Class 3: Structure above the segment III

To do
☐ First assignment, Fijian, is Friday (Jan. 19)
☐ Think about a project topic. Write down some ideas. If you're stumped, come see me.

Overview
More about feet, doing analyses with feet

1   Setting a student-hours time

2   Generalized Alignment (McCarthy & Prince 1993)

ALIGN(*Cat1*, *Edge1*; *Cat2*, *Edge2*)

where *Cat1* and *Cat2* ∈ {PhonoWord, LexicalWord, Foot, Syllable, Morpheme...}
Edge1, *Edge2*∈ {Left, Right}
∀*Cat1*, ∃*Cat2* s.t. coincide(*Edge1*(*Cat1*), *Edge2*(*Cat2*))
i.e., "for every instance of *Cat1* in the candidate, there must exist some instance of *Cat2* such that the *Edge1*edge of *Cat1* coincides with the *Edge2* edge of *Cat2*"

Sample constraints of this format, with commonly used nicknames

"EDGEMOST-L" = ALIGN(PWord,L; Foot,L)
☞ Take a minute to write out the definition, using the template above

☞ Fill in the violations of EDGEMOST-L, given that definition

	EDGEMOST-L	EDGEMOST-R
(Ca.na)da		
ba(na.na)		
(but.ter)		
a(lu.mi)num		

☞ Write out the definition of EDGEMOST-R, and fill in its violations

- How do you count violations?
    - Though there's no slot for a "counting-type" argument in the ALIGN(*Cat1*, *Side1*; *Cat2*, *Side2*) template, there really should be: it's an additional part of the definition that must be given.

        - <u>binary</u>: either they coincide (no *s) or they don't (one * per non-aligned *Cat1*).
        - <u>count syllables</u> that intervene [typical for a foot-aligning constraint]: ***ba**(na.na)*: *, hypothetical ***ba.ba**(na.na): ***
        - <u>count segments</u> that intervene: ***ba**(na.na)*: **, ***a**(lu.mi)num:* *
        - <u>count feet</u> that intervene (not applicable for EDGEMOST)

⍰ How are these two different from EDGEMOST? Fill in violations.

ALLFEETLEFT = ALIGN(Foot,L,PWord,L) [usu. counts intervening syllables]
ALLFEETRIGHT

	EDGEMOST -L	EDGEMOST -R	ALLFEET -LEFT	ALLFEET -RIGHT	LEFT- MOST	RIGHT- MOST
(À.pa)(là.chi)(có.la)						
ba(na.na)						
Te(mís.ca)(mìngue)						

⍰ How are these two different from ALLFEETLEFT/RIGHT? Fill in violations.

LEFTMOST = ALIGN(HeadFoot,L,PWord,L) [usu. counts intervening feet]
RIGHTMOST

⍰ Let's take some more English words—your choice—and check how many times each violates each of these constraints.

3   A few more OT constraints for stress

Some from Prince & Smolensky 1993/2004, some from McCarthy & Prince 1993, others in general use but whose origin I didn't track down.

- TROCHAIC/IAMBIC: the first/last element of each foot is more prominent than any other element of that foot (if the foot's just one syllable, no violations).

- WEIGHTTOSTRESSPRINCIPLE: a heavy syllable must be stressed (pre-OT work by Prince)

- FOOTBINARITY-moraic: a foot must consist of exactly two moras

- FOOTBINARITY- syllabic: a foot must consist of exactly twosyllables

- FOOTBINARITY-general: a foot must consist of exactly two moras or exactly two syllables

- NONFINALITY-mora/syll-stress/footing: the last mora/syllable of a word must not be stressed/footed (*so this is actually 4 different constraints!*)

> Why NONFINALITY but not NONINITIALITY?
>
> Because that's what the typology indicates.
>
> See Lunden 2006 on extrametricality for a perceptual explanation of much but not all non-finality.

- PARSE-σ: every syllable must be in a foot

- NOCLASH/NOLAPSE: don't have two stressed/unstressed sylls in a row

- or, NOCLASH-grid: $*\begin{smallmatrix} x & x \\ x & x \end{smallmatrix}$

- and NOLAPSE-grid: $*\begin{smallmatrix} x & & \\ x & x & x \end{smallmatrix}$, $*\begin{smallmatrix} & & x \\ x & x & x \end{smallmatrix}$

- CULMINATIVITY: every content word has exactly one main stress (or, combined effect of one constraint requiring a content word to project a phonological word and another requiring every phonological word to contain at least one foot).

<u>Possible redundancies, debate ongoing</u>: if we have feet, do we need constraints against clash and lapse? If we have constraints against clash and lapse, do we need feet?

