2014

Accentuation

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ACCENTUATION

ABSTRACT

The accents marks in modern editions of Ancient Greek texts primarily reflect the accentual system of an educated register of the Koine of the early 2nd c. BCE. In this system, phonological, morphological, and lexical factors conspire to associate a pitch accent with one syllable of each lexical word. The phonology of the language permits limited contrasts in accentual position (λιθοβόλος vs. λιθόβολος = lit^{h}obólos vs. lit^{h}óbolos) and type (ἴσθμοί vs. ἴσθμοῖ = ist^{h}mói̯ vs. ist^{h}môi̯); in the latter case, the syllable marked with an acute accent hosts a High tone, and that marked with a circumflex hosts a High-Low falling contour tone. In any given form, the maximum number of phonologically licit accentual contrasts is three. Within the bounds set by the phonology, morphological and lexical factors, e.g. the inherent accentual properties of particular suffixes, further determine the accentuation of a word. Comparison with related Indo-European languages, especially Vedic, shows that the Greek system developed from an earlier system that likely lacked a contrast in accent type but permitted more positional contrasts; Greek accentuation is more dependent on the rhythmic structure of the language.

1. THE NOTATIONAL SYSTEM

The accent marks written in modern editions of Ancient Greek texts derive from a grammatical tradition that most likely began in Alexandria in the early 2nd c. BCE, with Aristophanes of Byzantium, to whom the invention of the written signs is attributed, and his successor as librarian, Aristarchus of Samothrace. Given the important functional role that accent played in the language, conveying accentual information in writing facilitated the difficult task of reading poetic texts written in *scriptio continua*. For example, the unaccented graphic sequence απονου = *aponou* could represent ἀπ᾽ ὄνου = ap' óno: 'from a donkey'[1] or ἀπο νοῦ = apō nô: 'from (your) senses'[2] (cf. Aristoph. *Nub*. 1273). These lectional signs conveyed the accentuation of the Koine spoken during that period, and to a lesser extent, the accentuation of other dialects; it is possible that the scholars also consulted oral traditions, e.g. rhapsodic performances of the Homeric poems,

[1] The apostrophe shows that a word-final short vowel has been elided (deleted), in this case /o/. Here, as often, elision avoids vowel hiatus.

[2] I have chosen the (combining macron =) IPA mid tone to convey the "grave" accent, which is an underlying high tone that has been lowered in the (post-lexical =) phrasal phonology. See further below.

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to determine the accentuation of forms that were unfamiliar to them. In the 2nd c. CE, Aelius Herodian codified the tradition in περὶ καθολικῆς προσῳδίᾱς = perī kat^{h}olikê:s prosɔ:i̯día:s 'On Prosody in General', which served as the basis for later works on accentuation. In the early accented papyri, which date from the 2nd c. BCE onwards, notational conventions vary, as does the frequency with which written accents were applied. The notational system familiar to us, where each accented word is marked with an acute, circumflex, or grave, was first applied in minuscule manuscripts of the 9th c. CE by scribes following the precepts of the same grammatical tradition. The early works on accentuation including Herodian's do not survive as such, but scholia and short treatises based on them provide us with indirect access. On the grammatical tradition, the papyri, and the manuscripts, see Probert 2006:21-52 with refs.

2. Phonetics and Phonology of the Greek accentual system

Phonetically, accent may be studied from an articulatory, acoustic, and perceptual standpoint. It is clear that the most salient perceptual correlate of ancient Greek accent — what the Greeks themselves 'heard' — was pitch, at least until the 2nd c. BCE. Within the word, pitch peaked during syllables marked with an acute or grave accent, and it both peaked and fell again during syllables marked with a circumflex. Phonologically, we may say that syllables marked with acute accent hosted a High tone and those marked with a circumflex hosted a High-Low tone, i.e. a falling contour tone. Evidence for the phonetic nature of Greek accent comes from several sources. The words used to refer to 'accent' have to do with musical pitch, e.g. τόνος = tónos refers to the 'tension' and therefore to the perceived pitch of vibrating strings, and the basic meaning of προσῳδίᾱ = prosɔ:i̯día: is 'singing along (to music)'.[3] The adjectives used to specify the three different types of προσῳδίᾱ = prosɔ:i̯día: are ὀξεῖα = oksêi̯i̯a 'high' for acute, βαρεῖα = barêi̯i̯a 'low' for grave, and ὀξυβάρεια = oksubáirei̯i̯a 'high-low' for circumflex. Fragments of non-strophic musical compositions dating from as early as the 3rd c. BCE — the Delphic hymns in particular — provide a richer source of phonetic detail. As in vocal music traditions in a number of languages with contrastive tone (Devine and Stephens 1994:160-171), the fragments display a relatively strict correspondence between the pitch movements of speech and the melody of the music it is set to (Devine and Stephens 1994:172-194; Probert 2006:47-48; West 1992:199). For example, the accented syllable of a word is set no lower than its unaccented syllables, such that the pitch peak of a word corresponds to a local peak in the music. If a syllable bearing a circumflex is set to a two-note melism, the first is usually higher, respecting the falling pitch contour of circumflex accent. The grave accent, a phrasal sandhi variant of the acute, proves to be a lowered version of the acute (Devine and Stephens 1994:180-183), and it is possible to reconstruct the accentual contour of entire words. For example,

