Week 8 – Prosody and Reduplication

April 7 and 9, 2008

1 Prosodic morphology

1.1 Introduction

(1) *Prosodic Morphology* is a term that refers to morphology other than affixation. Examples you may have seen before include shape transformations, reduplication, truncation, and infixation.

(2) **Shape transformations**—e.g., Modern Standard Arabic:

rasam-a	'he drew'
rassam-a	'he made draw'
rasm-un	'a drawing'
rassaam-un	'draftsman'
risaam-ah	'orientation'
raasim	'drawing'

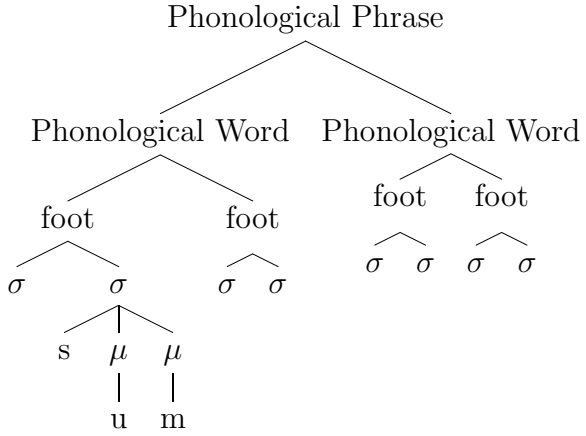
(3) **Reduplication**–e.g., Nisgha

waːx	wix-wáːx	'to paddle'
t^sám	t^sim-t^sám	'to cook'

(4) Problem: How to analyze this morphology, and how to capture cross-linguistic similarities?

(5) Proposal: Prosodic morphology can be described with constraints that refer to basic prosodic units: moras, syllables, and feet (McCarthy and Prince 1986, 1995) (and references therein).

1.1.1 Prosodic constituents review



1.1.2 Truncation

(6) many examples in McCarthy & Prince 1986.

(7) Yapese (Jensen 1977; Austronesian language with about 7,000 speakers in Yap state of the Federated States of Micronesia)

name	*vocative*
lu.ʔag	luʔ
ba.jaad	baj
ma.ŋɛɛ.fɛɛl	maŋ

★ – Is the vocative a prosodic constituent of the basic name?

– How can we describe the vocative prosodically?

/vocative(luʔag)	VOCATIVE=σ	MAX
a. lu.ʔag		
☞ b. luʔ		ag
c. lu		ʔag!

(8) Central Yupik (Woodbury 1985; Eskimo-Aleut language with 10,000 speakers in Alaska) Transcriptions are not quite IPA (capitalizing names).

name	*proximal vocative*
A.ŋu.kaɣ.naq	A.ŋuk[1]
Nu.pi.ɣak	Nu.pix, Nu.pik
Cu.pəl.laq	Cu.pəl
A.ŋiv.ɣan	A.ŋif
Ka.lix.tuq	Ka.lik
Qə.tun.ɣaq	Qə.tun
Maɣw.luq	Maɣw (*Maɣw.luq)
Aɣ.na.ɣa.yaq	A.ɣən (*Aɣ.naɣ)
Nəŋ.qə.χal.ɣia	Nə.ŋəq (*Nəŋ.qəχ)
Qak.fa.ɣal.ɣia	Qak (*Qak.faɣ)
A.kiu.ɣal.ɣia	A.kiuk (with a 'compressed' diphthong that has just one mora)

★ – Is the vocative a prosodic constituent of the full name?

– What's the target prosody here (consider the disyllabic cases first)?

– Why is [*Aɣ.naɣ] ruled out?

– What should the constraint on vocatives look like in Yupik? Let's draw some tableaux.

(9) Afar (Bliese 1981; Afro-Asiatic language with 1,579,000 speakers in Ethiopia, Djibouti, Eritrea)

	frequentative	
to.kam	tok.mee.ni	'you (pl.) ate'
ju.ʕam	juʕ.ru.feh	'he rested'
a.ram	ar.ga.ʕuk	'he cut'
ti.fam	ti.fiʕ	'it dripped'
tu.bam	tub.lee.ni	'you (pl.) saw'
ja.mam	ja.maa.tee.ni	'they come'

★ – Focus on the first word in the frequentative: how is it formed, descriptively?

