



Minimal Word, Minimal Affix

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*Minimal Word, Minimal Affix*¹

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Recent studies (most notably McCarthy & Prince 1990) have begun to articulate the notion of a 'minimal word': many languages place minimal prosodic restrictions on the size of well-formed words. As McCarthy & Prince note, however, *non-lexical* words (articles, conjunctions, complementizers, etc.) in such languages often do not obey these minimality constraints, which hold exceptionlessly only for *lexical* words. English, for instance, has a strict minimal word requirement (a heavy syllable, i.e., C₀VV or C₀VC) which the articles *the* (CV) and *a* (V) defy; Diyari has a two-syllable minimal word requirement not met by the monosyllabic conjunction *ya* 'and' (Austin 1981); and so on. Such languages impose a minimal word requirement only on lexical words, i.e., on those that carry the features [±N, ±V]: N, A, V, Adv.

In this paper I suggest that the minimal word (hereafter 'min wd') requirement has a parallel among affixes: some languages require that affixes as well as words consist of a minimal amount of prosodic material. In particular, I propose that English and Ancient Greek have the following minimal prosodic requirements for words and affixes:

(1) Minimal word, minimal affix

	Min Wd	Min Aff
English	μ μ	μ
Ancient Greek	μ μ	μ

That is, words in these languages consist minimally of two moras (C_0VC or C_0VV in the standard case), and affixes consist minimally of one mora (C_0V or a syllabic consonant).

Two additional claims will be made here. First, the min wd requirements in (1) hold not only of lexical words but also of lexical *roots* (Bloomfield 1933). Second, just as min wd requirements hold only for *lexical* words (N, A, V, Adv), min aff requirements hold only for *lexical*, i.e., derivational, affixes (affixes that create N, A, V, Adv). Thus, the claims implicit in (1) apply in terms of (2):

(2) Lexicality and minimal prosodic requirements: English and Ancient Greek

	minimal requirement	
Lexical Roots, Lexical Words	yes	μ μ
Derivational Affixes	yes	μ
non-Lexical Roots, non-Lexical Words	no	
Inflectional Affixes	no	

In these two languages, then, nouns, verbs, adjectives, adverbs and the derivational affixes that create them are subject to prosodic well-formedness conditions to which articles, conjunctions, pronouns, complementizers, etc. and inflectional affixes are not subject.

The paper is organized as follows. First, a minimal word requirement is established for English and it is argued that this requirement follows from a minimal requirement on *roots* (1.1). Second, it is shown that function words in English are not subject to this minimal word requirement (1.2). Third, a minimal affix requirement is established for English (1.3) and it is shown that inflectional affixes in English are not subject to this minimal affix requirement (1.4). Evidence for the same claims is then given from Ancient Greek: a minimal word/minimal root requirement is proposed (2.1) and it is shown that function words do not conform to this requirement (2.2); a minimal affix requirement is proposed for derivational affixes (2.3) and it is shown that inflectional affixes do not conform to this requirement (2.4).

1. English.

1.1 *Min Wd* = [μ μ]. English has no lexical words which consist of less than a bimoraic syllable:

- (3) English monosyllabic lexical words
- a. CVC: bit 'bit', hɛd 'head', tɔk 'took', tɒf 'tough'
 - b. CVV: biɪ 'bee', heɪ 'hay', tuu 'two', bɔɪ 'boy'
 - c. *CV: *tɪ, *hɛ, *bɔ, *hə

The two mora requirement on lexical words holds of lexical roots as well. This is especially evident in the many borrowed roots from Greek and Latin. Sloat & Taylor (1975) provide a useful pedagogical list of classical roots in English. Of the approximately 1,150 they list, about 97% have two or more moras. The majority of these are C₀VC, e.g., *phil* 'love', *den* 'tooth', though some C₀VV show up as well, e.g., *flu* /fluu/ 'flow' (*fluid*, *fluent*), *my* /mɑi/ 'muscle' (*myology*, *myocardium*). Sloat & Taylor list 30 allomorphs of roots that consist of less than two moras, but none of these seems to be synchronically recoverable in English:

(4) Some putative allomorphs of Classical roots in English

C ₀ V:	affable	<u>clitic</u>	epithet	plethora	pus
	analysis	<u>crescent</u>	<u>flatulence</u>	professor	<u>quantity</u>
	<u>butter</u>	<u>dismal</u>	<u>pity</u>	prophet	<u>scilicet</u>
C ₀ :	<u>arrest</u>	<u>cognition</u>	<u>diarrhea</u>	<u>pregnant</u>	<u>surplice</u>
	<u>apostle</u>	<u>cramium</u>	<u>enmity</u>	<u>problem</u>	<u>tmesis</u>
	<u>clandestine</u>	<u>cremate</u>	<u>multiple</u>	<u>remnant</u>	

The bimoraic minimum on roots and words, then, appears to be exceptionless if only lexical items (N, A, V, Adv) are considered.

1.2 *Non-lexical words in English*. English has two non-lexical words, however, which are monomoraic, namely, the articles *a* and *the*. That non-lexical words often do not conform to minimal word requirements imposed on lexical words was first pointed out (I believe) by Bloomfield:

The roots of a language are usually quite uniform in structure.... In a few languages, such as Chinese, the structure of the roots is absolutely uniform; in others, we find some roots that are shorter than the normal

type. It is a remarkable fact that these shorter roots almost always belong to a grammatical or a semantic sphere which can be described, in terms of English grammar, as the sphere of pronoun, conjunction, and preposition. In German, which has much the same root structure as English, the definite article contains a root [d-], for in the forms *der*, *dem*, *den*, and so on, the rest of the word (-*er*, -*em*, -*en*, and so on) in each case a normal inflectional ending, appearing also in the inflectional forms of an adjective like 'red': *rot-er*, *rot-em*, *rot-en*. The same applies to the interrogative pronoun 'who?' with forms like *wer*, *wem*, *wen*. In Malayan and in Semitic, many words in this semantic sphere have only one syllable [despite a two syllable minimal limit on content words--C.G.], as, in Tagalog, [ət] 'and', or the syntactic particles [əŋ] 'sign of object-expression', [əj] 'sign of predication,' [nə] 'sign of attribution.' This semantic sphere is roughly the same as that in which English uses atonic words. (1933:243-4)

In addition, it is worth pointing out that a large number of English FWs reduce to monomoraic or non-moraic sequences in normal speech: *and* reduces to [ŋ] (*Tom 'n' Jerry*), *will* to [l] (*You'll go*), *am* to [m] (*I'm hungry*), *would* to [d] (*Joe'd go*) and so on. Content words in English are not subject to such reduction and consequently never appear with less than two moras on the surface (except, perhaps, in very rapid speech).

1.3 *Min Aff* = [μ]. English has no lexical (=derivational) affixes that consist of less than a mora. All of the 65 prefixes listed in Marchand (1969) are C₀V or greater:

(5) English prefixes (Marchand 1969)²

a-	a-	ante-	anti-	arch-	auto-	be-	bi-
circum-	cis-	co-	counter-	crypto-	de-	demi	di-
dis-	en-	epi-	ex-	extra-	fore-	hyper-	hypo-
in-	inter-	intr-	mal-	meta-	micro-	mid-	mis-
mono-	multi-	neo-	non-	pan-	para-	per-	peri-
poly-	post-	pre-	preter-	pro-	pro-	pro-	proto-
pseudo-	re-	retro-	semi-	step-	sub-	super-	supra-
sur-	trans-	tri-	twi-	ultra-	un-	un-	uni-
vice-							

The same holds for suffixes; of the 80 or so that Marchand lists, all but a few

(underlined below) consist of at least C₀V:

(6) English suffixes (Marchand 1969)³

-able	-acy	-age	-al	-al	-an	-ance	-ancy
-ant	-ard	-arian	-ary	-ate	-ate	-ate	-ate
-ation	-by	-cy	-dom	<u>-ed</u>	<u>-ed</u>	-ee	-een
-eer	-en	-en	-er	-er	-erel	-ery	-ese
-esque	-ess	-et	-ette	-fold	-ful	-ful	-hood
-iana	-ic	-ician	-ie	-fy	-ine	-ing	-ing
-ish	-ism	-ist	-ister	-ite	-ity	-ive	-ize
-kin	<u>-le</u>	<u>-le</u>	-less	-let	-ling	-ly	-ment
-mo	-most	-ness	-ory	-ous	-ship	-some	-some
-ster	<u>-th</u>	-ton	-ure	-ward	-y	-sy	-ety
-i							

The apparent exceptions have the shapes represented orthographically by *-th*, *-ed* and *-le*. I will argue that they all admit of alternative analyses that render their status as exceptions to the min aff requirement dubious.

-le. Marchand distinguishes two suffixes with this form, one deverbal (*spark-le*), the other primarily denominal (*spitt-le*). He points out that the former is not a derivative suffix proper from existing roots and is best treated as a recognizable but not segmentable symbolic element of a number of words: "Twink is not recorded before 1400, i.e., 500 years later than *twinkle*; *fizzle* is recorded 1532, *fizz* 1665, *quackle* 1564 is older than *quack* 1617. Many verbs probably never had a simple root without the [l] element, as *drizzle*, *bustle*, *hustle*, *rustle*, *suffle*, *shuffle*, *trickle*..." (ibid.). Denominal *-le* (*nozzle*, *speckle*, *knobble*) is not productive either: Marchand notes that no coinages have been made from it since about 1600. Denominal *-le* does seem to have been productive in Old English, but its forms at that stage in the language were moraic (*-el*, *-ela*, *-ele*) according to Marchand. Thus neither deverbal nor denominal *-le* provides a good counterexample to the min aff requirement.

-ed. Marchand distinguishes two suffixes here, the type found in *feathered* and the type found in *palefaced*. Both are derived from the *inflectional* ending found on past participles (and thus are exceptions that prove the rule, so to speak) and both have unpredictable allomorphs in /tɪd/ which satisfy the one-mora minimum⁴. Comparative evidence that both types of *-ed* were originally inflectional comes from other IE languages in which the same alternation

between denominal and deverbal adjectives occurs (e.g., Latin *dentatus* 'toothed' and *amatus* 'was loved'). Internal evidence includes the fact that in Old and Middle English such denominals are also found with the participial prefix *ge-* (*gehlidod* 'lidded', *geswurdod* 'sworded'). Synchronic evidence that denominals in *-ed* are still felt to be inflection-like comes from the otherwise peculiar fact that these adjectives (and no others) may be modified with *well-* and *ill-*, which otherwise modify only deverbal participles (*well-worn*, *well-fitting*, *ill-suited*, *ill-becoming*; but **well-blue*, **well-warm*, **ill-big*, etc.).

Morover, many of the oldest and most common *feathered*-type words belie an underlying suffix /ɪd/ rather than /d/:

(7) /ɪd/:	crooked	<	crook	[kɹɔkɪd]	*[kɹɔkt]
	wretched	<	wretch	[ɹɛʃɪd]	*[ɹɛʃt]
	ragged	<	rag	[ɹæɡɪd]	*[ɹæɡd]
	jagged	<	jag	[ʃæɡɪd]	*[ʃæɡd]

The suffix /ɪd/ conforms neatly to the one-mora minimum and accounts for the otherwise anomalous data in (7), given that truly inflectional *-ed* (underlyingly /d/) never surfaces as syllabic, even after velars: *looked* [lɔkt], *[lɔkɪd]; *wagged* [wæɡd], *[wæɡɪd].

Additional evidence that the *palefaced*-type *-ed* suffix is felt to be inflectional rather than derivational comes from the fact that it is added not to true compounds (8a) but to syntactic phrases (usually N-bars) (8b). This is made evident by the fact that bare nouns generally are not affixed with this type of *-ed* (8c):

(8)	a.	*	[[báking-pɔwder] _N ed]	'having baking powder'
		*	[[wáll-pàper] _N ed]	'having wall paper'
	b.		[[hèavy hánd] _N ed]	
			[[thrèe córner] _N ed]	
	c.	*	[[hánd] _N ed]	
		*	[[córner] _N ed]	

The inflectional nature of both types of *-ed* is probably what allows them to exist as sub-moraic affixes (insofar as they are sub-moraic). Again, *-ed* is the (quasi inflectional) exception that proves the rule that (truly) derivational affixes

in English must consist of at least one mora.

