Class 12: Levels and Cyclicity

To do
* Turn in your primary-vs-secondary-source report this week.

First, 5 last "exotic" types of process interaction

1. Another self-destructive feeding case, from Lee 2007

* Javanese (Austronesian from Indonesia with about 84 million speakers; data originally from Dudas 1976; Lee 1999)

	'skin'		
	/kulit+ne/	/sekolah+an/	/omah+ne/
n → Ø / C__	kulit+e	--	omah+e
h → Ø / V__V	--	sekola+an	oma+e
	[kulite]	[sekolaan]	[omae]

o   Would this work in Harmonic Serialism?

2. "Non-gratuitous feeding" → overapplication

Classical Arabic

UR	ktub		
$\emptyset \to V_i$ / # __ CCV_i	uktub	$= \mathbb{P}$	
$\emptyset \to \Omega$ / # __ V	ʔuktub	$= \mathbb{Q}$	cf. /al-walad-u/ → [ʔalwaladu]
SR	ʔuktub	'write (MASC SG)!'	'the boy (NOM)'

(Baković 2007, p. 231; from McCarthy 2007b)

o   What would be the transparent outcome?

o   Ideas for how to do this in OT?

3. "Cross-derivational feeding" → overapplication, in a sense

Lithuanian: Baković 2007, p. 234ff.; see there for references

prefix obstruents assimilate in voicing and palatalization :

at-koːpʲtʲi	'to climb up'	ap-kalʲbʲetʲi	'to slander'
ad-gautʲi	'to get back'	ab-gautʲi	'to deceive'
atʲ-pjʲautʲi	'to cut off'	apʲ-tʲemʲdʲiːtʲi	'to obscure'
adʲ-bʲekʲtʲi	'to run up'	abʲ-gʲiːdʲiːtʲi	'to cure (to some extent)' (p. 234)

epenthesis between stops of the same place (also palatalization before [i]):

atʲi-taikʲiːtʲi	'to make fit well'	apʲi-putʲi	'to grow rotten'
atʲi-tʲeisʲtʲi	'to adjudicate'	apʲi-pʲiːlʲtʲi	'to spill something on'
atʲi-duotʲi	'to give back'	apʲi-barʲtʲi	'to scold a little bit'
atʲi-dʲetʲi	'to delay'	apʲi-bʲerʲtʲi	'to strew all over' (234)

- Baković 2005 argues that the right analysis here (and in English epenthesis before /-d/ and /-z/) should capture the idea that epenthesis occurs where a geminate *would have occurred* (because of assimilation).
  - Assimilation <u>would have fed</u> epenthesis (which in Baković's analysis is only triggered between identical segments), but assimilation doesn't end up needing to apply (bleeding).

- He's proposing a typological prediction:
  - OCP constraints are strict: they penalize only perfect identity, not near-identity
  - So, there's no reason for epenthesis to break up near-identical clusters...
  - ...unless an independently occurring assimilation process would have made them identical.
- Let's try to reconstruct Baković's OT analysis.

- Any ideas for how to capture Baković's idea in SPE? Are we stuck with an epenthesis rule that recapitulates the assimilation facts?

That completes our tour of Baković's typology (I skipped "concealed free rides"). But here are a couple more animals for the menagerie:

4. Wolf 2011: "mutual counterfeeding" in Hindi-Urdu

- Indo-European from India w/ about 240 million speakers [Lewis 2009], data and analyses originally from Narang & Becker 1971, Bhatia & Kenstowicz 1972.

  o Fill in the SPE-style derivation, including predicted surface form for 'mind':

	/nikəl-naː/	/nikəl-aː/	/angən-on/	/maːnəsi/
schwa deletion: ə →Ø / VC__CV				
V nasalization: $\begin{matrix} V \\ 1 \end{matrix}$ $\begin{matrix} C \\ [+nas] \\ 2 \end{matrix}$ $\begin{Bmatrix} C \\ \# \end{Bmatrix}$ $\begin{matrix} \\ 3 \end{matrix}$ → $\begin{matrix} 1 \\ \begin{bmatrix} +long \\ +nasal \end{bmatrix} \end{matrix}$ $\begin{matrix} 3 \\ \\ \end{matrix}$				
	[nikəlnaː] 'to come out'	[nikl-aː] 'came out'	[ãːgən-õː] 'courtyard -*obl.pl.*'	? 'mind -*adj.*'

- Problem: surface form is actually [maːnsi].
- o What rule ordering does this require? What's the problem?

- o What outcome do we get if both rules apply simultaneously to the input (no iteration)?

- See Bhatia & Kenstowicz (or Wolf) for arguments that the V nasalization rule doesn't actually exist in this language—nasal vowels are just underlying, and (most of?) the problem goes away.

