

Classes 12: Lexical Phonology part I

To do

- Steriade reading questions due Tuesday, Nov. 10
- cyclicity/lexical phonology assignment due Friday, Nov. 12
- Be working on term paper: meet with me again by the end of next week

Overview: 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.

1. Observation: two kinds of rules

English “trisyllabic shortening”

s[er]ne s[æ]nity
 ser[i]ne ser[ɛ]nity
 prof[aʊ]nd prof[ʌ]ndity
 div[ai]ne div[i]nity
 [ou]men [ɑ]minous

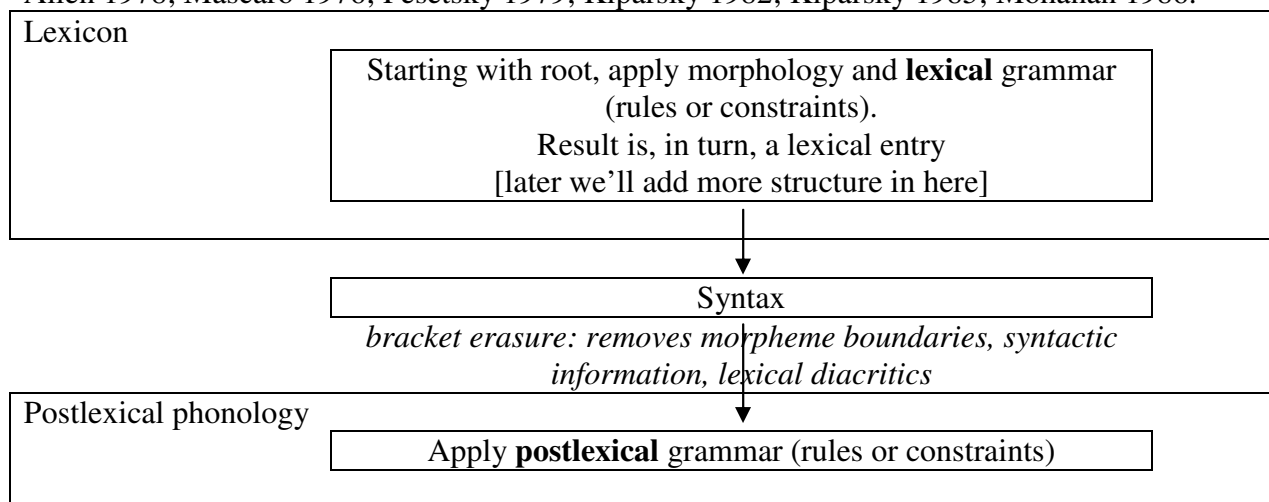
English tapping (a.k.a. flapping)

corro[d]e corro[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!

	<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. Explanation in Lexical Phonology

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



- Exceptions: Lexical rules can see whether the lexical entry has information about being an exception. Postlexical rules can't, because they just get a string of segments.
- Morphological sensitivity: Once a rule goes to the postlexical phonology, all morphological labels are removed ("bracket erasure")—so flapping can't see them.
- 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.
- "Structure preservation" (a rule is *structure preserving* if the segments it outputs are in the phoneme inventory): 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.
- 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 also don't get turned off when speaking another language.
- 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).

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

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

Recall Yokuts counterbleeding. In classic OT, it would be tough to rule out *ʔilil

UR	ʔili:+l			
[+long] → [-high]	ʔile:l	= P	cf. /ʔili:+hin/ → [ʔile:hin] 'fans'	
V → [-long] / __ C#	ʔilel	= Q	cf. /pana:+l/ → [panal] 'might arrive'	
SR	ʔilel		'might fan'	

(Baković 2007, p. 223; from McCarthy 1999)

But, if lowering is a lexical rule, and shortening is postlexical,¹ it works:

LEXICAL	/ʔili:+l/	*[+long,+hi]	IDENT(long)	IDENT(hi)	*[V,+long]C#
a	ʔili:l	*!			*
b	ʔile:l			*	*
c	ʔilil		*!		
d	ʔilel		*!	*	

POST-LEXICAL	/ʔile:l/	*[+long,+hi]	*[V,+long]C#	IDENT(long)	IDENT(hi)
e	ʔili:l	*(!)	*(!)		
f	ʔile:l		*!		
g	ʔilil			*	*!
h	ʔilel			*	

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

¹ or at least at a later level than lowering

4. 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.” (SPE, p. 15)

