Replicative Processes: Morphology

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Reduplikation: Kager (1999), McCarthy & Prince (1995)

1. Introduction

(1) *Three cross-linguistic tendencies in reduplication*:
   a. Shape invariance (defined in prosodic units independently of the base)
   b. Unmarkedness (phonologically unmarked structures)
   c. Identity (incl. over- and underapplication)

(2) *Basic model*:

Input:	Af_{RED}	+	**Stem**	
			⇳	IO-Faithfulness
Output:	**R**	⇔	**B**	
	BR-Identity			

2. Reduplicative Identity

(3) a. **R**: Reduplicant, the string of segments that is the phonological realization of some reduplicative morpheme RED, which is phonologically empty.
   b. **B**: Base, the output string of segments to which the reduplicant is attached (prefix or suffix).

(4) *Correspondence*:
Given two strings S_1 and S_2, correspondence is a relation $\Re$ from the elements of S_1 to those of S_2.

(5) *What Gen can do* (Samoan):
/RED + nofo/
   a. $n_1\ o_2$ – $n_1\ \acute{o}_2\ f\ o$
   b. $n_1\ o_2$ – $n\ \acute{o}_2\ f_1\ o$
   c. $n_1\ o_2\ f_3\ o_4$ – $n_1\ \acute{o}_2\ f_3\ o_4$
   d. $f_1\ o_2\ f_3\ o_4$ – $n_1\ \acute{o}_2\ f_3\ o_4$

   e. $o_4\ f_3\ o_2\ n_1$ – $n_1\ \acute{o}_2\ f_3\ o_4$
   f. $n_1\ o_2\ f\ o$ – $n_1\ \acute{o}_2\ f\ o$

(6) MAX-BR:
Every element of B has a correspondent in R. (No partial reduplication.)

(7) Emergence of the unmarked in Nootka reduplication:
MAX-IO ≫ NO-CODA ≫ MAX-BR

Consequence:
Stems (bases) can have codas, but reduplicants lose them: emergence of the unmarked.

(8) DEP-BR:
Every element of R has a correspondent in B.

→ Makassarese ʔ epenthesis under reduplication.

(9) IDENT-BR:
Let α be a segment in B, and β be a correspondent of α in R. If α is [γF], then β is [γF].

→ Akan vowel raising in the reduplicant.

(10) Emergence of the unmarked in Akan reduplication:
IDENT-IO ≫ *[–high] ≫ IDENT-BR

(11) ANCHORING-BR:
Correpondence preserves alignment: The left (right) peripheral element of R corresponds to the left (right) peripheral element of B, if R is to the left (right) of B.

(12) Emergence of the unmarked in Sanskrit reduplication:
MAX-IO ≫ *COMPLEX ≫ MAX-BR, ANCHORING-BR

Note:
MAX-BR cannot alone do all the work because the affected segments only delete if they are first (left-peripheral) in the base.

(13) CONTIGUITY-BR:
The portion of the base standing in correspondence forms a contiguous string, as does the correspondent portion of the reduplicant.

(14) Emergence of the unmarked in Sanskrit reduplication, part 2:
MAX-IO ≫ *COMPLEX ≫ MAX-BR, CONGITUITY-BR

→ What decides exactly which segments is deleted in Sanskrit onsets in redupli-

cants? – Sonority hierarchy.

3. From Classical Templates to Generalized Templates

A first, construction-specific analysis (for Agta):

(15) RED = $\sigma_{\mu\mu}$

Note:
An undominated (15) ensures that reduplicants will have exactly this shape.

A second, better (more abstract) analysis (for Diyari):

(16) RED=STEM:
The reduplicant is a stem.

From this it follows that reduplicants are prosodic words, given an independently motivated (and high-ranked) constraint (17).

(17) STEM=PRWD:
A stem equals a prosodic word.

From this (and other constraints independently motivated in the language) it follows that the reduplicant is *minimally disyllabic*. In interaction with further metrical constraints, it also follows that the reduplicant is *exactly disyllabic*, which is exactly what the templatic shape of the reduplicant looks like.

(18) Emergence of the unmarked in Diyari reduplication:
MAX-IO ≫ metrical constraints ≫ MAX-BR

4. From Circumscription to Alignment

→ Infixing reduplication

(19) ALIGN-RED-L:
Align the left edge of the reduplicant with the left edge of the PrWd.

(20) *Onset*:
Syllables have onsets.

5. Classical vs. OT-Based Prosodic Morphology: Conclusions

6. Overapplication and Underapplication

(21) *Wilbur's (1973) Identity Constraint*:
There is a *tendency* to preserve the identity of reduplicant and base in reduplicated forms.

