Ancient Greek Pitch Accent, Not Stress

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1 Introduction

A long line of traditional and theoretical work has made it increasingly clear that

> Ancient Greek had a mixed accentual system: the location of the accented syllable is determined by a metrical procedure, which counts syllables, is sensitive to syllable weight rather than number of moras, and builds metrical constituents. Later rules interpret metrical prominence tonally. (Steriade 1988: 271)

We present here additional evidence for pitch accent in the language. Traditionally, Ancient Greek accent is categorized five ways, depending on the orthographic accentuation, as shown in below.

(1) Accentuation and nomenclature

acute on the ultima	πολιτικός	po.lii.ti.kó̲s	*oxytone*
acute on the penult	πολίτης	po.lí̲i.tɛɛs	*paroxytone*
acute on the antepenult	ἄνθρωπος	á̲n.tʰrɔɔ.pos	*proparoxytone*
circumflex on the ultima	πολιτικοῦ	po.lii.ti.kóò	*perispomenon*
circumflex on the penult	πολῖται	po.lí̲ì.tai	*properispomenon*

A natural interpretation is that the accent regularly marks the stressed syllable, but this is not the case. Allen shows clearly that the pitch peak does not always align with the stress peak: 'the statistical trend is for the acute [H tone] to occur in *weak* position, whereas the strong position tends to coincide with the circumflex or the syllable following an acute... with a falling melodic pattern in either case' (1973: 262).

Words in Ancient Greek had either 'recessive' accent, where the accent falls as early in the word as the above possibilities allow, or non-recessive accent, where the accent consistently falls on the ultima or penult. The frequent dissociation of high pitch and stress in Greek leads Sauzet 1989 to treat the recessive accent as HL*, where the L tone attaches to main stress (*) and the H tone attaches to the tone-bearing unit preceding it, as shown below for ἄξιος 'worthy'.

(2) HL* recessive accent (Sauzet 1989)

'worthy.M'	'worthy.F'	'worthy.N'	
áksˈìòs	aksíˈàà	áksˈìòn	NOM.SG
áksˈìòn	aksíˈààn	áksˈìòn	ACC.SG
aksíˈòò	aksíˈààs	aksíˈòò	GEN.SG
aksíˈɔɔ̀ʲ	aksíˈààʲ	aksíˈɔɔ̀ʲ	DAT.SG
áksˈìòj	áksˈìàj	áksˈìà	NOM.PL
aksíˈòòs	aksíˈààs	áksˈìà	ACC.PL
aksíˈɔɔ̀n	aksíˈɔɔ̀n	aksíˈɔɔ̀n	GEN.PL
aksíˈòìs	aksíˈàìs	aksíˈòìs	DAT.PL

(See Golston 1990, Kiparsky 2003, and Blumenfeld 2004 for further development; and Gunkel 2014 for

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discussion.)

We assume here that there are actually *three* tonal classes in Ancient Greek. In addition to HL* (2), we find surface classes of H and HL*, the latter being especially common on words that have lost a stem-vowel (traditionally 'contract-vowels'). The lost vowel is not synchronically recoverable, so the surface H*L accent must be part of the grammar.

(3) H*L falling accent

'golden.M'	'golden.F'	'golden.N'	
khruuˈsóòs	khruuˈsɛ́ɛ̀	khruuˈsóòn	NOM.SG
khruuˈsóòn	khruuˈsɛ́ɛ̀n	khruuˈsóòn	ACC.SG
khruuˈsóò	khruuˈsɛ́ɛ̀	khruuˈsóò	GEN.SG
khruuˈsɔ́ɔ̀ʲ	khruuˈsɛ́ɛ̀ʲ	khruuˈsɔ́ɔ̀ʲ	DAT.SG
khruuˈsóì	khruuˈsáì	khruuˈsáà	NOM.PL
khruuˈsóòs	khruuˈsáàs	khruuˈsáà	ACC.PL
khruuˈsóòn	khruuˈsóòn	khruuˈsóòn	GEN.PL
khruuˈsóìs	khruuˈsáìs	khruuˈsoìs	DAT.PL

Note that both HL* and H*L are falling accents, echoing Allen's 'falling melodic pattern'.

