

Class 20: Phonology-morphology interface, part II

To do

- Quechua assignment (on last week's material) due tomorrow
- No more reading
- PhonoFest II Monday!
- Papers due a week from tomorrow

Overview. Phonological relationships between words. Which words relate to which, and how?

1 Review of cyclicity in lexical phonology: Palestinian Arabic (Brame 1974)

- Verbs without objects:

<i>subject</i>	<i>'study'</i>	<i>'understand'</i>
2sg. masc.	da.rás-t	fhím-t
2sg. fem.	da.rás.-ti	fhím.-ti
3sg. masc.	dá.ras	fi.him
3sg. fem.	dá.ra.s-at	fi.h.m-at
1pl.	da.rás.-na	fhím.-na
2pl.	da.rás.-tu	fhím.-tu
3pl.	dá.ra.s-u	fi.h.m-u

- Give rules for stress in this language, based on the 'study' paradigm.
- Give a rule for the V~Ø alternations.
- Determine the ordering of the two rules.
- Verbs with objects: as you saw, a cyclic analysis treats the without-object form, but object suffix, as the input to the next cycle:

<i>object</i>	<i>'he understood X'</i>	<i>'she understood X'</i>	<i>'You (masc.) understood X'</i>
1sg.	fi.hím.-ni	fi.h.m-át.-ni	fhím-t.-ni
2sg. masc.	fi.h.m-ak	fi.h.m-a.t-ak	fhím-.t-ak
2sg. fem.	fi.h.m-ik	fi.h.m-a.t-ik	fhím-.t-ik
3sg. masc.	fi.h.m-u	fi.h.m-a.t-u	fhím-.t-u
3sg. fem.	fi.hím.-ha	fi.h.m-át.-ha	fhím-t.-ha
1pl.	fi.hím.-na	fi.h.m-át.-na	fhím-t.-na
2pl.	fi.hím.-kum	fi.h.m-át.-kum	fhím-t.-kum
3pl.	fi.hím.-hum	fi.h.m-át.-hum	fhím-t.-hum

- Explain the [i] in *fi.hím-ni*
- Explain the stress in *fi.h.matak*.

- Moral: because the lexical phonological rules apply after each Word-Formation Rule, things that happened at an earlier stage in the morphological derivation can carry over to later stages.
- Let's see if we deal with this kind of thing in fully parallel OT—i.e., no levels or strata.

2 Vowel lowering in Saipanese Chamorro (Crosswhite 1998)

Vowel lowering in main-stressed, closed syllables (where the V must be short)

'met.gut	'strong'	'pod.duŋ	'fall'
ma.'neŋ.ŋiŋ	'cold'	'tsoʔ.g ^w i	'do'
'pi:.saw	'fishing line'	'u:.tsan	'rain'
im.'pat.tsu	'bored'	'mu:.mu	'fight'
dis.'pas.ju	'slow'	gub.'jet.nu	'governor'
'la:.pis	'pencil'	la.'pes.su	'my pencil'
hu.'gan.du	'play'	hu.gan.'don.na	'his playing'
ma.'læ:.guʔ	'wanting'	ma.læ.'goʔ.mu	'your wanting'

- Foreshadowing some of Crosswhite's later work on vowel reduction, vowels want to be more sonorous if stressed (cf. Kenstowicz 1994, where stress is attracted to sonorous vowels):

/mitgut/ or /metgut/	IDENT-IO (low)	*TRIMORAIC SYLL	*PEAK _{Word/i,u}	PERI- PHERAL	*PEAK _{wd/e,o}	*PEAK _{wd/a,æ}	*PEAK _{wd/V:}
☞ 'met.gut				*	*		
'mit.gut			*!				
'mi:t.gut		*!					*
'mæt.gut	*!					*	

- In non-main-stress syllables, PERIPHERAL rules out mid vowels.
- Not shown: bottom-ranked IDENT(high)

