- $\omega(\pi i \delta o \zeta)$, έλιχ- $\widetilde{\omega}(\pi i \zeta)$, έλιχ- $\omega(\pi i \delta \phi)$ ἕν-, έν-♦ ἐντεῦθ(εν), ἐντευθ(εν`) \blacklozenge ἐνταῦθ(α), ἐνταυθ(οῖ) έξἔπ-, ἐπ-• ξ - $\pi\alpha\theta\sigma(\nu)$, ξ - $\pi\alpha\theta\alpha(\zeta)$, ξ - $\pi\alpha\theta\epsilon(\zeta)$ ἐ-πάθο(μεν), ἐ)πάθα(τε) ♦ ἔπι-, ἐπί-, ἐπι- ἐπ-ιάλλ(ω) ἐπ-ιαύ(ω) ἐπ-ιάχ(ω) ἐπ-ίη(μι) ἐπ-ιθύν(ω) ♦ ἐπ-ιλλ(ίζω) ἐπ-ίσταμ(αι), ἐπ-ίστασ(αι), ἐπ-ίστατ(αι) ἐπ-ιστάμ(εθα), ἐπ-ίσταν(ται) ἐπ-ίστι(ος), ἐπ-ιστί(ου) \blacklozenge ἐπ-ιωγ(η) ἑρμ-αφ(ρόδιτος) έρ-ράπ(τω) ἕρ-ρυθ($\mu o \zeta$), ἔρ-ρύθ($\mu o \upsilon$) έρυσ-άρ(ματος), έρυσ-αρ(μάτου) έσἑτερ- $\alpha(\lambda x \eta \varsigma)$ έτερ-ή(μερος)

έτερ-όφθ(αλμος), έτερ-οφθ(άλμου) ἔφ-, ἐφζευγ-η(λάτης) ňν-οψ, ňν-οπ(ος) θέσ-φ(ατος), θεσ-φ(άτου) θιασ-ά(ρχης) θυμ-α(λγής) θυμ-η(δής) θυοσ-χό(ος) θυρ-επ(ανοίχτης) ίερ-ών (υμος), ίερ-ων (ύμου) ίμαντ-ελ(ίκτης) ίππ-αγ(ρέτης) ίππ-αλ(εχτρύων) ἵππ-αρ(χος), ἱππ-άρ(χης), ἱππ-αρ(μοστὴς) ίππ-ερ(αστὴς) ίππ-ήλ(ατος), ίππ-ηλ(άτης) ίππ-ημ(ολγός) ῗππ-ου(ρις), ἱππ-ού(ριδος) ίσ-ά(νεμος), ίσ-α(νέμου) iσ-ή(λ ιχος), iσ-η(λ ιξ), iσ-η(μ ερία) $i\sigma$ -óve $(i\rho o \zeta)$, $i\sigma$ -ove $(i\rho o \upsilon)$ ἶσχ-αι(μος); ἰσχ-αί(μου) χαθκακ-άγ(γελος), κακ-αγ(γέλου) κακ-αν(δρία) καρ-ρέ(ζουσα), καρ-ρε(ζούσης) χατ-αγγ(έλω) χατ-αγί(ζω), χατ-αγι(νέω) κατ-άγν(υμι), κατ-αγν(ύω) κατα-γνυπ(όω) χατ-αγο(ρεύω) κατ-άγω, κατ-άγε(ις), κατ-άγο(μεν) xat-a $\gamma \omega(\gamma \dot{\eta})$ χατ-ά(δω) κατ-αθυμ(έω) ♦ κατα-θυμί(ου) χατ-αι χατ-αχον(τίζω) κατ-ακού(ω) κατ-άκρας χατ-αλείφ(ω) κατ-αλέω, κατ-αλέε $(\iota \varsigma)$, κατ-αλέο $(\mu \epsilon \nu)$ χατ-αλλ(άσσω) χατ-αλοά(ω) κατ-αμά(ομαι), κατ-αμώ(μεθα), κατ-αμῶ(μαι), κατ-αμε(ισαι) χατ-αμελ(έω) κατ-αμπ(έγω) κατ-αμύν(ομαι), κατ-αμυν(όμεθα) κατ-αμύσ(σω), κατ-αμυσ(σόμεθα) κατ-αμύτ(τω), κατ-αμυτ(τόμεθα) κατ-αναλ(ίσκω) κατ-ανασκ(ύλλω) κατ-ανθ(ρακόω) χατ-άν, χατ-αν κατα-νω(τίζομαι) xατ-άξι (o_{ζ}) , xατ-αξί (o_{U}) **κατ-απειλ**(έω)

