

[1] stress has no invariant phonetic correlates: intensity, duration, pitch

[2] data:

- speaker judgments: America, Alabama, hurricane, Tennessee, pontoon, carbide, permit (v), permit (n), Apalachicola, Constantinople, sensationality;
- phonological processes: vowel reduction, flapping ('atom vs. at'omic)--loss of contrast Italian.
- site of nuclear pitch accents in intonation tunes

assimilation	declarative	assimilation	interrogative	assimilation	"predictable"
preliminary		preliminary		preliminary	
monsoon		monsoon		monsoon	

[3]. some cross-linguistic properties that distinguish stress from other phonological features like nasality

- i) greater than binary distinctions
- ii) never assimilated
- iii) apparent nonlocality: Cairene: '321, 43'21, 54'321, 6543'21
- iv) rhythmic: repetition of a motif: 'Apal'achic"ola, cf. Finnish, Australian
- v) heavy syllables attract stress: CVV (heavy), CV (light), CVC (variable)
- vi) culminativity: one syllable per word/phrase singled out as strongest

[4]. some stress rules of English:

Compound: leftmost element enhanced if second is not branching (parsing cue?)

1	2	1	2	1	3	2	
blackboard	law degree	law degree requirements					
1	4	3	2	2	4	1	3
law degree requirements changes	vs. law degree language requirements						

Nuclear Stress Rule: black board, red shirt, drink beer, John's book, found out  
 2 1 2 3 1 0 2 1

Rhythm Rule: 3 2 1 -> 2 3 1 Christine, Christine Smith but maroon sweater

Kalamazoo, Kalamazoo Michigan;

[5]. the metrical grid (Lieberman '75): graphic representation of prominence; two dimensional array of positions and prominence:

line-2	*	*	*
line-1	*	*	*
line-0	* * * *	* * *	* * *
	America	hurricane	Tennessee

[6]. Prince '83: "move-x" and the Continuous Column Constraint: asterisk on line n must have asterisk on n-1

line-3		*
line-2	< *	*
line-1	* *	*
line-0	* * * *	* * *
	Kalamazoo Michigan	cf. an antique chair vs. an antique dealer
		0 2 3 1 vs. 0 3 1 2 0

## Metrical Models

1. "**grid-only**" (Prince '83, Selkirk '84, Goldsmith '93): stress as rhythmic alternation of peaks and troughs with no internal grouping.

Hayes '81 typology:	Maranungku	"s s 's s	"s s 's s 's	"s = main stress
	Warao	's s "s s	s 's s "s s	's = secondary stress
	Weri	s 's s "s	's s 's s "s	
	Araucanian	s "s s 's	s "s s 's s	

primitive rhythmic alternation of peaks and troughs; parameters of initial association to {peak/trough} and {left/right} edge of word; one-to-one mapping of remaining syllables

Maranungku:	peak-first, left-to-right
Warao:	trough-first, right-to-left
Weri:	peak-first, right-to-left
Araucanian:	trough-first, left-to-right

This model abandoned in face of empirical arguments for grouping on the basis of stress shifts under deletion and insertion of vowels and conceptual arguments for particular types of rhythm.

2. Alternative **foot** theory: stress reflects a parsing of syllables into asymmetric units called feet. There are two basic types of feet: a **trochee** in which the first element is strong and the second weak and an **iamb** in which the first is weak and the second strong. Feet are optimally disyllabic but a monosyllabic foot can be created as a marked option.

**2. grouping:** Central Yupik: stress syllables with a long vowel and initial syllables closed by a consonant; otherwise assign alternating left-to-right pattern to remaining syllables.

a' = stressed vowel

qayáni 'his own kayak', sagúyáani 'in his (another's) drum', qayápigkání 'his own future authentic kayak', qánrútkaqá 'I speak about them' < /qánrutékaqa/ by deletion of stressed vowel and retraction of stress to the left--not the right where it might otherwise be expected. (Jacobson '85: 30-34)

3. quantity changes: Latin -io verbs (Mester 1994)

audi:mus	'hear'	root+theme+desinence	i: ≈ i
senti:mus	'feel'		
aperi:mus	'open'		
sepeli:mis	'bury'		
capimus	'catch'		
facimus	'make'		

4. **Rhythmic Units** (WS iambic and SW trochaic and their relationship to quantity) Hayes '85, '94, McCarthy & Prince '86.