5. Examples with the giant SPE English stress rule

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

- underlying: $[_N [_V \text{per}=\text{mít}]_V]_N$
- apply the rule to $[_V \text{per}=\text{mít}]_V$
- $\rightarrow [_V \text{pér}=\text{mít}]_V$ (the only place the rule allows for “=” is before the target, so there’s only one vowel here that can be stressed)
- erase its brackets: **per=mít**
- now the maximal internal-bracketless string is $[_N \text{per}=\text{mít}]_N$
- apply the rule to $[_N \text{per}=\text{mít}]_N$
- $\rightarrow [_N \text{pér}=\text{mít}]_N$ (if a noun’s final morpheme is stressed, the stress goes somewhere before that morpheme;)

$$V \rightarrow [1 \text{ stress}] / \left[X_C_0 \left(\begin{array}{c} [-\text{tense}] \\ \gamma\text{stress} \\ V \end{array} \right) C_0^1 \left(\begin{array}{c} [\alpha\text{voc}] \\ [\alpha\text{cons}] \\ [-\text{ant}] \end{array} \right) \right] / _ [-\text{seg}] C_0 [\beta\text{stress}] C_0]_{\text{NSPVA}}, \beta = \begin{cases} 1 \\ 2 \end{cases}$$

...with the convention: when a V is assigned [1stress] by rule, all other nonzero stresses are increased (i.e., demoted) by 1 (p. 64).

$[_N \text{mono} [_S \text{graph}]_S]_N$ is similar:

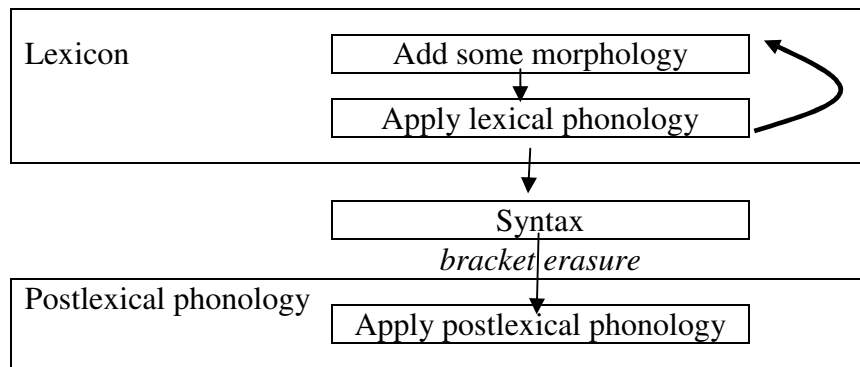
- $[_S \text{graph}]_S$ gets stressed on the first round
- $\rightarrow [_S \text{gráph}]_S$
- erase brackets: **gráph**
- now we’ve got $[_N \text{mono} \text{gráph}]_N$
- **mono** gets penultimate stress, since its second syllable is light (and the original stress is demoted): $[_N \text{mónogràph}]_N$

6. Another classic stress example

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[ɛ̃]n.sá.tion cf. con.d[é]nse

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

7. Putting cyclicity in the model



8. 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

láp̄is	‘pencil’	lapés + su	‘my pencil’
dǣŋis	‘candle’	dǣŋés + su	‘my candle’
hugá̄ndu	‘play’	hùgandó + ŋ̄na	‘his playing’
malá̄egu?	‘wanting’	màlǣgó? + mu	‘your wanting’

Secondary-stressed vowels are high in these examples

t̄intá̄gu?	‘messenger’	t̄intagó? + ta	‘our (incl.) messenger’
m̄undó̄ŋgu	‘cow stomach’	m̄undun̄gó + ŋ̄na	‘his cow stomach’

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

é̄ttigu	‘short’	è̄ttigó + ŋ̄na	‘shorter’
in̄é̄ŋ̄nulu?	‘peeping’	in̄è̄ŋ̄nuló? + hu	‘my peeping’
ó̄ttimu	‘end’	ò̄ttimó + ŋ̄na	‘his end’

- We also need to take care of these:

kw̄éntus	‘to speak’	kw̄intús + i	‘to speak to’
lók̄luk	‘to boil’	luklók + ŋ̄na	‘its boiling’
sénsin	‘flesh’	sinsén + ŋ̄na	‘his flesh’

9. Further evidence 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

[To save a couple of twigs, I'm not printing out the last page, which is just references; see online version]

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