[3] τόνος = tónos and προσῳδίᾱ = prosɔ:i̯día: are the source of English *tone* and *prosody*.

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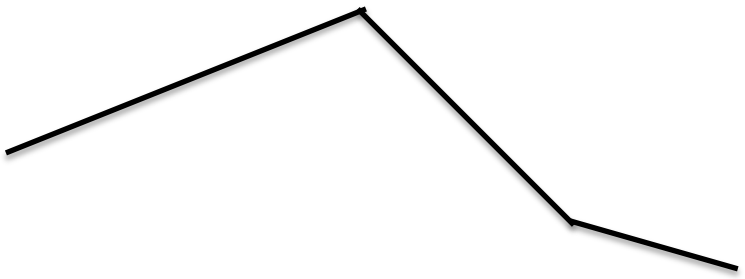
in a proparoxytone word of five syllables (e.g. ἐκλεγόμενος = eklegómenos), pitch rose steadily over the initial two unaccented syllables, peaked at the accented syllable, then fell steeply over the first post-accentual syllable and less steeply over the final syllable (Devine and Stephens 1994:183-189).



ek le gó me nos[4]

The turning point between the post-accentual fall in pitch and the rise to the following accent coincides with word-boundary, which certainly had a 'demarcative' function, i.e. made word boundaries audible (Allen 1973:246); this may point to a Low word-final boundary tone in the phonological representation (Devine and Stephens 1994:180).[5] Statements by grammarians and other ancient scholars provide a further source of information about the phonetic nature of word-level accentuation (Devine and Stephens 1994:171-172; Probert 2003:4-7), and comparison with the accentual systems of related languages, especially Vedic and Balto-Slavic, suggests that in Proto-Indo-European, one syllable of each accented word was realized with high pitch (cf. Olander 2009:53-100 with refs.).

The accentuation of a word is determined by interacting phonological, morphological, and lexical factors. The phonology plays two important roles in this system. First, it places restrictions on which syllables can host an accent and on what type of accent (acute and/or circumflex) can be realized there. The most important of these restrictions, the so-called 'Law of Limitation' [CrossRef], essentially sets the accentable domain of a word, which consists of the final three syllables, if the ultima[6] is light, and the final

[4] The diagram, based on Devine and Stephens 1994:189, is not included in the encyclopedia entry.

[5] In my view, both the word-final grave and the circumflex accent on penultimate syllables are the result of tonal crowding avoidance with this low word- or clitic group-level boundary tone.

[6] The term *ultima* is used in classical linguistics to refer to the word-final syllable, in the same way *penult* (< *paenultima*) is used to refer to the next-to-last syllable, etc.

