# **Class 2: Reduplication, Part I**

#### To do for next time

• Get started on 1st assignment (Tagalog—due Wednesday, April 14)

**Overview**: The central issue in reduplication = explaining why base and reduplicant look alike in some ways and different in other ways.

- Segmental/featural content (today)
  - copying
  - transparent, over-, under- application
  - emergence of the unmarked
- Size of the reduplicant, and shape of what it corresponds to (next time)

# 1. What is reduplication for?

Moravcsik (1978): The reduplicated meaning is usually a special case of the unreduplicated meaning.

- Plural items
  - o Xs
  - o every X
  - very much X
  - various X
  - X at a time, X by X (where X=number)
  - X each
  - o Any X
- Plural events
  - X repeatedly
  - X in many locations (gnaw at-gnaw at on all sides)
  - continue to X
  - X for a long time
  - o often X
  - o be Xing
  - X habitually or frequently
  - X each other
  - X-plural subject (die-die in numbers)
  - X-plural object (break-break many things)
- Intensity
  - o very X
  - X intensely
  - X more than is appropriate
- Diminution
  - $\circ$  small X
  - X a little or a while or in a half-assed manner
  - o somewhat X
- Imitation/similarity
  - X and that sort of thing
  - pretend to X

- X-like thing
- o fake X
- Change of category
  - $\circ \quad \text{divide by } X$
  - o Xy
  - o Xer
  - o Xing
  - o Xly
  - intransitive
  - o transitive
  - incomplete aspect
  - o perfective
  - o purposive

# 2. Theoretical importance of reduplication in recent times

# 2.1 Marantz 1982: support for C-V tier (had been used by McCarthy for templatic morphology)

Transformational rules are insufficiently restrictive (can describe mirror-image reversals, etc.)

Amount of material copied is not well described in terms of the base's prosodic structure (only accidentally is what gets copied ever a constituent of the base—except maybe Yidin and Yaqui).

 $\rightarrow$  Reduplication can be described as affixation of a template of Cs and Vs.

# 2.2 Finer 1986: C-V-X tier

Palauan data argue for Xs in the templates too, which can be filled by either Cs or Vs.

# 2.3 McCarthy & Prince 1986/1996, 1993: Prosodic categories

The set of possible C-V templates for reduplicants seems to correspond to prosodic categories (light syllable, heavy syllable, foot).

# 2.4 McCarthy & Prince 1994: Violable constraints

Cases in which the reduplicant obeys a markedness constraint that's freely violated in the base (emergence of the unmarked) support the idea that constraints are violable: they may be present in the grammar without being surface-true.

# 2.5 McCarthy & Prince 1995: Correspondence constraints

Over- and under-application (see below) can be explained by a coindexing relationship between the reduplicant and the base, which is subject to constraints (e.g., MAX-BR, DEP-BR) and in turn invokes other constraints (IDENT-BR[F]).

Coindexing was then applied to input-output relations, and then others too, as a substitute for containment.

#### Copyhood

Why does *R* look like *B* at all?

#### 3. Transformational rules (e.g., Carrier 1979)

# C V X 1 2 3 → 1 2 1 2 3

#### 4. Melodic copying (Marantz 1982)

C V C V C | | | | | tawag tawag 'call/will call'

Associate a full copy of the base's melody to the skeleton

- Only [-syllabic] can associate to template C; only [+syllabic] can associate to template V.
- No multiple association of slots or melodic segments. Associate as many segments as possible, subject to other conditions. Any segments and slots left over are discarded.
- If a prelinked feature value in the reduplicant is associated to the same skeletal slot as a conflicting feature value from the copied melody, the prelinked feature value takes precedence.
- Association begins from the outer edge (usually) and proceeds in segment-driven fashion: seek a skeletal slot that is compatible with the current melody segment, skipping over slots if necessary.
- Try it for 'call/will call' above.

Some examples of segment-driven-ness:

• What template do we need to get Tagalog *sunda-sundalu-han* 'toy soldier' and *tali-talino* 'rather smart'?

• What template do we need to get Warlpiri *paka-pakarni* '(missing gloss)' and *tii-tiirl-parnkaja* 'split lengthwise'?

Problem: Yidin<sup>y</sup>.

dimurU	'house'	dimu-dimurU	'houses'
gindalba	'lizard sp.'	gindal-gindalba	'lizards'
dadama-n	ʻjump'	dada-dadama-n	ʻjump a lot'
dugarba-n	'have an unsettled mind'	dugar-dugarba-n	'have an unsettled mind for a long period'

• What's the problem?