Our third tonal class occurs mostly as exceptions to the falling accents. Words with a simple final H accent throughout are limited to the so-called Attic declension and their accentuation is not firmly established; i.e., there may be *no* nominal or verbal paradigms in the language with final H everywhere. Final H accent is, however, firmly established as a sub-pattern that interrupts the falling H*L and HL* patterns. The pattern for ἀγαθός 'good', for instance, has H in the nominative/accusative and H*L in the genitive/dative:

(4) Mixed H*L and H accentuation

'good.M'	'good.F'	'good.N'		
aˈgatʰós	agaˈtʰɛ́ɛ́	aˈgatʰón	H	NOM.SG
aˈgatʰón	agaˈtʰɛ́ɛ́n	aˈgatʰón	H	ACC.SG
agaˈtʰóò	agaˈtʰɛ́ɛ̀s	agaˈtʰóò	H*L	GEN.SG
agaˈtʰɔ́ɔ̀ʲ	agaˈtʰɛ́ɛ̀ʲ	agaˈtʰɔ́ɔ̀ʲ	H*L	DAT.SG
aˈgatʰój	aˈgatʰáj	aˈgatʰá	H	NOM.PL
agaˈtʰoós	agaˈtʰaás	aˈgatʰá	H	ACC.PL
agaˈtʰóòn	agaˈtʰóòn	agaˈtʰóòn	H*L	GEN.PL
agaˈtʰóìs	agaˈtʰáìs	agaˈtʰóìs	H*L	DAT.PL

Fully mixed paradigms include words like βασιλεύς 'king', which has H in NOM.SG, HL* in ACC and GEN, and H*L in DAT and NOM.PL:

(5) Mixed HL*, H*L, and H accentuation

'king'		
basiˈleús	H	NOM.SG
basiléˈàà	HL*	ACC.SG
basiléˈòòs	HL*	GEN.SG
basiˈléì	H*L	DAT.SG
basiˈléès	H*L	NOM.PL
basiléˈààs	HL*	ACC.PL
basiléˈòòn	HL*	GEN.PL
basiˈléùsi	H*L	DAT.PL

We pursue the details of these accentual classes in other work in preparation. For the present, we focus on words with accent on the final vocalic mora (traditional oxytones) and what transpires when such words

are followed by other accented words in the postlexical phonology.

2 Word-final change of acute to grave

Ancient Greek grammarians note that oxytones change from orthographic acute (´) to grave (`) when immediately followed by another accented word in the phrase; perispomenon, paroxytone, and the rest have no such change (see Probert 2003). Our evidence for a tonal interpretation of Greek accent involves this change of word-final acute to grave. Word-initial acute (6a) and word-medial acute (6b) appear unchanged regardless of where the word occurs in its phrase. Word-final acutes, on the other hand, only surface as such phrase-finally (6c) or preceding an enclitic (6d); otherwise, they appear as graves (`), no matter how many syllables intervene between the two accents (6e-j):

(6) Acute → grave (word-finally, preceding an accented word)

a.	ἄνθρωπος	ánthrɔɔpos 'person'
b.	ἀνθρώπου	anthrɔ́pou 'of a person'
c.	πολιτικός	poliitikós 'political'
d.	πολιτικός τις	poliitikós tis 'some political (guy)'
e.	πολιτικὸς ἄνθρωπος	poliitikòs ánthrɔɔpos 'political person'
f.	πολιτικὸς ἀνθρώπου	poliitikòs anthrɔ́pou 'political (something) of a person'
g.	πολιτικὸς ναυπηγός	poliitikòs naupɛɛgós 'political shipwright'
h.	πολιτικὸς ἀνθρωποδαίμων	poliitikòs anthrɔɔpodaímɔɔn 'political man-god'
i.	πολιτικὸς πανηγυριστής	poliitikòs panɛɛguristɛ́s 'political panegyric'
j.	πολιτικὸς ἀνθρωπομορφισμός	poliitikòs anthrɔɔpomorphismós 'political anthropomorphism'

3 Acute → grave as destressing

If the change of word-final acute to grave involves destressing, it is highly unusual in the languages of the world, as it targets stress when followed by another stress at an any distance (6e-j). Destressing is usually due to the avoidance of stress clash (Selkirk 1984, Nespor & Vogel 1989), which targets only *adjacent* syllables, such that we might expect (6e), clash avoidance between stresses on adjacent syllables across words, but not (6f-j), which are increasingly unlikely candidates for stress clash as the number of syllables intervening between the two accented syllables increases.

Another possibility is that some kind of Rhythm Rule (Liberman & Prince 1977) is responsible for the change in accentuation. In English, we see à*bstráct árt* realized as *ábstràct árt*, and this can happen even to

stresses that are not adjacent, as we see when *Sànta Mónica* shifts it primary stress leftwards in *Sánta Mònica* Fréeway. But this should shift stress, not delete it, so that we would find *politikó̲s pánt^hεεr* realized as, e.g., *polí̲tikos pánt^hεεr*, with accent shifted rather than lost.

