

24.901/931, 2023

Introduction to Phonology

Lecture 20

More optional readings on stress

- Larkey 1983 on a task ('reiterant speech') that allows one to realize stress in a word while abstracting away from its actual segmental contents: replace each σ with a fixed CV, e.g. *ma*. Try it. It can reveal to you that you know where stress is, even if you think you don't.
- Gordon 2002 on *factorial typology* of a set of OT stress constraints, introduced today: set of stress systems it generates under all rankings.
- 2 general questions: does this set *undergenerate* (fail to generate some attested stress system(s)), *overgenerate* (can generate under some ranking unattested stress systems, esp. if judged to be impossible).
- Today constraint set does not undergenerate; modestly overgenerates

Today

- Recap on stress
- English speakers know the stress rules of English
- Finding (English) degrees of stress
- Stress typology and stress constraints

Reminders on stress-related properties & notation

- **Prominence relative to an adjacent** syllable in same unit:

sw, ws (*stronger-than, weaker than*)

- **Prominence relative to all other** syllables in the domain: the grid

					x						x
					x			x			x
		x			x	x		x			x
x	x	x	x	x	x	x	x	x	x	x	x
a	mis	take	in	the	plan	left	a	gap	in	the	span
0	0	4	0	0	2	4	0	3	0	0	1
-	-	+	-	-	+	+	-	+	-	-	+

- **Stress numbers:** relative height of grid columns, as numbers 0...3, 2, 1
- **The feature $[\pm\text{stress}]$:** categorical distinction betw. some stress vs. none

Reminders on rhythm types

- Iambic ws *corréct*
- Trochaic sw *cárrot*
- Dactylic sww *cárpenter*
- Anapestic wws *to corréct*
- Amphibrachic wsw *a cárrot*

Different word rhythms in different languages

We discussed different rhythmic patterns found in English verse.

Stress rhythms in the world's languages are drawn from the same set:

➔ Binary **sw** rhythm: English, with some lawful deviations from binarity

Àpalàchicóla, sùpercàlifràgilistic|èxpìalidócious

➔ Binary **ws**: Mapudungun (Araucanian, Chile); S.Paiute (Uto-Aztecan, US)

kí.mù.ba.lù.wu.láj; natíjapà.antùkwa

➔ Ternary **sww** rhythm: Cayuvava (Bolivia), counting vocalic Xs.

ikitàparerépeha, ʔàadiròboβurúputʃe

Plus options that aren't rhythmically regular in an obvious sense;

➔ One beat per word: Hungarian (Blaho and Szeredi 2011; debate)

félékezeti:ke:, í:tot:ol:ni:tot:a:tok

Some stress regularities,
and whether speakers can acquire them

English stress looks unpredictable, ‘phonemic’

- In fact, English stress rules predict most attested patterns (Chomsky and Halle 1968).
Stress contrasts are limited to a few contexts, e.g. choice between 010# and 100#.
- Resulting generalizations include:
 - (a) stress at least one of the last 3 σ : *América*, *Mìnnesóta*, *Kàlamazóo*
 - (b) stress penult if heavy: *Dakóta* [koʊ], *Missóuri* [zu:]; *Aláska* [læs]
if penult is light, stress antepenult: *América*, *Connécticut*, *Minneápolis*
 - (c) stress each heavy non-final σ : *Tìcònderóga*; words like *Háckensàck* ['hæ.kŋ.,sæk]
 - (d) stress the initial σ (*Mìnnesóta*), avoiding stress clashes (*Connécticut*, *Monòngahéla* [hi:])
 - (e) subject to all of the above, stress every other syllable counting from last stress:
Pòtawátomi, *hàmamèlidánthemum*, *sùpercàlifràgilìsticèxpìàlìdócious*

English stress

- Do speakers know these rules, in spite of the exceptions?
E.g. do they know that 3 σ nonce words stressed on penult iff heavy?
- Loan words suggest they do:
 - Russian [bábuʃkə] restressed as English [bəbʊʃkə]
 - Spanish <cañon> [kaɲón] restressed as [kæɹən]
 - French <rococco> [ʁokokó] restressed as [ròʊkókòʊ] ~ [róʊkəkòʊ]
- They suggest speakers apply in speech stress rules of English.
- English speakers aren't *stress-deaf* (unlike French or Hungarian speakers):
can distinguish sw from ws as well or better than segmental contrasts
⇒ but restressing of L2 words shows knowledge of English stress rules.

