

Class 4: Structure above the segment IV

To do

- Talk to me by the end of this week about your project topic

Overview

More about feet. Then, the next level up: the PWord. We'll see how far we get and save the rest for next time.

1 Fijian assignment: any post-mortem you'd like?

2 Arguments for feet, continued

- 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, González 2005 for cases of this and a case of something even more complicated.
 - Her simplest example: Capanahua (Panoan, Peru) deletes /ʔ/ in even-numbered syllables

/ʔotʃiti-raʔ-taʔ-ki/ → [(ʔotʃi)(tira)(**taʔ**ki)] ‘it’s probably a dog’

/ʔotʃiti-ma-raʔ-taʔ-ki/ → [(ʔotʃi)(tima)(**raʔta**ki)] ‘it’s probably not a dog’

- Only one stress per word is reported, suggesting it really is about feet
 - but this could possibly be because researchers don’t realize that the cues to secondary stress are more subtle
- Another feet argument: *unfooted* unstressed syllable doesn’t undergo rule

/ʔiʔsap/ → [**ʔiʔ**(‘sa)] ‘bird’

- 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)(tá:)tem
 (sí.mu)la: do(més.ti)cus a(mí:)cus (li.be)(ra.ti)(ó:)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
(lí.mi)na	'thresholds'	(li:.mi)(ná)=que	'and the thresholds'	*(li:)(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 enclitics resist footing (are "extrametrical"):

(íd)	'this'	(íd)=circo:	'therefore'	*(íd)=(cír)co
		(id)=(cir)(có:)=que	'and therefore'	
(quá:)	'which'	(quá:)=propter	'wherefore'	*(qua:)=(próp)ter
(é)a:	'there'	(e)(á:)=propter	'therefore'	*e(a:)=(próp)ter
		(e)(a:)=(prop)(tér)=que	'and therefore'	
(ú)<bi>	'where'	(u)(bí)=li.bet	'wherever'	

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

3 Asymmetric inventory: another argument for feet

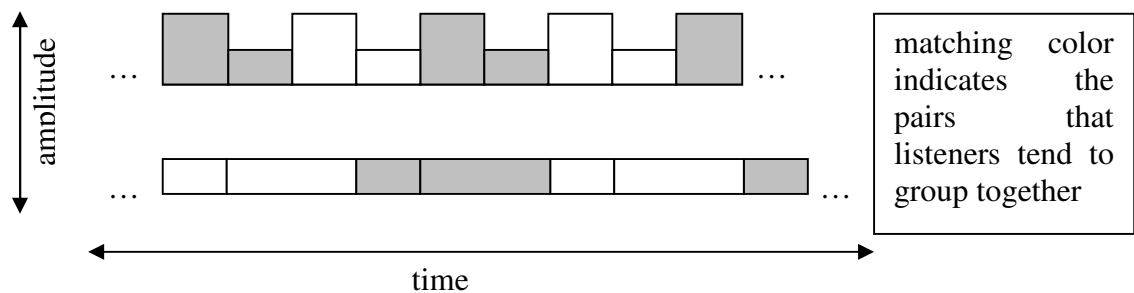
- Different languages require different types of feet:

	<i>trochees</i>	<i>iamb</i> s
<i>quantity-insensitive</i>	attested	maybe unattested?
<i>quantity-sensitive</i>	attested: moraic (LL), (H)	attested: “uneven” (LH), (H), (LL)

- Hayes (1995) argues, through an extensive typological survey, that these 3 are the only foot types.
 - There are claimed to be no languages with syllabic iambs.
 - Altshuler 2006 proposes a counterexample—Osage (mostly iambic, quantity-insensitive)
 - So this is controversial! But certainly there seems to be a tendency...

3.1 Why the asymmetry?

- Rice 1992, ch. 5 Reviews and replicates Woodrow 1909, 1911, 1951b.¹ Schematically,



- Grouping preference is stronger for duration-varying stimuli than for amplitude-varying stimuli.
- Subjects were played various binary, 7-repetition sequences of tones varying in tone duration, intertone pause duration, and tone pitch (Rice didn’t test intensity; Woodrow did) and had to say whether each was weak-strong or strong-weak.