κατ-άπτομ(αι) χατ-άρ, χατ-αρ ♦ χατα-ριγ(ηλός) 🔶 κατά-ρρ, κατα-ρρ χατ-ασβ(έννυμι) κατ-ασθ(μαίνω) κατ-ασκέ (ω) , κατ-ασκ $\tilde{\omega}$, κατ-ασκε $\tilde{i}(\zeta)$, κατ-ασκο $(\tilde{\nu}\nu)$ χατ-ασπάζ(ομαι) χατ-αστερ(ίζω) χατ-αυ κατ-εγγ(υάω) χατ-έδ(ω) κατέ-δρ(αθον) χατ-εί(βω), χατ-ει(χάζω) $x\alpha\tau-\epsilon i(\pi\alpha)$ ♦ χα-τεῖδ(ον), χα-τεῖναι χατ-ελ(αύνω) χατ-εμ(έω) κατ-εν(αίρω) κατ-εξ(ανίσταμαι) χατ-επ(αγγέλλομαι) χατ-ερ(γάζομαι) χατ-εσ(θίω) κατ-ευ(ημερεύω) χατ-εφ(άλλομαι) χατ-έχ(ω) χατ-ή, χατ-η χατ-ί, χατ-ι χάτ-ο, χατ-ό, χατ-ο χατ-ύ, χατ-υ χατ-ωμ(άδιος) χατ-ωχ(ριάω) καχ-ε(ξία) χεν-α(γής) κεντρ-ην(εκής) χέρχ-ου(ρος) χερ-οί(αξ), χερ-οι(άχων) χεφαλ-αλ(γός) χεφαλ-ηγ(ερέτης) κλασ-αυ(χενεύομαι) χοιλ-ω $\pi(\dot{o}\varsigma)$ χορυθ-ά $(i\xi)$, χορυθ-α $(i \times \omega v)$ χυαν-ώ(πιδος), χυαν- $\tilde{\omega}(\pi i \varsigma)$ κύκλ-ω ϕ , κύκλ-ω $\pi(o\varsigma)$, κυκλ-ώ $\pi(\omega v)$ χυν-αλ(ώπηξ) xυν-όδ(ους), xυν-οδ(όντων) χυν-ώ $\pi(\eta_{\zeta})$, χυν- $\tilde{\omega}\pi(\iota_{\zeta})$, χυν- $\omega\pi(i\delta\omega\nu)$ χωλ-α(χρέτης) κωμ-άρ(χης), κωμ-αρ(χίου) χωμ-ω(δός) χωμ-ηλ(άτης) κωπ-ήρ(ης) λαβρ-α(γόρης) λευχ-ανθ(ής) λεύκ-ασ(πις), λευκ-άσ(πιδος), λευκ-ασ(πίδων) λευκ-ή(ρετμος), λευκ-η(ρέτμου) λεύχ-ι $(\pi\pi o \varsigma)$, λευχ-ί $(\pi\pi o \upsilon)$ λευχ-ώ(λενος), λευχ-ω(λένου) λευχ-ε(ιμονέω)

λοχ-αγ(ὸς) λυχ-αυ(γής) λυχ-ου(ρία) λύσ-αν(δρος), λυσ-άν(δρου) μαχρ-αί(ων), μαχρ-αι(ώνων) μαχρ-η(γορέω) μεγάλ-α(υχος), μεγαλ-ά(διχος), μεγαλ-α(δίχου) μεγαλ-ή(τωρ), μεγαλ-η(γόρος) μεγαλ-ώ(νυμος), μεγαλ-ω(νύμου) μεγ-αυ(χής) μέθ-, μεθ-♦ μέ-θυ, με-θύ(ω), με-θυ(μναῖος) μεθ-ύστ(ερος), μεθ-υστ(έρου) μελάν-α(ιγις), μελαν-α(ίγιδος) μελαν-ε(ίμων) μελαν-ύ(δρος) μελ-ω(δός) μεσ-άγ(χυλον), μεσ-αγ(χύλου) μέσ-αχ(τος), μεσ-άχ(του) μέσ-αυ(λος), μεσ-αύ(λου) μεσ-εγ(γυάω) μεσ-ημ(βρία) μεσ-ή(ρης), μεσ-ῆ(ρες) $\mu \varepsilon \sigma - i \delta(i \circ \varsigma), \mu \varepsilon \sigma - i \delta(i \circ \upsilon)$ μεσό-δμ (η) , μεσο-δμ $(\tilde{\omega} v)$ μέσσ-αυ(λος), μεσσ-αύ(λου) μεσσ-ή(ρης), μεσσ-ῆ(ρες) μετ-άγγ(ελος), μετ-αγγ(έλου) μετ-άγω, μετ-άγε(ις), μετ-άγο(μεν) $\mu \epsilon \tau - \alpha i (\rho \omega), \mu \epsilon \tau - \alpha i (\sigma \sigma \omega), \mu \epsilon \tau - \alpha i (\tau \epsilon \omega)$ μετ-αλλά(σσω) μετ-αμπ(έχω) μετ-αμύ(νω) μετ-αμφ(ιάζω) μετ-αμώ(νιος), μετ-αμω(νίου) $\mu \epsilon \tau - \alpha v (\sigma \tau (\eta \mu_l))$ μετ-αῦ(θις), μετ-αυ(δάω) μέτ-ε, μετ-έ, μετ-ε μετ-ί(στημι) μέτ-ο, μετ-ό, μετ-ο μέτ-ω, μετ-ώ, μετ-ω $\mu\eta\delta - \alpha(\mu\dot{\alpha})$ μηδ-έτ(ερος), μηδ-ετ(έρου) $\mu\eta\theta$ -($\epsilon i\zeta$) μήλ-ωψ, μήλ-οπ $(o\varsigma)$, μηλ-όπ (ωv) μητρ-α(γύρτης) μιχρ-α(διχητής) $\mu\mu-\omega(\delta\delta\varsigma)$ μιξ-α(ρχαγέτας) μισ-ά(δελφος), μισ-α(δέλφου) μισγ-ά(γγεια), μισγ-α(γγείας) μισ-έλ (λην), μισ-ελ (λήνων) μογισ-αψ-ε(δάφα) μοιχ-άγ(ρια), μοιχ-αγ(ρίας) μον-άμ(πυξ), μον-αμ(πύχων) $\mu \dot{o} \nu - \alpha \rho(\chi o \varsigma), \mu o \nu - \dot{\alpha} \rho(\chi o \upsilon), \mu o \nu - \alpha \rho(\chi \iota \varkappa \dot{o} \varsigma)$ μον-αυ(λέω) μον-ήμ(ερος), μον-ημ(έρου) $\mu ov - \eta \rho(\eta \varsigma), \mu ov - \eta \rho(\epsilon \varsigma)$