4   For reference: Cairene Classical Arabic data from last time

a	ká.ta.ba	'he wrote'	*you might need a special rule for the final syllable*
b	ka.ta.bí.tu	'she wrote it'	(not Classical, but apparently words of this shape are stressed the same in Classical and Colloquial Cairene)
c	ša.ja.rá.tu.hu	'his tree'	

d	ʔad.wi.ya.tú.hu	'his drugs (nom.)'	
e	ʔin.ká.sa.ra	'it got broken'	
f	qat.tá.la	'he killed'	
g	haa.ðáa.ni	'these (m. dual)'	
h	ša.ja.ra.tu.hú.maa	'their (dual) tree (nom.)'	
i	ša.ja.rá.tun	'tree (nom.)'	
j	haj.jáat	'pilgrimages'	
k	fí.him	'he understood'	(not Classical)

l	ka.táb.ta	'you (m.sg.) wrote'	
m	mu.dár.ris	'teacher'	(not Classical)
n	mu.dar.rí.sit	'teacher (f. construct)'	(not Classical)

5   OT analysis of Classical Cairene (assume secondary stresses are deleted post-lexically)

〄 Go for it—I've chosen some crucial candidates but left room for more. Assume the obvious moraifications—except /ʔadwiyatuhuma(a)/, where Hayes, citing Harrell 1960, says that final supposedly-long vowels are not pronounced differently from short.

▪ Tip: start by finding constraints that are violated by some losing candidates given here but by no winning candidates (and can therefore be top-ranked).

	šajaratuhu	
☞ *a*	(šà.ja)(rá.tu)hu	
b	(šá.ja)(rà.tu)hu	
c	(šà.ja)ra(tú.hu)	
d	ša(jà.ra)(tú.hu)	
e	(šá.ja)ra.tu.hu	
f	(šà.ja)(rà.tu)(hú)	

ʔadwiyatuhu	
☞ *a* (ʔàd)(wì.ya)(túhu)	
b (ʔàd.wi)(yá.tu)hu	

ʔadwiyatuhumaa	

☞ *a*   (ʔàd)(wì.ya)(tú.hu)maa
                          \ /
                          μ	

b   (ʔàd)(wì.ya)tu.(hú.maa)
                          \ /
                          μ	

c   (ʔàd)(wì.ya)(tù.hu)(máa)
                          \ /
                          μ	

☞ If extra time or you finish before the rest of us: try these items

i	bée.tak	'your (m.sg. house)'	(not Classical)
m	ka.tábt	'I wrote'	(not Classical)

6   An argument for feet: Minimality[1]

- McCarthy & Prince 1986 (see there for references and details): It's common for languages to impose a minimum size on content words.

  - Estonian (recall from discussion of duplication problem; Prince 1980): **≥ two moras, word-final C doesn't count** (see (Lunden 2006))

/tänava/	tänav		'street (nom.sg.)'
/konna/	konːn		'pig (nom. sg.)'
/kana/	kana (*kan)	*V-deletion blocked*	'chicken (nom. sg.)'

  - Mohawk, Kahnawake dial. (Iroquoian, Canada & US, 3,760 speakers; Michelson 1981): **≥ 2 sylls**

/k+tats+s/	**í**ktats	'I offer'
/hs+yaʔks+s/	**í**hsyaʔks	'you are cutting'

o   How can we describe all these minimums?

o   Hayes 1995: Can we just say that "every word must be able to undergo the stress rule"? If so, must that rule refer to feet? Try it for Mohawk, which has penultimate stress.

  - from Hayes 1995: Pitta-Pitta [Australian, prob. no speakers]—words also must be ≥ 2 sylls.[2]

káku	'older sister'
kákila	'coolamon, car, buggy'
kálakùra	'type of corroboree'

o   What would be the main stress rule for Pitta-Pitta?

o   Does your rule exclude subminimal words (*ka)? What about other formulations of the rule?

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[1] **But:** There is much debate about how well minimum-word requirement really lines up with foot shape crosslinguistically: see Golston 1991, Garrett 1999, Blumenfeld 2011.

[2] Data warning: To get these examples I took words from Blake's "Pitta Pitta wordlist" (coombs.anu.edu.au/SpecialProj/ASEDA/docs/0275-Pitta-Pitta-vocab.html), which doesn't mark stress, and then added in the stresses according to Hayes' reporting of Blake's (1979) description.

7   Other arguments for feet, the first 2 of which you read about in Hayes

- Natural classes
    - Lenakel verbs: #σ́σσ́σσ́…
    - Lenakel nouns: …σ́σσ́σσ́#
    - ❓ With feet, we can say that Lenakel always _____, but its nouns and verbs differ in _____
    - ❓ With the peak-first/trough-first, left-to-right/right-to-left system, nouns and verbs each have what parameter settings?

- Trochaic languages are far more common than iambic
    - With feet, we can characterize one parameter setting as more common
    - But with just the grid, we have to describe certain *combinations* of parameter settings as common
        - ❓ which ones?