Percent trochaic (strong-weak) response (Rice p. 195)

	Stimulus 1	Stimulus 2	Stimulus 3	
Group 1	59.62	67.31	71.15	equal duration, equal pitch, equal pause
Group 2	46.15	38.46	32.69	alternating duration, equal pitch, equal pause
Group 3	57.69	50.00	59.62	equal duration, equal pitch, alternating pause
Group 4	51.92	57.69	44.23	equal duration, alternating pitch, equal pause

difference increases ----->
(except Group 1, where duration changes)

¹ Apparently Fraisse 1963 is a good source on classic time-perception research too, if you’re interested.

⇒ The duration-alternating stimuli (Group 2) produce the most “iambic” responses, more strongly so as the duration difference increases.

Hayes 1995 cites also

- similar evidence from musicians’ judgments (Cooper & Meyer 1960):
 - “Durational differences...tend to produce end-accented groupings; intensity differentiation tends to produce beginning-accented groupings” (p. 10; as quoted by Hayes p. 80)
- a study of Swedish poetry (Fant, Kruckenberg & Nord 1991) in which...
 - reciters produced greater durational contrasts in iambic verse than in trochaic
 - musicians transcribing verse into musical notation “likewise reflected the pattern of the law in their choice of note values”
 - poets use greater contrast in number of phonemes (for accented vs. unaccented syllables) in iambic verse than in trochaic
(see also Newton 1975 for English verse)

→ “Iambic/Trochaic Law (Hayes 1995, p. 80)

- a. Elements contrasting in intensity naturally form groupings with initial prominence.
- b. Elements contrasting in duration naturally form groupings with final prominence.”

3.2 A consequence of the asymmetry: trochaic shortening

Middle English. This is apparently a bit controversial, but here’s the standard story (Mellander 2004):

- Assume footing as shown—I’m leaving as open/unsolved why these footings (issues: don’t-foot-the-end or don’t-stress-the-end? which consonants are moraic?)

? How can we analyze these?

(sú:ð)	‘south’	(sú.ðer)ne	‘southern’
di(ví:n)	‘divine’	di(ví.ni)tie	‘divinity’

- I couldn’t get clear Middle English data easily, so here are some Modern English examples that reflect the same phenomenon (whether or not it’s now synchronically real), from Prince 1990, pp. 13-14, with a couple of substitutions:

? Analysis from above should extend straightforwardly:

(ó:)mən	‘omen’	(ámə)nəs	‘ominous’
(sé:n)	‘sane’	(sáenə)ri	‘sanity’

? How do these work? (These examples show that the term “trissyllabic shortening”, if you’ve run into it, is a bit of a misnomer) [Prince, following Myers 1987, says that the suffix *-ic* is, exceptionally, not extrametrical.]

(kó:n)	‘cone’	(ká.nik)	‘conic’
(máj:m)	‘mime’	(mí.mik)	‘mimic’

- ? Can we explain the different pronunciations of the prefix? (Never mind why the final syllable is now getting footed—probably something to do with the = boundary that separates unproductive prefixes from their stems)

(rɛ.bəl)	‘rebel’	(rɪ:)(bè:t)	‘rebate’
(rɛ.kə:d)	‘record’ (noun)	(rɪ:)(flèks)	‘reflex’
(rɛ.zɪ)(dén.ʃəl)	‘residential’	(rɪ:)(læk)(sé:)ʃən	‘relaxation’
(pɪ.ɛ.fəs)	‘preface’	(pɪ:)(fɛkt)	‘prefect’
(pɪ.ɛ.lət)	‘prelate’	(pɪ:)(lè:t)	? “not late yet”??
(pɪ.ɛ.məs)	‘premise’	(pɪ:)(fɪks)	‘prefix’
(pɪ.ɛ.zən)(té:ʃən)	‘presentation’	(pɪ:)(mè.rɪ)(té:)ʃən	‘premeditation’

4 Phonological word

- We keep referring to the **word**, as in $\text{ALIGN}(\text{Word}, \text{Left}; \text{Foot}, \text{Left})$, or $\left[\begin{array}{l} -\text{son} \\ +\text{voice} \end{array} \right] \#$
 - So what counts as a word, anyway?
- This was already an issue in SPE. Take a rule like...