464

TUGboat, Volume 13 (1992), No. 4

μόν-ι $\pi(\pi o \varsigma)$, μον-ί $\pi(\pi o \upsilon)$ μον-όδ(ους), μον-οδ(όντων) μον-ω(δέω) μον-ώψ, μον-ώψ, μον-ῶ $\pi(o\varsigma)$, μον-ώ $\pi(\omega v)$ μυθ-ίαμ(βος), μυθ-ιάμ(βου) μυρ-αλ(οιφία) μυρ-ε $(\psi \delta \varsigma)$ μυστ-αγ(ωγέω) νεχρ-άγ(γελτος), νεχρ-αγ(γέλτου) νεφελ-ηγ(ερέτης) νεχρ-αχ(αδημία) νουν-εχ (όντως) νυκτ-εγ(ερτέω) νυχτ-ηγ(ορέω) νυχτ-ηρ(εφής) νυχτ-ού(ρων), νυχτ-οῦ(ρος) ξεν-αγ(ωγός) ξεν-απ(άτης) ξεν-ηλ(ατέω) $\delta\delta - \eta(\gamma \delta \varsigma)$ δθ-ού(νεκα), δθ-ού(νεκα) οίχ-ουρ(ός) οίχ-ωφ(ελία) οἰν-άνθ (η) , οἰν-ανθ $(\tilde{\omega} v)$ οίν-ερ(αστής) olu-of, olu-o $\pi(o\varsigma)$, olu-o $\pi(\omega v)$ οίον-εί, οίον-εί οίόσ-περ, οίόσ-τε όχταχισ-(γίλιοι) $\dot{\partial}x\tau - \dot{\eta}\rho(\eta\varsigma), \dot{\partial}x\tau - \ddot{\eta}\rho(\epsilon\varsigma)$ όκτωκαιδεκ-έ(της) όλιγ-αν(δρία) όλιγ-άρ(χης), όλιγ-αρ(ιστία) όλιγ-ότε(ρος), όλιγ-οτέ(ρου) $\partial \lambda$ ίγ-ωρ(ος), $\partial \lambda$ ιγ-ώρ(ου) δμ-αι(μος), δμ-αί(μου) όμ-άλ(ιχος), όμ- $\tilde{\alpha}$ λ(ιξ) ὄμ-αυ(λος), ὁμ-αύ(λου) δμ-ευ(νος), δμ-εύ(νου), δμ-ευ(νέτης) ὄμ-η(ρος), ὅμ-ή(ρου), ὅμ-η(γερής) $\delta\mu$ -ι($\lambda o \varsigma$), $\delta\mu$ -ί($\lambda o \upsilon$), $\delta\mu$ -ι($\lambda i \alpha$) δμ-o(ρoς), δμ-όρ(ou), δμ-op(όφιος)δμ-ών(υμος), δμ-ων(ύμου) δμ-ώρ(οφος), δμ-ωρ(όφιος) ὀν-ηλ(άτης) $\delta\xi - \alpha \lambda(\mu \eta)$ δπωσ-οῦν, δπωσ-τι(οῦν) δρχ-ωμό(σιον), δρχ-ωμο(σίου) δσ-ημ(έραι) ὄσ-τε δσ-τις δτ-αν ούδ-οπωσ-τι (οῦν), ούδ-οσ (τισοῦν) ούθ-αμ(ῶς) οὔχ-(ουν), οὐχ-(οῦν) ♦ οὖ-ϰω(ν) όψ-ώ(νιον), όψ-ω(νίου) παιδ-ολ(έτειρα)