5. Wolf 2010: counterfeeding from the past

- The name comes from Wilson 2006.
- See the Wolf paper for more cases that would be good term-paper topics (Tachoni?).

Samothraki Greek, Kaisse 1975:		'carry-past.theme-1.pl'		'day'
		/fér+a+me/		/mér+a/
feeding:	r → Ø / V__V	fé+a+me		mé+a
	e → i / __+{a,o}[1]	fí+a+me		mí+a
		[fíami] (other rules apply to last V, I guess)		[mía]

feeding:		'Greek'	'old'	'one'
		/romé+os/	/palé+os/	/mía/ (or /mí+a/?)
	e → i / __+{a,o}	romí+os	palí+os	--
	i → j / __+V[2]	romj+ós	palj+ós	mjá
		[romjós]	[paljós]	[mjá]

o What's the problem here for putting all three rules in an order? (Hint: *[fjámi])

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[1] And o → u / __+ a
[2] And u → w / __+V. Rule is optional.

- Gliding somehow doesn't get to apply if it was originally fed by *r*-deletion. None of our theories capture this, I think.

6.   Counterbleeding in Harmonic Serialism?

- Will work only when the transparent solution violates two faithfulness constraints, and thus requires two steps (McCarthy 2000).
- It's commonly supposed (e.g., McCarthy 2008) that deleting a segment actually takes 2 steps:
    - first delete the features (violates MAX-round, MAX-voice, etc.)
    - then delete the segment's "slot"
    - This anticipates autosegmental representations, which we'll see in Week 8

- Let's try McCarthy 2000's hypothetical example. Translate this rule-based analysis into Harmonic Serialism OT:

$$/darabat/$$

spirantization $\begin{bmatrix} -cont \\ -son \\ +voice \end{bmatrix} \rightarrow$ [+cont] / V __   daravat

vowel reduction $\begin{bmatrix} V \\ -stress \end{bmatrix} \rightarrow$ ə   darəvat

schwa syncope   ə → Ø / VC_CV   darvat

[darvat]

7. **Overview of this week:** Phonological generalizations vary on many dimensions—productivity and automaticity, conscious accessibility, domain of application (e.g., word vs. phrase)—but they seem to cluster in two areas of the space. We'll see a proposal for capturing this by dividing the phonology into two main levels, and then elaborate this structure.

8. **Observation I: two kinds of rules**

English "trisyllabic shortening"
op[ej]k   op[æ]c-ity
s[ej]ne   s[æ]n-ity
ser[i:]ne   ser[ɛ]n-ity
obsc[i]ne   obsc[ɛ]n-ity
div[aj]ne   div[ɪ]n-ity
prof[aw]nd   prof[ʊ]nd-ity
[ow]men   [ɑ]min-ous
kin[i]sis   kin[ɛ]t-ic
interv[i]ne   interv[ɛ]n-tion
cf.
               [ow]men-ful
               div[aj]n-able
               op[ej]c-ating
ob[i:]se   ob[i:]s-ity
               n[aj]tingale
               how op[ej]que is it?

English tapping (a.k.a. flapping)
corro[d]e   corro[ɾ]ing
mee[t]   mee[ɾ]ing
i[d]yllic   i[ɾ]yll
a[tʰ]omic   a[ɾ]om
di[d]   You di[ɾ] it.
wha[t]   Wha[ɾ] a day!

	trisyllabic shortening	tapping
exceptions?		
sensitive to morphology?		
applies across word boundaries?		
creates sounds not in phoneme inventory?		
characteristic of English-speakers' L2 accents?		
obvious to untrained native speaker?		

