24.901 Stress-3: syllable weight in stress and accent systems

[1]. Many languages (e.g. Latin, Arabic) calculate accent location by dividing syllables
into heavy vs. light classes
  - heavy: CVV, CV:
  - light: CV
  - variable: CVC counts as heavy in Latin and Arabic but as light in Mongolian
        Latin: réficit, refé:cit, reféctus
  - some languages distinguish more than two degrees of weight

[2]. Kelkhar's Hindi (Prince & Smolensky '93): stress rightmost heaviest syllable; in case
of tie, stress rightmost nonfinal heaviest:

  - weight hierarchy: CVVC (S) > CVV, CVC (H) > CV (L)
  - stress strongest syllable

            ka:rí:gari: 'craftsmanship'   H > L
            só:xjaba:ni: 'talkative'   S > H,L
            ré:zga:ri: 'small change'   S > H

  - ties: rightmost nonfinal
            samíti   'committee'
            qísmat   'fortune'
            ro:zá:na: 'daily'
            ró:zga:r   'employment'
            a:smá:nja:h   'highly placed'

  - nonfinality blocked when final syllable is strongest

            kidhár   'which way'
            rupiá: 'rupee'
            janá:b   'sir'
            asbá:b   'goods'
            musalmá:n   'Muslim'
            inqilá:b   'revolution'

  - constraints analysis

    Peak Prominence: *L' »*H' »*S'
    Nonfinality: *σ'# (penalize stress on final syllable)
    Rightmost: *σ'σ (penalize a stressed syllable followed by an unstressed one)
    one stress per word: assumed

  - ranking: Peak-Prominence »Nonfinality » Rightmost
  - exemplification tableaux

1

Ties: Rightmost » Leftmost

/LLL/	*L'	Non-Fin	Rightmost	Leftmost
L'LL	*		**!	
->LL'L	*		*	*
LLL'	*	*!		**

Peak-Prom » Non-Finality

/LHS/	*L'	*H'	*S'	Non-Fin
L'HS	*!			
LH'S		*!		
LHS'			*	*

observations

- this language presents a "look-ahead" problem for a rule-based system that builds up a structure incrementally by rules that examine a local context
- we don't know whether to assign extrametricality (ignore the final syllable) unless we know that that syllable is the strongest in the word
- but this effectively computes the stress
- since OT constraints evaluate fully formed candidate outputs such "global comparisons" are expected

3. Kashmiri (PPG, 618)

- Weight hierarchy: CV: (H) > CVC (C) > CV (L)

masrá:wun	H > C
zitó:vuh	H > L
yunivársiti	C > L

- ties: mahá:ra:zi   Non-Fin: nóyid
  bagándarladin   sála:m
                                             bákhcanha:r
  ardonó:ri:sor
  sírinagar

- analysis: Nonfinality » Peak Prom » Leftmost » Rightmost

- sample tableaux

/bagandarladin/	NF	*L'	*C'	*H'	Leftmost
bágandarladin		*!			
bagándarladin			*		
bagandárladin			*		*!
bagandarládin		*!			
bagandarladín	*!				

4. Sonority-Driven Stress (Kenstowicz 1997)

- in some languages stress will not be consistently at the left or right edge of the foot but may seek out a stronger vowel
- strength seems to track the inherent duration of vowels in two dimensions:
  - peripheral > central
  - lower > higher
- the phenomenon has since been documented in a number of other languages
- it is easily modeled in an OT grammar as alignment of Peak Prom constraints with the relevant phonetic dimensions

[4]. Kobon (New Guinea)

- stress falls in two-syllable window at right edge of word
- it seeks out stronger (more sonorous vowel)
- in case of tie where penult and final of equal weight stress falls on penult
- analysis: align disyllabic foot at right edge of word
- Peak-Prominence » Trochaic » Iambic

11)

i		ɨ		u
	e	ə	o	
		a		

(12)	a > e	hagápe	'blood' [226]
		gále#gále	'to cry, of pig' [225]
	a > o	alágo	'snake species' [226]
		kɨdolmáɴ	'arrow type' [226]
	a > i	ki.á	'tree species' [220]
	a > i	háu.i	'vine species' [221]
	a > u	ái.ud	'story' [221]

a > ɨ	áñɨm#áñɨm	'to lightening' [225]
a > ə	wái.əN	'cassowary' [221]
	ái.ən	'witch' [221]
o > u	mó.u	'thus' [220]
o > i	si.óg	'bird species' [221]
o > ɨ	gɨró#gɨró	'to "talk" - of mother pig to piglet' [225]
i > ə	gaɬínəN	'bird species' [226]
	wí.ər	'mango tree' [221]
u > ə	ɬú.əɬ	'horizontal house timbers' [221]
u > ɨ	mú.ɨs	'edible fungus species' [221]
ə > ɨ	gɨsə́#gɨsə̀	'to tap' [225].