παλαί-χθ(ων), παλαι-χθ(ώνων) παλίν-, παλινπαλ-ίω(ξις), παλ-ιώ(ξεως) πάν-, παν- πα-νός, πα-νός, πα-νί, πα-νί, πά-να 🔶 πά-νυ παρ-ά $\gamma(\omega)$, παρ-α $\gamma(\gamma \epsilon \lambda \lambda \omega)$ παρα-γε(ύω) παρα-γη(ράω) παρα-γί(γνομαι), παρα-γι(γνόμεθα) παρά-γρ(αμμα), παρα-γρ(αφή) ♦ παρα-γυ(μνόω) παρ-αε(ίδω) παρ-αί(σιος), παρ-αϊ(σσω), παρ-αι(νέω), παρ-αϊ(σσόμεθα) παρ-αχμ(άζω) παρ-ακολ(ουθέω) παρ-αχον(άω) παρ-άκο(υσμα), παρ-ακο(ύω) πάρ-αλ (o_{ζ}) , παρ-άλ (o_{U}) , παρ-αλ (i_{α}) ♦ παρα-λά(μπω), παρα-λα(μβάνω) παρα-λέγ(ω) παρά-λει(ψις), παρα-λεί(πω), παρα-λει(πτέον) \bullet παρ-αλείφ(ω) παρά-λιμ(νος), παρα-λίμ(νου) παρά-λογ(ος), παρα-λόγ(ου), παρα-λογ(ίζομαι) παρά-λυ(σις), παρα-λύ(σεως), παρα-λυ(πέω) παρ-αμα(ρτάνω) παρ-αμβ(λύνω) $\pi \alpha \rho - \alpha \mu \epsilon (l \beta \omega)$ ♦ παρα-μέν(ω) παρα-μετ(ρέω) παρ-αμπ(έγω) παρ-ανα(γιγνώσχω) παρα-ναι(ετάω) παρ-ανί(ημι), παρ-ανι(σχόμεθα) παρα-νικ(άω) $\pi \alpha \rho - \alpha v o i \gamma(\omega)$ πάρ-αντα παρ-άο(ρος), παρ-αό(ρου) παρ-απατ(άω) παρ-απαφ(ίσχω) παρ-άπτ(ω) παρ-άρ(θρησις), παρ-αρ(θρήσεως) παρά-ρρ(υμα), παρα-ρρ(ύματος) πάρ-αυ(λo_{ζ}), παρ-αύ(λo_{U}), παρ-αυ($\delta \dot{\alpha} \omega$) πάρ-ε(δρος), παρ-έ(δρου), παρ-ε(γγράπτου) ♦ πα-ρέω, πα-ρέε(ις) πάρ-η(μαι), παρ-ή(γορος), παρ- $\tilde{\eta}(\lambda \iota \xi)$, παρ-η(βάω) πάρ-ι($\sigma o \varsigma$), παρ-ί($\sigma o \upsilon$), παρ-ι($\pi \pi \varepsilon \upsilon \omega$) πάρ- $o(\delta o \varsigma)$, παρ- $o(\delta o \upsilon)$, παρ- $o(\delta \varepsilon \upsilon \omega)$ 🔶 πά-ρος πα-ρόν(τος) παρ-ρη(σία) παρ-ύ(φαινον), παρ-υ(φαίνω) πάρ-ω(χρος), παρ-ώ(χρου), παρ-ω(νυμία) 🔶 πα-ρών, πα-ρὼν πατρ-άγ(αθος), πατρ-αγ(αθία) $\pi \alpha \tau p - \alpha \lambda(o i \alpha \varsigma)$ πατρ-ωνύ(μιος), πατρ-ωνυ(μίου)

παυσ-άνε(μος), παυσ-ανέ(μου) πεδ-αί(χμιος), πεδ-αι(χμίου) πεδ-άο(ρος), πεδ-αό(ρου) πεδ-άρ(σιος), πεδ-αρ(σίου) πέζ-αρ $(\chi o \zeta)$, πεζ-άρ $(\chi o \upsilon)$ πεζ-έτ(αιρος), πεζ-ετ(αίρου) $\pi \epsilon \iota \theta - \dot{\alpha} (\nu \omega \rho), \pi \epsilon \iota \theta - \alpha (\nu \dot{\alpha} \gamma \varkappa \eta)$ πειθ-ή(νιος), πειθ-η(νίου) πέλ-οψ, πελ-όπ(ειος), πελ-οπ(όννησος) πεμπάδ-α(ρχος), πεμπαδ-ά(ρχου) πεμπ-ώ(βολον), πεμπ-ω(βόλου) πενθ-ήμε(ρος), πενθ-ημέ(ρου), πενθ-ημε(ρία) πενθ-ημι(ποδιαΐος) πέντ- $\alpha\theta(\lambda o \nu)$, πεντ- $\dot{\alpha}\theta(\lambda o \nu)$ πεντ-ήρ $(\eta \zeta)$, πεντ-ῆρ $(\epsilon \zeta)$ πλεον-έ(χτημα), πλεον-ε(χτέω) πλήξ-ιπ(πος), πληξ-ίπ(που)πλησ-ίσ(τιος), πλησ-ισ(τίου) πλουθ-υ(γίεια) πλούτ-αρ(χος), πλουτ-άρ(χου) ποδ-αβ(ρός) $\pi \circ \delta - \alpha \gamma (\rho \alpha), \pi \circ \delta - \alpha \gamma (\rho \widetilde{\omega})$ ποδ-έν (δυτος), ποδ-εν (δύτου) $\pi \circ \delta - \eta \rho(\eta \varsigma), \pi \circ \delta - \eta \rho(\epsilon \varsigma), \pi \circ \delta - \eta \gamma(\delta \varsigma)$ ποιμ-ά(νωρ), ποιμ-α(νώρων) ποσσ-ή(μαρος), ποσσ-ῆ(μαρ), ποσσ-η(μάρων) πρόσ-, προσπρο-σταυ(ρόω) προ-στέλλ(ω) ♦ προ-στέν(ω), προ-στεν(άζω) πρό-στερν(ος), προ-στέρν(ου), προ-στερν(ίδιον) ♦ πρό-στω(ον), προ-στώ(ου), προ-στῶ(ον) προ-συ(γγίγνομαι) προσ-υπ(ερβάλλω) πρό-σφαγ(μα), προ-σφάγ(ματος) $\pi \rho \omega \theta - \dot{\eta} (\beta \eta)$ πρωτ-αγ (ωνιστής) πυγ-άρ(γος) πυθ-αγ(όρας) πυλ-αγ(όρος) πυλ-άρ(της), πυλ-αρ(των) $\pi \upsilon \lambda - \omega \rho(\partial \varsigma)$ πυρ-άγ(ρα), πυρ-αγ(ρῶν) πυρ-αχ(τέω) ραψ-ω(δός) ρίψ-ασ(πις), ριψ-άσ(πιδος) $\dot{\rho}$ ίψ-οπ(λος), $\dot{\rho}$ ιψ-όπ(λου) σιτ-αγ(ωγός) σκληρ-α(γωγέω) σχυθρ-ω $\pi(\delta \zeta)$ σπεύσ-ιπ(πος), σπευσ-ίπ(που)σπονδ-αρ(γία) στέγ-αρ(χος), στεγ-άρ(χου) στεροπ-ηγ(ερέτης) στρατ-ηγ(ός) στρατ-ηλ(άτης) σύν-, συνσωμ-ασ(χέω)