$\{u,i\} \rightarrow \emptyset / + _ \#$ (Chomsky & Halle 1968, p. 129, 239)

accounts for alternations in $\#b\text{il}\#$, $\#b\text{il}+i+\text{ous}\#$ and $\#r\text{eptil}\#$, $\#r\text{eptil}+i+\text{an}\#$, because their underlying forms are argued to be $/b\text{Il}+i/$, $/r\text{eptIl}+i/$

- What determines whether there’s a #? In SPE...
 - some #s are generated by syntactic brackets
 - some affixes have a # in their lexical entry ($/\#i\text{v}/$)
 - #s can also be deleted, inserted, or changed by phonological rules
- In OT, one popular way to do it is with ALIGN constraints that turn certain syntactic boundaries into phonological word boundaries (e.g. Peperkamp 1997).
 - $\text{ALIGN}(\text{LexicalWord}, \text{L}; \text{PWord}, \text{L})$
 - And there can be conflicting constraints that disturb the relationship

5 What counts as a word? Descriptive example from Samoan

- The domain of footing in Samoan is a lexical root (Noun, Verb, Adj), plus any associated bound morphemes after it (Zuraw, Yu & Orfitelli 2014):

- Primary stress is trochee at right edge:

la(vá:)	‘energized’	le(léi)	‘good’	(mánu)	‘bird’	ma(nóŋi)	‘smell good’
				(sámi)	‘sea’	pu(líŋi)	‘pudding’
				(áta)	‘picture’	i(ŋóa)	‘name’
(ŋífo)	‘tooth’		ŋi(fó-a)		‘having teeth’		
sa(váli)	‘walk _v ’		(sàva)(lí-ŋa)		‘parade _N ’		
(màfa)(tía)	‘stress out _v ’		(màfa)ti(á-ŋa)		‘distress _N ’		

- In a compound, each root starts its own stress domain:

a(lòfi)-(vái)	‘sole of foot’ (assembly+foot)	* (àlo)fi-(vái)
(àŋa)-le(áŋa)	‘bad behavior’ (bad+behavior)	*a(ŋàle)(áŋa)

- (HL) foot not tolerated → “trochaic shortening”—domain again includes suffixes

	(fúsi) ‘hug’	fu(sí-a)	‘hug-ERG’	/fusi/
vs.	(túsi) ‘write’	(tù:)(sí-a)	‘write-ERG’	/tu:si/
	(mà:)(lò:)(ló:) ‘rest _v ’	(mà:)(lò:)(ló-ŋa)	‘rest _N ’	

- Certain vowels have to foot together, e.g. /ai/, /au/:

(mái)le	‘dog’	cf.	ma(éla)	‘hollow’
(máu)ŋa	‘mountain’	cf.	ma(óta)	‘pastors house’

- ...but not across a boundary that includes the beginning of a root:

(fàʔa)-(ùlu)-(úlu)	‘be subject to’ (ulu ‘head’)	*fa(ʔà-u)(lu)-(úlu)
(fàna)-(íʔa)	‘dynamite for fishing’ (shoot + fish)	
(pòna)-(úa)	‘Adam’s apple’ (knot + neck)	

- In summary, if p-word is domain of footing,

- [root]_{p-wd}
- [root-suffix]_{p-wd}
- prefix-[root]_{p-word}
- [root]_{p-word}-[root]_{p-word}

→ every root initiates a new p-word.

- This is a very common pattern cross-linguistically (see Peperkamp 1997 for a review and some in-depth case studies).

6 How can an analysis capture what counts as a word?

- Following Peperkamp 1997, we can do it with ALIGN constraints (McCarthy & Prince 1993), such as ALIGN(LexWord, L; PWord, L).

? Let's try some tableaux for Samoan.

7 English example

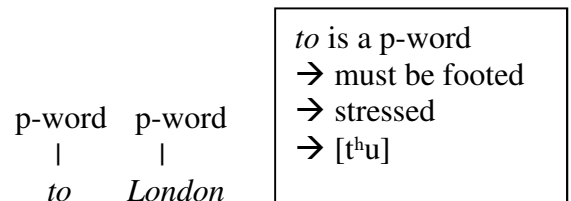
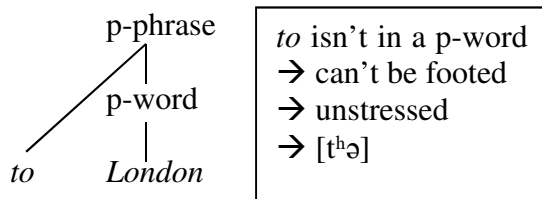
- Many English function words (i.e., not Nouns, Verbs, or Adjectives) have weak and strong forms.

