Class 11: Lexical Phonology part I

To do
- due Friday (Nov. 9): process interaction HW (Kalinga)
- Term paper: You should have a topic, and you should have traced the data back to its primary source. Don’t hesitate to recall it if checked out, or request from interlibrary loan.

First, some loose ends

1. **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**
     \[
     \begin{array}{c}
     \text{[+cont]} \\
     \text{[+son]} \\
     \text{[+voice]} \\
     \end{array} \rightarrow 
     \begin{array}{c}
     [+\text{cont}] \\
     V \\
     \end{array} \\
     V \\
     \\rightarrow \emptyset \\
     \\rightarrow \emptyset
     \]

     **vowel reduction**

     **schwa syncope**

     

2. **Intrinsic rule ordering and non-ordering—let’s discuss #4-#8 from last week’s handout**
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.

3. **Observation 1:** two kinds of rules

*English “trisyllabic shortening”*  
*English tapping (a.k.a. flapping)*

<table>
<thead>
<tr>
<th></th>
<th>English “trisyllabic shortening”</th>
<th>English tapping (a.k.a. flapping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>op[e]k</td>
<td>op[æ]c-ity</td>
<td>corro[d]e</td>
</tr>
<tr>
<td>s[e]ne</td>
<td>s[æ]n-ity</td>
<td>mee[t]</td>
</tr>
<tr>
<td>ser[i]:ne</td>
<td>ser[ɛ]n-ity</td>
<td>i[d]ylic</td>
</tr>
<tr>
<td>obsc[i]:ne</td>
<td>obsc[ɛ]n-ity</td>
<td>a[t]omic</td>
</tr>
<tr>
<td>div[a]:ne</td>
<td>div[i]n-ity</td>
<td>di[d]</td>
</tr>
<tr>
<td>prof[aw]nd</td>
<td>prof[u]nd-ity</td>
<td>wha[t]</td>
</tr>
<tr>
<td>[ow]men</td>
<td>[ɑ]min-ous</td>
<td></td>
</tr>
<tr>
<td>kin[i]sis</td>
<td>kin[ɛ]t-ic</td>
<td></td>
</tr>
<tr>
<td>interv[i]ne</td>
<td>interv[ɛ]n-tion</td>
<td></td>
</tr>
<tr>
<td>cf.</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>trisyllabic shortening</th>
<th>tapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>exceptions?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sensitive to morphology?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>applies across word boundaries?</td>
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<td></td>
<td></td>
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<tr>
<td>creates sounds not in phoneme inventory?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>characteristic of English-speakers’ L2 accents?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>obvious to untrained native speaker?</td>
<td></td>
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</tr>
</tbody>
</table>

4. **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*
5. Explanation in Lexical Phonology


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)

- 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
    - Why must lexical rules 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.

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

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

Recall Polish counterbleeding (Kenstowicz & Kisseberth 1979, p. 72). In classic OT, it would be tough to rule out *lot: /lod/

\[
\begin{align*}
o-\text{raising} & \quad o \rightarrow u /\underbrace{[+\text{voice}]}_{\text{C}} \# \quad \text{lud} \\
\text{devoicing} & \quad [-\text{son}] \rightarrow [-\text{voice}] /\_\_ \# \quad \text{lut} \\
\end{align*}
\]
But, if o-raising is a lexical rule, and devoicing is postlexical,\(^1\) it works—try it.

- A lot of the 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.
  - The Kalinga data you’re working on (but don’t use levels in that assignment!)
  - The Icelandic data you read about (Kiparsky 1984)
  - Maybe Malagasy a-epenthesis (see Albro 2005)
  - ...

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

7. **Observation II: carry-over from morphological base**

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

- (Tàta)ma(góuchi)
- (Winne)pe(sáukee)
- (àbra)cadábra
- (Pàssa)ma(quóddy)
- (Popo)ca(tépetl)
- (ròdo)mon(táde)
- (Kàla)ma(zóó)

- So why these?
  - reciprocality (*rèciprocalité)
  - municipality (*mùnicipalité)
  - apòlogétic (*àpologétic)
  - religiósity (*rèligiósity)

8. **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)

9. **Examples with the giant SPE English stress rule**

Claim: pérmìt (noun) and Kérmit have different stress

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- underlying: \([N \{V \text{ per=mit}\} V]\)\(_N\)
- apply the rule to \([V \text{ per=mit}] V\)
- \(\rightarrow [V \text{ per=mit}] V\) (if there’s a “=” there, the rule requires stress to be after it)
- erase its brackets: per=mit
- now the maximal internal-bracketless string is \([N \text{ per=mit}] N\)
- apply the rule to \([N \text{ per=mit}] N\)
- \(\rightarrow [N \text{ pér=mit}] N\) (if a noun’s final morpheme is stressed, the new stress goes somewhere before that morpheme; old stress is demoted but still stressed)

\(^1\) or at least at a later level than lowering
10. Another classic example: even if stress itself isn’t maintained, vowel quality can be

çon.d[ə]n.sát.ion  con.d[ɛ]n.sát.ion  cf.  con.d[ɛ]nse

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

11. Putting cyclicity in the model

Lexicon  
Add some morphology  
Apply lexical phonology  

Syntax  

Postlexical phonology  
Apply postlexical phonology

12. 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’  daŋês + su  ‘my candle’
huŋándu  ‘play’  hùŋandó+ŋa  ‘his playing’
malégu?  ‘wanting’  màlægó?+mu  ‘your wanting’

Secondary-stressed vowels are high in these examples

tintágu?  ‘messenger’  tìntagó?+ta  ‘our (incl.) messenger’
mundóŋgu  ‘cow stomach’  mùndùŋgó+ŋa  ‘his cow stomach’

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

éttigu  ‘short’  éttigó+ŋa  ‘shorter’
inéŋŋulu?  ‘peeping’  inèŋŋuló?+hu  ‘my peeping’
óttimu  ‘end’  òttimó+ŋa  ‘his end’

o We also need to take care of these:

kwéntus  ‘to speak’  kwintú+si  ‘to speak to’
lókluk  ‘to boil’  luklók +ŋa  ‘its boiling’
sénsin  ‘flesh’  sinsé+ŋa  ‘his flesh’
13. Another reason for interleaving phonology and morphology

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

rándom rándonize sálmón sálonize fóreign fórenignize
síster síisterize shépherd shépherdize rhytm rhythmize

corrúpt *corruptize ápt *aptize obscéne *obscénize
fírm *firmize polite *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

Mascaró, Joan. 1976. Catalan Phonology and the Phonological Cycle. MIT.