τέθρ-ιπ(πος), τεθρ-ίπ(που), τεθρ-ιπ(ποβάτης) τειχ-ή(ρης), τειχ- $\tilde{\eta}(\rho\epsilon\varsigma)$ τεχν-ολ(έτειρα) τερψί-μ(βροτος), τερψι-μ(βρότου) τεσσαρεσ-(καίδεκα), τεσσερεσ-(καίδεκα) τετρ-άρχ $(\eta \varsigma)$, τετρ-αρχ $(\tilde{\omega} v)$ τετρ-ήρ $(\eta \varsigma)$, τετρ-ῆρ $(\epsilon \varsigma)$ τετρ-ώρο $(\varphi o \zeta)$, τετρ-ωρό $(\varphi o \upsilon)$ $\tau\eta\lambda$ -oup($\delta\varsigma$) τηλ- $\omega \pi (\partial \zeta)$ την-άλ(λως) $\tau_{\mu} - \alpha \lambda \varphi(\dot{\eta}_{\zeta})$ $\tau o(\gamma - \omega \rho(\dot{\upsilon} \gamma o \zeta))$ τόξ-αρ(χος), τοξ-άρ(χου) $\tau o \xi - \dot{\eta}(\rho \eta \varsigma), \ \tau o \xi - \tilde{\eta}(\rho \epsilon \varsigma)$ τραγ-έλ(αφος), τραγ-ελ(άφου) τραγ-ψ(δὸς) τραπ-έμπ(αλιν) τρεις-χαί(δεχα) τρισ-άθ(λ ιος), τρισ-αθ(λ ίου) τρισ-άρ(ιθμος), τρισ-αρ(ίθμου) τρισ-άσ (μενος), τρισ-ασ (μένου) τρισ-έ(ωλος), τρισ-ε(υδαίμων) τρισ-μα(χάριος) τρισ-μύ(ριοι), τρισ-μυ(ρίων) τρισ-χ(ίλιοι) τροχ-ήλ(ατος), τροχ-ηλ(άτης) τυνβ- $\alpha(i\lambda\eta\varsigma)$, τυμβ- $\dot{\eta}(\rho\eta\varsigma)$, τυμβ- $\ddot{\eta}(\rho\epsilon\varsigma)$, τυμβ- $\omega(\rho i\chi o\varsigma)$ ύμν-ω(δία) υπ-α(ιθρος), υπ-ά(γω), υπ-α(γορεύω) 🔶 ὕ-παιθα, ὑ-παί, ὑ-παὶ 🔶 ὕ-παρ υπ-ε($i\mu\iota$), υπ-έ($\gamma\gamma$ υος), υπ-ε(γ είρω) 🔶 ὑ-πείρ, ὑ-πεἰρ ὕπερ-, ὑπέρ-, ὑπερ- ὑπ-ερεθ(ίζω) ♦ ὑπ-ερεί(δω) ὑπερή-φα(νος), ὑπερη-φά(νου), ὑπερη-φα(νία) • ὑπ-έρυθ(ρος), ὑπ-ερύθ(ρου), ὑπ-ερυθ(ρι $\tilde{\omega}$) ὑπ-έρχ(ομαι), ὑπ-ερχ(όμην) $\delta \pi - \eta \mu (\delta \omega)$ ύπ-ήν(εμος), ὑπ-ην(έμιος) ύπ-ηο(ῖος) ύπ-ηρ(έτης) ύπ-ηγ*(έω*) u π-i(ημι), u π-i(σχνέω)ὑπ-οι(δέω) ύπ-ού $(\lambda \omega \varsigma)$, ύπ-ου $(\delta \alpha i o \varsigma)$ • ὑπούρ- $\gamma(\eta\mu\alpha)$, ὑπουρ- $\gamma(\epsilon\omega)$ unumber ununumber
unumber
unumberὕφ-, ὑφ- \bullet ύ-φορ $\beta(\delta \varsigma)$ ύψ-α(γόρας) ύψ-ε(ρεφής) ύψ-η(γόρος) ύψ-όρ(οφος), ύψ-ορ(όφου) φερ-έ $\gamma(\gamma \upsilon o \varsigma)$, φερ-ε $\gamma(\gamma \upsilon o \upsilon)$ φερ-ώνυ($\mu o \zeta$), φερ-ωνύ($\mu o \upsilon$)