-th. This is not a very productive affix in English (Marchand notes that it has only "a few coinages of doubtful currency" (1969:349)) and might well be dismissed as a serious counterexample to the minimal affix requirement for this reason. Note also that the most common words containing *-th* involve an unpredictable ablaut variant of the stem-vowel, indicating that words like *length* and *depth* are not synchronically derived from [*long + th*] and [*deep + th*]:

(9) a. Ablaut vowels and *-th*

[ɔ]-[ɛ]		[i]-[ɛ]		[a]-[ʊ]	
long	length	deep	depth	wide	width
strong	strength	heal	health	five	fifth
broad	breadth	weal	wealth		

b. Non-ablauting vowels and *-th*

four	fourth	thirteen	thirteenth	nine	ninth
warm	warmth	fourteen	fourteenth	height	height

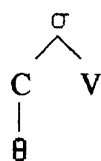
Even if *-th* were to be treated as a synchronic affix of English, its status as a counterexample to the minimal affix requirement would not be beyond dispute. Facts discussed by Goldsmith (1990) can be interpreted as evidence that *-th* consists of a CV sequence underlyingly, with the V-slot empty. *-th* is exceptional not only by its apparently non-moraic status, but also by its ability to occur in the codas of syllables in positions normally restricted to [s, z, d, t]. Goldsmith points out that sequences of obstruents are not allowed word finally in English unless one of the obstruents is unmarked for place of articulation, i.e., is an alveolar:

(10) [V C₁ C₂]_σ -> (C₁ is alveolar) or (C₂ is alveolar)

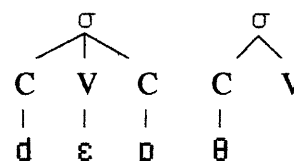
That is, given a coda-cluster consisting of two obstruents, one of the obstruents must be [s], [z], [t] or [d]: *æfk, *æθk, *æfp, *æθp, and *ækf, *ækθ, *æpθ, *æfk are impossible English morphemes. Curiously, θ *does* occur after another non-alveolar obstruent but *only* when it occurs as a separate morpheme: *depth*, *length*, *strength*, etc. Goldsmith asserts that the morpheme *-th* simply licenses [θ] in this position, since [θ] is not licensed in this position in monomorphemic words.

One problem with Goldsmith's view is that *any* point of articulation could be licensed, even one that does not occur in English (linguo-labial, palatal); his proposal is clearly too strong in that it allows far more than it needs to. All that is required is a) that a segment that commonly occurs in onsets and simple rhymes be allowed to occur after [p] and [k] in the coda and, b) that this be a property of the affix *-th*, since it does not occur with θ morpheme-internally. This may be accomplished with an underlyingly CV form of the suffix in which the V-slot is empty (11a):

(11) a. *-th* as underlyingly CV



b. *depth*



The empty V-slot puts θ in the onset of a syllable, where it is licensed by the same licensing that permits words like *thing* and *thick*; the *apparent* coda cluster [p θ] in (11b) does not violate the restriction that a coda cluster cannot have two non-alveolar points of articulation. Of course the underlying representation of *-th* in (11) also does not violate the minimal affix restriction: like *-ive* and *un-*, *-th* consists underlyingly of a C₀V sequence.

In short, none of the apparent counterexamples to the min aff requirement in English are real counterexamples: putative suffixes with the shape [l] (*-le*) are probably not really suffixes in the language; suffixes with the shape [d] (*-ed*) are basically inflectional in nature rather than derivational, and *-th* is neither clearly a suffix nor clearly non-moraic underlyingly.

1.4 Inflectional affixes in English. English has eleven inflectional affixes, eight of which do not obey the min aff requirement required of derivational affixes.