13)   u ~ u   dúbu#dúbu 'to make noise by footsteps' [225]
      i ~ u   jínup#jínup 'to make squeaking noise, bird, rat' [225]
      ɨ ~ ɨ   kɨjígɨl 'tattoo' [226].

14)   a.   *P/ɨ >> *P/ə >> *P/i, u >> *P/e, o >> *P/a   >> Head-L >> Head-R
      b.   a, e, o, i, u > ə, ɨ
      c.   a > e, o > i, u > ə > ɨ

(15)

/gaɬinəN/	Ft-Bin	Al-Ft	*P/ɨ	*P/ə	*P/i,u	*P/e,o	*P/a	Head-L
a. ('ss)s		s#!					*	
b. ('sss)	*!						*	
c. $s('ss)				*				
d. s(s's)				*!				*

(6)

/mo.u/	*P/ɨ	*P/ə	*P/i, u	*P/e, o	*P/a	Head-L
a. $('ss)				*		
b. (s's)			*!			*

/si.og/	*P/ɨ	*P/ə	*P/i, u	*P/e, o	*P/a	Head-L
a. ('ss)			*!			
b. $(s's)				*		*

/jinup/	*P/ɨ	*P/ə	*P/i, u	*P/e, o	*P/a	Head-L
a. $('ss)			*			
b. (s's)			*			*!

[5]. Chukchi (Kamchatka Peninsula, NE Siberia)

- stress in disyllabic window at right edge of base
- Ft-Bin, Align-Rt
- Iambic » Trochaic
- Nonfinality » Iambic

sg.   pl.

sg.	pl.	
qorá -ŋə	qóra-t	reindeer
rícit	ricît-ti	belt
melotá-lgən	milúte-t	rabbit

/ricit-ti /	Iambic	Trochaic
(s's)s	*!	
>(ss')s		*

/ricit/	Nonfin	Iambic
>(s's)		*
(ss')	*!	

- stress will avoid a high vowel in favor of nonhigh; since vowel harmony prevents [a,o] from combining with [e,i,u] we cannot test all combinations (cf. jatjól-te showing no a > o)

sg.

wéni-wen	bell
kéli-kel	paper
nuté-nut	land
piŋé-piŋ	snowfall

*P/i,u » Iambic

/weni-wen/	*P/i,u	Iambic
>(s's)		*
(ss')	*!	

/nute-nut/	*P/i,u	Iambic
(s's)	*	*
>(ss')		

- schwa: retract stress from final schwa unless penult is schwa, in which case do not retract

pátgərg-ən   hole

tátləŋ-ək	to answer	
pipíqəlg-ən	mouse	
məcə́kw-ən	shirt	
rəkgə́t-ək	to get stuck	
rəmə́t-ək	to wash up	

*P/ə » *P/i,u

/ pipíqəlg-ən/	*P/ə	*P/i,u	Iambic
>s(s's)-s		*	**
s(ss')-s	*!		*

/ rəmət-ək/			
(s's)-s	*		*
>(ss')-s	*		

- Nonfinality: no retraction of final stress to a schwa unless the penult is a schwa in which case we do retract

ətlá	mother	
ləlé-t	eyes	
pənún	middle	
ə́tləq	tundra	
ə́ttəm	bone	
kə́tpət	sable	
núte-t	land	

analysis : *P/ə » Nonfin » *P/i,u
- a familiar metrical contraint (NF) embedded within the peak prominence constraint hierarchy that tracks alignment with phonetic scale of inherent duration
- argues for grammaticalization of the calculation of stress

/ətla /	*P/ə	Nonfin
(s's)	*!	
>(ss')		*

/ ətləq/	*P/ə	Nonfin
>(s's)	*	
(ss')	*	*!

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/nute-t/          *P/ə             Nonfin
>(s's)
(ss')                             *!
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- final ranking

  *P/ə » Nonfin » *P/i,u » *P/e,o » Iambic » Trochaic

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