	<i>strong</i>	<i>weak</i>
<i>to</i>	t ^h u	t ^h ə
<i>at</i>	æt	ət
<i>for</i>	fɔɪ	fə
<i>a</i>	eɪ	ə
<i>and</i>	ænd	ɪ

? I'm going ____ London next summer.
I'm looking ____ Campbell Hall.

Where are you going ____?
What are you looking ____?

- Selkirk 1995 proposes two possible structures:



- To avoid cluttering the tableau, assume that the “t[u]”s form a foot with stress; “t[ə]”s are unfooted.

? Fill in the tableau. What’s the winner?

	to London	ALIGN (LexWd,L,PWd,L)	ALIGN (PWd,R,LexWd,R)	FOOTMUST BEDOMINATED BYPWORD
<i>a</i>	[t ^h u London] _{PWd}			
<i>b</i>	[t ^h ə London] _{PWd}			
<i>c</i>	t ^h u [London] _{PWd}			
<i>d</i>	t ^h ə [London] _{PWd}			
<i>e</i>	[t ^h u] _{PWd} [London] _{PWd}			
<i>f</i>	[t ^h ə] _{PWd} [London] _{PWd}			

(Focus changes things: *I need a flight TO London, not FROM London.*)

? *looking at*: draw a phonological tree that causes *at* to be pronounced in its full form

? Fill in the tableau (we needed to add some constraints). Assume “[æ]t” is footed, “[ə]” isn’t. What’s the winner?

looking at	ALIGN (LexWd,R, PWord,R)	ALIGN (PPhrase,R, Pw,R)	ALIGN (PWd,R, LexWd,R)	FOOTMUST BEDOMINATED BYPWORD	PWORDMUST CONTAIN FOOT
<i>a</i> [looking æt] _{PWd}					
<i>b</i> [looking ət] _{PWd}					
<i>c</i> [looking] _{PWd} [æt] _{PWd}					
<i>d</i> [looking] _{PWd} [ət] _{PWd}					
<i>e</i> [looking] _{PWd} æt					
<i>f</i> [looking] _{PWd} ət					

⇒ *looking* needs to end a p-word, but phrase also wants to end w/ a p-word, so *at* must end its own p-word.

8 Dutch example (Gussenhoven & Jacobs 1998, p. 250)

- In Dutch, resyllabification applies across some morpheme boundaries but not others.
 - I'm including an inserted glottal stop since I think that's what's intended as the evidence for syllabification.

[ʔɔnt.ʔei.χən]_V 'dispossess' [[kɛrk]_N.ʔœyl]_N 'barn owl' [[te:.kə.n]_Vɪŋ]_N 'drawing'
 [ʔɔn.ʔe:.vən]_A 'uneven' [[rɛin]_N.ʔa:k]_N 'Rhine barge' [[vɑn.də.l]_Vɑ:r]_N 'walker'

- G&J propose that resyllabification is blocked across a p-word boundary (parentheses below mark p-words)...

(ʔɔnt.)-(ʔei.χən) (kɛrk.)-(ʔœyl) (te:.kə.nɪŋ)
 (ʔɔn.)-(ʔe:.vən) (rɛin.)-(ʔa:k) (vɑn.də.lɑ:r)

? Let's fill in the alignment constraints:

/[ɔn [ɛ:vən] _A] _A /				DEP-?	NoCODA
☞ (ʔɔn.)(ʔe:.vən)					
(ʔɔ.n)(ɛ:.vən)					
(ʔɔ.nɛ:.vən)					

/[[te:kən] _V ɪŋ] _N /				DEP-?	NoCODA
☞ (te:.kə.nɪŋ)					
(te:.kən.)(ʔɪŋ)					
(te:.kə.)(nɪŋ)					

? What should happen to function words, like pronouns and determiners, assuming the same ranking?

