Class 16: Autosegmental/non-linear representations, part II

To do
- Assignment on last week's material (Malayalam) due a week from today
- Have met with me 2nd time by end of this week.
- Paper abstract (may be pretty speculative at that point) due by end of next week

What should you be doing to work on your paper?
- Write up what the issue is, how the secondary source characterizes and analyzes the data, and what you've found from looking at primary data.
- Remember that all of this has to be understandable to a reader with no knowledge of the language or sources in question.
- This will help you organize your thoughts—also, you'll have several pages of the paper written!
- Sketch out your analysis with derivations and tableaux

0. A bit more on reasons for autosegments, from last time's handout

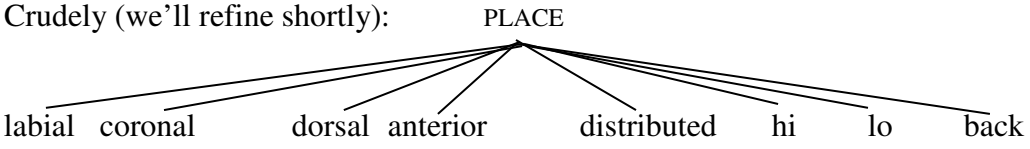
Overview
More about the representation of features; using these new tools to solve or ameliorate some old problems.

1. Feature geometry—hierarchical organization of features

We're not really covering it in this course, but at least you'll know what it is.

- We've helped ourselves to the abbreviation "place" ([labial, coronal, dorsal, anterior, distributed, hi, lo, back] and maybe some others)
  - n → [αplace] / __ [–syll, αplace]
- Is this just a shortcut, or should it have real theoretical status, like other abbreviatory devices?
  - Recall the SPE argumentation about, say V → [+hi] / __ (C)#
- The theory of *feature geometry* in autosegmental representations says that certain groupings of features do have theoretical status.
  - The idea was that not only *features* can spread and delink, but also **nodes** that dominate multiple features, or nodes that dominate intermediate nodes.

Crudely (we'll refine shortly):



2. Example—from McCarthy 1988, a systematic overview of feature geometry

- *[anterior] can spread with all the place features*
  - as in Malayalam (Dravidian language from India with about 36 million speakers [Lewis 2009])

    n → m / __ bilabials
    n̪ / __ dentals
    n / __ alveolars
    ɳ / __ retroflexes
    ɲ / __ palatals
    ŋ / __ dorsals

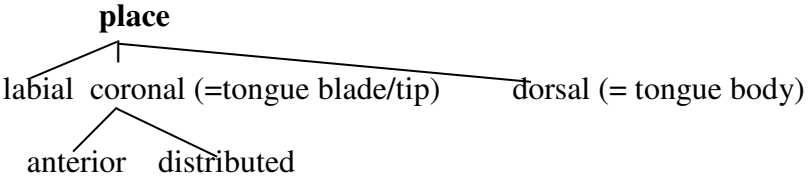
- *[anterior] can spread with just the other tongue-tip/blade feature*
  - English t,d,n ([+anterior, –distributed])

    → dental / __ θ, ð ([+anterior, +distributed])
    → palatoalveolar / __ tʃ, dʒ, ʃ, ʒ ([–anterior, +distributed])
    → retroflex[1] / __ ɻ ([–anterior, –distributed])

- *[anterior] can spread on its own*
  - Navajo sibilant harmony

    s → ʃ / __ X_0 {tʃ, dʒ, ʃ, ʒ}
    ʃ → s / __ X_0 {ts, dz, s, z}

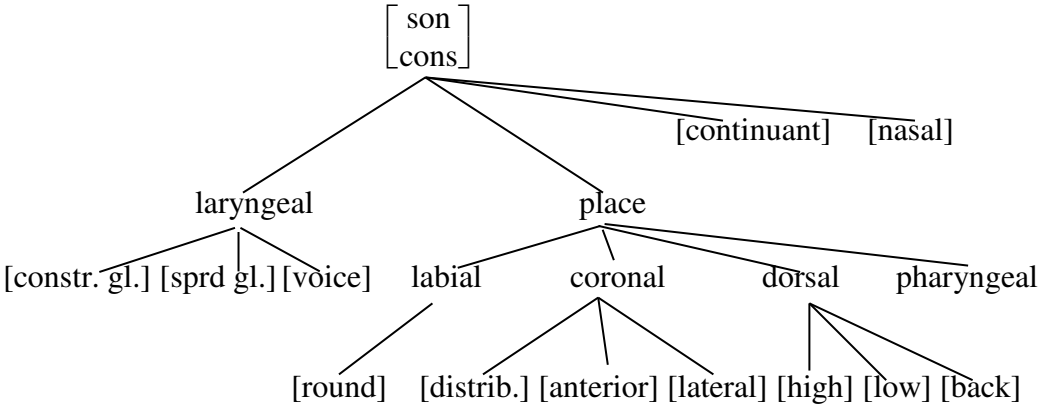
- This suggests a hierarchical organization of features:



  - Write each of the three rules as a linear rule using features or feature nodes, as appropriate. Then, rewrite each one as autosegmental, still using features/feature nodes.