A clearer test: stress nonce words Moore-Cantwell 2018

- Checks if speakers' productions of word-like strings, never heard, match a rule for lexical stress data, despite irregularities
- Rule: main stress penult iff Heavy, antepenult otherwise.
- Proportions of real words abiding by the rule:
 - 96% of 3 σ with Heavy penults get penult stress.
 - 79% of 3 σ with Light penults get antepenult stress.

Moore-Cantwell 2018

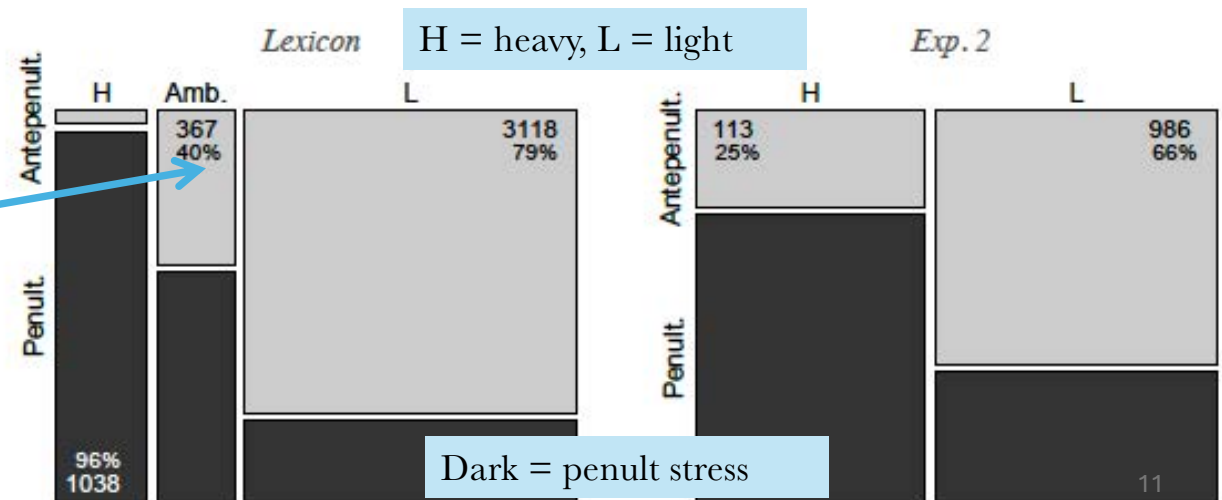
- Stimuli are 3σ nonce words: e.g. *palaka*, *palazka*, *pamalta*, *palastra*...
- Task: choose the better pronunciation: *pálaka* vs. *paláka*, *pálazka* vs. *palázka*
Stressless <a> = schwa
- Results mirror lexical proportions, approximately.
- Speakers have learned a general rule, not just the stress of individual words.
- Reflect exceptions too

Graphically ambiguous penults:

Heavy, when stressed: *agénda*

Light CC, if not: *ágency*

[ə.dʒén.də] vs. [éi.dʒŋ.sɪ]



Experiment procedure:

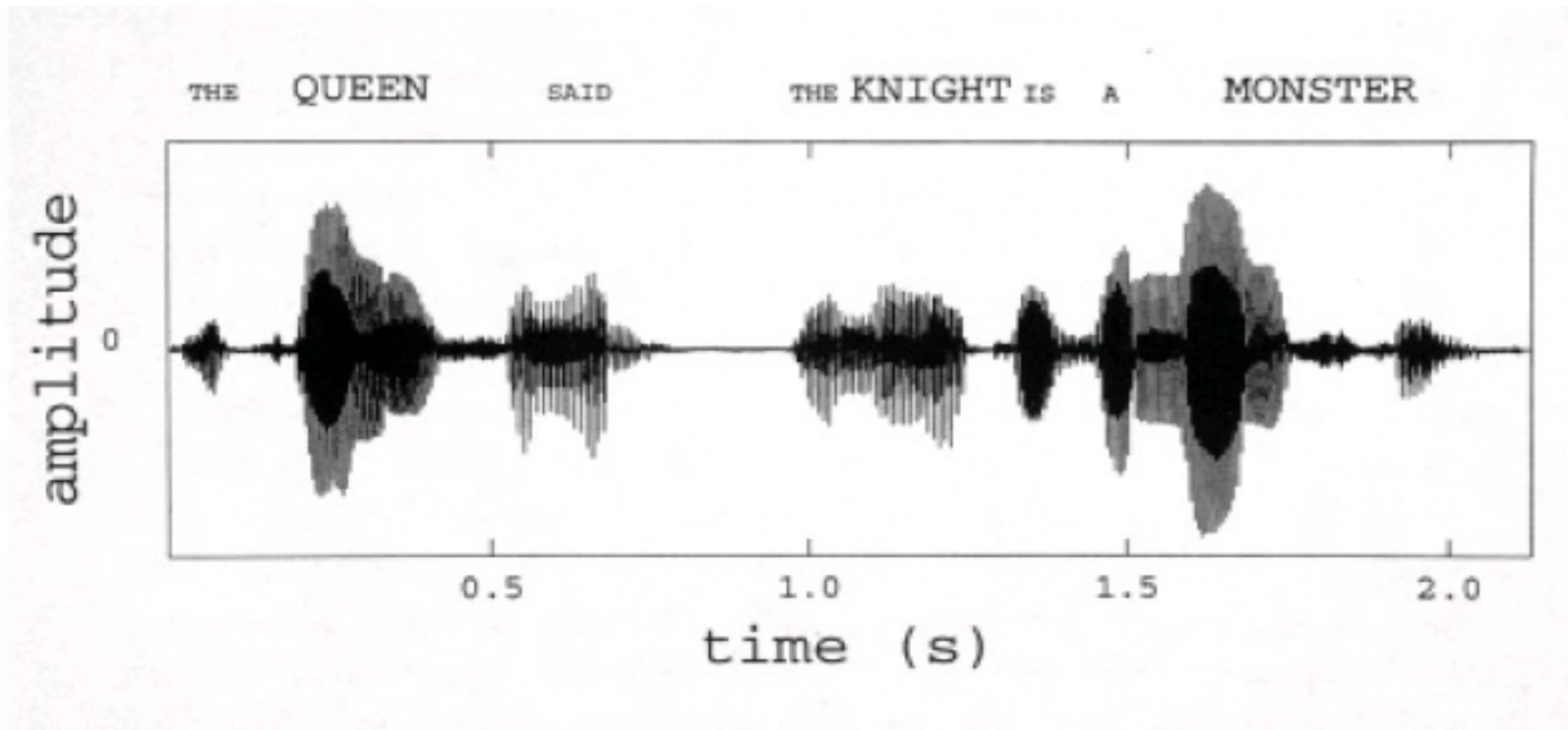
subjects string together into 1 word 3 individually presented syllables

Figure 5: Example item in four stages. All presentation was auditory.

1)	 [bæ] [mæ] [ki]
2)	<i>RECORD...</i>
3)	What did you say?
4)	 [bæmæki]  [bəməæki] ☐ ☐

Finding and hearing stresses

Realization of stress: amplitude and duration



Where *main* stress is: where the big F0 excursion is

- (a) Say the utterance with emphasis and look for the biggest F0 rise-fall
- (b) Turn the utterance into an exaggerated, incredulous question. Look for a point when the F0 goes sharply down then up.

- *Gèorgia **S**ècretàry* 20 1030
- *Gèorgia Sècretàry of **St**áte* 30 2030 0 1
- *Gèneral **S**èrvices* 300 100
- *Gèneral Sèrvices Admìnist**tr**átion* 300 200 030010
- ***l**ábor ùnion leàder* 10 300 20

Where the other stresses are

- (a) Look for unreduced vowels ($\neg$ (ə, some ɪ)): if non-final, they're likely stressed
- (b) Look for syllables w/ aspirated stops or h in onset: if non-initial, they're stressed

véhicle, vehícular, cóhòrt

[ˈviəkəl] [vəˈhɪkjələ] [ˈkʰoʊˌhɔɪt]

100 0100 12

átom, atómic, àtomístic

[ˈæɾəm] [əˈtʰɔmɪk] [ˌæɾəˈmɪstɪk]

10 010 2010

occúlt, òccultátion

[əˈkʰʌlt] [ˌɔklˈtʰeɪʃən]

01 2010

- (c) Look for Vs preceded by flaps (*átom* [ˈæɾəm]): they're likely stressless.

Why are *aspiration*, *V-reduction* cues to $[\pm\text{stress}]$?

- All forms of rhythm, not just stress, are periodic sequences of prominent & non-prominent events
- Prominent *auditory* events: longer and/or louder than less prominent ones.
- Stress, as one form of spoken language rhythm, is no different:
 - stressed syllables are longer and louder in all 'stress' languages ('accent' lgs differ)
 - loudness increase is produced by increased subglottal pressure
- The cues to stress *in English* are consequences of these facts
 - (a) increased duration of stressed σ : longer segments less likely to reduce
 - (b) increased subglottal pressure generates higher airflow volume $\rightarrow$ aspiration
 - (c) increased subglottal pressure generates higher F0 (Giavazzi 2010, MIT diss)