9. **Some other rules in English that exhibit one syndrome or the other**
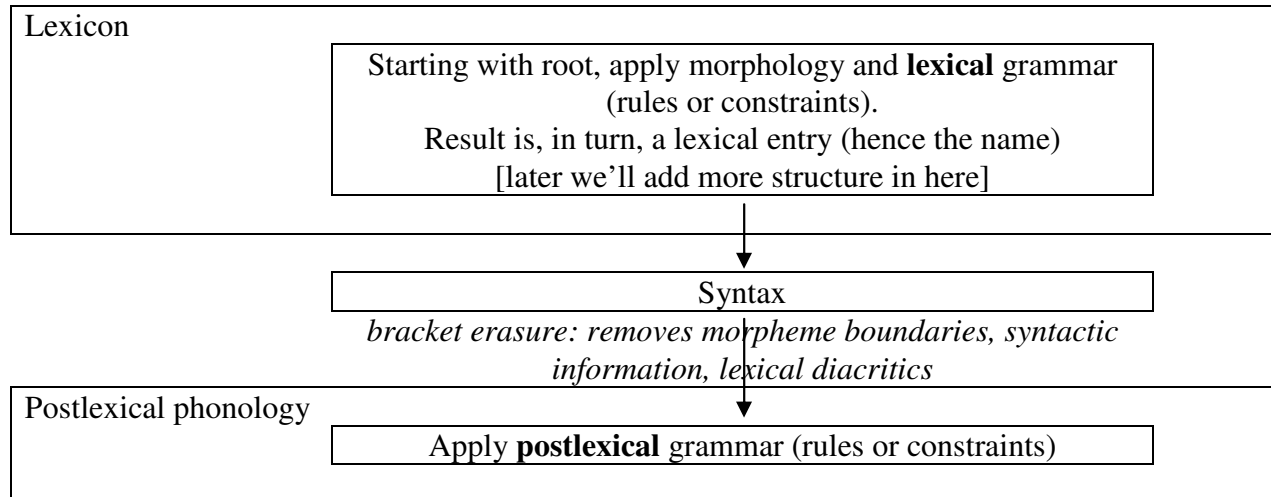
Like trisyllabic shortening
- velar softening: *electri[k]* vs. *electri[s]ity*
- obligatory nasal assimilation: *il-legal*, *com-prehend*

Like tapping
- aspiration of voiceless stops
- optional palatalization: *I miss you. Got your sweater? Did you want fries with that?*
- coda-l-velarization: *feel* vs. *leaf*

10. Explanation in Lexical Phonology

- Really, a theory of morphology and phonology.
- Founding works: Chomsky 1965; Kean 1974; Allen 1978; Mascaró 1976; Pesetsky 1979; Kiparsky 1982; Kiparsky 1985; Mohanan 1986.

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Lexicon
        ┌──────────────────────────────────────────────────────────┐
        │   Starting with root, apply morphology and lexical grammar │
        │                  (rules or constraints).                   │
        │      Result is, in turn, a lexical entry (hence the name)   │
        │         [later we'll add more structure in here]           │
        └──────────────────────────────────────────────────────────┘
                                      │
                                      ▼
                ┌─────────────────────────────────────┐
                │                Syntax                 │
                └─────────────────────────────────────┘
          bracket erasure: removes morpheme boundaries, syntactic
                   information, lexical diacritics
Postlexical phonology                 │
                                      ▼
              ┌──────────────────────────────────────────┐
              │  Apply postlexical grammar (rules or constraints) │
              └──────────────────────────────────────────┘
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- o Why can't postlexical rules have <u>exceptions</u>?

- o Why can't postlexical rules be <u>sensitive to morphology</u>?

- o Why don't lexical rules <u>apply across word boundaries</u>, and why do postlexical rules?

- "<u>Structure preservation</u>": a rule is called *structure preserving* iff the segments it outputs are in the phoneme inventory

  - o Why must lexical rules be structure-preserving?

- <u>L2 accent</u>: Although it doesn't follow directly from the model, the idea is that because postlexical rules are automatic and can't be turned off according to morphological or lexical information, they somehow also don't get turned off when speaking another language.

- <u>Intuitions</u>: The claim is that when making judgments about whether sounds are the same or different, speakers look at a lexical entry, not a surface form.

See Goldrick & Rapp 2007 for neurolinguistic evidence of a lexical-postlexical dissociation, and a literature review of other psycholinguistic investigations of the putative distinction.

11. This can also solve *some* opacity problems, in its OT version

- Recall Malagasy counterbleeding from your homework. In classic OT, it would be tough to rule out **lot*:

		/buhah/
final neutralization	h → k / __ #	buhak
final epenthesis	Ø → a / C __ #	buhaka
		[buhaka]

  o But, if Final Neutralization is a lexical rule, and Final Epenthesis is postlexical,[3] it works—try it (Albro 2005).

- Some other problematic cases we've seen so far could be solved this way—the trick is to check whether the "early" changes really look lexical and the "late" change really look postlexical.

    ▪ E.g., the Icelandic data you read about (Kiparsky 1984)

- <u>Self</u>-counterfeeding and <u>self</u>-counterbleeding are still not predicted in general!

