

Class 8: The cycle, part II

To do

- Finish Chamorro assignment (due Tuesday)
- Anderson ch. 10 study questions (due Tuesday or Thursday, if you prefer)

Overview: Evidence for distinctions among cycles.

1. Observation: two kinds of rules (sorry for leaving this out last time)

English “trisyllabic shortening”

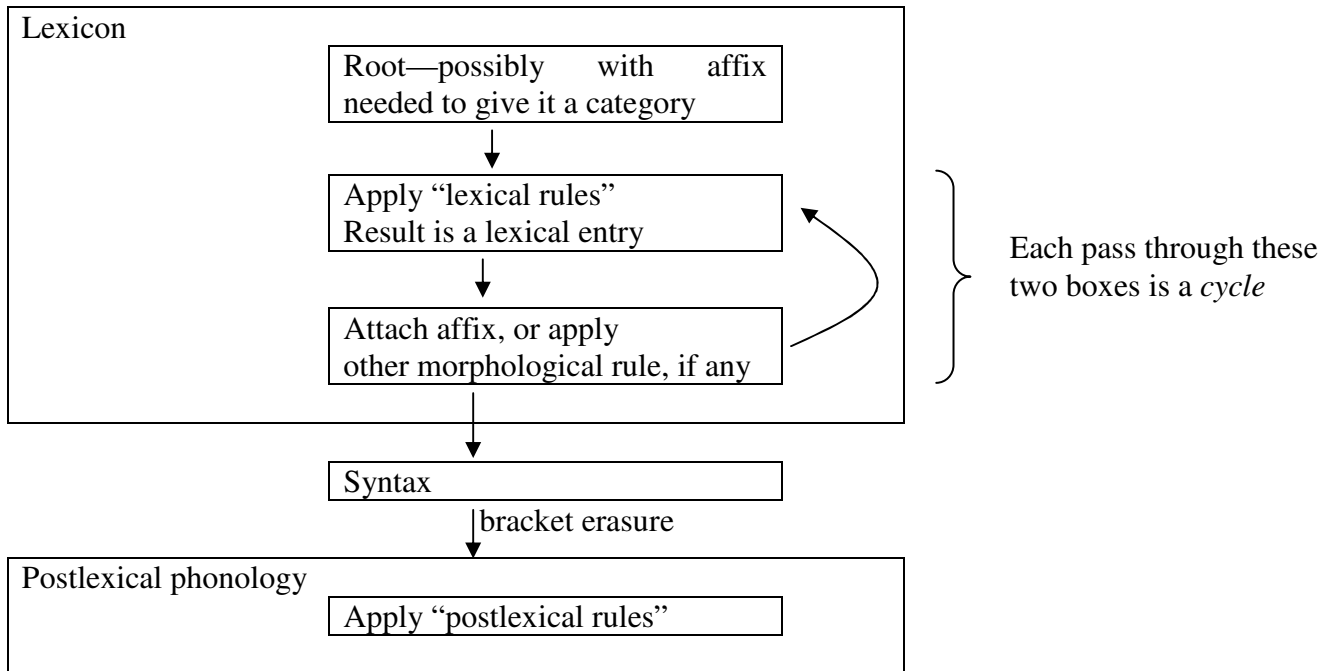
[oʊ]men [ɑ]minous
 s[ɛɪ]ne s[æ]nity
 ser[i]ne ser[ɛ]nity
 obsc[i]ne obsc[ɛ]nity
 div[ɑɪ]ne div[ɪ]nity
 prof[ɑʊ]nd prof[ʊ]ndity

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^h]omic a[r]om
 di[d] You di[r] it.
 wha[t] Wha[r] a day!

	trisyllabic shortening	tapping
creates allophones not in phoneme inventory?		
obvious to untrained native speaker?		
sensitive to morphology?		
exceptions?		
applies across word boundaries?		

2. Explaining these properties with lexical phonology



Morphological sensitivity

Once a rule goes to the postlexical phonology, all morphological labels are removed (“bracket erasure”)—so flapping can’t see them.