φθιν-όπ(ωρον), φθιν-οπ(ώρου) φθισ-ή(νωρ), φθισ-η(νώρων) φίλ-, φιλ- φι-λέω, φι-λῶ(μεν), φιλέε(ις), φιλεῖ(ς), φι-λέο(μεν) $φi-λι(o_{\zeta}), φi-λi(\alpha), φi-λι(xò_{\zeta})$ φιλ-ιατ(ρέω) • $\phi(\lambda-i\pi\pi(o\zeta), \phi(\lambda-i\pi\pi(ou), \phi(\lambda-i\pi\pi(ix\dot{o}\zeta)))$ φρεν-ήρ $(η \varsigma)$, φρεν-ῆρ $(ε \varsigma)$ φρούρ-αρ(χος), φρουρ-άρ(χου) φυγ-αίχ(μης) φύλ-αρ(χος), φυλ-άρ(χου) φύλ- $o\pi(i\zeta)$, φυλ- $o\pi(i\delta o\zeta)$, φυλ- $o\pi(i\delta \omega v)$ φωτ-αγ(ωγός) χαλ-αργ(ός) χαλιν-αγ(ωγέω) γάλχ-ασ(πις), γαλχ-άσ(πιδος), γαλχ-ασ(πίδων) χαλκ-έμ(βολος), χαλκ-εμ(βόλου) χαλκ-ήλ(ατος), χαλκ-ηλ(άτου) χαλκ-ήρ(ης), χαλκ-ῆρ(ες) χαμ-εύ(νιον), χαμ-ευ(νίου) χειρ-αγ(ωγός) χειρ-απ(τάζω) χειρ-αψ(ία) χεν-όσ(ιρις) χην-αλ(ώπηξ) χορ-α(γός) χορ-η(γός) χρυσ-α(ίετος), χρυσ-ά(μπτυξ) χρυσ-ελ(εφαντήλεχτρος) χρυσ-έν (δετος), χρυσ-εν (δέτου) χρυσ-ερ(αστής) χρυσ-ήλ(ατος), χρυσ-ηλ(άκατος) χρυσ-ῆρ(ες) χρυσ-όρο(φος), χρυσ-ορό(φου) χρυσ-ων(έω) χρυσ-ώπ($i\delta o \varsigma$), χρυσ- $\tilde{\omega}\pi(i \varsigma)$, χρυσ- $\omega\pi(i\delta \omega v)$ χρυσ-ωρ(υχέω) ψευδ-ά(ττιχος), ψευδ-α(λέξανδρος) ψευδ-εν(έδρα) ψευδ-επ(ίγραφος) ψευδ-ηγ(ορέω) ψευδ-ηρ(αχλης) ψευδ-όρ(xιος), ψευδ-ορ(xίου) ψυχρ-ήλ(ατος), ψυχρ-ηλ(άτου) $\dot{\omega}\mu$ - $\eta\sigma(\tau\dot{\eta}\varsigma)$ ώσ-αν-εί, ώσ-αν-εί ώσ-αύτως ώσ-εί, ώσ-εί ώσπερ-εί, ώσπερ-εί

6 The fundamental rules of Latin hyphenation, and the corresponding patterns

Taken from [Chi] (9.56–9.59), here are the rules of Latin hyphenation and the necessary patterns $(v_n, n \ge 1 \text{ will be vowels, including } x \text{ and } x, n \ge 1 \text{ consonants}):$

- 1. A LATIN WORD HAS AS MANY SYLLABLES AS IT HAS VOWELS OR DIPHTHONGS (æ, au, ei, eu, œ, ui). Concerning word division, this rule should be interpreted as "vowel clusters should be separated, except when they form a diphthong": v_1-v_2 , for $(v_1, v_2) \notin$ $\{(a, e), (a, u), (e, i), (e, u), (o, e), (u, i)\}$. The necessary patterns are ala, alæ (since TEX considers æ as one character) ali, alo, alæ (same remark) ela, elæ, ele, elo, elæ, ila, ilæ, ile, ilo, ilæ, ili, ilu, ola, olæ, oli, olo, olæ, olu, ula, ulæ, ule, ulo, ulæ, ulu.
- 2. WHEN A SINGLE CONSONANT OCCURS BE-TWEEN TWO VOWELS, DIVIDE BEFORE THE CONSONANT: $v_1-c_1v_2$. The required patterns will be 1ba, 1bæ ... 1zu.
- 3. In the case of two or more consonants, Divide before the last consonant except in the combinations: mute (p, ph, b, t, th, d, c, ch, g) + liquid (l, r), and qu or gu. The first part of this rule can be expressed as
 - $v_1c_1 \dots c_{n-3} c_{n-2}c_{n-1}c_nv_2$ if $(c_{n-2}, c_{n-1}) \in \{(p, h), (t, h), (c, h) \text{ and } c_n \in \{l, r\},$
 - $v_1c_1 \dots c_{n-2} c_{n-1}c_n v_n$ if $c_{n-1} \in \{p, b, t, d, c, g\}$ and $c_n \in \{l, r\}$, and
 - $v_1c_1\ldots c_{n-1}-c_nv_2$, otherwise.