– Does the first part of the frequentative copy a prosodic constituent of the stem?

– What is the prosodic target for the frequentative?

(10) Japanese (Poser 1984; Itô, p.c. to McCarthy & Prince; plus additional data from Poser 1990, Mester 1992)–some possible variants may be missing

[1]Some of these vocatives also have monosyllabic variants, but we'll ignore that (Aŋ, Nup, Cup, Kal, Qət).

a. In Japanese, a short vowel gets one mora, a long vowel gets two, and a coda consonant gets one.[2]

personal name	*hypocoristic* (shortened nickname)
midori	mii+tʃʲaɴ
	mit+tʃʲaɴ
	mido+tʃʲaɴ
hanako	hana+tʃʲaɴ
yumiko	yumi+tʃʲaɴ
yasuko	yat+tʃʲaɴ
osamu	osa+tʃʲaɴ
yoosuke	yoo+tʃʲaɴ
yooko	yoo+tʃʲaɴ
kinsuke	kin+tʃʲaɴ
taizoo	tai+tʃʲaɴ
keiko	kei+tʃʲaɴ
ʃinzaburoo	ʃiɴ+tʃʲaɴ
hiromi	hiro+tʃʲaɴ
	romi+tʃʲaɴ
wasaburoo	waa+tʃʲaɴ
	wasa+tʃʲaɴ
	sabu+tʃʲaɴ
kazuhiko	kazu+tʃʲaɴ
taroo	taa+tʃʲaɴ
	taro+tʃʲaɴ

course name	*abbreviation at ICU*
'Introduction to Christianity'	iɴkuri
'General Education'	zyene edo
'Introduction to Linguistics'	iɴriɴ
'freshman'	fure maɴ
'introduction'	iɴtoro

full term	*abbreviation*
paasonaru koɴpyuutaa	paso koɴ
waado purosessaa	waa puro
imeedZʲi tSʲenzyi	ime tʃʲeɴ
paɴtii sutokkiɴgu	paɴsuto
konekuSʲon	kone
sutoraiki	suto
zeminaaru	zemi

[2]Longer names are more complicated.

★ What's the prosodic target for these shortenings?

(11) Zuni (Newman 1965; language isolate with 6,413 speakers in New Mexico, south of Gallup)

word alone	*when 1st member of compound*	
tuk.ni	tu-	'toe'
me.li.ka	me-	'non-Indian'
pa.gu	pa-	'Navajo'
plain	*familiar*	
k^{w}'a.la.si	k^{w}'a-mme	'Crow'
sus.ki	su-mme	'coyote'
ku.ku	ku-mme	'father's sister'

★ Is the shortened form a prosodic constituent of the base?

★ What's the prosodic target for these shortenings? How is it different from Yapese?

(12) Things people have noticed about in truncation

a. The truncated form doesn't necessarily copy the prosodic structure of the base.
b. The targets of truncation seem to be the basic units of prosody: moras, syllables, and feet.
c. The truncated form tends to copy as much as possible without exceeding the prosodic target—but not always (see Japanese hypocoristics), so we don't have a fully worked-out theory of this.

1.1.3 Reduplication

(13) As in truncation, the copied portion ("reduplicant") is not in general a prosodic constituent of the stem.

(14) Tagalog (Austronesian language from the Philippines with about 17 million native speakers)

ta.wag	'call'	ta.-ta.wag	'will call'
tak.bo	'run'	ta.-tak.bo	'will run'

(15) A different (derivational) Tagalog reduplicative prefix:[3]

[3]Here's more to the Tagalog story.

ta.li.no	'smart'	ta.li.-ta.li.no	'rather smart'
ba.luk.tot	'sinuous'	ba.lu.-ba.luk.tot	'curved'

(16) This suggests that, as in truncation, the reduplicant is aiming for a particular shape, not picking out a prosodic constituent from the stem.[4]

(17) Reduplicant shapes

a. Like truncated forms, reduplicants crosslinguistically tend to have as prosodic targets the basic units of prosody: mora, syllable, foot.

b. OT makes it possible to say that 'the reduplicant must have one foot' without having to copy an actual foot node from the stem.

c. For now (we'll revise this next time), we'll make tableaux for just the reduplicant, assuming that it comes directly from the input:

★ Fill in the tableaux:

/RED1(takbo)/	RED1=μ	RED2=$\sigma\sigma$	NoCoda	Max
a. takbo				
☞ b. ta				
c. tak				

/RED2(baluktot)/	RED1=μ	RED2=$\sigma\sigma$	NoCoda	Max
a. baluktot				
☞ b. balu				
c. baluk				

1.2 Correspondence Theory: review

(18) (McCarthy & Prince 1995) How do we evaluate faithfulness constraints like IDENT-IO(ROUND)?

a. Does the mapping /tui/ [ty] violate IDENT-IO(ROUND)?

b. How do we know if we should be comparing [y] to /u/ or to /i/?

(19) Part-numbering

a. Every segment in the input is given a unique index (and perhaps every unit of structure, including features, moras, syllables...), usually written as a subscript Arabic numeral.

b. The relation of correspondence between input and output segments is encoded by identical indices. /$p_1a_2t_3o_4k_5$/ [$p_1a_2t_3o_4k_5$] means that *Corr*(/p/, [p]), *Corr*(/a/, [a]), etc., where *Corr(x, y)* means that x corresponds to y.

(20) These are also candidates: [$p_5a_1t_4o_2k_3$], [$p_1a_1t_1o_1k_1$], [$p_6a_7t_8o_9k_{10}$] but they're so outrageously bad that we don't usually bother including them in a tableau.

[4] The most famous counterexample is Yidin^y.

(21) When you see a candidate in a tableau without indices, you can assume that the correspondence relation is the obvious one.

a. Sometimes it's not clear what the obvious correspondence relation is; in that case, you should spell it out:

/$t_1u_2i_3$/	IDENT(ROUND)	IDENT(BACK)
a [t_1y_2]		*
b [t_1y_3]	*	

(22) Good and bad correspondence relations A relation, like correspondence, can be defined by the list of items that bear that relation to each other:

input	output (a)
/t/	[t]
/u/	[y]
/i/	

The correspondence relation here is {(/t/, [t]), (/u/, [y])}.

(23) Faithfulness constraints (sometimes also called correspondence constraints) are constraints that care about various aspects of this mapping:

IDENT(F)	(don't change feature values)	Segments in correspondence must bear identical values for feature [F].
MAX-C	(don't delete)	Every consonant in the input must have a correspondent in the output.
MAX-V		Every vowel in the input must have a correspondent in the output.
DEP-C	(don't insert)	Every consonant in the output must have a correspondent in the input.
DEP-V		Every vowel in the output must have a correspondent in the input.
UNIFORMITY	(don't coalesce)	Nothing in the output can have more than one correspondent in the input.
INTEGRITY	(don't split)	Nothing in the input can have more than one correspondent in the output.
LINEARITY	(don't metathesize)	If A precedes B in the input, and A and B both have correspondents in the output, then A's output correspondent has to precede (but not necessarily immediately precede) B's output correspondent.

O-CONTIGUITY	(don't intrude)	If A *immediately* precedes B in the input, and A and B both have correspondents in the output, then A's output correspondent has to *immediately* precede B's output correspondent.
I-CONTIGUITY	(don't skip)	If A *immediately* precedes B in the output, and A and B both have correspondents in the input, then A's input correspondent line has to *immediately* precede B's input correspondent.
LEFT-ANCHOR(X)		If an input segment A is at the left edge of X boundary (X = word, stem, phrase, whatever), and an output segment B is at the left edge of X in the output, A must correspond to B.
RIGHT-ANCHOR(X)		If an input segment A is at the right edge of X boundary (X = word, stem, phrase, whatever), and an output segment B is at the right edge of X in the output, A must correspond to B.

(24) Why names like MAX and DEP?

a. MAX is short for 'maximize': the material in the input that makes it into the output must be maximized.

b. DEP is short for 'dependence': every segment in the output should be "dependent" on a segment in the input.)

★ Given the input /$p_1a_2t_3o_4k_5$/, devise, for each of the correspondence constraints above, an output candidate that violates it.

★ Can you think of a candidate that violates DEP but not I-CONTIG?

★ Can you think of a candidate that violates MAX but not O-CONTIG?

★ Can you think of a candidate that violates DEP and L-ANCHOR(WORD) in the same place?