“Structure preservation”

Because the result of applying a lexical rule has to be a legitimate lexical entry, it can’t contain anything that doesn’t belong to the phoneme inventory.

Exceptions

Lexical rules can “see” the lexical entry to check if it has any information about being an exception. Postlexical rules can’t, because they just get a string of segments.

Intuitions

When making judgments about whether sounds are the same or different, speakers look at a lexical entry, not a surface form (that’s the theory here, anyway).

Word boundaries

Because lexical rules apply within the lexicon (i.e., they output a new lexical entry, not a modified phrase or sentence), they can’t “see” other words in the environment—those other words aren’t there yet.

This model makes strong predictions about ordering: all postlexical rules must follow all lexical rules.

- Is this interleaving of phonology and morphology different from the SPE idea of the cycle?

3. Observation: two classes of affix in English (and many other languages)

<i>suffix examples</i>	<i>-al, -ous, -th, -ate, -ity, -ic, -ify, -ion, -ive</i>	<i>-ship, -less, -ness, -er, -ly, -ful, -some, -y</i>
stress shift?	párent vs. paréntal	párent vs. párentless
trisyllabic shortening?	op[ei]que vs. op[æ]city	op[ei]que vs. op[ei]quenessless
velar softening?	opa[k]e vs. opa[s]ity	opa[k]e vs. opa[k]e-y
<i>prefix examples</i>	<i>in-, con-, en-</i>	<i>un-, non-</i>
can bear main stress?	cóntemplate	-- (rarely)
obligatory assimilation of nasal?	illegal	unlawful
<i>both</i>		
attach to bound morphemes?	caust-ic	-- (rarely)
ordering	<u>non-in-com-prehens-ible</u> ¹ <u>act-iv-at-ion-less-ness</u> ²	
semantics	riot vs. riotous	riot vs. rioter

(prefixes that come in two flavors: *re-*, *de-*, *sub-*, *pre-*; and of course there are exceptions...)

¹“They are good movies, in a lot of ways - good production values, great cast, snappy dialogue, non-boring **non-incomprehensible** non-insane plotting - which lift them above your “Battlefield Earths” and so on.” (www.thepoorman.net/archives/002732.html)

²“Future work on the temperature dependence of this ET step may allow verification of the correspondingly predicted near-**activationlessness** of the reaction.” (www.pnas.org/cgi/content/full/101/46/16198)

4. Solution: level ordering

Lexical component is broken into *levels* with different Word-Formation and phonological rules.

English (Kiparsky 1982 with material from Mohanan 1986, who proposes 4 levels for English):

Level 1	WFRs	“primary” (i.e., irregular) inflection (tooth/teeth) primary derivational affixes (- <i>al</i> , - <i>ous</i> , - <i>ant</i> , <i>in-</i> etc.), including some Ø affixes
	Phon. rules (selected)	stress trisyllabic shortening (<i>opacity</i>) obligatory nasal assimilation (<i>illegal</i>) velar softening (<i>electricity</i>)
Level 2	WFRs	secondary derivational affixes (- <i>ness</i> , - <i>er</i> , <i>un-</i> , etc.) compounding (<i>blackbird</i>)
	Phon. rules	compound stress $n \rightarrow \emptyset / C_ \#$ (<i>damning</i> vs. <i>damnation</i>) $g \rightarrow \emptyset / _ [+nas] \#$ (<i>assigning</i> vs. <i>assignation</i> ³)
Level 3	WFRs	“secondary” (regular) inflectional affixes (- <i>s</i> , - <i>ed</i> , - <i>ing</i>)
	Phon. rules	optional sonorant resyllabification $_ _]V$ (<i>cycling</i>)
Postlexical	Phon. rules	aspiration, tapping (no morphology occurs after the lexical component, so no WFRs)

The output of each level (or, depending on the author, the output of each cycle) is a lexical item. (Everyone clear on the difference between cycle and level?)