Gussenhoven (1991) argues that the Rhythm Rule is actually accent deletion in English rather than stress retraction, that an accent deletes before a following accent:

(7) Accent deletion in English

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   *   *    *           *       *
bamboo   tables      bamboo tables
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This is a more promising approach to the Greek facts, since the grave may well represent no tone at all instead of a lowered tone. Still, it lacks some detail when applied to Greek, where only word-final H tones delete/lower. Why should this be the case? For that we need a more fully articulated tonal analysis.

4 Acute → grave as lowering

As is well known, the Obligatory Contour Principle (OCP, Leben 1973) prohibits tier-adjacent identical tones—and these need not be adjacent in terms of syllables (see Myers 1997). If the tonal analysis we sketched in 2 is correct, Greek words end either in H or in one of two falling tones, HL* and H*L:

(8) Three tonal possibilities (H tone underlined)

basiˈleú̲s	'king.NOM.SG'	H
basiˈlé̲ì	'king.DAT.SG'	H*L
basí̲ˈlèà	'king.ACC.SG''	HL*

When tonic words come together, then, there are nine tonal possibilities (9-11). Word-order is extremely free in Ancient Greek (Devine & Stephens 2000) due to phonological movement (Agbayani & Golston 2010), so the following sentences are all grammatical despite the sometimes odd word order. We begin with cases of H + any accent, which always results in lowering of the first H tone to L. Tones in verbs are omitted for clarity.

(9) H → L before any accent

```
      L             H          (from H H)
      |             |
basiˈleù̲s     basiˈleú̲s     esti
king.NOM.SG   king.NOM.SG   is
'a king is a king'

      L          H* L          (from H H*L)
      |           \ /
basiˈleù̲s     basiˈlé̲ì      hépetai
king.NOM.SG   king.DAT.SG   follows
'a king follows a king'

      L         H L*           (from H HL*)
      |         | /\
basiˈleù̲s     basí̲ˈlèà      timáà
king.NOM.SG   king.ACC.SG   honors
'a king honors a king'
```

The reason should be clear: the first H tone is in each case followed by another H tone, which triggers

lowering to satisfy the OCP.

If the first word is H*L, as we see in the three cases below, its final L tone prevents lowering due to OCP no matter what the following accent is:

(10) H*L remains unchanged before any accent

```
                H* L          H
                 \ /          |
hépetai   basiˈléì      basiˈleús
follows   king.DAT.SG   king.NOM.SG
‘a king follows a king’

    H* L           H* L
     \ /            \ /
basiˈléès      basiˈléès      eisi
kings.NOM.PL   king.NOM.PL    are
‘kings are kings’

    H* L          HL*
     \ /          | /\
basiˈléès      basiléˈààs    timɔ́ɔ̀si
king.NOM.PL    king.ACC.PL   honor
‘kings honor kings’
```

Finally, if the first word is HL*, its final L again prevents lowering in all cases:

(11) HL* remains unchanged before any accent

```
              H L*          H
              | /\          |
timáà    basiléˈààs    basiˈleús
honors   king.ACC.PL   king.NOM
‘a king honors kings’

    H  L*         H* L
    |  /\          \ /
basiléˈààs     basiˈléès     timɔ́ɔ̀si
king.ACC.PL    king.NOM.PL   honor
‘kings honor kings’

    H  L*        H  L*
    |  /\        |  /\
basiléˈòòn     basíˈlèà      timɔ́ɔ̀
king.GEN.PL    king.ACC.SG   I.honor
‘I honor a king of kings’
```

That is, word-final H is always followed by another H tone if it is followed by any tonic word, explaining why word-final H lowers except when phrase-final or preceding an enclitic. Non-final H is always followed by a L tone in Greek since only H*L and HL* place a H tone non-finally; since non-final H is always protected from a following H tone by an intervening L, the OCP never applies and all non-final Hs surface as is.

5 A parallel in Bantu

A number of Bantu languages have processes that eliminate the first or second H in a sequence of Hs. Best known are cases where HH → HL, which Goldsmith (1984ab) calls *Meeussen's Rule* in honor of A. E. Meeussen's work on Bantu. The opposite occurs as well, where HH → LH, in languages like Rimi, spoken in Tanzania (Olson 1964, Myers 1997). This is *Anti-Meeussen's Rule*.

Our proposal is that Ancient Greek has a form of *Anti-Meeussen's Rule* that lowers a H before a H across words to respect the OCP. The details of application fall out immediately given the independently needed accentual classes proposed in 2.

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