Marantz's solution: the Yidin <sup>y</sup> reduplicant looks like	morphe	eme
	/ \	
	σα	5

Because it lacks CV structure, it must copy that from the base.

• What would the derivation look like?

#### 5. Double generation (Inkelas & Zoll 2000)

Create two copies of the stem, which may be subject to different co-phonologies (e.g., different rankings or different faithfulness constraints):



where co-phonology X requires truncation, and Y doesn't

#### 6. Multiple precedence (Raimy 2000)

Reduplication is a "loop" in the segmental ordering

$$\# \xrightarrow{} t \xrightarrow{} a \xrightarrow{} w \xrightarrow{} a \xrightarrow{} g \xrightarrow{} \%$$

A linearization procedure then gives [ta-tawag]

• What are some properties that the linearization procedure must have?

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## 7. Base-reduplicant correspondence (McCarthy & Prince 1995)

The reduplicant is phonologically empty, and gets its form by virtue of constraints that require it to resemble the base:

- MAX-IO requires every segment of the input to have a corresponding segment in the base (even if altered featurally).
- MAX-BR requires every segment of the base to have a corresponding segment in the reduplicant.
- IDENT-BR family requires segments in the base and reduplicant that correspond to each other to have identical features.
- BESHORT: stands loosely for any size-restricting constraint (I've counted one violation for each syllable); more on this next time.

	/RED+tawag/	MAX-IO	BESHORT	MAX-BR	IDENT-BR
	'to distribute'				
©₽a	ta-tawag		***	***	
b	tawag-tawag		****!		
С	ta-ta	*!**	**		
d	bə-tawag		***	***	*!*

# Transparent rule application

(terminology is from Wilbur) R and B differ because they're in different environments

# 8. Example: Tagalog d/r

 $/d/ \rightarrow [r] / V \_ V$ 

<i>unreduplicated</i> dagat damboŋ da?an da?an	'sea' 'plunder' 'road' 'road'	<i>reduplicated</i> man-da-ragat pan-da-ramboŋ pag-da-ra?an d-um-a-ra?an	<ul><li>'fisherman'</li><li>'act of plundering'</li><li>'a passing through'</li><li>'drop in'</li></ul>
dapat	'ought'	ka-rapat-dapat	'worthy'
da?an da?an	ʻroad' ʻroad'	ma-ra-raʔan-an pa-ra-pa-raʔan	'passable' 'ways and means'

#### 9. Example: Palauan vowel reduction

Short vowel  $\rightarrow \mathfrak{d}$  or  $\emptyset$  / unstressed Long vowel or diphthong  $\rightarrow$  short vowel / unstressed

unreduplicated		reduplicated		
mə-sáoð	'explain'	mə-so-ságð	'try to explain'	
o-búw	'explode'	o- <b>bu</b> -búw	'keep getting exploded'	
tórð	'frustration'	bəkə- <b>tər</b> -tórð	'easily frustrated'	
sikt <sup>h</sup>	'cluster of fruit'	mə <b>-sək-</b> sîkt <sup>h</sup>	'covered with fruit'	

#### 10. Copying approach

• What rule order (of copying and tapping) do we need to get Tagalog /CV+da?an/  $\rightarrow$  [dara?an]?

#### 11. Multiple precedence approach: rule follows linearization

	#  d  a  ?  a  n  %
linearize	$\# \rightarrow d \rightarrow a \rightarrow d \rightarrow a \rightarrow ? \rightarrow a \rightarrow n \rightarrow \%$
tapping	$\# \rightarrow d \rightarrow a \rightarrow r \rightarrow a \rightarrow ? \rightarrow a \rightarrow n \rightarrow \%$

• What if the order were reversed?

#### 12. Double generation approach: rule/constraint just applies

[da-ra?an] [da] [ra?an]co-phonology X  $\Rightarrow$  | |  $\Leftarrow$  co-phonology Y (can see left context) /da?an/ /da?an/

• What does that fact that co-phonology Y can see that its left context is a vowel tell us about the architecture of the double-generation approach (parallel? serial? if serial, what orderings?)