[1] for speakers who have a retroflex *r*

- Here's a proposed geometry, more or less the one in McCarthy 1988
  - The top, "root" node, is what attaches to the C-V skeletal tier (or to the syllable structure, for skeleton-less theories):



- McCarthy's evidence for each grouping comes from
  - assimilation as a group (=spreading; see examples above for *coronal* and *place*)
  - deletion as a group (=delinking)

debuccalization: Spanish dialects s → h / __]$_{syll}$
English dialects, some Ethiopian languages C^{ʔ} → ʔ / certain enviros
laryngeal neutralization: Korean obstruents have 3-way laryngeal distinction, collapsed to 1 value in codas

  - o Write the Spanish and Korean rules autosegmentally, using feature nodes

  - Obligatory Contour Principle (OCP) effects: adjacent (-on-their-tier) identical elements are prohibited.
    - Not only is two Hs in a row on the tone tier bad, two +s in a row on the [anterior] tier is bad too, and so is two +s in a row on the *coronal* tier.
    - Manifested as restrictions on allowable sequences (no two labials in an Arabic root), or behaving as a block
  - o Write the Arabic restriction as a constraint

- See also Clements & Hume 1995 on what to do about features that are shared by Vs and Cs.

3. "Privative" features

- One more thing to know about features is that some researchers think that for some features, there's no [–F] vs. [+F] vs. nothing, but rather only [+F] (or "[F]") vs. nothing.
  - (The idea goes *way* back—see Steriade 1995 for review.)

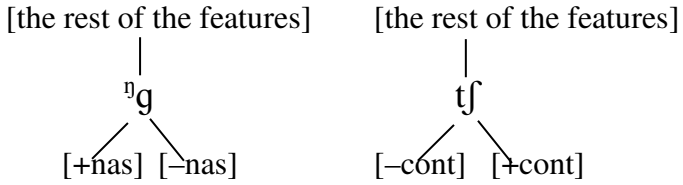
- E.g., no [–nas] in representations:
  - In rule theory, means no autosegmental rules can insert, delete, or move it
  - In OT, means **no** MAX([–nas]), DEP([–nas]), ALIGN([–nas])
    - Only MAX([nas]), DEP([nas]), ALIGN([nas])
    - No need to say "[+nas]", because for this feature there's no + vs. – (vs. 0), only presence vs. absence

Goldsmith (1990, 1976, 1979, and others)

4. Complex segments

- Quick warm-up: draw the autosegmental representation of a rising tone

- Now we can give simple representations that don't require us to invent all kinds of new features:



5. Guinaang Kalinga

(*Ethnologue*: dialect of Lubuagan Kalinga, Austronesian language from the Philippines with 12,000-15,000 speakers; Gieser 1970)

- Even for simple nasal place assimilation, we saw that it was tricky to get the features right

  n → l / __ l

  n → ŋ / __ w

  bleeds n → [“αplace”] / __ $\begin{bmatrix} \text{C} \\ \text{–cons} \\ \text{“αplace”} \end{bmatrix}$

a) /d+in+opá/	d**im**pána	‘he measured by fathom’
b) /g+in+obá/	g**im**bána	‘she fired’
c) /ʔ+in+omós/	ʔ**im**mósna	‘she bathed’
d) /b+in+otáʔ/	b**in**táʔna	‘she broke’
e) /ʔ+in+odáw/	ʔ**in**dáwna	‘he requested’
f) /b+in+osát/	b**in**sátna	‘he snapped’
g) /p+in+onú/	p**in**núna	‘she filled’
h) /t+in+oʔóp/	t**in**ʔópna	‘he satisfied’
i) /s+in+ogób/	s**iŋ**góbna	‘he burned’
j) /d+in+oŋól/	d**iŋ**ŋólna	‘he heard’
k) /ʔ+in+olót/	ʔ**il**lótna	‘he made tight’
l) /ʔ+in+owá/	ʔ**iŋ**wána	‘he made, did’

- Write out the underlying and surface forms autosegmentally (I’ll demonstrate one)

- Can we turn this into autosegmental rules?

