Class 6: OT analysis session

To do
- Peperkamp study questions due Tuesday
- I'll post a homework Tuesday night on OT, due a week from Tuesday (due Feb. 3, that is)

---

1. What are some typical phenomena?

- When approaching a phonology problem, it's helpful to have some good top-down expectations.
- There is a very long tail of phonological processes that don't fit into any of these categories, but these still cover a lot of cases:
  - Some **segment types** are marked, and occur only when required by context
    - *NASALIZEDV in English, overridden only by $*\begin{bmatrix} V \\ -nasal \end{bmatrix}\begin{bmatrix} C \\ +nasal \end{bmatrix}$
  - **Syllable structure** restrictions, repaired by epenthesis or deletion
    - ONSET, NOCODA, *COMPLEXONSET, *COMPLEXCODA, HNUC/NAS (etc.)
  - **Sonority sequencing**: a complex onset must have increasing sonority ([tra], not [rta]); a complex coda must have falling sonority. Sometimes repaired by epenthesis.
  - **Vowel harmony**: one vowel causes a neighboring vowel to agree with it, including across an intervening consonant, and sometimes even across certain other vowels.
    - $*[\alpha back] \, C_0 \, [-\alpha back]$
    - also autosegmental approaches, which we'll discuss later
  - **Consonant place assimilation**: immediately adjacent consonants must agree in place (especially if the first one is nasal)
  - **Consonant voice assimilation**: adjacent obstruents must agree in voicing
  - **Final devoicing**: word- (or syllable-)final obstruents must be voiceless
  - **Vowel reduction**: Vowels in unstressed syllables display fewer contrasts than those in stressed syllables. They can also be shorter or devoiced, or delete.
    - $*\begin{bmatrix} -stress \\ +low \end{bmatrix}$
  - **Fortition**: Consonants that are word-initial, syllable-initial, stress-syllable-initial undergo "strengthening", such as aspiration, devoicing
  - **Lenition**: Consonants that are domain-final, unstressed, or V__V undergo "weakening", such as voicing, shortening, becoming a fricative ("spirantization"), or even deletion.
  - Limited **consonant-vowel interactions**:
    - A velar or coronal consonant becomes "palatal" (post-alveolar, alveo-palatal, palatal) next to a high front vowel
    - A consonant becomes fronter next to a front vowel, backer next to a back vowel
    - A vowel becomes nasalized next to a nasal consonant

  - Plus all the the things that **stress** and **tone** can do, but let's save those for a later week.

2. OT warmup exercises

Do these individually. When done, look around for two other people who are done to form a group with. Compare your answers, then move on the the problems.

A. In the following example, the winning output for the input /park/ is [pa.rək].

- Account for this by writing the constraints ***COMPLEXCODA**, **MAX-C**, and **DEP-V** (don't insert a vowel) into the tableau <u>in a correct ranking</u>.
- Fill in the violations, exclamation mark(s) and shading.

/park/			
a.　　　[park]			
☞ b.　　　[pa.rək]			
c.　　　[pa.rə.kə]			
d.　　　[par]			
e.　　　[pa]			

B. Fill in the asterisks, exclamation marks, shading, and pointing finger/arrow.

/βada/	* V [–cont]	*FRICATIVE	IDENT(cont)
a.　　　bada			
b.　　　baða			
c.　　　βada			
d.　　　βaða			

What is the contrast status of *ß* and *b*? Assume that the above three constraints are the whole language.

☐ separate phonemes
☐ allophones of the same phoneme
☐ separate phonemes, but contextually neutralized

C. In the following example, the winning output for the input /ãzpã/ is [az.ˈpã]

- Account for this by putting the constraints **IDENT(nasal)**, **IDENT(nasal)/stressed**, and ***[+nasal]** in the tableau in a correct ranking.
- Fill in the asterisks, exclamation marks and shading.

/ãzpã/			
a. [ãz.ˈpã]			
☞ b. [az.ˈpã]			
c. [ãz.ˈpa]			
d. [az.ˈpa]			

- **IDENT(nasal)/stressed** = don't change the [nasal] value of a segment that is in a <u>stressed output syllable</u>.

