Class 9 or 10: The duplication and conspiracy problems

To do: Depends on whether we get to this Oct. 28 or Nov. 2
(Apologies to Paul and Gunhye, who have heard a similar lecture from me before.)

Overview: When multiple parts of the grammar seem to be doing the same thing, some phonologists have smelled a rat.¹

1. Dynamic vs. static phonology
The ‘dynamic’ phonology of a language is the phonology that shows up in alternations. We have analyzed this with rules:

<table>
<thead>
<tr>
<th>Word</th>
<th>Phoneme</th>
</tr>
</thead>
<tbody>
<tr>
<td>cat[s]</td>
<td>walk[t]</td>
</tr>
<tr>
<td>dog[z]</td>
<td>jog[d]</td>
</tr>
<tr>
<td>pea[z]</td>
<td>flow[d]</td>
</tr>
</tbody>
</table>

The ‘static’ phonology is the generalizations that hold of monomorphemic words. Often analyzed with morpheme structure constraints or morpheme structure rules:

*[ligt], *[nubs]

2. Conceptual aside
Morpheme structure rules are funny: no one is claiming that the English lexicon actually contains words like /ækd/, repaired by MSR to ækt (after all, how would a learner construct such a lexical entry?). But the prohibition on ækd must be expressed somewhere in the grammar of English, since speakers know it (they would reject ækd as a new word).

Some might claim that the lexicon contains /ækD/, with a final consonant underspecified for [voice]. If the MSR applies only to underspecified Cs, though, what would happen to hypothetical /ækd/? What prevents it from existing?

This comes back to the ‘lexical symmetry’ idea we saw in K&K’s discussion of Russian final devoicing: the grammar needs to explain, one way or another (MSRs or regular rules), why certain types of underlying forms don’t occur.

- Learning problem: how do English speakers know to reject ækd anyway?
- An even harder learning problem: how do English speakers know that slol and fmaey sound funny?² (Consider this low-life and this mangled mess.) What is the morpheme structure rule that fixes them??

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¹ to smell a rat: English idiom meaning to suspect that something is wrong
² I’ve found no slVC0l words in the OED, and just 5 sNVC0N words, all but smarm previously unknown to me: smon (acronym), snam, snum, smalm (a variant of smarm), smarm.
3. Example: Estonian
(Finno-Ugric language with 1,100,000 speakers, mainly in Estonia.)
Estonian content morphemes have a minimum size: at least two syllables or one heavy syllable, where ‘heavy’ = CVVV or CVCC.

*/ko/, */ma/, */kan/

Estonian also has a rule deleting final vowels in the nominative sg. (there’s also a lengthening, but don’t worry about it):

/matsi/ mats ‘lout, bumpkin, nom. sg.’
/konna/ kon ‘frog, nom. sg.’
/tenava/ tenav ‘street, nom. sg.’
/ilma/ ilm\(^3\) ‘world, weather, nom. sg.’
/jalga/ jalg ‘foot, leg, nom. sg.’

But it cannot apply in certain cases:

/kana/ kana ‘hen, nom. sg.’
/koi/ koi ‘clothes-moth, nom. sg.’
/maa/ maa ‘country, land, nom. sg.’
/tuba/ tuba ‘room, nom. sg.’
/koli/ koli ‘trash, nom. sg.’

Let’s try to write a mini-grammar for Estonian that tries to capture these facts.

4. The duplication problem (Kenstowicz & Kisseberth 1977\(^4\))
This term refers to cases where rules and morpheme structure constraints seem to be doing the same thing (‘duplicating’ each other’s effects). This troubled researchers from the late 1970s onwards, because it seems that single phenomenon (e.g., avoidance of sub-minimal words) should have a single explanation.

5. Shortening a grammar
Using the brace notation to collapse \(\emptyset \rightarrow V / C \_ C\#\)
\(\emptyset \rightarrow V / C \_ CC\)

into the shorter \(\emptyset \rightarrow V / C \_ C \{C,\#\}\) says that these rules have something significant in common.

\(^3\) I’m not sure if this example and the next have lengthening.
6. **Kisseberth: cases where the notation doesn’t allow shortening**

These rules have something in common too (what?), but they can’t be collapsed using curly brackets:

\[
\emptyset \rightarrow V / C \_ \_ CC \\
C \rightarrow \emptyset / CC + \_
\]

Cases like this are called *conspiracies*, and their widespread existence is the *conspiracy problem*.

(The difference between a case of the duplication problem and a case of the conspiracy problem is sometimes fuzzy and the terms are sometimes used interchangeably.)