(12) English inflectional affixes

-s	/z/	duck-s, dog-s	plural
's	/z/	duck-'s, dog-'s	possessive ⁵
-er	/əɹ/	brown-er, slow-er	comparative

-est	/ɪst/	brown-est, slow-est	superlative
-s	/z/	eat-s, beg-s	3rd singular
-ed	/d/	bak-ed, claw-ed	past
-ing	/ɪŋ/	(is) sink-ing, (is) flow-ing	present participle
-en	/n/	(was) take-n, (was) see-n	passive participle
-en	/d/	(was) bake-d, (was) kill-ed	passive participle
-en	/n/	(have) tak-en, (have) see-n	perfect participle
-en	/d/	(have) bake-d, (have) kill-ed	perfect participle

Clearly, the min aff requirement does not hold of inflectional affixes the way it does for derivational affixes. This parallels the case for words: lexical words in English are subject to a min wd requirement that non-lexical words escape. Minimal word and affix requirements in English, then, hold only of *lexical* formatives.

2. Ancient Greek.

2.1 *Min Wd* = [μ μ]. As in English, Ancient Greek lexical words can be shown to be minimally bimoraic. One complication occurs: word-final consonants in AG are extrametrical (Steriade 1988), with the result that monosyllabic lexical words with short vowels must end in two consonants (since the second is extrametrical): thus the C₀VC or C₀VV requirement of English translates into a C₀VCC or C₀VV requirement for AG.

(13) Ancient Greek monosyllabic lexical words (final C extrametrical)

C ₀ VV:	mnáa 'type of currency'	gée 'earth'	theés 'serf'
	theér 'beast'	náus 'ship'	bóus 'cow'
C ₀ VCC:	thríks 'hair'	phléps 'vein'	háls 'salt'
	ops 'voice'	núks 'night'	ptúks 'layer'

*C₀V

*C₀VC

The same bimoraic requirement holds of lexical roots, except that the final C of roots is not extrametrical. Thus AG roots, like those in English, are minimally C₀VV or C₀VC:

(14) Ancient Greek monosyllabic lexical roots (final C extrametrical)

C ₀ VV:	mnáa- 'type of currency'	gée- 'earth'	theé- 'serf'
	theér- 'beast'	náu- 'ship'	bóu- 'cow'
C ₀ VC:	thrík- 'hair'	phlép- 'vein'	hál- 'salt'
	op- 'voice'	núk- 'night'	ptúk- 'layer'
*C ₀ V			

AG has no monoraic lexical roots and thus no monomoraic lexical words. The min wd for lexical items in AG is $\mu\mu$.

2.2 *Non-lexical words in Ancient Greek*. AG has a large number of non-lexical words, however, which are monomoraic. The clearest cases are those whose shape is C₀V (15a), but C₀VC cases are equally important when final consonant extrametricality is taken into account (15b):

(15) Ancient Greek monomoraic function words (final C extrametrical)

	a. C ₀ V	b. C ₀ VC
Preposition	pró 'in front of'	ek 'out of' en 'in' prós 'towards' sún 'with'
Determiner	ho 'the' (m nom sg) tó 'the' (n nom/acc sg) tá 'the' (n nom/acc pl)	tón 'the' (m acc sg)
Pronoun	me 'me' sú 'thou' sé 'thee' hé 'him'	só-s 'thy' (m nom sg) só-n 'thy' (n nom/acc sg)
Interrog.	tí 'what'	tí-s 'who' (m/f nom sg)
Relative	hó 'which' (n nom/acc sg) há 'which' (n nom/acc pl)	hó-s 'who' (m nom sg) hó-n 'whom' (m acc sg)
Conjunction		prín 'before'
Particle	gé 'at least' dé 'and' má 'verily' vú 'now' té 'and'	gár 'for' mén 'indeed' vún 'now' pér 'very'

(m=male, f=female, n=neuter)

The words in (15), then, show that non-lexical words in AG are not subject to the min wd requirement of $\mu\mu$. As in English, words in AG are subject to min wd requirements if and only if they are lexical.