D. French allows complex onsets. A toddler learning French named Théo[1] produced complex onsets, but not everywhere, as shown by the winners below.

- Account for this by putting the constraints **MAX-C**, **MAX-C/stressed**, and ***COMPLEXONSET** in the tableaux in a correct ranking.
- Fill in the asterisks, exclamation marks and shading.

/ˈgʁo/			
☞ a. [ˈgʁo]			
b. [ˈgo]			
/gʁyˈjo/	(same ranking as for *a* and *b*)		
c. [gʁy.ˈjo]			
☞ d. [gy.ˈjo]			

- **MAX-C/stressed** = a C in a stressed input syllable must have an output correspondent.

---

[1] From Yvan Rose's 2000 McGill dissertation, via Jesney & Tessier 2010

3. Makonde (from Odden 2005)

- **Use OT**—basically the same procedure as we used for rule problems last week, except once you think you know what's conditioning an alternation, instead of writing a rule, try our tableau recipe (repeated below for reference)

Acute accent in these examples marks stress, whose position is predictable

	Repeated imperative	*Past*	*Imperative*	
1.	amáŋga	amíle	áma	'move'
2.	taváŋga	tavíle	táva	'wrap'
3.	akáŋga	akíle	áka	'hunt'
4.	patáŋga	patíle	póta	'twist'
5.	tatáŋga	tatíle	tóta	'sew'
6.	dabáŋga	dabíle	dóba	'get tired'
7.	aváŋga	avíle	óva	'miss'
8.	amáŋga	amíle	óma	'pierce'
9.	tapáŋga	tapíle	tépa	'bend'
10.	patáŋga	patíle	péta	'separate'
11.	aváŋga	avíle	éva	'separate'
12.	babáŋga	babíle	béba	'hold like a baby'
13.	utáŋga	utíle	úta	'smoke'
14.	lukáŋga	lukíle	lúka	'plait'
15.	lumáŋga	lumíle	lúma	'bite'
16.	uŋgáŋga	uŋgíle	úŋga	'tie'
17.	iváŋga	ivíle	íva	'steal'
18.	pitáŋga	pitíle	píta	'pass'
19.	imbáŋga	imbíle	ímba	'dig'
20.	limáŋga	limíle	líma	'cultivate'

- Start with the <u>winning candidate</u> and the <u>fully faithful candidate</u>.
- If the winning candidate ≠ the fully faithful candidate…
    - Add <u>the markedness constraint(s)</u> that rule out the fully faithful candidate.
    - Add the <u>faithfulness constraints</u> that the winning candidate violates.
    - Think of <u>other ways to satisfy the markedness constraints</u> that rule out the fully faithful candidate. Add those candidates, and the faithfulness and markedness constraints that rule them out. How far to take this step is a matter of judgment .
- If the winning candidate = the fully faithful candidate, then you are probably including this example only to show how faithfulness prevents satisfaction of a markedness constraint that, in other cases, causes deviation from the underlying form.
    - Add that markedness constraint.
    - Add one or more candidates that satisfy that markedness constraint.
    - Add the faithfulness constraints that rule out those candidates.

4. Two cases of metaphony

- From Walker 2005: Romance langauges in which suffix vowels spread their [+high] feature to the stem.
- Since you may not have seen much autosegmentalism so far, you can just use one or more constraints requiring the stressed vowels of masculine plurals to have certain feature values.
- Develop an analysis for each language. Use the same constraints for both, just ranked differently.

Foggiano/Pugliese (Ethnologue classifies as dialect of Italian). Vowel inventory: i,e,ɛ,a,u,o,ɔ

pét-e	'foot'	pít-i	'feet'
móʃʃ-a	'soft (fem.)'	múʃʃ-u	'soft (masc.)'
kjén-a	'full (fem.)'	kjín-u	'full (masc.)'
grɔ́ss-a	'big (fem.)'	grúss-u	'big (masc.)'