The required patterns will be ph21, ph2r ... ch2r, p21 ... g2r and p2h, t2h, c2h which is not stated in the rule but seems to be an implicit consequence, especially since "th", "ph", "ch" are just transliterations of the Greek letters θ , φ , χ .

The second part of the rule ("and qu or gu") is not clear. According to the examples given in [Chi] ("e-quus", "lin-gua") the author estimates that the correct interpretation is "consider 'qu' and 'gu' as single consonants". It follows from this interpretation, that these two clusters form exceptions to rule 1 and that hyphenations "qu-a", "gu-a" ... "gu-u" should be prohibited. The required patterns are qu2a ... gu2u.

4. COMPOUND WORDS ARE SEPARATED FIRST INTO THEIR COMPONENT ELEMENTS; WITHIN EACH ELEMENT THE FOREGOING RULES AP-PLY. The patterns needed to fulfill this rule will be discussed in next section. There is no mention of minimal left and right hyphenations; after comparing several Latin editions, the author considers the traditional values for \lefthyphenmin and \righthyphenmin to be 2 and 3 (as in English).

7 Hyphenation of Latin compound words

As with ancient Greek, the first idea would be to make patterns out of roots: "ab" is such a root, a pattern ab would insure hyphenation of "abundare", "in-ab-undare" and so forth. The problem is again that the cluster "ab" is contained in thousands of other words, where it should be hyphenated as "a-b" ("la-bor", "pro-ba-bi-lis", "fa-bu-la", etc.). Therefore the same method is applied as in ancient Greek: only beginnings of words are taken into account. As the reader will see in next section where all patterns are listed, hyphenation **ab-** at the beginning of a word is a general rule, with certain exceptions ("a-bacus", "a-bitus", and so forth). To hyphenate correctly the word "abs-cidere", a pattern "abs-ci" has been introduced; this pattern produces wrong hyphenation of word "ab-scindere", and so a second pattern "ab-scin" is introduced.

This explains the format of the pattern list in next section: indentation and the symbol \blacklozenge indicate entries, exceptions and exceptions to exceptions. The endings of words placed between parentheses are just examples, THEY ARE NOT TAKEN INTO ACCOUNT IN PATTERN CONSTRUCTION. Entries in boldface are "general rules". For these, no example is given. The same format has been used in the list of patterns for ancient Greek compound words, in section 5.

8 Patterns for Latin compound words

ab-

- ♦ a-bac(us)
- \blacklozenge a-bit(us)
- \blacklozenge abs-ce(dere)
- ♦ abs-ci(dere)
 - \bullet ab-scin(dere)
- ♦ abs-co(ndere)
- abs-que
- ♦ abs-te(mius)
- 0000000
- \bullet abs-ti(nere)
- \bullet abs-tr(ahere)

ad-

a-gnasc(i) amb-i(gere) antid-ea a-sc(endere) a-sperg(ere) a-spern(ari) a-spi(cere) a-ste(rnere) a-sti(pulari) a-stre(pere) a-strin(gere) a-strue(re) a-stup(ere) cav-j(dium) circumcis-al(pinus) cis-rh(enanus) com- \blacklozenge co-met(es) \bullet co-mi(cus) ♦ co-mff(dia) de-sc(endere) de-sp(icere) de-st(inare) di-ch(oreus) di-gn(oscere) dir-im(ere) di-scrib(ere) di-sperg(ere) di-spi(cere) di-sta(re) di-sting(uere) exid-eo in- \blacklozenge i-nan(is) \blacklozenge ianim(us) ♦ ind-ue(re) \blacklozenge ind-ep(tus) \blacklozenge ind-ig(es) ♦ ind-ip(iscor) \blacklozenge ind-ue(re) \blacklozenge ini-ti(a) interlong-jv(us) neg-oti(um) ob- \blacklozenge obli-vi(o) ♦ oblon-(gus)

♦ obff-di(re) pjn-ins(ula) per-, post-, prjprod-ir(e) prod-es(se) prod-ig(ere) pro-sc(jnium) pro-sp(ectus) pro-st(are) quinc-un(x) quot-an(nis) re-

- red-(arguere)
 re-don(are)
 - ♦ re-dor(mire)

\blacklozenge re-duc(ere)

- ♦ tran-su(ere)
- ♦ trans-us(que)

vel-ut(i)

9 Examples

Follow some examples of hyphenated ancient Greek and Latin texts. The symbol \div indicates hyphenation using patterns from sections 5 and 8.