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two, if it is heavy (Göttling 1835:21-28; Steriade 1988:273-275). Note that for the Law of Limitation, a single word-final consonant is weightless; final syllables ending in a short vowel (-V#) and those ending in a short vowel followed by a single consonant (-VC#) both count as light, e.g. βασίλεια = basíleia̯a 'queen', acc. sg. βασίλειαν = basíleia̯an.[7] All other syllable rhymes count as heavy.[8] Within the accentable domain, an acute accent is phonologically permissible on any syllable (with one systematic exception noted below), but the circumflex accent is subject to further restrictions. It is phonologically licit on final syllables containing a long vowel or diphthong (i.e. final VV-syllables), where an acute is also possible, as reflected by contrasts such as ἰσθμοί = ist^{h}mói̯ 'isthmuses' (nom.) vs. ἰσθμοῖ = ist^{h}môi̯ 'on the isthmus' (loc./adv.). The circumflex also occurs on penultimate VV-syllables, where it is in complimentary distribution with the acute according to the so-called '*sōtêra* rule' [CrossRef]: the accent on a penultimate VV-syllable is realized as a circumflex if the word-final syllable contains a short vowel, e.g. σωτῆρα = sɔ:tɛ̂:ra 'savior' (acc.), οἶκος = ôi̯kos 'house'; otherwise, it is realized as an acute, e.g. σωτήρων = sɔ:tɛ́:rɔ:n 'saviors' (gen.), οἴκοις = ói̯koi̯s 'houses' (dat.). In other words, if the penult is accented, the phonology determines which type of accent is realized there, meaning that phonologically, a contrast in accent type is limited to word-final VV-syllables.[9] Together, these phonological restrictions permit only the five combinations of accent location and type already recognized by the ancient grammarians.

Oxytone (ὀξύτονος = oksútonos): acute on the ultima, e.g.

- ὀφθαλμοί = op^{h}t^{h}almói̯ 'eyes'

Perispomenon (περισπώμενος = perispɔ́:menos): circumflex on the ultima, e.g.

- ὀφθαλμῶν = op^{h}t^{h}almɔ̂:n 'eyes' (gen.)

Paroxytone (παροξύτονος = paroksútonos): acute on the penult, e.g.

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[7] For the purposes of all other weight-sensitive morphophonological processes as well as the quantitative meter, only syllables ending in a short vowel (i.e. only syllables whose rhyme consists of a short vowel alone) count as Light. This motivates the claim that one word-final consonant in ancient Greek is "extrametrical." Note that the extrametricality may be related to the fact the one word-final consonant is "re-syllabified rightward" phrase-internally where followed by a V-initial word.

[8] Many grammars of ancient Greek state that for purposes of accentuation, final syllables containing a long vowel or a diphthong are heavy, and all others are light. This incorrectly entails that final syllables closed by two or more consonants are light.

[9] Strictly speaking, the contrast between acute and circumflex (High and High-Low) on accented, long-voweled penultimate syllables is not purely phonological. The morphology plays a role if the final morpheme is *oi̯* or *ai̯* or ends in *oi̯* or *ai̯*. See §4 below and the EAGLL entries on the "Law of Limitation" and the "Sōtêra Rule."

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- σωτήρων = sɔːtéːrɔːn 'saviors' (gen.)

Properispomenon (προπερισπώμενος = properispóːmenos): circumflex on the penult, e.g.

- σωτῆρα = sɔːtêːra 'savior' (acc.)

Proparoxytone (προπαροξύτονος = proparoksútonos): acute on the antepenult, e.g.

- ἥλιος = héːlios 'sun'

However, the maximum number of ways any given form may be accented is three, as exemplified by the following nonsense words.

mei̯duplɛːrɛː:	mei̯duplɛːrêː, mei̯duplɛːréː, mei̯duplέːrɛː
mei̯duplɛːros:	mei̯duplɛːrós, mei̯duplêːros, mei̯dúplɛːros
mei̯duploros:	mei̯duplorós, mei̯duplóros, mei̯dúploros

3. Lexicon, Morphology, Phonology: Recessive Accentuation

Within the bounds set by the phonology, morphological and lexical factors determine the accentuation of a given word. Thus, Greek accent is only 'free' insofar as the accentuation of a word is not determined by phonological factors alone. This limited freedom is reflected in minimal pairs that differ only in position and/or type of accent, e.g. κήρ = kéːr 'doom' vs. κῆρ = kêːr 'heart', λιθοβόλος = lit^{h}obólos 'pelting with stones' vs. λιθόβολος = lit^{h}óbolos 'pelted with stones'.