Cues to $[\pm\text{stress}]$ follow from how prominence in general is manifested

Stress typology and stress constraints

How stress systems differ

- 699 stress systems surveyed (stresstyp, <http://st2.uliet.net/?>)
- Parameters of difference
 - Predictability: all stresses are predictable?
 - Stress numbers/word: 1, 2, any number; stressless words ok?
 - Word edge predictability:
 - Is there an edge of the word whose rhythm is predictable? e.g. #n0 vs. 0n# vs. n00#
 - Rhythmic regularity: distances betw. stresses, and between boundaries and stress
 - Restrictive: every other syllable is stressed, no adjacent stresses; ...n0n...; ...0n0...; *nn, *00
 - Partially restrictive: ...n00n...ok; ... n00# ok; nn ok if heavy s; but *000 (English simple words)
 - Permissive: ...000... ok; ...nn... ok (English complex words)
 - Weight: stress is attracted to heavy syllables / doesn't care

English morphologically simple words

- **Predictability:**

- Not completely predictable (*giráffe* 10 vs. *shériff* 01); less lawless than it seems

- **Numbers:** How many stressed σ /word?

- *sùpercàlifràgilìsticèxpìàlídócious*

- **Location of stressed σ relative to word boundaries:**

- There must be some stress in last $\sigma\sigma\sigma\#$; there must be some stress in first $\#\sigma\sigma$

- **Rhythmic restrictiveness**

- Partly restrictive: ...n00n...ok; ... n00# ok; nn ok if heavy σ *Sàskátchewan* 2100

- **Weight effects:**

- Stress attracted to heavy syllables: cf. penult (*agén-da*) vs. antepenult (*Améri-ca*)

Binary and non-binary stress systems

- Many stress systems have a binary form of rhythm, ...n0n0..., like English.
- Not all: 1/3 of stress systems in WALS ‘lack rhythmic stress’/‘rhythm undetermined’
French, Hungarian, Spanish, Romanian, Russian, Indonesian, Polish, ...
- Some (Hungarian) may genuinely have 1 stress per word. Others (Polish, Spanish) have likely more stresses than 1, but sites of extra stress are debated/hard to detect.
- Yet all stress systems have common properties: *where* the detected stresses occur.
- E.g., English is a rhythmic stress system, Latin and Damascus Arabic seem to be 1-stress systems, yet the position of the main/unique stress is determined by similar mechanisms: stress penult if heavy, stress antepenult otherwise.
- That suggests that individual components of a stress system are recurrent properties, to be modeled as *stress constraints active* in the language, drawn from a very limited set.

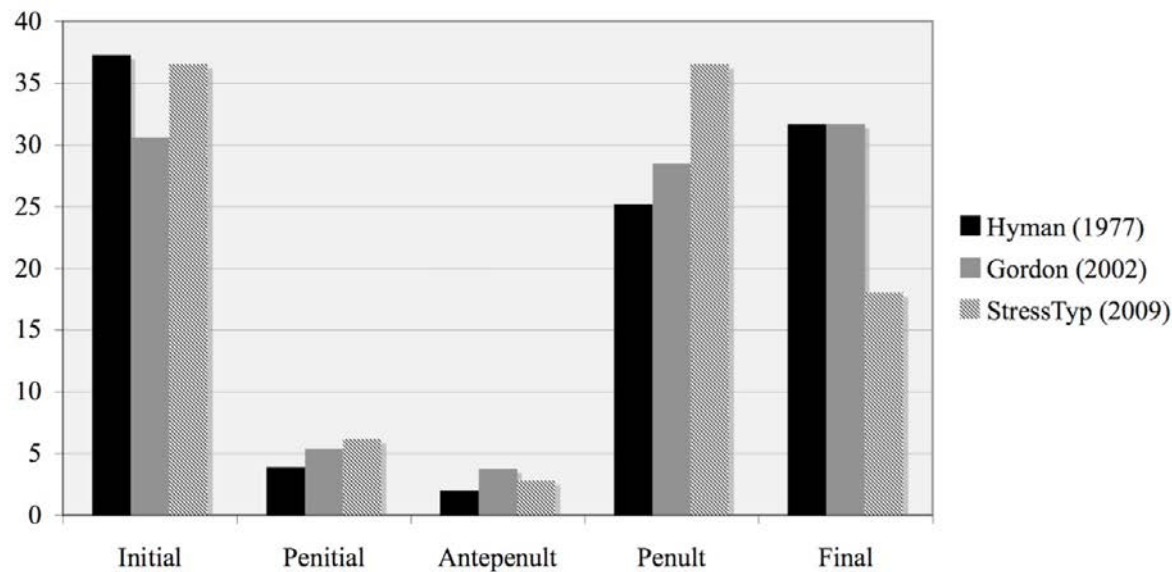
Stress in 1-stress systems in relation to word edges

