

### Class 16: Levels and Cyclicity

**Overview of our final major topic:** 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 multi-dimensional space. We’ll see a proposal for capturing this by dividing the phonology into two main levels, and then elaborate this structure.

#### 1. **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[r]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.*

*English tapping (a.k.a. flapping)*

corro[d]e        corro[r]ing  
 mee[t]           mee[r]ing  
 i[d]yllic        i[r]yll  
 a[t<sup>h</sup>]omic      a[r]om  
 di[d]            You di[r] it.  
 wha[t]          Wha[r] a day!

[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?

	<i>trisyllabic shortening</i>	<i>tapping</i>
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?		

#### 2. **Some other rules in English that exhibit one syndrome or the other**

*Resembles trisyllabic shortening*

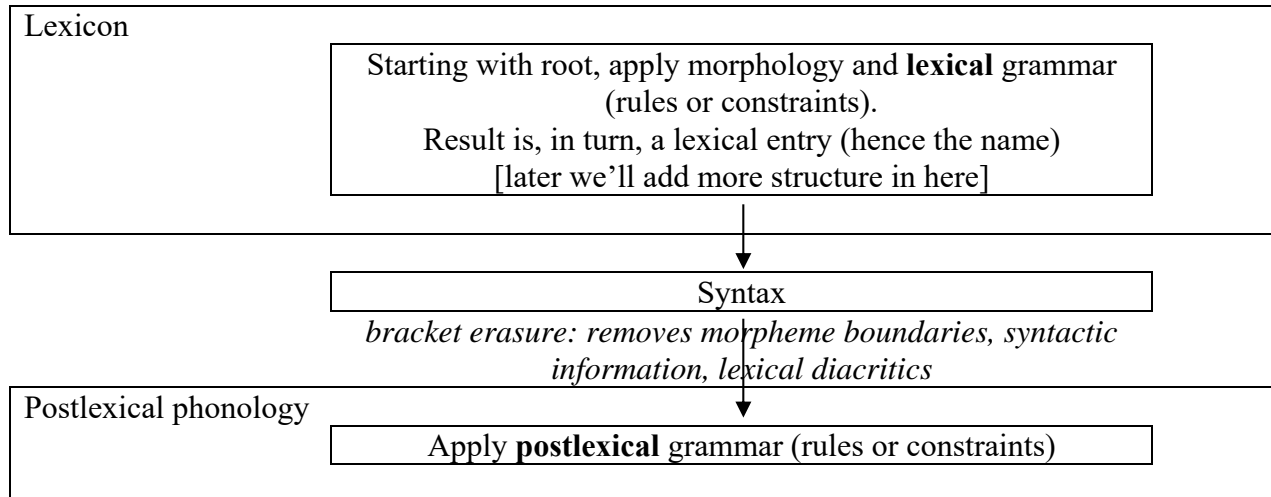
- velar softening: *electri[k]* vs. *electri[s]ity*
- obligatory nasal assimilation: *il-legal*, *com-prehend*

*Resembles 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*

### 3. 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; Borowsky 1986)



? Why can't postlexical rules have exceptions?

? Why can't postlexical rules be sensitive to morphology?

? Why don't lexical rules apply across word boundaries, and why do postlexical rules?

- “Structure preservation”: a rule is called *structure preserving* iff the segments it outputs are in the phoneme inventory

? Can you guess why lexical rules must be structure-preserving?

- L2 accent: 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.
- Intuitions: 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.

You'll read more about this kind of external or semi-external evidence in Mohanan.

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

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

- Recall Baković/McCarthy's Yowlumne Yokuts counterbleeding example from last time. In classic OT, it would be tough to rule out \*[ʔilil]:

		/ʔili:+l/
<i>long lowering</i>	[+long] → [-high] /	ʔile:l
<i>shortening</i>	V → [-long] / ___ C#	ʔilel
		[ʔilel]

ʔ But, if Long Lowering is a lexical rule, and Shortening is postlexical,<sup>1</sup> it works—try it.

(of course, we should see other evidence that the two processes happen in these two levels)

- 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.
- Self-counterfeeding and self-counterbleeding are still not predicted in general!