Ἐντεῦ÷θεν ἐξ÷ε-λαύ-νει σταθ-μοὺς τρεῖς πα-ρασάγ-γας πεν-τε-χαί-δε-χα έ-πὶ τὸν Εὐ-φρά-την πο-ταμόν, ὄν-τα τὸ εὖ-ρος τετ-τά-ρων στα-δί-ων καὶ πό-λις αὐ-τό-θι ὦ-χεῖ-το με-γά-λη χαὶ εὐ-δαί-μων Θά-ψα-χος δ-νο-μα. Ἐνταῦ÷θα ἔ-μει-νεν ἡ-μέ-ρας πέν-τε. Καὶ Κῦρος με-τα-πεμ-ψά-με-νος τούς στρατ÷η-γούς τῶν Έλλή-νων έ-λε-γεν ό-τι ή ό-δὸς ἔ-σοι-το πρὸς βα-σι-λέ-α μέ-γαν είς Βα-βυ-λῶ-να και κε-λεύ-ει αὐ-τοὺς λέ-γειν ταῦ-τα τοῖς στρα-τι-ώ-ταις χαὶ ἀ-να-πεί-θειν ἕ-πε-σθαι. Οι δὲ ποι-ή-σαν-τες ἐκ-κλη-σί-αν ἀπ÷ήγ-γε-λον ταῦ-τα· οί δὲ στρα-τι-ῶ-ται ἐ-χα-λέ-παι-νον τοῖς στρατ÷η-γοῖς, καί έ-φα-σαν αύ-τοὺς πά-λαι ταῦτ' εἰ-δό-τας κρύ-πτειν, καί οὐκ ἔ-φα-σαν ἰ-έ-ναι, ἐ-ὰν μή τις αὐ-τοῖς χρή-μα-τα δι-δῶ, ὥ-σπερ τοῖς προ-τέ-ροις με-τὰ Κύ-ρου ἀ-να-βᾶ-σι [πα-ρὰ τὸν πα-τέ-ρα τοῦ Κύ-ρου], και ταῦ-τα οὐκ ἐ-πί μά-γην ι-όν-των, άλ-λα χα-λοῦν-τος τοῦ πα-τρὸς Κῦρον. Ταῦ-τα οἱ στρατ÷ηγοἱ Κύ-ρω ἀπ÷ήγ-γελ-λον. "Ο δ' ὑπ÷έ-σχε-το ἀν-δρὶ ἑ-κά-στω δώ-σειν πέν-τε ἀργυ-ρί-ου μυᾶς, ἐ-πὰν εἰς Βα-βυ-λῶ-να ἥ-κω-σι, καὶ τὸν μι-σθόν έν-τε-λη μέ-χρι αν κα-τα-στή-ση τούς Ελ-ληνας εἰς Ἰ-ω-νί-αν πά-λιν. Τὸ μὲν δὴ πο-λὺ τοῦ Ἐλ-ληνι-χοῦ οὕ-τως ἐ-πεί-σθη.

from Ξε-νο-φῶν-τος Κύ-ρου ᾿Α-νά-βα-σις. [Ξεν]

Flu-men est Arar, quod per fi-nes Hæ-du-o-rum et Se-qua-no-rum in Rho-da-num in-fluit, in-cre-dibili le-ni-tate, ita ut ocu-lis in ut-ram par-tem fluat iu-di-cari non pos-sit. Id He-lu-e-tii ra-ti-bus ac lintri-bus iunc-tis trans÷i-bant. Vbi per ex-plo-ra-tores Cæ-sar cer-tior fac-tus est tres iam par-tes copia-rum He-lu-e-tios id flu-men tra-du-xisse, quartam fere par-tem citra flu-men Ara-rim re-li-quam esse, de ter-tia ui-gi-lia cum le-gi-o-ni-bus tri-bus e cast-ris pro-fec-tus ad eam par-tem pe-ru-e-nit quæ non-dum flu-men trans÷i-e-rat. Eos im-pe-di-tos et in÷o-pi-nan-tes ad-gres-sus mag-nam par-tem eorum con-ci-dit: re-li-qui sese fugæ man-da-runt atque in pro-xi-mas si-luas ab-di-de-runt.

> from Cæ-sa-ris Com-men-ta-rii de Bello Gal-lico. [Cæ]

10 Availability

The files AGRhyphen.tex and LAThyphen.tex containing hyphenation patterns for ancient Greek and Latin (as described in this paper) are part of the ScholarT_EX package.

The hyphenation patterns for modern Greek mentioned in section 2 (file GRhyphen.tex) are in the public domain; they are included in Euro-OzTEX and can also be obtained directly from the author. Readers interested in Greek (ancient or modern) are invited to join the ELLHNIKA discussion list, by sending the SUBSCRIBE ELLHNIKA <name> command to LISTSERV@DHDURZ1.BITNET.

References

- [Aca] Ι. Καλλιτσουνάχης (εἰσηγητής), 'Ορθογραφιχὸν διάγραμμα τῆς 'Αχαδημίας 'Αθηνῶν, Πραχτιχὰ 'Αχαδημίας 'Αθηνῶν, τ. ιδ΄, 1939.
- [Bai] A. Bailly, Abrégé du dictionnaire grecfrançais, Hachette, Paris, 1901.
- [B-C] H. Bornecque et F. Cauët, Dictionnaire latin-français, Librairie classique Eugène Belin, Paris, 1990.
- [Cæ] César, Guerre des Gaules, trad. par L.-A. Constans, Les belles lettres, Paris 1984.
- [Chi] The Chicago Manual of Style, The University of Chicago Press, Chicago and London, 1982.
- [DEK] D. E. Knuth, Computers & Typesetting, A: The T_EXbook, Addison-Wesley, Reading, 1989.
- [Xen] Xénophon, Anabase, trad. par P. Masqueray, Les belles lettres, Paris 1970.