- Now try it in OT: you’ll need at least one markedness constraint, and then some faithfulness constraints

- Here are more Kalinga data, from the /man=/ suffix. Assuming a markedness constraint that will force coalescence, I think we can now take care of the place features unproblematically:

pajáw	'rice terrace'	mamajáw	'one making, having a *payaw*'
báju	'pounding in a mortar'	mamáju	'one pounding in a mortar'
tampóʔ	'rice flour'	manampóʔ	'one pounding rice into flour'
díla	'tongue'	maníla	'one who takes the tongue (of an animal butchered)'
suŋbát	'answer'	manuŋbát	'one who answers'
káju	'wood'	maŋáju	'to go after fire wood'
gijáb	'notch'	maŋijáb	'one doing notching'

- Identify the opacity problem here. How can autosegmental representations help?

bosí	'?'	mamsí	'one to open (e.g., a boil)'
podít	'?'	mamdít	'that which is crushed (e.g. insects)'
gosáj	'collapse, disassembly'	maŋsáj	'that which razes (e.g. a house)'
topá	'winnowing	mampá	'one winnowing'
tobód	'materials for construction'	mambód	'one getting *tobod*'
sonód	'obstruction'	mannód	'one obstructing'
todóʔ	'pointing with forefinger'	mandóʔ	'one pointing his finger'
sogób	'a burning'	maŋgób	'one doing burning'
soŋá	'one kind of ceremony when sacrifice is made'	maŋŋá	'that sacrificed in *songa*'
solíg	'crowding out, displacing'	mallíg	'that which crowds out'

6. Metaphony

Walker 2005: various Romance dialects/"dialects"

- Now I can tell you the spirit of Walker's analysis:
  - There's a markedness constraint saying that "a [+high] in a post-tonic syllable must be associated with a stressed syllable" (part of a family of LICENSE constraints)

- Draw autosegmental representations for [te víd-i] and *[te véd-i] to see how this works

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'

- Recall the look-ahead issues in Venetan (Walker 2010)—draw autosegmental representations for the underlined forms to explain them:

spreads thru unstressed V	/órden-i/	**úrdi**n-i	*úrden-i	'order (1 sg/2 sg)'
unless that V is /a/	/lavór-a-v-i/	lav**ór**-**a**-v-i	*lav**úr**-**a**-v-i	'work (1 sg [3sg?]/2 sg impf)'
no spreading unless [+hi] will get all the way to the stressed V	/ángol-i/	**ángo**l-i	*ángul-i	'angle (m sg/pl)'

7. Vowel harmony in general

- Now can we explain why there's almost always "C_0" in the environment?
  e.g., $\begin{bmatrix} V \\ -low \end{bmatrix} \rightarrow [+high] / \_\_ C_0 \begin{bmatrix} V \\ +high \end{bmatrix}$

Next time: Improving our representations of bigger constituents—syllables and feet—in order to get a better model of stress, among other things.

References

Clements, G. N & Elizabeth Hume. 1995. The internal organization of speech sounds.. In John A Goldsmith (ed.), *The Handbook of Phonological Theory*, 245–306. Cambridge, Mass., and Oxford, UK: Blackwell.

Gieser, C.R. 1970. The morphophonemic system of Guininaang (Kalinga). *Philippine Journal of Linguistics* 1/2. 52–68 plus insert.

Goldsmith, John. 1976. Autosegmental Phonology.. Massachusetts Institute of Technology.

Goldsmith, John. 1979. The aims of autosegmental phonology.. In Daniel Dinnsen (ed.), *Current Approaches to Phonological Theory*, 202–22. Bloomington: Indiana University Press.

Goldsmith, John. 1990. *Autosegmental and Metrical Phonology*.. Blackwell.

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

McCarthy, John J. 1988. Feature geometry and dependency: A review. *Phonetica* 43. 84–108.

Steriade, Donca. 1995. Underspecification and markedness.. In John Goldsmith (ed.), *Handbook of Phonological Theory*, 114–174. Cambridge, Mass.: Blackwell.

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

Walker, Rachel. 2010. Nonmyopic Harmony and the Nature of Derivations. *Linguistic Inquiry* 41(1). 169–179. doi:10.1162/ling.2010.41.1.169 (25 October, 2010).