- First survey (Hyman 1977): 306 languages, w/ **one reported fixed** stress/word:
- No unpredictable stress languages; no weight-sensitive languages.
- Relative frequencies as percentages from the total; 1=main, 0 = no stress

Right edge		Left edge	
Last	French:	First	Hungarian:
32%	1, 01, 001, 0001	37%	1, 10, 100, 1000
Penult	Polish (one dialect)	Second	Lakota:
25%	1, 10, 010, 0010	3%	1, 01, 010, 0100, 01000
Antepenult	Macedonian:	Third	
2%	1, 10, 100, 0100	0%	

1st > last > penult > 2nd, antepenult

Multiple surveys converge (more or less)



Initial: #10*
Peninitial: #010*
Antepenult: 0*100#
Penult: 0*10#
Final: 0*1#
(Postpeninitial: #0010*)

Figure 5.1. Relative frequency (expressed as percentage of the total cases) of different stress locations in three surveys of stress (Gordon 2016). All 3 surveys are for 1-stress systems

Inferences from these results (on *windows*: Kager 2014 *Lingua*)

- Stress seeks a word edge window, a region of 1-3 syllables at either edge:
 ⇒ No center-seeking stress system: 010, 0010, 00100, 001000.
- Not always the *very* edge: last syllable frequently rejects stress (e.g. Polish 0*10).
 Occasionally first syllable too (e.g. Lakota #010*).
- Extended edge avoidance, much less frequent but well-attested.
 ⇒ Last *and* penult syllable reject stress: #...' $\sigma\sigma\sigma$ # (e.g. Macedonian 0*100)
 ⇒ First *and* second reject stress: # $\sigma\sigma'$ σ ...# (Raramuri #0010*)
- Stress gravitates to 2 edge regions, as if its function is to mark them

↓		↓
#[$\sigma\sigma$]	... σ ... σ ...	[$\sigma\sigma$]#
#[$\sigma\sigma\sigma$]	... σ ... σ ...	[$\sigma\sigma\sigma$]#

Perhaps via a complex F0 event, e.g. a LHL accent to mark that edge.

Complex F0 accents can explain the size of edge windows. E.g. Japanese accent (HL) is best realized on a prefinal σ , where it's distinct from lack of any accent.

Constraints suggested by this data (Gordon 2002)

- Stress the edges:
 - STRESSR: one * for each σ separating the last stress from right _#
 - STRESSL: one * for each σ separating 1st stress from left #_
- Edge avoidance
 - NONFINALITY: *n# (no stressed final)
 - NONINITIALITY: *#n (no stressed initial)
- Extended edge avoidance:
 - EXTNONFINALITY: *n(σ)# (no stress on either of last two)
 - EXTNONINITIALITY: *#(σ)n (no stress on either of first two)
- Stress numbers in a word: (to explain choice between exactly 1 stress vs. n)
 - ONESTRESS: one * for each stress beyond 1
 - STRESS: one * for each stressless word

For n-stress ($n > 1$) languages:
rhythmic constraints and constraints on main stress

- 3 constraints can enforce a binary or, at worst, a ternary rhythm
 - *LAPSE: *00 (one * for each 2 adjacent stressless syllables)
 - *EXTENDEDLAPSE: (one * for each 000)
 - *CLASH: *nn (one * 2 adjacent stressed syllables)
- Main stress location
 - MAINSTRESSL: (one * for each stress preceding 1)
 - MAINSTRESSR: (one * for each stress following 1)

1-stress, 2-stress and n-stress systems

- In 1 stress systems (top-ranked ONESTRESS), the grammar must decide:
 - ⇒ Which end of the word gets the stress?
 - ⇒ How close to that end is the stress placed?
 - Comparable questions in 2 stress systems, for *both* word ends
 - N-stress systems: *(Ext)LAPSE >> ONESTRESS). In such systems, the grammar must decide all the above about edge stresses, plus:
 - ⇒ How closely, or far apart, must stresses be spaced?
- Decisions modeled by *(Ext)LAPSE (*00) and *CLASH (*nn).
- Choices in 1-stress and n-stress systems are rankings over a single constraint set. The members of this set are present in all stress systems.