3 Secondary-stressed vowels

- Lowering is optional in 'rhythmic' secondary stress (initial secondary stress occurs if there would otherwise be an initial lapse of 2 syllables):

tin.'ta.guʔ	'messenger'	ten.ta.'góʔ.+ta	or	tin.ta.'goʔ.+ta	'our (incl.) m.'
mun.'doŋ.gu	'cow stomach'	mon.duŋ.'go+n.na	or	mun.duŋ.'go+n.na	'his cow stomach'

- Crosswhite proposes that *PEAK_{Foot/i,u} is ranked variably with PERIPHERAL.
- But there is also derived (cyclic) secondary stress, and there the vowel can't be optionally high, contrary to what the analysis so far predicts:

'et.ti.gu	'short'	et.ti.'go+n.na	'shorter'
i.'neŋ.ŋu.luʔ	'peeping'	i.'neŋ.ŋu.'loʔ.+hu	'my peeping'
'ot.ti.mu	'end'	ot.ti.'mo+n.na	'his end'

4 Crosswhite's Output-Output Correspondence analysis

HEAD-IDENT-BaseAffixed(high): a segment in an affixed form must match in [high] to its correspondent segment in the morphological base if that base segment is in the prosodic-word head.

- Why is it [i, neŋ.ŋu. 'loʔ.+hu] and not *[i, neŋ.ŋu. 'luʔ.+hu] then?
- What determines the placement of the secondary stress?

(There's lots more: see Crosswhite)

5 What qualifies as a base? (in B-A correspondence)

- Benua (1997): “The base is the **independent word** identified with the string that **undergoes morphological derivation** [i.e., it's up to the morphology]; in affixation, the base is the word identified with the **string adjacent to the affix**. [...] Often, the base is the word that is minimally less morphologically complex than the derived word, so that the base consists of a subset of the derived word's morphemes. But this kind of subset relation does not always hold. An obligatorily inflected word can serve as the base of another inflected word, and the base's inflection is neither morphologically nor phonologically present in the derived word.”
- Kager (1999): “a form that is compositionally **related** to the affixed word in a morphological and a semantic sense. (The meaning of the affixed form must contain all grammatical features of its base.) Moreover, the base is a **free form**, i.e. a word. This second criterion implies that a base is always an output itself.”
 - In Palestinian Arabic case, no base *fihim* to protect the first vowel from deletion in *fhimna* ‘we understood’, because there is no freestanding word with a subset of *fhimna*'s morphological features.
- Are these Polish data (Benua p. 241, orig. from Kraska-Szlenk 1995) a problem? (o → u / closed syllable with certain coda Cs)

'cow'	Singular	Plural
Nom.	kr[o].wa	kr[o].wy
Gen.	kr[o].wy	kr[u]w
Dat.	kr[o].wie	kr[o].wom
Acc.	kr[o].wę	kr[o].wy
Inst.	kr[o].wą	kr[o].wami
Loc.	kr[o].wie	kr[o].wach
Voc.	kr[o].wo	kr[o].wy

'cow'-diminutive	Singular	Plural
Nom.	kr[u]w.ka	kr[u]w.ki
Gen.	kr[u]w.ki	kr[u].wek
Dat.	kr[u]w.ce	kr[u]w.kom
Acc.	kr[u]w.ke	kr[u]w.ki
Inst.	kr[u]w.ka	kr[u]w.kami
Loc.	kr[u]w.ce	kr[u]w.kach

- Benua proposes that the gen. pl. is derived from the nom. pl., but that morphological constraints prevent both suffixes from surfacing. (What's the other possible base for this form, and does that solve the problem?)

6 More examples from Benua—alternative explanations?

- Portuguese (p. 242, orig. from Rainer 1996) [spelling]:

<i>Singular</i>	<i>Sg.Diminutive</i>	<i>Plural</i>	<i>Pl.Diminutive</i>	
cão	cãozinho	cães	cãezinhos	'dog'
flor	florzinha	flores	florezinhas	'flower'

- Cibemba (p. 243, orig. from Hyman 1994): the “upper-high” vowel [i] causes changes in preceding consonant:

<i>Root</i>	<i>Causative</i>	<i>Causative-Applicative</i>	
leep	leef- <i>i</i>	leef-es- <i>i</i>	be long/lengthen/lengthen for
lob	lof- <i>i</i>	lof-es-- <i>i</i>	be extinct/exterminate/exterminate for
fiit	fiis- <i>i</i>	fiis-is-- <i>i</i>	be dark/darken/darken for
lil	lis- <i>i</i>	lis-is-- <i>i</i>	cry/make cry/make cry for

7 The split base—lexical conservatism

- Steriade (1999) on French: ‘liaison’ can occur at a word-boundary hiatus:

<i>masc.</i>		<i>masc. liaison</i>	
nuvo maʁi	‘new husband’	nuvɛl ami	‘new friend’
bõ maʁi	‘good husband’	bõn ami	‘good friend’
pəti maʁi	‘small husband’	pətit ami	‘small friend’

- Some of these forms are hard to derive by pure phonology:

/nuvo ami/	*VV	MAX-V	DEP-C	IDENT(Vfeatures)
nuvo ami	*!			
nuv ami		*!		
☛ nuvot ami			*	
☹ nuvɛl ami			*	*!

- But Steriade notes that these liaison forms are just like the feminine forms:

<i>masc.</i>	<i>masc. liaison</i>	<i>fem.</i>	
nuvo	nuvɛl	nuvɛl	‘new’
bõ	bõn	bõn	‘good’
pəti	pətit	pətit	‘small’

- She proposes that the principle of **lexical conservatism** is higher ranked than, say, IDENT(Vfeatures)-IO, or any markedness constraints that are violated by inserting [l] instead of default [t]:

“Lex C]: There is a listed allomorph of μ L(μ) such that if there is an absolute final C in the T(μ) [target], C has an absolute final, featurally identical correspondent C' in L(μ).”

/nuvo ami/ [nuvəl] exists	LEX C]	*VV	MAX-V	DEP-C	IDENT(Vfeatures)
nuvo ami		*!			
nuv ami	*!		*		
nuvot ami	*!			*	
☞ nuvəl ami				*	*

- This also explains why some words have no special liaison form:

masc. *masc. liaison* *fem.*
 ʒɔli ʒɔli ʒɔli ‘new’

/ʒɔli ami/	LEX C]	*VV	MAX-V	DEP-C	IDENT(Vfeatures)
☞ ʒɔli ami		*			
ʒɔl ami	*!		*		
ʒɔlit ami	*!			*	

- And why it’s not the case that the feminine allomorph has to be adopted wholesale:

masc. *masc. liaison* *fem.*
 pʁɔʃɛ̃ pʁɔʃɛ̃n ~ pʁɔʃɛn pʁɔʃɛn ‘next’
 divɛ̃ divɛ̃n ~ divin divin ‘divine’
 so sot ~ sɔt sɔt ‘silly’

“Lex ∇: There is a L(μ), such that every segment in T(μ) has a featurally identical correspondent in L(μ)”

/divɛ̃ ami/	LEX C]	*VV	IDENT(Vfeatures)	LEX ∇
divɛ̃ ami		*!		
div ami	*!			
divɛ̃t ami	*!			
☞ divɛ̃n ami				*
☞ divin ami			*	

(Actually, Steriade does something a bit different from IDENT-IO—and as you read there’s more to the story...)

8 If time, more split base: Burzio 1998

- Argues that Italian adjectives (in *-ivo*) and agentive nouns (in *-ore*) and are based on both the infinitive and the past participle:

	<i>Infinitive</i>	<i>Participle</i>	<i>-ore/-ivo derivative</i>	
<i>adapt</i>	adatt- <i>äre</i>	adatt- <i>ät-o</i>	adatt- <i>at-öre</i>	} regular case, for each conjugation
<i>provide</i>	provved- <i>äre</i>	provved- <i>üt-o</i>	provved- <i>it-öre</i>	
<i>sell</i>	vénd- <i>ere</i>	vend- <i>üt-o</i>	vend- <i>it-öre</i>	
<i>mail</i>	sped- <i>äre</i>	sped- <i>ít-o</i>	sped- <i>it-öre</i>	
<i>compress</i>	comprím- <i>ere</i>	compres- <i>s-o</i>	compres- <i>s-öre</i>	} syncopated participles of <i>-äre</i> conjugation
<i>win</i>	vínc- <i>ere</i>	vín- <i>t-o</i>	vínc- <i>it-öre</i>	
<i>ascend</i>	ascénd- <i>ere</i>	ascé- <i>s-o</i>	ascen- <i>s-öre</i>	
<i>exceed</i>	eccéd- <i>ere</i>	ecced- <i>üt-o</i>	ecces- <i>s-ívo</i>	} irregular: syncope in derivative only
<i>possess</i>	posed- <i>äre</i>	posed- <i>üt-o</i>	posses- <i>s-öre</i>	
<i>aggress</i>	aggred- <i>äre</i>	aggred- <i>ít-o</i>	aggres- <i>s-öre</i>	

The analysis is complicated, but essentially Burzio argues that...

- Syncope in participles results from wanting to stress both the root vowel and the *-ut* vowel, for O-O faithfulness reasons
 - That's why it happens only in the *-äre* conjugation.
 - This can force consonant deletions to avoid an illegal consonant cluster.
- Lexically variable syncope in derivatives happens only because both suffixes' vowels want to be stressed.
 - Deleting one of them is a way around that requirement
- Lexically variable "revoked syncope" (as in *vincitóre*) happens because the root's vowel and the suffix's vowel both want to be stressed
 - a "buffer syllable" is inserted to allow both to be stressed without clash. The *it* is an unstressed allomorph of the participial suffix, and the *c* is recruited from the infinitive to preserve the coda status of the preceding *n*.
- Ascensore* is a compromise in which the root vowel isn't kept stressed, but at least it's made heavy (by recruiting a segment from another allomorph).

9 More, contrasting views on basehood, FYI

- Albright (2002 and several works thereafter)
 - A paradigm has to have a single base—and this replaces the underlying representation
 - Anything that can't be predicted from that base has to be memorized as exceptional
 - Learners choose the base mainly according to its informativeness: minimized how much exceptional stuff you have to memorize
 - The evidence comes mainly from *levelling* changes that happen to paradigms diachronically
 - If next generation fails to learn/use some of those exceptional facts, the whole paradigm comes to look more like the base
- Bowers (2012 and dissertation in progress)
 - Learners *can* construct an underlying form that pieces together information from multiple parts of the paradigm
 - But, there are limits on this process, leading to levelling and other changes (stay tuned)

10 Where have we been?

- **Deep into SPE** including its expansion conventions and their theoretical significance
- **Deep into OT** and ways that we could change some of Classical OT's assumptions.
 - what GEN can do, how conflicting preferences are reconciled...
- **L2 and loanword phonology** (Robert's guest lectures) and what they can (or can't?) tell us about the L1 phonological system
- **Process application:** multiple sites for application, multi-site variation; self-feeding/bleeding
- **Process interaction:** look-ahead vs. myopia; opacity
- **Structure above the segment:** mora, syllable, grid, foot, p-word
- **Structure below the segment/"downward" interfaces:** autosegments, their treatment in OT, phonetic interpretations thereof
- **"Upward" interfaces:** phonological restrictions on morphology, how big is the paradigm, bases of paradigms and relations between words

11 Where can you go?

Some related courses next quarter

- Intonation (Ling 211 next year; Sun-Ah) if you're interested in higher prosodic structure; interfaces of phonology with syntax, semantics, and information structure.
- Speech perception (Ling 204C; Megha) if you're intrigued by the P-map and related issues
- Computational phonology (Ling 236; Robert) if you're interested in how a phonological grammar or learner could be implemented explicitly
- Proseminar on metrics (Ling 251B; Bruce and Russ) if you'd like to apply ideas from grids, feet, and more to sung and spoken poetry

Next year—schedule is still in progress, but...

- Ling 219, Phonological Theory III, is scheduled for fall!

Any time

- You're always free to drop by the phonology seminar—you don't have to commit to the whole quarter.
 - Journal club episodes are a particularly efficient time to visit: learn about 8-10 phonology articles in just 2 hours!

See you Monday.

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