If every inflectional form of a word is accented as early (i.e. as far 'left') as permitted by the Law of Limitation, that word is said to exhibit 'recessive accentuation', e.g. ἄνθρωπος = ánt^{h}rɔːpos '(hu)man', gen. sg. ἀνθρώπου = ant^{h}rɔ́ːpoː, dat. sg. ἀνθρώπῳ = ant^{h}rɔ́ːpɔːi̯, acc. sg. ἄνθρωπον = ánt^{h}rɔːpon, etc. In this accentual subtype, we observe the second role of phonology interacting with lexical and morphological factors. Recessive accentuation is both the property of particular lexical items, such as ἄνθρωπος = ánt^{h}rɔːpos, and the property of entire morphologically circumscribed classes of words, such as finite verbs, 3rd declension neuter nouns, and most types of compounds, including those whose first member is a governing preposition or verb (Kiparsky 2003; Vendryes 1945:189-196), e.g. φιλ(ο)-X = p^{h}il(o)-X 'X-loving' compounds such as φίλοινος = p^{h}íloi̯nois 'wine-loving', φιλόσοφος = p^{h}ilósop^{h}os 'wisdom-loving', φιλόπαις = p^{h}ilópai̯s 'boy-loving', φιλόρτυξ = p^{h}ilórtuks 'quail-loving', φιλοσπήλυγξ = p^{h}ilospêːluŋks 'cave-loving', etc. In short, lexical and/or

morphological features determine whether a word is recessively accented; the phonology determines the accentable domain and locates the accent 'leftmost' in that domain.

A number of facts suggest that recessive accentuation was the unmarked or default type of accentuation in the language (cf. Probert 2006:128-144): among accented words, recessive accentuation is more frequent than non-recessive accentuation by both type and token; comparison with Vedic and Germanic points to a tendency within the history of Greek to innovate recessive accentuation in inherited lexical items, e.g. *páros* 'formerly' vs. Vedic *purás* 'before' < PIE **pr̥hₓós* or **pr̥hₓés*; entire morphological classes of words (noted above) are recessively accented in Greek, but no such class is associated with a non-recessive type of accentuation; finally, in Lesbian, recessive accentuation was generalized to virtually all accented words, arguably due to an extreme form of the tendency just noted.[10]

A central question regarding the Law of Limitation and recessive accentuation is whether the accentable domain is related to the rhythmic phonology of the language in general (cf. Devine & Stephens 1994:154). In other words, can the accentable domain be equated with a rhythmic/prosodic constituent that is also reflected in meter, word formation, and other (morpho)phonological processes? Building on Steriade 1988, recent studies suggest that the accentual domain is — or is aligned with — a unit of rhythmic organization known as a foot (cf. Probert 2010 with refs.). The span between the accent (´) and word-end (#) consists of two light syllables (LL), e.g. εὑρήματα# = heu̯ré:mata#, a heavy syllable (H), e.g. εὑρημάτων# heu̯rɛ:mátɔ:n#, or a heavy-light sequence (HL), e.g. εὕρημα = héu̯rɛ:ma# — in other words, ´LL# or ´H(L)#. This span has been equated with a word-final quantity-insensitive trochaic foot (Sauzet 1989) and a quantity-sensitive one (Golston 1990). The latter, a bimoraic rhythmic unit consisting of either two light syllables (LL) or one heavy syllable (H) may also be reflected in word formation (Gunkel 2011),[11] meter (Golston & Riad 2000; 2005; Gunkel 2010:43-75), and constraints on minimal word size, *alias* word minima, in the language (Devine and Stephens 1994:93; Golston 1991). On that analysis, in recessively accented words, the beginning of the post-accentual fall in pitch (`) is aligned with the first mora of the word-final foot, e.g. εὑρή(μὰτα) = heu̯ré:(màta) and — representing the bimoraic long vowel ω = ɔ: as oo = ɔɔ —

[10] Proto-Indo-European may well have have a leftmost default accent for underlyingly unaccented as well as morphologically deaccented words (cf. Kiparsky 2010, Yates 2015). The domain for accentuation in PIE appears to have been the word. A number of IE branches did not change the domain (much), but did generalize leftmost/initial accentuation (more or less). These include Germanic, Italic, and Tocharian.

[11] Gunkel 2011 argues that a change in word formation introduces a (lexically and morphologically restricted) form of Trochaic Shortening into the langauge. According to mosts phonologists, Trochaic Shortening is a process that optimizes moraic trochees at the end of the word. Trochaic Shortening in Greek thus provides additional evidence for right-aligned moraic trochees in the language.

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εὑρημά(τὸον) = heu̯rɛ:má(tɔ̀ɔn). For indispensable in-depth treatments of Ancient Greek rhythmic organization including alternative views on foot structure, cf. Allen (1973) and Devine and Stephens (1984, 1994).