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<sup>1</sup> or at least at a later level than lowering

## 5. **Observation II: carry-over from morphological base**

- Long monomorphemes<sup>2</sup> suggest default English secondary stress is initial:

Tàtamagóuchi	Wìnnepesáukee	àbracadábra	Pàssamaquóddy
Pòpocatépetl	ròdomontáde	Kàlamazóo	

? So why these—thoughts about how they're different?

recìprocály ( \*rècìprocály)                      municìpály ( \*mùnicìpály)

apòlogétic ( \*àpologétic)                      relìgiósity ( \*rèlìgiósity)

## 6. **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)

## 7. **Examples with the giant SPE English stress rule**

Claim: *pérmit* (noun) and *Kérmit* have different stress

- underlying:  $[N [v \text{ per}=\text{mit}]_v]_N$
- apply the rule to  $[v \text{ per}=\text{mit}]_v$   
(if there's a “=”, the rule requires stress to be after it)  
→  $[N [v \text{ per}=\text{mít}]_v]_N$
- erase the innermost brackets →  $[N \text{ per}=\text{mít}]_N$
- apply the rule to  $[N \text{ per}=\text{mít}]_N$   
(if a noun's final morpheme is stressed, the new stress goes somewhere before that morpheme; old stress is demoted but still stressed)  
→  $[N \text{ pér}=\text{mít}]_N$

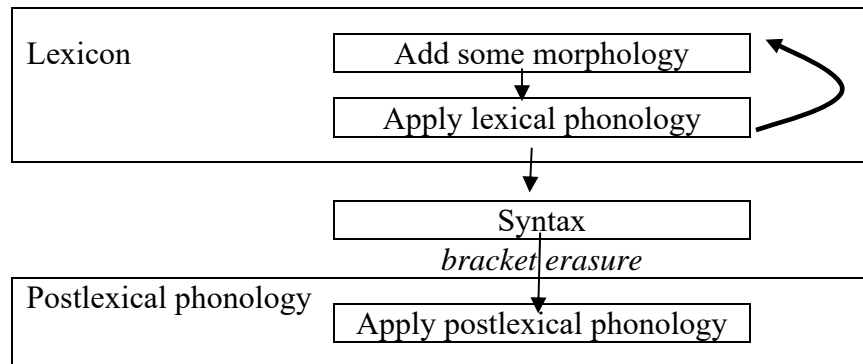
<sup>2</sup> Obviously most of these were polymorphemic in the language they came from, but aren't for most English speakers now

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

còm.p[ə]n.sá.tion      \*còm.p[ɛ̃]n.sá.tion      cf.      còm.p[ə]n.sate  
 còn.d[ə]n.sá.tion or      còn.d[ɛ̃]n.sá.tion      cf.      con.d[ɛ̃]nse

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

**9. Putting cyclicity in the model**



**10. Example: Chamorro (Chung 1983; Crosswhite 1998)**

- Austronesian language from Guam and Northern Marianas with 62,500 speakers
- Spanish, U.S., and—briefly—Japanese colonial policies of linguistic and cultural suppression decreased Chamorro language use in Guam, less so in Northern Marianas



*Hurão Academy immersion school*

<sup>3</sup> <https://www.huraoacademy.com/>

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

lá.pis	‘pencil’	la.pés.+su	‘my pencil’
dæ.ŋis	‘candle’	dæ.ŋés.+su	‘my candle’
hu.gán.du	‘play’	hù.gan.dó+n.ŋa	‘his playing’
ma.læ.gu?	‘wanting’	mà.læ.gó?.+mu	‘your wanting’

- Secondary-stressed vowels are high in these examples

tin.tá.gu?	‘messenger’	tìn.ta.gó?.+ta	‘our (incl.) messenger’
mun.dóŋ.gu	‘cow stomach’	mùn.duŋ.gó+n.ŋa	‘his cow stomach’

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

ét.ti.gu	‘short’	èt.ti.gó+n.ŋa	‘shorter’
i.néŋ.ŋu.lu?	‘peeping’	i.nèŋ.ŋu.ló?.+hu	‘my peeping’
ót.ti.mu	‘end’	òt.ti.mó+n.ŋa	‘his end’

### 11. Another reason for interleaving phonology and morphology

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

rándom	rándomize	sálmon	sálmonize	fóreign	fóreignize	
síster	sísterize	shépherd	shépherdize	rhýthm	rhýthmize	
corrúpt	*corruptize	ápt	*aptize	obscéne	*obscenize	
firm	*firmize	políte	*politize	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 the lexical component

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