7. **Constraints**

Kisseberth proposes using a constraint to make the rules of Yawelmani simpler:

Instead of

\[
V \rightarrow \emptyset / V C \_ \_ C \ V \\
\text{[-long]}
\]

use

\[
V \rightarrow \emptyset / C \_ \_ C \text{ subject to the constraint *CCC} \\
\text{[-long]}
\]

The constraint can *trigger* rules or *block* them.

- Blocking isn’t too problematic—how does it work in the example above?

But triggering might be problematic. What if a constraint triggers multiple competing rules in some cases: how do you choose which rule to apply?

Many more conspiracies have been identified, giving rise to more constraints.

8. **The international conspiracy problem (Kiparsky)**

Sometimes different rules in different languages seem to be aiming for the same surface patterns.

Example on next page: cognate infixes in some Western Austronesian languages
<table>
<thead>
<tr>
<th></th>
<th>Tagalog (Philippines)</th>
<th>Timugon Murut (Indonesia)</th>
<th>Sarangani Blaan (Philippines)</th>
<th>Limos Kalinga (Philippines)</th>
<th>Acehnese (Indonesia)</th>
<th>Palauan (Palau)</th>
<th>Kulalao Paiwan (Taiwan)</th>
<th>Tjubabar Paiwan (Taiwan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>p/f</td>
<td>pili, <strong>pumili</strong></td>
<td>patoj, <strong>matoj</strong></td>
<td>fati, <strong>mati</strong></td>
<td>pija, <strong>kumija</strong></td>
<td>pajoj, <strong>sumajoh</strong></td>
<td>--</td>
<td>pili, <strong>piqaj, pniqaj</strong></td>
<td><strong>pajsu, pənajsu</strong></td>
</tr>
<tr>
<td>t</td>
<td>takbo, <strong>tumakbo</strong></td>
<td>tuun, <strong>tumuun</strong></td>
<td>tiis, <strong>tmiis</strong></td>
<td>tulak, <strong>tumulak</strong></td>
<td>torəʔ, <strong>təmorəʔ</strong></td>
<td><strong>təkəl, təm(ə)kəl</strong></td>
<td>supu, <strong>samupu</strong></td>
<td><strong>sənaw, sənənaw</strong></td>
</tr>
<tr>
<td>s</td>
<td>sulat, <strong>sumulat</strong></td>
<td></td>
<td></td>
<td>saluen, <strong>sumaluen</strong></td>
<td></td>
<td><strong>quəuts, quməuts</strong></td>
<td>kan, <strong>kəman</strong></td>
<td><strong>kəva, kəməva</strong></td>
</tr>
<tr>
<td>k/q</td>
<td>kuha, <strong>kumuha</strong></td>
<td></td>
<td></td>
<td>kalvn, <strong>kumalvn</strong></td>
<td></td>
<td><strong>kalvn, kumalvn</strong></td>
<td>kan, <strong>kəman</strong></td>
<td><strong>kəva, kəməva</strong></td>
</tr>
<tr>
<td>b/v</td>
<td>bili, <strong>bumili</strong></td>
<td>bigod, <strong>migod</strong></td>
<td>bunal, <strong>munal</strong></td>
<td>bali, <strong>gumali</strong></td>
<td>baləʔ, <strong>obaləʔ</strong></td>
<td><strong>burəs, bənərəs</strong></td>
<td><strong>vənə, vənə</strong></td>
<td></td>
</tr>
<tr>
<td>d/ð</td>
<td>datiŋ, <strong>dumatiŋ</strong></td>
<td>dakol, <strong>dumakol</strong></td>
<td></td>
<td>duŋŋy, <strong>dumunŋy</strong></td>
<td>δəkəl, θəmakl</td>
<td><strong>δəkəl, θəmakl</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>gawa, <strong>gumawa</strong></td>
<td>gajo, <strong>gumajo</strong></td>
<td></td>
<td>gantoŋ, <strong>gumantoŋ</strong></td>
<td></td>
<td><strong>sebək, swebək</strong></td>
<td>sav-u, <strong>sənəv-u</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note also:

*sebək, swebək tobod, twobəd dum, dwum*
Notes and references
Tjuabar Paiwan: Ho (1995). Ho claims that when “the second syllable of the stem has a labial initial [onset] that is preceded by /s/,” the infix’s [m] dissimilations to [n]. But there must be more to it given Ho’s example sənəv-u, where the [v] is preceded by [a] (but cf. kəməvə)
Kulalao Paiwan: Ferrell (1982)
Sarangani Blaan: Rhea (1995)

Moral
➔ Even if referring to a constraint doesn’t simplify the grammar of an individual language, it seems to give some insight into cross-linguistic patterns. (Suggesting that the constraint is somehow “natural” for learners to construct? What would that mean? Do we need an evaluation metric for constraints?)

In the next few classes we will examine the role of constraints in rule-based phonology.

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