Itô (1989) has suggested for Japanese that only *derived* words must meet minimal prosodic requirements. If this were the case in AG, much of the data in (15) could be accounted for by noting that most non-lexical words (particles, conjunctions, etc.) are not derived words. The pronouns in (15), however, are derived forms: e.g., *hó-s* 'who (m nom sg)', *hó-n* (m acc sg). The underlying non-lexical roots as well as the inflected forms fail to obey the $\mu\mu$ requirement.

2.3 *Min Aff* = [μ]. Like English, Ancient Greek has no clear cases of lexical (=derivational) affixes that consist of less than a mora. The number of AG derivational suffixes is prohibitively high, so I will illustrate the min aff requirement with a (partial) list of noun-forming suffixes from Smyth (1920).

(16) some Ancient Greek noun-forming suffixes

		Agentives	
-eu	graph-eú-s 'writer'	-taa	kri-teé-s 'judge'
-teer	do-teér 'giver'	-tid	hik-é-tid-os 'of a suppliant'
-tor	rheé-toor 'orator'	-triaa	poieé-tria 'poetess'
-trid	aulee-tríd-os 'of a flute-girl'	-tro	iiia-tró-s 'physician'
Abstract Substantives			
-ti	pís-ti-s 'faith'	-si	poíee-si-s 'poetry'
-siaa	dokima-síaa 'examination'	-tu	ás-tu 'city'
-mo	dioog-mó-s 'pursuit'	-maa	gnoó-mee 'knowledge'
-maa	tól-ma 'daring'	-es	dé-os 'fear'
-iaa	man-íaa 'madness'	-o	arkh-ó-s 'leader'
-a	arkh-eé 'beginning'	-ad	tri-ád-os 'of a triad'
-iaa	aleéthe-ia 'truth'	-iaa	eu-daimoon-íaa 'happiness'
-sunaa	dikaio-súnee 'justice'	-teet	philó-teet-os 'of friendship'
-es	gén-os 'race' (/genes-os/)	-mat	gram-ma 'letter' (/gram-mat/)
Instrumental			
-tro	aro-tro-n 'plough'	-thro	kléi-thro-n 'closing-bar'
-ro	pte-ró-n 'wing'	-traa	mák-traa 'kneading-trough'
Person Concerned			
-eu	gram-mat-eú-s 'secretary'	-taa	naú-tee-s 'sailor'
-iaa	hiére-ia 'priestess'	-id	pharmak-íd-os 'of a witch'
-tid	oiké-tid-os 'of a house-maid'	-ittaa	thée-tta 'female serf'

Gentiles and Place Names

-eu	Platai-eú-s 'Plataian (m)'	-taa	Sikeli-oó-tee-s 'Sciliote (m)'
-ios	Atheená-ios 'Athenian (m)'	-id	Platai-íd-os 'Plataian (f gen)'

Patronymics

-adaa	Thesti-ádee-s 'son of Thestios'	-daa	Boreaá-dee-s 's.o. Boreas'
-idaa	Tantal-ídee-s 's.o. Tantalus'	-iadaa	Persee-iádee-s 's.o. Perseus'
-ad	Thesti-ad-os 'd.o. Thestis'	-ideo	adelph-idou-s 'nephew'
-iion	Kron-iion-os 's.o. K. (gen)'	-id	Tantal-íd-os 'd.o. T. (gen)'
-iad	Persee-ídos 'd.o. Perseus'	-ioonaa	Akris-ioónee 'd.o. Akrisios'
-iinaa	Adreest-ifnee 'd.o. Adrastos'	-ideaa	adelph-idée 'd.o. sibling'

Place

-io	Dionuús-io-n 'temple of D'	-oon	andr-oón 'apartment for men'
-iitid	androon-fitis 'mens apartment'	-traa	orkheé-s-traa 'dancing-place'

Diminutives

-io	paid-íó-n 'little child'	-idio	ksiph-ídio 'small sword'
-ario	paid-árió-n 'little child'	-udrio	mel-údrio-n 'little song'
-ullio	ep-úllio-n 'little epic'	-isko	anthroop-ísko-s 'manikin'
-id-eu	luk-id-eú-s 'wolf's whelp'	-ikho	ortál-ikho-s 'young bird'
-iskaa	paid-ískee 'little girl'	-aknaa	pitháknee 'wine-jar'
-id	hamaks-íd-os 'little wagon (gen)'	-ikhnaa	kul-íkhnee 'little cup'

Again, all of the affixes in (16) are minimally mono-moraic. AG has no derivational affixes that consist of less than a mora.