Summary + classification of stress constraints

- *Culminative* constraints: STRESS, ONESTRESS
Ensure there is 1 and possibly only 1 peak of prominence/word
- *Rhythmic* constraints: *LAPSE, *CLASH, *EXTLAPSE
Penalize departures from binary rhythm
- *Edge marking*: STRESSL, STRESSR
Edge avoidance: NONFINALITY, NONINITIALITY,
EXTNONFIN/EXTNONINITIALITY
- *Main stress* placement: MAIN (1) STRESS R/L

- Ranking permutations over this set of constraints generate most stress systems where syllable weight plays no role,
- without failing to generate attested systems and without predicting too many unattested systems or any that seem monstrous (Gordon 2002).

1-stress systems

In these systems, ONESTRESS outranks some competing constraints:

*LAPSE, *EXTLAPSE, and *either* STRESSR OR STRESSL

We investigate the other rankings.

Ignore for now Faithfulness constraints for stress, or assume the active stress

Constraints outrank them all.

1 stress: STRESS R/L vs. OFF-EDGE constraints

STRESS L: one * for every σ between 1st stress and #_

Hungarian 10*		ONESTRESS	STRESS L	NONINITIAL	STRESS R
	☞ 1000			*	***
	0100		*!		**
	0010		*!*		*
	0001		*!**		
Lakota 010*		ONESTRESS	NONINITIAL	STRESS L	STRESS R
	1000		*!		***
	☞ 0100			*	**
	0010			**!	*
	0001			**!*	

Ranking argument for STRESSL >> STRESSR in Lakota?

A simpler option for STRESS L? 1 * for each *unstressed* 1st, *#0.
 (as opposed to 1* for each σ separating # from 1st/last stress)

Hungarian		ONESTRESS	STRESS L	NONINITIAL	STRESS R
	1000			*	*
	0100		*!		*
Lakota					
		ONESTRESS	NONINITIAL	STRESS L	STRESS R
	1000		*!		*
	0100			*	*

Will this simpler constraint correctly exclude for more candidates?

More candidates in the Lakota evaluation

Hungarian		ONESTRESS	STRESS L	NONINITIAL	STRESS R
	☞ 1000			*	*
	0001		*!		
Lakota		ONESTRESS	NONINIT	STRESS L	STRESS R
	☹ 0100			*	*
	!☞ 0010			*	*

The system can't decide between 0100 and 0010; favors 0001 over 0100.

We keep the distance-based definition

STRESS L: one * for every σ between 1st stress and #_

Hungarian 10*		ONESTRESS	STRESS L	NONINITIAL	STRESS R
	1000			*	***
	0100		*!		**
	0010		*!*		*
	0001		*!**		
Lakota 010*		ONESTRESS	NONINITIAL	STRESS L	STRESS R
	1000		*!		***
	1000			*	**
	0010			**!	*
	0001			**!*	

EXTENDEDNONINITIAL/NOFINALITY

- (Non-Warsaw) Polish: 1, 10, 010, 0010, 00010
- Macedonian (below): 1, 10, 100, 0100, 00100, 000100

	ONESTRESS	EXTNONFIN	STRESS R	STRESS L
☞000100			**	***
000010		*!	*	****
000001		*!		*****
200100	*!		**	
100000			***!*	

e.g. Macedonian *tátkovtsi*, *tatkóvtsite*; *talentírani*, *talentiránite*

EXTNONINITIALITY

Raramuri		ONESTRESS	EXTNONINIT	STRESS L	STRESS R
010, 001 0010 00100 001000 (unstressed roots only)	00100			**	**
	00010			***!	
	01000		*!	*	***
	10000		*!		****

What ranking argument, from what size words, would show that STRESSL >> STRESSR?

2-stress systems

In these systems, ONESTRESS outranks some competing constraints:

*LAPSE, *EXTLAPSE, **but not** STRESSR, STRESSL

We investigate the other rankings.

A 2-stress system

- Sibutu Sama (Austronesian)

a.	bissála	010	‘talk’
b.	bìssalá-han	2010	‘persuading’
c.	bìssala-hán-na	20010	‘he is persuading’
d.	bìssala-han-kámi	200010	‘we are persuading’
e.	bìssala-han-sigé ⁱ a	2000010	‘they are persuading’

- 2 stress max
- final unstressable
- no adjacent stresses: 010, *210
- otherwise, stress both edges

Sibutu

☞ 200010				
000010				
200001				
202010				
☞ 010				
201				
100				
210				

	NFIN	STRESSR	STRESSL	ONESTRESS
☞200010		*		*
000010			*!	
200001	*!			*
202010		*		**!
	NFIN	STRESSR	STRESSL	ONESTRESS
☹ 010		*	*!	
201	*!			*
100		**!		
!☞210		*		*

Sibutu

Sibutu

000000	NFIN	STRESSR	STRESSL	ONESTRESS
☞200010		*		*
000010			*!	
200001	*!			*
202010		*		**!

000	NFIN	*CLASH	STRESSR	STRESSL	ONESTRESS
☞010			*	*	
201	*!				*
100			**!		
210		*!	*		*

The stress of short words in systems with active (Ext) NONFINALITY:
 e.g. Polish (1, 10, 010, 0*10) or simplified Latin (1, 10, 100, 0100, 0*100)

Polish

0	NFIN	STRESSR
1	*	
?		
?		

What losing candidates threaten to win?
 What constraints, rankings, will get the
 actual winners to win?