- Various consonantal rules apply to the "strong" or "weak" syllable of a foot, even if the foot is not supposed to have any stress (i.e., in languages reported to have no secondary stress).
    - See González 2002 for a case of this and a case of something even more complicated.

- Expletive infixation in English (McCarthy 1982):
    - Mo(nònga)-(fucking)-(héla)
    - (Òs)-(fucking)-(wégo)
    - (Àpa)-(fucking)-(làchi)(cóla), (Àpa)(làchi)-(fucking)-(cóla)
    - (Tàta)ma-(fucking)-(góuchi) ~ (Tàta)-(fucking)-ma(góuchi) ← this one is crucial

- Latin enclitic stress ((Steriade 1988; Jacobs 1997)):
    - Latin stresses the penult if it's heavy, otherwise the antepenult (data from Jacobs/Hayes).
    - Basic analysis:
        - final syllable doesn't want to be in a foot
        - heavy syllable must be stressed (unless final: NONFINALITY>>WEIGHTTOSTRESS)
        - trochaic feet

(cá.me)ram	(ár.bo)rem	pe(dés)trem	vo(lup)(táː)tem
(sí.mu)laː	do(més.ti)cus	a(míː)cus	(liː.be)(raː.ti)(óː)nem

    - ❓ Can you tell from this what counts as a heavy syllable in Latin?

- But, it's different when you add an enclitic ("=" boundary):

(í)ta	'so'	(i)(tá)=que	'and so'	*(í.ta)=que
(mú)sa	'Muse'	(mu)(sá)=que	'and the Muse'	*(mú.sa)=que
(líː.mi)na	'thresholds'	(liː.mi)(ná)=que	'and the thresholds'	*(liː)(mí.na)=que
(nó)bis	'us'	(no)(bís)=cum	'with us'	
		(no)(bis)=(cúm)=que	'and with us'	

- Steriade's cyclic solution: when a clitic is attached, only still-unfooted material can be footed: old feet can't be readjusted (let's step through a couple of these)

- To deal with the following data, Jacobs proposes that not only final syllables, but also final <u>enclitics</u> resist footing (are "extrametrical"):

(íd)	'this'	(íd)=circoː	'therefore'	*(id)=(cír)co
		(id)=(cir)(cóː)=que	'and therefore'	
(quáː)	'which'	(quáː)=propter	'wherefore'	*(quaː)=(próp)ter
(é)aː	'there'	(e)(áː)=propter	'therefore'	*e(aː)=(próp)ter
		(e)(aː)=(prop)(tér)=que	'and therefore'	
(ú)<bi>	'where'	(u)(bí)=li.bet	'wherever'	

? Bring on the dissent and counter-analysis for all of these...

8   If by some strange chance we have extra time: Italian exercise (18)

(Indo-European language from Italy and surroundings with 62 million speakers; I didn't write down where I first got these data and generalizations. A lot are from a dictionary, Melzi 1976)

✌ Analyze primary stress in these words:

a	mé.se	'month'
b	ká.sa	'house'
c	fjá.to	'breath'
d	tér.ra	'earth'
e	dʒór.no	'day'
f	di.ví.sa	'uniform'
g	tri.bú.na	'rostrum'
h	kom.prá.re	'buy'
i	kor.ní.tʃe	'cornice'
j	me.ta.fo.ní.a	'metaphony'

✌ Here are some words with a different stress pattern. There is no other systematic (synchronic) difference between these words and the basic words in (a), so something has to be different about their underlying representations. Ideas for what it could be (various options exist)?

k	ká.li.tʃe	'chalice'
l	mú.si.ka	'music'
m	ál.be.ro	'poplar'
n	fís.si.le	'fissionable'

✌ Some word shapes, however, never show antepenultimate stress. Does this follow from the analysis so far?

o	spa.gét.ti	'spaghetti'
p	a.rán.tʃo	'orange (color)'
q	am.búr.go	'hamburger'
r	in.tén.to	'intent'
s	*ál.bur.go	
t	*ín.men.to	

✌ In addition, there are no words with preantepenultimate stress: *[é.na.ti.lo] Does that follow?

☞ There are some words with final stress—they'll need different underlying representations.

u	ko.li.brí	'hummingbird'
v	dʒo.ve.dí	'Thursday'
w	u.ni.ver.si.tá	'university'
x	li.ber.tá	'liberty'
y	dʒo.ven.tú	'youth'
z	ko.sí	'thus'
aa	tʃit.tá	'city'
bb	per.ké	'why'

☞ Famous exceptions: [mán.dor.la] 'almond', [pó.lit.t͡sa] 'policy', [á.ris.ta] 'pork loin'. We would like to account for these few words without opening the door to completely free stress placement. Speculate on how these words' underlying representation might look.

To sum up
• We've seen more arguments for feet, and had practice analyzing feet in OT.

Next time
• Maybe something about why trochees and iambs aren't just mirror images (if time)
• The next level of structure up: phonological words

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