4. Further Morphological Factors

Morphological features also condition the phonological status of the word-final diphthongs -οι and -αι = -oi̯ and -ai̯ in the accentual system. For both the Law of Limitation and the *sōtêra* rule, word-final -οι and -αι = -oi̯ and -ai̯ have the status of a light word-final syllable rhyme consisting of a short vowel plus a consonant (-VC#). This is apparent in recessively accented paradigms where, for example, nom. pl. φιλόσοφοι = p^{h}ilósop^{h}oi̯ 'philosophers', βασίλειαι basíle̯i̯ai 'queens', and 2sg. aor. impt. mid. παίδευσαι = pái̯deu̯sai̯ 'educate' are proparoxytone like nom. sg. φιλόσοφος = p^{h}ilósop^{h}os, acc. sg. βασίλειαν = basíle̯i̯an, and 2sg. aor. impt. act. παίδευσον = pái̯deu̯son, which end in -VC#. It is also apparent in forms where the *sōtêra* rule applies. For example, nom. pl. οἶκοι = ôi̯koi̯ 'houses', γαῖαι = gâi̯i̯ai̯ 'lands', and aor. inf. act. παιδεῦσαι = pai̯dêu̯sai̯ are properispomenon like nom. sg. οἶκος = ôi̯kos 'house', acc. sg. γαῖαν = gâi̯i̯an 'land', and neut. nom./acc./voc. sg. aor. act. ptc. παιδεῦσαν = pai̯dêu̯san, which end in -VC#. The inflectional endings -οι and -αι = -oi̯ and -ai̯ of the 3sg. present and aorist optative active and the locative singular — or adverbial locative — ending -οι = -oi̯ pose morphologically conditioned exceptions. Like all other word-final long vowels and diphthongs, they have the status of heavy -VV# rhymes in the accentual system. This is likewise reflected in recessive paradigms where, for example, 3sg. pres. and aor. opt. act. παιδεύοι = pai̯déu̯u̯oi̯ and παιδεύσαι pai̯déu̯sai̯ are paroxytone like παιδεύω = pai̯déu̯u̯ɔ: 'I am educating', and where the *sōtêra* rule fails to apply: loc. sg. οἴκοι = ói̯koi̯ 'at home' is paroxytone like dat. sg. οἴκοι = ói̯kɔ:i̯. There is no evidence that this morphologically conditioned phonological distinction between diphthongs existed outside the system of accentuation (Probert 2012).

The distribution of acute and circumflex accent on word-final syllables that are phonologically 'free' to host either accent is conditioned by morphological features as well. Specifically, the distribution appears to be based on case: nominative and accusative forms bear acute accent, genitive and dative forms bear circumflex accent, e.g. 1st declension nom. and acc. sg. φορά́ = p^{h}orá: 'carrying, bearing; load, burden', φορά́ν = p^{h}orá:n, pl. φοραί = p^{h}orái̯, φορά́ς = p^{h}orá:s vs. gen. and dat. sg. φορᾶς = p^{h}orâ:s, φορᾷ = p^{h}orâ:i̯, pl. φορῶν = p^{h}orô:n, φοραῖς = p^{h}orâi̯s.

Morphemes themselves have accentual properties (Kiparsky 1973, 2010, forthcoming; Probert 2006:145-148; Steriade 1988). Descriptively, there are four types in Ancient Greek. First, there are inherently accented morphemes such as the stem ἀγρό- = agró- *agró-* of ἀγρός = agrós 'country' and the suffixes -άδ- = -ád- and -ικό- = -ikó- of words such as gen. sg. *phugádos* 'exile', *manikós* 'mad'. The last inherently accented