Latin

00	EXTNFIN	STRESSR	STRESSL
10	*	*	
??			
???			

The stress of short words in systems with active (EXT)NONFINALITY:
 e.g. Polish (1, 10, 010, 0*10) or simplified Latin (1, 10, 100, 0100, 0*100)

Polish

0	DEP V	STRESS	NFIN	STRESSR
1			*	
0		*!		
10	*!			

Latin

00	DEP V	STRESS	EXTNFIN	STRESSR
10			*	*
00		*!		
100	*!			

Binary-rhythm (n-stress) systems

In all these systems, *LAPSE >> ONESTRESS

Lapse vs. OneStress: Macedonian vs. English

1 stress: Macedonian

00*100

talentírani

n stress: English

(20(0))*100

e.g. *Mìnnéápolis*

	ONESTRESS	*LAPSE
☞00100		**
20100	*!	
	*LAPSE	ONESTRESS
00100	**!	
☞20100	*	*

N-stress systems: edge-stress, *LAPSE, *CLASH

Pintupi

100, 1020, 10200,
102020, 1020200

Maranun̄ku

102, 1020, 10202,
102020, 1020202

☞ 10200					
10202					
10220					
10000					
10200					
☞ 10202					
01020					
10220					

N-stress systems: edge-stress, *LAPSE, *CLASH

Pintupi

100, 1020, 10200,
102020, 1020200

	STRESS L	*CLASH	NONFIN	*LAPSE	ONESTR
☞ 10200				*	*
10202	*!				**
10000				**!*	
	STRESS L	*CLASH	*LAPSE	NONFIN	ONESTR
10200			*!		*
☞ 10202				*	**
01020	*!				*
10220		*!			**

Maranun̄ku

102, 1020, 10202,
102020, 1020202

The fixed-stress edge

- In n-stress languages, rhythm is typically invariant at one edge
e.g. #10..., #01..., or 01#, 10#
- and it's typically variable at the other edge, due to word-size diff's, e.g.:
#10(20)* in *even-parity* words (words with even number of σ)
#10(20)*0 or #10(20)*2 in *odd-parity* words
- typically, the *fixed-stress edge* carries main stress.
as if it's desirable to place main stress in an invariant way, wrt #

• Pintupi (Paama-Nyungan: Australian aboriginal):

pá.na	10	‘earth’
tjú.ɬa.ya	100	‘many’
má.ɭa.wà.na	final unstressable 1020	‘through from behind’
pú.ɭiŋ.kà.la.tju	10200	‘we (sat) on the hill’
tjá.mu.lìm.pa.tjùŋ.ku	102020	‘our relation’
yú.ma.ɭiŋ.ka.mà.ra.tjù.ɭa.ka	102020200	‘because of mother-in-law’

• Maranun̄ku (W. Daly: Australian aboriginal):

tí.ralk	10	'saliva'
mé.re.pèt	final stressable 102	'beard'
yán.gar.mà.ta	1020	'the Pleiades'
lán.ka.rà.te.tì	10202	'prawn'
wé.le.pè.ne.màn.ta	102020	'kind of duck'

Pintupi-Maranungku stress

- The fixed-stress edge is the left: top ranked STRESS L
- Main stress is on the left: MAINSTRESSL >> MAINSTRESSR
- Even-parity words are rhythmically regular at both edges: 10(20)*
- Odd-parity words have variable rhythm at the opposite edge:
 - Pintupi 10(20)*0, because *CLASH, and NONFINALITY >> *LAPSE
 - Maranungku 10(20)*2: *CLASH, and *LAPSE >> NONFINALITY

Aside on the lapses of Pintupi

10(20)*0 is not uniquely selected by the Pintupi rankings below.

What *other* stress patterns are consistent with these rankings?

σσσσσσσ	STRESSL	NFIN	*CLASH	*LAPSE
☞ 1020200				*

Pintupi:
10, 100, 1020
10200, 102020,
1020200

What is needed to get Pintupi right? Preferably without adding constraints.