Veneto (~ 6 million speakers in Italy/Slovenia/Croatia and Brazil) Same vowel inventory.

véd-o	'I see'	te víd-i	'you see'
kór-o	'I run'	te kúr-i	'you run'
prét-e	'priest'	prét-i	'priests'
bɛ́l-o	'beautiful (masc. sg.)'	bɛ́l-i	'beautiful (masc. pl.)'
mɔ́d-o	'way'	mɔ́d-i	'ways'
gát-o	'cat'	gát-i	'cats'

5. Ladakhi. Data from Norman 2005.

- May remind you of an assignment from last quarter
- Treat the affricate [t͡ʃ] as a single consonant, not a sequence of two consonants.
- You may need "positional faithfulness" constraints like MAX-V/_v ("don't delete a consonant that is underlyingly followed by a vowel") and MAX-V/v_

	gloss		*gloss*		*gloss*
t͡ʃik	'1'	t͡ʃukt͡ʃik[2]	'11'		
ɲis	'2'	t͡ʃukɲis	'12'	ɲist͡ʃu[3]	'20'
sum	'3'	t͡ʃuksum	'13'	sumt͡ʃu	'30'
ʒi	'4'	t͡ʃupʒi	'14'	ʒipt͡ʃu	'40'
ŋa	'5'	t͡ʃuŋa[4]	'15'	ŋapt͡ʃu	'50'
ʈuk	'6'	t͡ʃuʈuk[5]	'16'	ʈukt͡ʃu	'60'
dun	'7'	t͡ʃupdun	'17'	dunt͡ʃu	'70'
giat	'8'	t͡ʃupgiat[6]	'18'	giatt͡ʃu	'80'
gu	'9'	t͡ʃurgu	'19'	gupt͡ʃu	'90'
t͡ʃu	'10'				

---

[2] Really [t͡ʃukʃik], but ignore that irregularity.

[3] Really [ɲiʃu], but ignore that irregularity.

[4] Really [t͡ʃoŋa] (vowel harmony), but ignore that.

[5] Really [t͡ʃuruk] but ignore that.

[6] Really [t͡ʃopgiat] (vowel harmony), but ignore that.

6. Finished already? Here's a tricky one from Turkish for you then

- Explain the distribution of [c], [k], [ɟ], [g]—tricky because your data are static distributional data instead of alternations

cirpir	'eyelashes'	sɑkɑɫ	'beard'
cir	'dirt'	gɑɫat	'mistake'
cil	'clay'	gɑz	'gas'
hejcel	'statue'	kɯz	'girl'
ec	'supplement'	gɯdɑ	'food'
ɟelir	'comes'	uk[7]	'white'
ɟøz	'eye'	kol	'arm'
		kɑjɯk	'boat'

- Explain choice of epenthetic vowel—while still explaining distribution of [c, k, ɟ, g]

foreign word (approx.)	Turkish borrowing	
trɛ̃	tiren	'train'
priz	piriz	'plug'
frɛ̃	firen	'brake'
tramvaj	tɯrɑmvɑj	'tramway'
star	sɯtɑr	'star'
flyt	fylyt	'flute'
flørt	fylørt	'flirt'
bluz	buluz	'blouse'
blok	bulok	'block'
grip	gɯrip	'influenza'
krɛm	kɯrem	'cream'
krɛdi	kɯredi	'credit'
kravat	kɯrɑvɑt	'tie'
gram	gɯrɑm	'gram'
klyb	kulyp	'club'
ʒyri	ʒyri	'jury'
kalori	kɑlori	'calorie'
stɛno	siteno	'steno'
kristal	kɯristɑl	'crystal'
brɔ̃ʃit	buronʃit	'bronchitis'
broʃyr	buroʃyr	'brochure'

---

[7] It's really [ɑk], but I changed it to make it easier.

References

Bright, William. 1957. *The Karok language*. University of California Press.

Kenstowicz, Michael & Charles Kisseberth. 1979. *Generative Phonology: Description and Theory*. New York: Academic Press.

Lewis, M. Paul (ed.). 2009. *Ethnologue: languages of the world*. 16th ed. Dallas, TX: SIL International.

Odden, David. 2005. *Introducing phonology*. Cambridge: Cambridge University Press.

Walker, Rachel. 2005. Weak Triggers in Vowel Harmony. *Natural Language & Linguistic Theory* 23(4). 917–989.