12. <u>Observation II</u>: carry-over from morphological base

- Long monomorphemes suggest default English stress is (ŏσ)σ...:

    (Tàta)ma(góuchi)   (Wìnne)pe(sáukee)   (àbra)cadábra (Pàssa)ma(quóddy)
    (Pòpo)ca(tépetl)   (ròdo)mon(táde)   (Kàla)ma(zóo)

  o So why these?
    recìprocálity (*rèciprocálity)   munìcipálity (*mùnicipálity)
    apòlogétic (*àpologétic)   relìgiósity (*rèligiósity)

13. Solution: the transformational cycle

- Some or all of the lexical component is sometimes called the "cyclic" component. This goes back to an idea found in SPE, with syntactic antecedents:

"We assume as a general principle that the phonological rules first apply to the maximal strings that contain no [syntactic] brackets, and that after all relevant rules have applied, the innermost brackets are erased; the rules then reapply to maximal strings containing no [internal] brackets, and again innermost brackets are erased after this application; and so on, until the maximal domain of phonological processes is reached." (Chomsky & Halle 1968, p. 15)

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[3] or at least at a later level than lowering

14. Examples with the giant SPE English stress rule

Claim: *pérmìt* (noun) and *Kérmit* have different stress
- underlying: **[N [V per=mit]V]N**
- apply the rule to **[V per=mit]V**
- → **[V per=mít]V** (if there's a "=", the rule requires stress to be after it)
- erase its brackets: **per=mít**
- now the maximal internal-bracketless string is **[N per=mít]N**
- apply the rule to **[N per=mít]N**
- → **[N pér=mìt]N** (if a noun's final morpheme is stressed, the new stress goes somewhere before that morpheme; old stress is demoted but still stressed)

15. Another classic example: even if stress itself isn't maintained, vowel quality can be

còm.p[ə]n.sá.tion	*còm.p[ɛ]n.sá.tion	*cf.*	cóm.p[ə]n.sate
còn.d[ə]n.sá.tion	còn.d[ɛ̀]n.sá.tion	*cf.*	con.d[ɛ́]nse

o   Draw the brackets in for the underlying forms. Can we explain this?

16. Putting cyclicity in the model
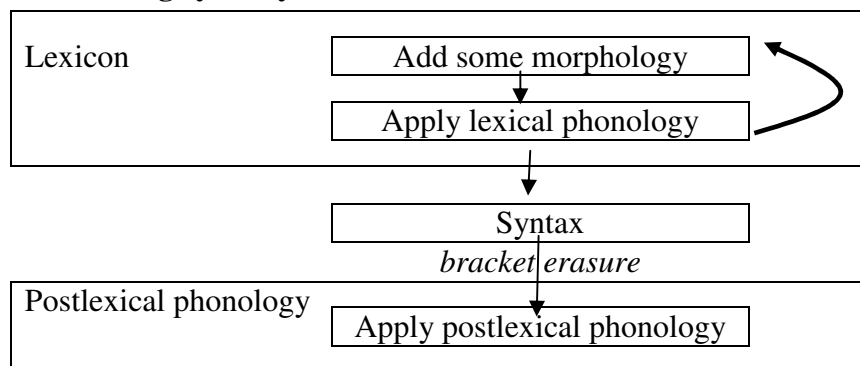
17. Example: Chamorro Chung 1983; Crosswhite 1998

Austronesian language from Guam and Northern Marianas with 62,500 speakers

- Complementary distribution: mid Vs in closed, stressed syllables; high Vs elsewhere

lápis	'pencil'	lapés + su	'my pencil'
dǽŋis	'candle'	dæŋɛ́s + su	'my candle'
hugándu	'play'	hùgandó+ŋa	'his playing'
malǽguʔ	'wanting'	màlægóʔ+mu	'your wanting'

- Secondary-stressed vowels are high in these examples

tintáguʔ	'messenger'	tìntagóʔ+ta	'our (incl.) messenger'
mundóŋgu	'cow stomach'	mùnduŋgó+ŋa	'his cow stomach'

- But not in these (and cf. the unstressed examples). What do you think?

éttigu	'short'	èttigó+nɲa	'shorter'
inéŋŋuluʔ	'peeping'	inèŋŋulóʔ+hu	'my peeping'
óttimu	'end'	òttimó+nɲa	'his end'

- We also need to take care of these:

kwéntus	'to speak'	kwintús+i	'to speak to'
lókluk	'to boil'	luklók+ɲa	'its boiling'
sénsin	'flesh'	sinsén+ɲa	'his flesh'

18. Another reason for interleaving phonology and morphology

- Raffelsiefen 1996, 1999: many English affixes are selective about what they'll attach to

| rándom | rándomìze | sálmon | sálmonìze | fóreign | fóreignìze |
| síster | sísterìze | shépherd | shépherdìze | rhýthm | rhýthmìze |

| corrúpt | *corruptize | ápt | *aptize | obscéne | *obscénize |
| fírm | *firmize | políte | *polítize | ténse | *tensize | (1996, p. 194) |

- Kiparsky's interpretation: stress rules have already applied by the time the grammar tries to attach *–ize*.

Next time: multiple levels within lexical component

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