- How does this explain why Level 2 affixes can’t attach to bound roots?
- Compare the derivations for *damnation* and *damning*.
- How is the compound asymmetry explained in this model?
tooth marks teeth marks claw marks *claws marks
louse-infested lice-infested rat-infested *rats-infested

5. Exercise: Conservative European Spanish example (based on Harris)

Palatal and alveolar nasals and laterals contrast:

ka.na	‘grey hair’	po.lo	‘pole’
ka.ɲa	‘cane’	po.ʎo	‘chicken’

But the contrast is neutralized in some environments

dezðeɲ+ar	‘to disdain’	donθeʎ+a	‘maiden’
dezðeɲ+oso	‘disdainful’	donθeʎ+a+s	‘maidens’
dezðen	‘disdain (N)’	donθel	‘swain’

- Formulate a rule of palatal neutralization.

³ though also some problematic cases like *?assigner*. For a completely different view of all this, see Jennifer Hay (2003) *Causes and Consequences of Word Structure*. New York: Routledge.

- What about these forms—what can we conclude about levels in Spanish?

dezðen+es ‘d disdain (N, plural) donθel+es ‘swains’

6. Kiparsky’s more recent proposal

Keep the basic ideas of Lexical Phonology, but each level is a constraint ranking rather than a rule ordering.

- Lexical levels are re-named Stem Level and Word Level (is there a Root Level before the Stem Level?)
- The output of one level (or cycle within a level) is the input to the next—faithfulness constraints try to preserve changes made on the previous cycle.
- The ranking can change from one level to the next.

7. Illustration: our Arabic case from last time—sorry for screwing it up in class; now corrected

[fihim+na] ‘we understood’ → fhímna [[fihim+Ø]+na] ‘he understood us’ → fihímna, *not* *fhímna
 [[fihim+at]+ak] ‘she understood you (m.)’ → fihmatak, *not* *fhímatak

Stem Level for ‘he understood us’: place stress

	/fihim+Ø/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	MAX-V	*[i]	IDENT (stress)	NOSTRESS CLASH
a	fíhim					**	*	
b	fihím	*!				**	*	
c	fíhm		*!		*	*	*	
d	fhím				*!	*	*	

Word Level for ‘he understood us’: place another stress, preventing deletion

	/fíhim+na/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	*[i]	MAX-V	IDENT (stress)	NOSTRESS CLASH
a	fíhimna	*!			**			
b	fihímna				**		*	*
c	fihímna				**		**!	
d	fhímna			*!	*	*	*	
e	fíhmna		*!		*	*		

Postlexical level for ‘he understood us’: get rid of stress clash, but keep vowel

	/fíhímna/	GOODSTRESS	NOSTRESS CLASH	*CC{C,#}	MAX-V _{stressed}	IDENT (stress)	*[i]	MAX-V
a	fíhimna	*!				*	**	
b	fíhímna		*!				**	
c	fihímna					*	**	
d	fhímna				*!		*	*

This is not the only possible analysis!! (Also, GOODSTRESS conflates various constraints)
 Let’s check that it works for ‘we understood’ and ‘she understood you (m.)’

Stem Level for 'we understood us': place stress

	/fihim+na/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	MAX-V	*[i]	IDENT (stress)	NOSTRESS CLASH
a	fíhimna	*!				**		
b	fihímna					**		
c	fíhmna		*!		*	*		
d	fhímna				*	*		

Word Level for 'we understood': delete unstressed /i/

	/fihímna/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	*[i]	MAX-V	IDENT (stress)	NOSTRESS CLASH
a	fíhimna	*!			**		**	
b	fihímna				**!		*	*
c	fihímna				**!			
d	fhímna				*	*		
e	fíhmna		*!	*	*	*	*	

Postlexical level for 'we understood': no plausible rivals

	/ fhímna /	GOODSTRESS	NOSTRESS CLASH	*CC{C,#}	MAX-V _{stressed}	IDENT (stress)	*[i]	MAX-V
a	fhímna						*	
b	fhmna			*!	*			*