6.1. Normal Application

(22) *Normal application of coda devoicing in Washo*
a. /RED + wis-i/ → wis-wi.si
b. /RED + wed-i/ → wet-we.di
c. /RED + bag-i/ → bak-ba.gi
d. /RED + šub-i/ → šup-šu.bi

(23) *VOICED-CODA:
No voiced coda.

(24) IDENT-IO(voice):
Let α be a segment in I, and β be a correspondent of α in O. If α is [γvoice], then β is [γvoice].

(25) IDENT-BR(voice):
Let α be a segment in B, and β be a correspondent of α in R. If α is [γvoice], then β is [γvoice].

(26) Normal application of coda devoicing in Washo reduplication:
*VOICED-CODA ≫ IDENT-IO(voice) ≫ IDENT-BR(voice)

6.2. Overapplication in Malay

(27) *Overapplication in Malay nasal harmony*:
a. hamə̃ → h[ã]mə̃-hãmə̃
b. waŋ̃i → [w̃ã]ŋ̃i-w̃ãŋ̃i
c. aŋãn → [ã]ŋãn-ãŋãn
d. aŋẽn → [ã]ŋẽn-ãŋẽn

Assumption here (not necessarily correct, given complete rather than partial reduplication): The reduplicated item is a prefix. Problem: The material in boxes is not in a position in which it would normally be nasalized; it does not follow a nasal consonant.

(28) *NV_{oral}:
*[nas]⁀[–nas,vocalic]

(29) *V_{nasal}:
No nasal vocoids.

(30) IDENT-IO(nasal):
Let α be a segment in I, and β be a correspondent of α in O. If α is [γnasal], then β is [γnasal].

(31) Nasal harmony in Malay:
NV_{oral} ≫ *V_{nasal} ≫ IDENT-IO(nasal)

(32) Overapplication of nasal harmony in Malay:
IDENT-BR(nasal), *NV_{oral} ≫ *V_{nasal} ≫ IDENT-IO(nasal)

(33) a. *Ranking schema for emergence of the unmarked*:
IO-faithfulness ≫ wellformedness ≫ BR-identity

b. *Ranking schema for normal application*:
Wellformedness ≫ IO-faithfulness ≫ BR-identity
c. *Ranking schema for overapplication*:
BR-identity, wellformedness ≫ IO-faithfulness
d. *Ranking schema for total non-application*:
IO-faithfulness, BR-identity ≫ wellformedness

- (33-a): The phonological properties required by wellformedness constraints may not be visisble in normal contexts, but they show up with reduplication.
- (33-b): The phonological properties required by wellformedness constraints show up both in normal contexts and with reduplication.
- (33-c): The phonological properties required by wellformedness constraints show up in normal contexts, and out of nowhere with reduplication.
- (33-d): The phonological properties required by wellformedness constraints show up neither in normal contexts, nor with reduplication: No phonology at work.

6.3. Underapplication in Japanese

(34) Complementary distribution of [g], [ŋ] in Japanese:
a. #g
(i) geta
(ii) giri
(iii) gai-koku
b. VŋV
(i) kaŋi
(ii) oyuŋu
(iii) koku-ŋai

(35) Underapplication of voiced velar stop nasalization in reduplicated mimetics:
a. gara-gara
b. geji-geji
c. gera-gera

(36) POSTVCLS:
No voiced velar oral stops.

(37) *[ŋ :
No word-initial velar nasals.

(38) Ranking for underapplication of voiced velar stop nasalization in Japanese:
IDENT-BR(nasal), *[ŋ , ≫ POSTVCLS ≫ IDENT-IO(nasal)

(39) Overapplication and underapplication work in the same way:
a. Underapplication:
BR-identity, blocker-constraint ≫ trigger-constraint ≫ IO-faithfulness
b. Overapplication:
BR-identity, trigger-constraint ≫ blocker-constraint ≫ IO-faithfulness

Questions:

- The OT system tells us what properties the reduplicant must have, but how does it actually come into existence in the first place? (Is there copying after all?)
- Is the bidirectionality of BR-identity-induced changes fully compatible with Ident-BR constraints, which are directional?
- How are two (or more) RED morphemes in a single language accomodated that show different templatic effects? (Indexing? As in RED_1=X, RED_2=Y, etc.?) How, in general, are morphological concepts integrated into the analysis?
- How can pre-attachment (e.g., in CVC, V may be pre-associated with a vowel /i/) be expressed?

References

Kager, René (1999): *Optimality Theory.* Cambridge University Press, Cambridge.
McCarthy, John & Alan Prince (1995): Faithfulness and Reduplicative Identity. Ms., University of Massachusetts, Amherst and Rutgers University.