	/RED+da?an/	r is	*d	IDENT-	IDENT-
	'to distribute'	V_V		BR[CONT]	IO[CONT]
𝔤 a	da-ra?an		*	*	*
b	da-da?an		**!		
С	ra-ra?an	*!			*
d	ra-da?an	*!	*	*	

#### **13.** Correspondence approach: Phono >> Corr-BR

#### Overapplication

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

#### 14. Example: Tagalog nasal substitution

Certain prefixes cause stem-initial obstruent to nasalize.<sup>1</sup>

pistá	'festival'		
pa-mistá	'for a festive occasion'	mà:-mi-mistá	'visitors to a festival'
?asúl	'blue'	ma-ŋasúl-ŋasúl	'to turn blue'

#### 15. Example: Madurese nasal harmony (McCarthy & Prince 1995)

Nasality spreads rightward from a nasal stop.

j̃ãt-nẽj̃ãt	'intentions'
wã-mõwã	'faces'
ẽn-mãẽn-ãn	'toys'
on-so?on	'request'

#### 16. Copying

○ What rule ordering do we need to get Tagalog /maN+RED+pista/  $\rightarrow$  [mà:-mi-mistá]? What kind of rule ordering is it?

As pointed out by Carrier-Duncan (1985), this is problematic if reduplication is a WFR (word-formation rule), which should precede all phonological rules.

Marantz proposes that overapplying rules have to be "morpholexical" (= rules that just govern selection of listed allomorphs)—so in the Tagalog case, the melody is already /mista/ from the beginning.

<sup>&</sup>lt;sup>1</sup> Big simplification.

#### 17. Multiple precedence: rule precedes linearization

	$\# \rightarrow p \rightarrow a \rightarrow N \rightarrow p \rightarrow i \rightarrow s \rightarrow t \rightarrow a \rightarrow \%$
nasal substitution linearization	$# \rightarrow p \rightarrow a \rightarrow m \rightarrow i \rightarrow s \rightarrow t \rightarrow a \rightarrow \%$ [pa-mi-mista]

 $\circ$  What do we need to assume about how the multiple environments of /p/ are resolved?

#### 17.1 Double generation: requires reanalysis

Treat reduplicant as infix, so that the base really is adjacent to the triggering prefix.



• What does co-phonology X need to look like?

## 17.2 Correspondence: Phono, Corr-BR >> Corr-IO

	/paN+RED+pista/	IDENT-	NASSUB	IDENT-
		BR[NAS]		IO[NAS]
©⁼e	pa-mi-mista			*
f	pam <b>-p</b> i- <b>p</b> ista		*!	
g	pa <b>-m</b> i- <b>p</b> ista	*!		

• Why is it that the OT analysis so easily captures what a counterbleeding rule ordering here?

#### Underapplication

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

## 18. Example: Conservative Tokyo Japanese g-lenition

 $g \to \mathfrak{g} \ / \ \{V, N\} \_$ 

gaku-sei 'student' suu-ŋaku 'mathematics' gara-gara 'rattle'

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#### 19. Example: Dakota ablaut (Shaw 1980)

$a \rightarrow e /$	certain m	orphemes
		1

ap <sup>h</sup> á 'to strike' ap <sup>h</sup> é-∫ni	'he didn't strike it'	ap <sup>h</sup> á-p <sup>h</sup> a-∫ni	'he didn't strike it repeatedly'
hãska	'to be tall'		
hãske-?	'be tall (phrase-ender	).'hǎska-ska-?	'be tall (pl.) (phrase-ender)'

## 19.1 Copying

- What rule ordering do we need to get /CVCV-gara/  $\rightarrow$  [gara-gara]? What kind of ordering is that?
- Why won't this work for Dakota?

Marantz analyses the Dakota case as a morpholexical rule (independently argued for). The *e* allomorph of the stem isn't selected, because the stem is next to the reduplicant, which is not one of the triggering affixes.

For certain other cases of underapplication, Marantz argues that the rules are cyclic, and therefore don't apply within morphemes in nonderived environments.

Luiseño (Munro & Benson 1973): č→š/ \_\_ {#, [-cont]}

čára 'to tear' čará-čra-š čóka 'to limp' čuká-čka-š

• But what do you think of this case that I ran across:

*Guininaang Kalinga (Gieser 1970)* /l/ has allophones [1] and a "central resonant oral", [ł].