Improved Pintupi

Pintupi
10,
100,
1020,
10200,
102020
1020200

σσσσσσσσ	*CLASH	NonFin	STRESSL	*LAPSE	*EXTNonFin	STRESSR
1020200				*		**
1020020				*	*!	*
1002020				*	*!	*
σσσσσσσ	*CLASH	NonFin	STRESSL	*LAPSE	*EXTNonFin	STRESS R
102020					*	*
100200				*!*		**

Embellished *LAPSE

A (very) few systems escape analysis in the same terms:

Garawa has 10(20)* but 100(20)*

Warsaw Polish: 2003010, *2030010.

Perhaps, in these systems, lapse is preferred next to stronger stresses:

10020 $\succ$ 10200, 2003010 $\succ$ 2030010.

Alternatively, an additional constraint against LAPSE before _#

LAPSE at 1: One * for any 00 sequence not adjacent to 1.

*LAPSE at #: One * for any 00 sequence at _#.

When the fixed-edge is on the right

Malakmalak (Austronesian): 10, 010, 1020, 01020, 102020, 0102020
 Nengone (Austronesian): 10, 010, 2010, 02010, 202010, 0202010

σσσσσσσ	*CLASH	NONFIN	*LAPSE	STRESSR	STRESSL
02010				*	*
20010			*!	*	
20100			*!	**	
σσσσσσσ	*CLASH	NONFIN	*LAPSE	STRESSR	STRESSL
0202010				*	
100200			*!* .	**	

2010,
02010,
202010
0202010

Note location of main stress is on the fixed edge in Nengone, as in the general case. Malakmalak is one of the very few systems where main stress is at the variable edge.

- Permutations over this set of constraints + rhythmic constraints (NO CLASH, NO LAPSE *00) generate most stress systems where weight plays no role.
- Without predicting too many unattested systems (Gordon 2002).

How does clash ever arise?

- Araucanian (Mapudungun: Chile, Argentina): rhythm fixed on left edge, no lapse

wu.lé	01	‘tomorrow’
ti.pán.to	010	‘year’
e.lù.mu.jú	0201	‘give us’
e.lù.a.é.new	02010	‘he will give me’
ki.mù.ba.lù.wu.láj	020201	‘he pretended not to know’

- Southern Paiute (Uto-Aztecan: Arizona): rhythm fixed on both edges, no lapse

ʃápi	10	‘belly’
tɪβáa	010	‘down west’
ʃinánwàɸi	0120	‘coyote’
pa.íkip	01020	‘hair’
nantʃáka.ìtʃìŋwi	010220	‘brothers to each other’
natíjapà.antùkwa	0102020	‘to be between his hoofs’

Araucanian: rhythm at the right edge varies

01, 010, 0201
02010,
020201

	*CLASH	*LAPSE	NONINIT	STRESSL	NONFIN
☞020201				*	*
020100		*!		*	
020210	*!			*	
202010			*!		
	*CLASH	*LAPSE	NONINIT	STRESSL	NONFIN
☞02010				*	
20201			*!		*
00201		*!		*	*

S.Paiute: rhythm is fixed at *both* ends

		*NONFIN	*LAPSE	NONINIT	STRESSL	*CLASH
S.Paiute 10, 010, 0120, 01020 010220	☞ 010220				*	*
	010200		*!		*	
	010202	*!			*	
	102020			*!		

What do we do to get 10, not *01?

Why choose 010220, over 012020?

Clash with main stress is worse: *n//1

More systems with clash

- Passamaquoddy (Algonquian; Maine US)

tópkwan	10	‘dirt’
tópkwan	210	‘dirt’
wìcohkémál	2010	‘he helps the other’
wìcòhkekémo	22010	‘he helps out’
wìcohkètahámál	202010	‘he thinks of helping the other’
tèhsàhkwapàsoltíne	2202010	‘let’s walk around on top’

- Tauya (Trans New Guinea; Papua New Guinea)

nònó	21	‘child’
ùnetá	201	‘mat’
mòmùnepá	2201	‘X sat and X . . . ’
jàpatìjəfó	20201	‘my hand’

Passamaquoddy

		*NONFIN	*LAPSE	STRESSL	STRESSR	*CLASH
10, 210,	2202010				*	*
2010,	0202010			*!		
22010	2002010		*!		*	
202010	2020201	*!			*	
2202010						

One ranking that differentiates Passamaquoddy from Tauya
01, 201, 2201, 20201, 220201...?

Why clash in the beginning (2202010), not in the middle*2022010?
Don't know. I only know that *2020210 is worse.

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