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morpheme imposes its accent on the entire derivative, e.g. φυγάδ-ικό- = pʰugád-ikó- → φυγαδικός = pʰugadikós 'of/for exile' (not **φυγάδικος = **pʰugádikos). Most inherently accented morphemes are stems or derivational suffixes such as the -εύ- = -éu̯- used to form nouns of occupational/ethnic appurtenance and agent nouns, e.g. χαλκεύς = kʰalkéu̯s 'bronzesmith' (derived from χαλκός = kʰalkós 'bronze'), Εὐβοιεύς = eu̯boi̯i̯éu̯s 'Euboian' (from Εὔβοια = éu̯boi̯i̯a 'Euboia'), στιγεύς = stigéu̯s 'tattooer' (from στίζω = stízdɔː 'I tattoo'), the -μό- = -mó- used to form deverbal nouns, e.g. βιασμός = biasmós 'violence' (from βιάζω = biázdɔː 'I (use) force'), ὁπλισμός = hoplismós 'arming' (from ὁπλίζω = hoplízdɔː 'I arm'), and the -τέο- = -téo- used to form deontic verbal adjectives, e.g. γραπτέος = graptéos 'to be written' (from γράφω = grápʰɔː 'I write'), ὠνητέος = ɔːnɛːtéos 'to be bought' (from ὠνέομαι = ɔːnéomai̯ 'I buy'), etc. However, there are also inherently accented inflectional suffixes, such as the genitive plural ending -ῶν = -ɔ̂ːn of 1st declension nouns, which arose by contraction from -ά́-ων = -áː-ɔːn.[12] Compare the accented ending in nouns such as nom. sg. πόρνη = pórnɛː 'prostitute', gen. pl. pornɔ̂ːn with the unaccented ending -ων = -ɔːn of 1st declension feminine adjectives such as nom. sg. ἄλλη = állɛː 'other', gen. pl. ἄλλων = állɔːn (not **ἀλλῶν = **allɔ̂ːn). Second, there are pre-accenting morphemes, which differ from accented morphemes in that they induce an accent on the preceding syllable. They include the ´-αι = ´-ai̯ used to form aorist active infinitives, e.g. τελέσαι = telésai̯ 'complete', ποιῆσαι = poi̯i̯ɛ̂ːsai̯ 'do, make' (with a circumflex by the *sōtêra* rule) and the ´-σθαι = ´-stʰai̯ used to form perfect medio-passive infinitives, e.g. τετελέσθαι = tetelésdʰai̯ 'have completed'. Third, there are inherently unaccented morphemes that adopt the accentual properties of the base form. Most inflectional endings are of this type, e.g. the gen., dat., and acc. sg. endings -ος, -ι, and -α = -os, -i, and -a, of φυγάδος, φυγάδι, φυγάδα = pʰugádos, pʰugádi, pʰugáda, and the nom., gen., dat., and acc. endings of φυγάδες, φυγάδων, φυγάσι(ν), and φυγάδας = pʰugádes, pʰugádɔːn, pʰugási(n), and pʰugádas. The suffix -θε(ν) = -tʰe(n) that is used to form ablatival adverbs also has these properties; compare ἀγρόθε(ν) = agrótʰe(n) 'from the country' (from ἀγρός = agrós) with ἄλλοθε(ν) = állotʰe(n) 'from another place' (from ἄλλος = állos 'other'). Fourth, there are inherently unaccented suffixes that induce recessive accentuation regardless of the accentual properties of the base. The suffix -(i̯)α = -(i̯)a has those properties,[13] e.g. ἀλήθεια = alɛ́ːtʰei̯i̯a 'truth' (from ἀληθής = alɛːtʰéːs 'true'), βασίλεια = basílei̯i̯a 'queen' (from βασιλεύς = basiléu̯s 'king').

[12] The first vowel was originally the stem-final vowel; it didn't belong to the inflectional ending.

[13] The *jod* (i̯), which was lost in most phonological contexts between the Mycenaean period and the earliest alphabetic attestations of the language, still has various synchronic reflexes, e.g. the conversion of a stem-final -t- to -ss- in Ionic and to -tt- in Attic, as in the word for honey-bee (and the source of the proper name), Ionic μέλισσα, Attic μέλιττα, both of which derive from *melit-i̯a (the synchronic stem of the word for 'honey' is μελιτ- = melit-). It is not immediately obvious how to capture this in the synchronic underlying form. I have opted for (i̯)a.

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5. The Evolution of the Greek Accentual System

Examination of linguistic developments within the history of Greek and comparison with related languages, especially Vedic, allows us to reconstruct the development of the Greek accentual system. Perhaps the most important trend in the diachronic development of the Greek accentual system involves a trajectory from a relatively 'free' accent system, where accent was primarily morphologically determined and phonology played a minor role — like the Vedic system — to a less free, more phonologically constrained system. Specific developments along this trajectory are the Law of Limitation and several prehistoric and historic leftward accent shifts which also display sensitivity to the distribution of syllable weight, such as Wheeler's Law [CrossRef] and Vendryes's Law, which affected Attic only. The development of the Law of Limitation in Proto- or Common Greek was likely facilitated by the fact that the inherited morphological accent very often happened to 'obey' the Law of Limitation before it arose (Probert 2012). For example, language learners could analyse forms such as p^{h}érō, p^{h}éreis, p^{h}érei, p^{h}éromes/n, p^{h}érete, p^{h}éronti, etc. either as being morphologically accented on the verbal root p^{h}ér 'carry', or phonologically accented such that the accent was aligned with a rhythmic constituent such as the word-final foot mentioned above, i.e. p^{h}é(ròo), p^{h}é(rète), etc. An analysis of the latter sort — likely facilitated by changes in rhythmic organization and/or its phonetic expression — produced the Law of Limitation.