The same cannot be said, however, for inflectional affixes. Like English, AG has a number of non-moraic inflectional affixes. Some of these are given in (17). A full list of AG inflectional affixes would be quite extensive--listing some of the sub-moraic ones here will suffice to show that inflectional affixes need not conform to the min aff requirement operative in (16).

(17) some Ancient Greek non-moraic inflectional affixes

a. nominal suffixes

hodó-s	hodó-n
road-nom sg	road-acc sg

b. verbal person/number suffixes

tí-thee-s	e-tí-thee-n
REDUP-put-2sg	PAST-REDUP-put-1sg
'you put'	'you put'

c. verbal tense-aspect suffixes

luú- <i>s</i> -oo	é-luu- <i>s</i> -a
loosen- <i>FUTURE</i> -1sg	PAST-loosen- <i>A OR</i> -1sg
'I shall loosen'	'I loosened'
lé-lu- <i>k</i> -a	e-lú- <i>θ</i> -een
REDUP-loosen- <i>PERF</i> -1sg	PAST-loosen- <i>PASSIVE</i> -1sg
'I have loosened'	'I was loosened'

Again, AG affixes are subject to the μ -minimum if and only if they are lexical, i.e., derivational.

Conclusion. A significant generalization seems to hold over the morphemes of English and Ancient Greek. Lexical words in both languages must be minimally bimoraic while non-lexical words need not be; similarly, lexical (derivational) affixes must be minimally monomoraic while non-lexical (inflectional) affixes need not be. This is summarized in (18).

(18) English and Ancient Greek minimal prosodic requirements

	minimal requirement
Lexical Words	$\mu\mu$
Derivational Affixes	μ
non-Lexical Words	---
Inflectional Affixes	---

The broader generalization behind (18) is that lexical formatives (words and affixes) in these languages are subject to minimal prosodic requirements to which non-lexical formatives (words and affixes) are not subject:

(19) English and Ancient Greek minimal prosodic requirements

	minimal requirement
Lexical words and affixes	yes
Non-lexical words and affixes	no

I hope to have motivated the notion of a minimal affix in this paper. More importantly, however, I hope to have shown that a significant generalization holds between lexical words and derivational affixes on the one hand, and non-lexical words and inflectional affixes on the other. This supports the traditional distinction between the lexical and the grammatical formatives of a language.

Notes

1. I would like to thank Cheryl Chan, Bruce Hayes, Donka Minkova and Donca Steriade their help in writing this paper. Inaccuracies, etc. are my own.
2. Prefixes that are listed more than once are ones that Marchand treats as separate affixes: *ablaze* vs. *asymmetric*; *proconsul* vs. *pro-amnion* vs. *pro-British*; *unfair* vs. *untie*. Marchand generally posits separate affixes when they attach to different word-classes: [un[*fair*]_{Adj}] vs. [un[*tie*]_V]. (cf. the Unitary Base Hypothesis of Aronoff 1976).
3. I have not included alternate spellings here (*-ance*, *-ence*; *-ine*, *-in*), nor all of the allomorphs of each morpheme (*-ery*, *-ry*; *-ify*, *-fy*; *-ety*, *-ity*, *-dy*, *-ty*). Marchand also lists a number of what he calls semi-suffixes, none of which violates the min aff requirement: *-like*, *-worthy*, *-monger*, *-way/-ways*, *-wise*, *-word/-wright*. I will not discuss these here (see Marchand 1969).
4. This paragraph relies on the historical analysis Marchand gives.
5. I follow Emonds (1985) and others in considering 's an inflectional affix. It is, of course a phrasal rather than a lexical affix, since it is attached to NP rather than to N (see Anderson 1988, Golston 1989).

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