/[rip] _V [ən] _{det} [kat] _N / called a cat				DEP-?	NoCODA
<i>a</i> (ri:p.)(ʔən.)(kat)					
<i>b</i> (ri:.pən)(kat)					

9 More evidence in Dutch

9.1 Long-vowel diphthongization (G & J p. 252)

- /e:, ø:, o:/ become [e^ə, ø^ə, o^ə] before [r], regardless of syllabification:

[me ^ə r] _N	‘more’	[kø ^ə .ra:l] _N	‘coral’
[χø ^ə r] _N	‘smell’	[[ko ^ə r] _V ɪŋ] _N	‘test’

? Why doesn't the alternation apply here:

[[[me: [rɛiz] _V ən] _V	‘to accompany’	[[[kø:] _N [rɪŋ] _N] _N	‘cue ring’
[[[miljø:] _N [ri:zi:ko:] _N] _N	‘environmental hazard’	[ne:o: [[re:v] _N ia:ns] _A] _A	‘neo-Revian’ ²

9.2 Conjunction reduction (see also Booij 1985)

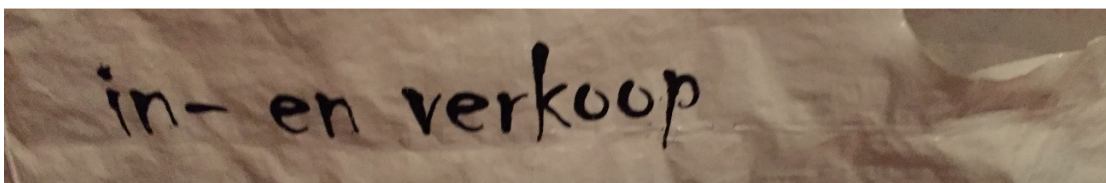
just spelling here, not IPA

	[[[land] _N [bau] _N] _N ɛn [[tœyn] _N [bau] _N] _N	<i>optionally becomes</i>	land- ɛn tœynbau
	agriculture and horticulture		agri- and horticulture
but:	[[[apsyrd] _A iteit] _N ɛn [[bana:l] _A iteit] _N	<i>cannot become</i>	*apsyrd- ɛn bana:liteit
	absurdity and banality		absurd- and banality

? Why not *apsyrd- ɛn bana:liteit?

? Check that it works for prefixed words too—data point from shopping bag from Record Mania in Amsterdam:

[in [ko:p] _V] _N ɛn [vɛr [ko:p] _V] _N	<i>can become</i>
‘buying and selling’	



² Revian = akin to or evoking the style of Dutch writer Gerard Reve

10 The phonological word in some other languages

- Sanskrit, Turkish, Hungarian, Malagasy, Tagalog, Bengali, and Italian have pretty much the same p-word boundaries as Samoan or Dutch, with some slight wrinkles.
- In Italian, for example, only prefixes that are semantically transparent stand outside the stem's p-word (Peperkamp 1997, van Oostendorp 1999):
 - (a)-(sociale) 'asociale' *but* (re-sistenza) 'resistance'
 - Provides a way to test Italian speakers' morphological intuitions: see Baroni 2001 on N. Italian intervocalic voicing of /s/, which applies only if the surrounding vowels are in the same p-word.
- *Yidin'* (Australian language, with very few remaining speakers. Nespore & Vogel 1986, data from Dixon 1977)
 - Penults of odd-syllabled p-words lengthen—no long vowels otherwise.

gu.da:.ga	'dog'	gu.da.ga.-gu	'dog- <i>purp.</i> '
mu.ɖam	'mother'	mu.ɖa:m.-gu	'mother- <i>purp.</i> '
ma.ɖi:n.da-ŋ	'walk up- <i>pres.</i> '	ga.li:.-na	'go- <i>purp.</i> '
ga.liŋ	'go- <i>pres.</i> '	ŋu.naŋ.ga.ra:-n.da	'what- <i>dat.</i> '

? Based on the data above, are suffixes part of the p-word?

? So what should we make of examples like these, with longer suffixes:

gu.ma:.ri-da.ga:.-ŋu	'red- <i>inch.-past</i> '	ma.ɖi:n.da-ŋa.liŋ	'walk up- <i>pres</i> '
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11 Do we need the p-word?

- In 2006, a group of us spent about 40 hours debating the issue (see www.linguistics.ucla.edu/people/zuraw/courses/prosword_2006.html for handouts). Results were inconclusive:
 - Often, interleaving phonology and morphology can do the job (add some affixes too late for certain processes to see them).
 - But there was a residue of cases where it seemed like we really might need the p-word. The last handout at the link above sums up the pro and con arguments.