★ Can you think of a candidate that violates MAX and R-ANCHOR(WORD) in the same place?

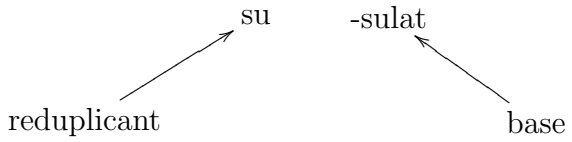
(25) Reminder: If you run into constraints called FILL and PARSE in readings for your term paper assignment , they are relics of a theory, known retrospectively as containment, that was around from about 1993 to 1995. FILL is roughly DEP, and PARSE is roughly MAX, but ask me and I can tell you more.

1.3 "Rule application" in reduplication

(26) Wilbur (1973), working in a pre-OT, rule-based framework, identifies three ways in which rules may apply in reduplicated words: *transparent application, overapplication, and underapplication.*

(27) McCarthy & Prince (1995) reanalyze these types of "rule application" in OT (this was what led them to propose correspondence theory).

(28) Terminology: The base is a term for the stem of a reduplicated word. E.g. *su-sulat*:



1.3.1 Transparent application

(29) The rule applies wherever its environment is met, whether in base (B), reduplicant (R; underlined), neither, or both.

(30) Tagalog. d ⟶ ɾ / V ___ V

unreduplicated		*reduplicated*	
dagat	'sea'	man-<u>da</u>-ɾagat	'fisherman'
damboŋ	'plunder'	pan-<u>da</u>-ɾamboŋ	'act of plundering'
daʔan	'road'	pag-<u>da</u>-ɾaʔan	'a passing through'
daʔan	'road'	<u>d</u>-um-<u>a</u>-ɾaʔan	'drop in'
dapat	'ought'	ka-<u>ɾapat</u>-dapat	'worthy'
daʔan	'road'	ma-<u>ɾa</u>-ɾaʔan-an	'passable'
daʔan	'road'	<u>pa-ɾa</u>-pa-ɾaʔan	'ways and means'

(31) This is easy to analyze in OT, leaving aside faithfulness constraints for the moment:

★ Fill in the tableau:

/pag+RED+daʔan/	*VdV	*ɾ
a pag-da-ɾaʔan		
b pag-da-daʔan		
c pag-ɾa-ɾaʔan		
d pag-ɾa-daʔan		

1.3.2 Overapplication

(32) R and B both undergo a rule, even though only one is in the right environment!

(33) Madura (a.k.a. Madurese; Austronesian language with about 13,700,000 speakers in Indonesia) Nasality spreads rightward from a nasal stop.

j̃ãt-nẽj̃ãt	'intentions'
w̃ã-mõw̃ã	'faces'
ẽn-mãẽn-an	'toys'
ɔn-sɔʔɔn	'request'

(34) Malay (a.k.a. Bahasa Malaysia; Austronesian language with about 18,000,000 speakers mostly in Malaysia, Brunei, Indonesia, Singapore). Nasality spreads rightward from a nasal stop.

hamə̃	'germ'	hãmə̃ - hãmə̃	'germs'
waŋj̃i	'fragrant'	wãŋi - wãŋi	'very fragrant'
aŋãn	'reverie'	ãŋãn - ãŋãn	'ambition'
aŋẽn	'wind'	ãŋẽn - ãŋẽn	'unconfirmed news'

(35) Cases like Malay (sometimes called 'back-copying') are very hard to analyze with rules.

★ What happens, in a rule-based analysis, if copying applies before nasal spreading? (try a derivation of [wãŋj̃i - wãŋi])

★ What happens, in a rule-based analysis, if nasal spreading applies before copying? (try a derivation of [wãŋj̃i - wãŋi])

1.3.3 Underapplication

(36) Neither R nor B undergoes a rule, even though one (and only one) is in the right environment!

(37) Conservative Tokyo Japanese: g ⟶ ŋ / {V,N} ____
   a. [suu-ŋaku] 'mathematics' (cf. [gaku-sei] 'student')
   b. but [gaɾa-gaɾa] 'rattle'

★ Why doesn't the [g] of the base become [N]?