In the wake of the accent shifts, speakers made sense of new weight-sensitive accentual differences within the same word-formation type by innovating morphophonological rules for accent placement. For example, Wheeler's Law produced alternations such as ψῡχο-πομπός = psu:k^{h}o-pompós 'soul-escorting' vs. πατρο-κτόνος = patro-któnos 'father-killing' in a compound type which was originally oxytone, to judge by Vedic, e.g. *hasta-grābháḥ* 'hand-grasping', *bhuvana-cyaváḥ* 'world-shaking'. Speakers innovated the following rule for the formation of these compounds: if the penult is light, accent it (τευχεσ-φόρος = teu̯k^{h}es-p^{h}óros, τευχο-φόρος = teu̯k^{h}o-p^{h}óros 'armor-wearing'); otherwise, accent the ultima (ψῡχο-πομπός = psu:k^{h}o-pompós). Neuter diminutives in -ιον = -ion reflect a comparable rule: they are usually paroxytone if the antepenult is heavy and proparoxytone if it is light (Vendryes 1945:166), e.g. θηρίον = t^{h}ɛ:ríon 'little beast' vs. θύριον = t^{h}úrion 'little door'.

The Proto-Greek innovation of circumflex accentuation offset this trend slightly, insofar as it introduced a new kind of accentual freedom — the contrast between acute and circumflex — that survived in word-final VV-syllables, e.g. gen. sg. φορᾶς = p^{h}orâ:s vs. nom. pl. φοράς = p^{h}orá:s. The circumflex in such forms, and likely in Greek in general (Jasanoff 2004), arose via the contraction of an accented vowel with a following unaccented vowel over which the pitch fell again, e.g. gen. sg. (PIE *b^{h}oréh$_{2}$es >) *p^{h}oráas > p^{h}orâ:s = φορᾶς, dat. sg. (PIE *b^{h}oréh$_{2}$ei̯ >) *p^{h}oráai̯ > p^{h}orâ:i̯ = φορᾷ, gen. pl. (PIE *sth$_{2}$tóh$_{x}$o(:)m) > *statóo(:)m > statô:n = στατῶν 'placed, standing'; compare the Rigvedic and Avestan metrical evidence for uncontracted genetive plural forms in *-*aăm* (cf. Kümmel forthcoming). Speakers apparently found morphological case to

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be the best predictor of accent type, with the result that circumflex accentuation was analogically extended to forms that originally had acute accentuation, e.g. PIE dat. sg. *sth$_2$tó:i̯ >> statô:i̯ = στατῷ.[14]

Regarding the accentual properties of morphemes, Vedic has correlates for the four Greek types sketched out above, as well as a fifth type of underlyingly accented morpheme that either imposes its accent on the derivative (cf. Greek -ικό- = -ikó-) or adopts the accent of the base (cf. Greek -θε(ν) = -t^{h}e(n), which is unaccented), depending on the accentual properties of the base (cf. 'recessive accented' morphemes in Kiparsky 2010, forthcoming, with refs.). The Vedic suffix -(*m*)*āná*-, the cognate of the Greek medio-passive participial suffix -*meno*-, has those properties. Compare suffix-accented *śaśamānáḥ* 'having labored' with root-accented *yájamānaḥ* 'sacrificing'. Which language innovated in this case is a subject for future investigation.

The complex interplay of phonological, morphological, and lexical factors, the robust attestation of the language, and a tradition of scholarship on the subject that has its roots in the 2nd c. BCE make Ancient Greek accentuation a unique subject for constructing and testing linguistic theories as well as for reconstructing the accentual system of Proto-Indo-European.

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[14] This generalization remained active in the grammar and overrode the phonologically regular vowel contraction products in nominative and accusative forms that arose after the loss of intervocalic s and i̯, e.g. *pei̯t^{h}ói̯a > *pei̯t^{h}óa >> pei̯t^{h}ɔ́: = πειθώ 'persuasion' (fem. acc.).

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