Stem Level for 'she understood you (m.)': place stress

	/fihim+at/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	MAX-V	*[i]	IDENT (stress)	NOSTRESS CLASH
a	fíhimat					**	*	
b	fihímat	*!				**	*	
c	fíhmat				*!	*	*	
d	fhímat				*!	*	*	

Word Level for 'she understood you (m.)': delete unstressed /i/

	/fíhimat+ak/	GOODSTRESS	*CC{C,#}	MAX-V _{stressed}	*[i]	MAX-V	IDENT (stress)	NOSTRESS CLASH
a	fíhimatak	*!			**			
b	fihímatatak				**!		*	*
c	fíhmatatak				*	*		
d	fhímatatak			*!	*	*	*	

Postlexical level for 'she understood you (m.)': no plausible rivals

	/ fíhmatatak /	GOODSTRESS	NOSTRESS CLASH	*CC{C,#}	MAX-V _{stressed}	IDENT (stress)	*[i]	MAX-V
a	fíhmatatak						*	
b	fhmátatak			*!	*	*		*

8. Exercise, if time: German dorsal fricatives (based loosely on Merchant 1996⁴)

- Formulate the basic rule governing distribution of x/ç. Assume that it is fed by a syllabification rule.

ma:zox	'Masoch'	ʔiç	'I'	
oɪnu:x	'eunuch'	ʃprɛç+t	'speak!'	
ʔax	'oh!'	køç+ə	'cooks'	
ʃpra:x+ə	'language'	by:ç+ʌ	'books'	
kox	'cook'	ri:ç+ən	'to smell'	
bu:x+əs	'book-GEN'	çɛmi:	'chemistry'	
ku:x+ən	'cake-EN'	ʃtraɪç+t	'he/she paints'	
bu:x+uŋ	'booking'	ri:ç+ən	'to smell'	
ʃaʊx+ən	'to smoke'	mɪlç	'milk'	
taʊx+ən	'to dive'	kəlço:zə	'collective farm'	
ʔaxt+ən	'to observe'	du:rç	'through'	
zu:xt+ə	's/he searched'	manç	'some'	
		mʏnçən	'Munich'	
ma:zox+ɪʃ	'Masoch-ish'	çi:na	'China'	vary speakers
knox+ɪç	'boney'	çaos	'chaos'	
ʃpra:x+ɪç	'(mono-)lingual'	çolɛsteri:n	'cholesterol'	
da:x+artɪç	'roof-like'	çɛmi:	'chemistry'	
raʊx+ɪç	'smoky'	çarɪsma	'charisma'	

We now encounter some problem data:

ku:+çən (some report ky:+çən)	'little cow'	speakers vary:	
fɪʌu+çən	'little woman'	ma:zo:ç+ɪst	'masochist'
mama+çən	'mommy'	oynu:ç+ɪsmus	'eunuchism'
bio:+çɛ:mikʌ	'bio-chemist'	oynu:ç+ɪzi:rən	'to make into a eunuch'
noyro+çɪrurk	'neuro-surgeon'	paro:ç+i:	'parish'
indo+çina	'Indo-China'	paro:ç+ɪal	'parochial'

Let's see if we can create a lexical-phonology analysis (not the only option). I think we will need two levels, so we'll have to decide which affixes belong to which level.

⁴ Merchant, Jason (1996). Alignment and fricative assimilation in German. *Linguistic Inquiry* 27. Further issues:

- There are also some [x] inside monomorphemic words. Merchant suggests that all follow short vowels, and therefore are syllabified as syllable-final.
- Some apparently monomorphemic words need to be treated as *bound root+suffix*.
- Umlaut must apply before fricative assimilation, to bleed it; this suggests umlaut applies at Level I, which may lead to problems for the strict cycle condition. Also, there are some lexical exceptions to the basic generalization, such as [x]utzpa 'chutspa' and [x]atschaturjan 'Khachaturian'.