Asymmetries in survey by Hayes

- for 61 out of 65 QI lgs. if L->R then #SW... and not #WS; if R->L then ...SW# not ...WS# (i.e. QI systems have left-headed feet not right-headed).
- While left-headed trochaic systems that place a heavy syllable in a weak position ('LH) can be found (e.g. Czech, Finnish), there are no cases of right-headed systems that group (H'L)
- while final extrametricality is common, initial extrametricality is rare.
- for L->R systems that start #SW, a light syllable that follows a heavy forms a peak S, never a trough W cf. Cairene: i.e. if ('LL) then ...HLL parses as ('H)(LL) with clash not as ('HL)(L...

5. for L->R systems that start #WS a light syllable following a heavy is generally a trough W not a peak S. i.e. if (L'L) then ...HLL parses as ('H)(L'L) and not ('H)(LL).
6. R->L systems favor trochaic grouping ('LL).

These are surprising from the “grid-only” perspective because they are options permitted by the free mixing of directionality and initial mapping to a peak vs. trough.

7. Hayes accounts for these asymmetries by proposing that the rules for assigning metrical stress map syllables directly into three types of rhythmic **templates** listed below.

**syllabic trochee:** ('σσ) and possibly ('σ) as a marked option  
**iamb:** (L'σ) and ('H): [i.e. (L'L), (L'H), and ('H)]  
**quantitative trochee:** ('LL) and ('H)--not ('HL) or ('L)--strictly bimoraic.

8. Cairene Arabic:           light                   CV  
                                   heavy:                CVV, CVC  
                                   super-heavy:        CVVC, CVCC (limited to final syllable)

ǰájara	ʔadwiyatúhu
ǰajarátun	ʔadwiyatúhumaa
ǰajarátuhu	
ǰajaratuhúmaa	

darábt ʔa9máal  
 mustáǰfaa, mu9állim, muqáatil, ǰaabáatun  
 kaatába, qattálat, maktábah, wálad, ráʔaa, híya, kátaba, ʔinkásara, bulahníyatun, murtabiTátun

#### 9. Asheninca (Peru)

háka  
 nopíto  
 syoNkíri  
 kawíniri  
 okícoki  
 notònkaménto  
 nokòwawétaka  
 hamánaNtákenéro  
 pamènakòweNtákerero

jínaa  
 pàatikákeri  
 pinàapáake  
 ikyàapíiNti  
 nomàkoryàawàitapáake  
 oNkitàitamánake  
 kaNtimáitacya

Payne mentions a class of “extra-light” syllables in Asheninca consisting of a short [I] nucleus and voiceless coronal sibilants. These syllables are never stressed and can lose their vowel before a voiceless consonant (cf. Japanese devoicing: desu ne vs. desũ ka). Examine the data below and discuss the stress contours and their implications for metrical constituency.

óçiti	‘dog’
kóǰiri	‘monkey’ sp.
kàçitáke	‘he hurt’
píciciro	‘bird’ sp.
píǰtáciri	‘broom’
háçikawètakána	‘he almost bit me’

Homework-

1. Transcribe the stress contours of the following English words. Use numbers to indicate the degrees of stress--1 for the highest (primary stress), 0 for no stress, 2 for secondary, 3 for tertiary, etc.

engineer	hurricane	gasoline	Argentina
Alabama	metaphysical	honorarium	elementary
electricity	onomatopoeia		

Check your answer by looking the words up in a dictionary that marks different degrees of stress and read the explanation for stress notation employed in your dictionary.

2. Transcribe the stress contours of the following paradigm of words. Graphically illustrate the degrees of stress using the metrical grid representation.

Alewife  
Alewife Brook  
Alewife Brook Parkway

3. Creek accent is marked by a high tone on the final or penultimate syllable. Examine the following data to determine the location of the accent

ifǎ	'dog'	hicíta	'one to see one'
ifóci	'puppy'	ahicíta	'one to look after'
amifoci	'my puppy'	imahicíta	'one to look after for'
itiwanayipíta	'to tie each other'	isimahicíta	'one to sight at one'
ca:lo	'trout'	wa:koci	'calf'
sókca	'sack'	hoktakí	'woman'
pocóswa	'axe'	inkosapítá	'one to implore'
famí:ca	'cantaloupe'	alpatóci	'baby alligator'
aktopá	'bridge'	yakaphoyíta	'two to walk'