(38) Luiseño (Munro & Benson 1973; Uto-Aztecan language with about 43 speakers in Southern California): t͡ʃ ⟶ ʃ / ____ {#,[-cont]}
   a. [t͡ʃóka] 'to limp', but [t͡ʃuká-t͡ʃka-ʃ]

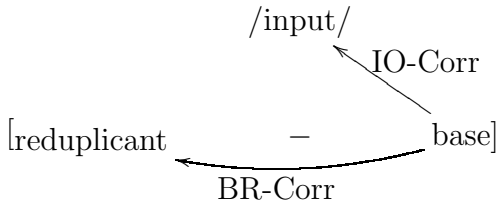
★ Why doesn't the [t͡ʃ] of the reduplicant become [ʃ]?

1.4 Base-reduplicant correspondence

(39) In OT, overapplication, including back-copying like in Malay, is easy to analyze *IF* we allow a family of faithfulness constraints *that apply between bases and reduplicants*:

MAX-IO:	every input segment must have a correspondent in the output
MAX-BR:	every base segment must have a correspondent in the reduplicant
IDENT(NAS)-IO:	if A in the input and B in the output correspond, they must have the same value for [nasal].
IDENT(NAS)-BR:	if A in the base and B in the reduplicant correspond, they must have the same value for [nasal]
...	

(40) The standard assumption (due to McCarthy & Prince) is that there is I-O correspondence between the input and the base, but not between the input and the reduplicant; the reduplicant participates only in B-R correspondence with the base.



1.4.1 Madurese with B-R correspondence

(41) Assume that nasal spreading results from the ranking *[+nas][-nas] >> IDENT-IO(nas)

/mowa/	*[+nas][-nas]	IDENT-IO(nas)
a mowa	*!	
b mõwa	*!	*
c mõ̃wa	*!	**
☞ d mõ̃w̃ã		***

★ Fill in the violations and find the winner:

/RED+mowa/		*[+nas][-nas]	IDENT-BR(nas)	*IDENT-IO(nas)
a (underapplication)	wa-mowa			
b	wa-mõwa			
c	wa-mõ̃wa			
d (transparent)	wa-mõ̃w̃ã			
e (overapplication)	w̃ã-mõ̃w̃ã			

1.4.2 Malay with B-R correspondence

★ Fill in the violations and find the winner:

/RED+mowa/		*[+nas][-nas]	IDENT-BR(nas)	*IDENT-IO(nas)
a (underapplication)	waŋi-waŋi			
b (semi-underapplication)	waŋ̃i-waŋ̃i			
c (transparent)	waŋ̃i-w̃ãŋ̃i			
d (overapplication)	w̃ãŋ̃i-w̃ãŋ̃i			

1.4.3 Japanese with BR Correspondence

(42) Assume that g-lenition results from *Vg >> IDENT-IO(nas):

/suu+gaku/	*Vg	IDENT-IO(nas)
a suu-gaku	*!	
☞ b suu-ŋaku		*

(43) We can use B-R correspondence to rule out transparent *[gaɾa-ŋaɾa].

a. But how can we rule out the candidate with overapplication, *[ŋaɾa-ŋaɾa]?

(44) We need another markedness constraint, *[ŋ:

/RED+gara/		IDENT-BR(nas)	*[ŋ	*Vg	IDENT-IO(nas)
☞ c (underapplication)	gaɾa-gaɾa			*	
d (overapplication)	ŋaɾa-ŋaɾa		*!		*
e (transparent)	gaɾa-ŋaɾa	*!			*

1.5 Summary of OT approach to application types

(45) a. **Transparent application** occurs when MARKEDNESS >> FAITH-IO, FAITH-BR

b. **Overapplication** occurs when FAITH-BR, MARKEDNESS >> FAITH-IO

c. **Underapplication** occurs when FAITH-BR, MARKEDNESS >> FAITH-IO and some other markedness constraint rules out the overapplication candidate.

(46) What else is B-R correspondence good for? It ensures that the reduplicant looks like the base at all!

(47) Further exercises

a. Invent a reduplicated candidate that violates I-CONTIG-BR, and one that violates O-CONTIG-BR.

b. Invent a reduplicated candidate that violates L-ANCHOR-BR, which requires that the leftmost segment of the base correspond to the leftmost segment of the reduplicant. Do the same for R-ANCHOR-BR.

References

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