[1] is		
word-initial:	lakán	'sand'
in geminates:	qálloŋ	'animal's nose ring'
after coronals:	manqadlós	'slippery (ground)'
	lan <b>l</b> ánnus	'activity to make occasion enjoyable'
	las <b>l</b> ásan	'to mix two things together with hands or spoon'

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	miqatlú	'third'
	layláyon <sup>2</sup>	'to pull loose (a vine from a tree so that it will fall)'
adjacent to [i]:	čila	'tongue'
	p <sup>i</sup> áli	'wind, storm'
after iC:	lib <b>l</b> á	'meat purchased'
	síqlat	'hinge'
	manqim <b>l</b> ás	'smooth'
	qiŋ <b>l</b> ái	'name of a deity'
	qiplúg	'egg'
	p <sup>i</sup> aliwlíwoun <sup>3</sup>	'to turn end for end'
[ł] is		
inter(non-i)vocalic:	qálaŋ	'granary'
	p <sup>1</sup> alon	'temporary barrier'
	p'ałun	'provisions (as for a trip)'
	múła	'plant (item)'
	natúłoŋ	'deaf'
	púłun	'companion'
	jola	'below, lower level'
	połói	'house'
	sołúŋ	'attack'
post-C (no prec. i):	sabłán	'kind of flowering tree'
	saqlót	'kind of tie used in bamboo floor mats'
	logłóg	'water blackened by char of rice straw'
	sumlág	'It's moonlight'
	p <sup>i</sup> aŋ <b>l</b> án 'fern w	vood'
	Ionlás	'precipice'
	lauláuan	'to have a celebration in honor of'

Except: qulqullítom 'you (sg.) tell a story' This rule doesn't look especially morpholexical or cyclic.

## 20. Multiple precedence: rule precedes linearization

$$\# \xrightarrow{g} g \xrightarrow{g} a \xrightarrow{r} a \xrightarrow{g} \%$$
[gara-gara]

 $\circ$  What do we have to say about how the multiple environments of /g/ are resolved?

g-lenition linearization

<sup>&</sup>lt;sup>2</sup> Gieser has *lailáion* in the narrow transcription, but includes the example under 'y'. <sup>3</sup> Gieser has  $p^i a liulíuon$  in the narrow transcription.

Similarly, in the Dakota case, the *a* is before the triggering suffix, but not <u>exclusively</u> so.

# 21. Double generation: requires reanalysis

The only type of underapplication predicted in the double-generation theory is failure of the reduplicant to undergo an expected rule, because its cophonology doesn't apply that rule.

22.	<b>Correspondence:</b>	Phono2,	Corr-BR >>	Phono1,	Corr-IO
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	/RED+gara/	IDENT- BR[nas]	*[ŋ	*g	IDENT- IO[nas]
☞ h	gara-gara	Dit[1010]		**	IC[III]
i	ŋara-ŋara		*!		*
j	gara-ŋara	*!		*	*

• Again, how is it that an OT analysis is possible for a counterfeeding rule ordering?

# Emergence of the unmarked

A rule applies only to Rs, even though their environment doesn't seem to be special

# 23. Example: Tagalog onset clusters

mag-trabaho	'to work'	mag-ta-trabaho	OR	mag-tra-trabaho 'will work'
gr-um-adwet	'to graduate'	ga-gradwet	OR	gra-gradwet 'will graduate'
mag-praktis	'to practice'	mag-pa-praktis	OR	mag-pra-praktis 'will practice'

# 24. Example: Tagalog foreign segments<sup>4</sup>

mag-0æŋkju	'to say thank-you'	mag-te-0æŋkju	'will say thank-you'
mag-∫apıŋ	'to shop'	mag-sa-∫apıŋ	'will shop'
mag-dʒagɪŋ	'to jog'	mag-dja-dzag1ŋ	'will jog'

# 25. Copying

• How would the onset-clusters case be captured?

• How about the foreign segments?

# 26. Double generation

The double-generation approach can easily capture emergence of the unmarked—just let the cophonology for R be one that tolerates less markedness.

# 27. Multiple precedence

• How would the onsets case be handled?

<sup>&</sup>lt;sup>4</sup> As with the onset clusters, variants with marked structures persisting in the reduplicant exist.

# • The foreign segments?

# 28. Correspondence: Corr-IO >> PHONO >> CORR-BR

	/RED+∫apıŋ/	Ident-IO[dist]	*∫	IDENT-BR[DIST]
☞ h	sa-∫apıŋ		*	*
i	sa-sapıŋ	*!		
i	∫а-∫арıŋ		**!	
j	∫a-sapıŋ	*!	*	*

The correspondence approach predicts no 'reverse' emergence of the unmarked (base less marked), unless we add in a CORR-IR family, whose existence is dubious.

• How about the other approaches?