To sum up

- We've seen more arguments for feet, and looked at the next level of structure up, the PWord

Next time

- Maybe some practice with p-words and footing (if time)
- Lower down in the representation: the CV skeleton

References

- Altshuler, Daniel. 2006. *Osage fills the gap: the quantity insensitive iamb and the typology of feet*.
- Baroni, Marco. 2001. The representation of prefixed forms in the Italian lexicon: Evidence from the distribution of intervocalic [s] and [z] in northern Italian. In Geert Booij & Jaap van Marle (eds.), *Yearbook of Morphology 1999*, 121–152. Dordrecht: Springer.
- Booij, Geert E. 1985. Coordination reduction in complex words: a case for prosodic phonology. In Harry Van der Hulst & Norval Smith (eds.), *Advances in Nonlinear Phonology*, 143–160. Dordrecht: Foris.
- Chomsky, Noam & Morris Halle. 1968. *The Sound Pattern of English*. Harper & Row.
- Cooper, Grosvenor & Leonar Meyer. 1960. *The rhythmic structure of music*. Chicago: University of Chicago Press.
- Dixon, Robert M. W. 1977. *A Grammar of Yidiny*. Cambridge: Cambridge University Press.
- Fant, Gunnar, Anita Kruckenberg & Lennart Nord. 1991. Stress patterns and rhythm in the reading of prose and poetry with analogies to music performance. *Music, language, speech, and brain*, 380–407. London: Macmillan.
- Fraisse, Paul. 1963. *The psychology of time*. Harper & Row.
- González, Carolina. 2002. The effect of prosodic structure in consonantal processes. University of Southern California dissertation.
- González, Carolina. 2005. Phonologically-conditioned allomorphy in Panoan: towards an analysis. *UCLA Working Papers in Linguistics* 11. 39–56.
- Gussenhoven, Carlos & Haike Jacobs. 1998. *Understanding Phonology*. Oxford: Oxford University Press.
- Jacobs, Haike. 1997. Latin Enclitic Stress Revisited. *Linguistic Inquiry* 28(4). 648–661.
- McCarthy, John J. 1982. Prosodic Structure and Expletive Infixation. *Language* 58(3). 574–590.
- McCarthy, John J & Alan Prince. 1993. Generalized Alignment. In Geert E Booij & Jaap van Marle (eds.), *Yearbook of Morphology*, 79–153. Dordrecht: Kluwer.
- Mellander, Evan. 2004. The iambic law: quantitative adjustment in typological perspective. (Ed.) Osama Abdel-Ghafer, Brad Montgomery-Anderson & Maria del Carmen Parafita Couto. *Kansas Working Papers in Linguistics* 27. 21–43.
- Myers, Scott. 1987. Vowel shortening in English. *Natural Language and Linguistic Theory* 5. 485–518.
- Nespor, Marina & Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.
- Newton, Robert P. 1975. Trochaic and iambic. *Language and Style* 8. 127–156.
- Oostendorp, Marc van. 1999. Italian s-voicing and the structure of the phonological word. In S.J. Hannahs & Mike Davenport (eds.), *Issues in Phonological Structure*, 197–214. Benjamins.
- Peperkamp, Sharon. 1997. *Prosodic Words*. The Hague: Holland Academic Graphics.
- Prince, Alan. 1990. Quantitative consequences of rhythmic organization. In Michael Ziolkowski, Manuela Noske & Karen Deaton (eds.), *Parasession on the Syllable in Phonetics and Phonology*, 355–398. Chicago: Chicago Linguistic Society.
- Rice, Curtis. 1992. Binariness and Ternariness in Metrical Theory: Parametric Extensions. University of Texas.
- Selkirk, Elisabeth. 1995. The prosodic structure of function words. In Jill Beckman, Laura Walsh Dickey & Suzanne Urbanczyk (eds.), *University of Massachusetts Occasional Papers: Papers in Optimality Theory*, 439–470. Amherst, Mass.: GLSA Publications.
- Steriade, Donca. 1988. Greek accent: a case for preserving structure. *Linguistic Inquiry* 19. 271–314.
- Woodrow, Herbert. 1909. A quantitative study of rhythm: the effects of variations in intensity, rate, and duration. *Archives of Psychology* 14. 1–66.
- Woodrow, Herbert. 1911. The role of pitch in rhythm. *Psychological Review* 18. 54–77.
- Woodrow, Herbert. 1951. Time perception. In S. S Stevens & S. S Stevens (eds.), *Handbook of Experimental Psychology*. New York: Wiley.
- Zuraw, Kie, Kristine Mak Yu & Robyn Orfitelli. 2014. Word-level prosody in Samoan. *Phonology* 31(2). 271–327.