Replicative Processes: Morphology

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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:

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Input: Af RED + Stem ⇕ IO-Faithfulness
Output: R ⇔ B BR-Identity
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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 atta-
      ched (prefix or suffix).

(4) Correspondence:
    Given two strings S₁ and S₂, correspondence is a relation ℜ from the elements
    of S₁ to those of S₂.

(5) What Gen can do (Samoan):

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/RED + nofo/
   a. n₁ o₂ – n₁ o₂ f o
   b. n₁ o₂ – n₁ o₂ f o
   c. n₁ o₂ f₁ o₄ – n₁ o₂ f₁ o₄
   d. f₁ o₂ f₁ o₄ – n₁ o₂ f₁ o₄
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(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 unmar-
ked.

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

⇒ Makassarese ? 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:
    Correspondence 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, CONTIGUITY-BR

⇒ What decides exactly which segments is deleted in Sanskrit onsets in redupli-
3. From Classical Templates to Generalized Templates
A first, construction-specific analysis (for Agta):
(15) \[ \text{RED} = \sigma_{\mu \mu} \]
Note: An undominated (15) ensures that reduplicants will have exactly this shape.

A second, better (more abstract) analysis (for Diyari):
(16) \[ \text{RED} = \text{STEM} \]
- The reduplicant is a stem.

From this it follows that reduplicants are prosodic words, given an independently motivated (and high-ranked) constraint (17).
(17) \[ \text{STEM} = \text{PrWd} \]
- A stem equals a prosodic word.
From this (and other constraints independently motivated in the language) it follows that the reduplicant is \textit{minimally disyllabic}. In interaction with further metrical constraints, it also follows that the reduplicant is \textit{exactly disyllabic}, which is exactly what the templatic shape of the reduplicant looks like.

Emergence of the unmarked in Diyari reduplication:
\[ \text{Max-IO} \gg \text{metrical constraints} \gg \text{Max-BR} \]

4. From Circumscription to Alignment
→ Infixing reduplication
(19) \[ \text{ALIGN-RED-L}\]
- Align the left edge of the reduplicant with the left edge of the PrWd.
(20) \[ \text{Onset}\]
- Syllables have onsets.

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

6. Overapplication and Underapplication
(21) Wilbur’s (1973) \textit{Identity Constraint}:
There is a \textit{tendency} to preserve the identity of reduplicant and base in reduplicated forms.

6.1. Normal Application
(22) Normal application of \textit{coda devoicing} in Washo
a. /RED + wis-i/ \rightarrow wis-wi.si
b. /RED + wed-i/ \rightarrow wet-we.di
c. /RED + bag-i/ \rightarrow bak-ba.gi
d. /RED + sub-i/ \rightarrow sup-su.bi

(23) *\textit{Voiced-Coda}:
No voiced coda.

(24) IDENT-IO(voice):
Let \( \alpha \) be a segment in I, and \( \beta \) be a correspondent of \( \alpha \) in O. If \( \alpha \) is \([\gamma \text{voice}]\), then \( \beta \) is \([\gamma \text{voice}]\).

(25) IDENT-BR(voice):
Let \( \alpha \) be a segment in B, and \( \beta \) be a correspondent of \( \alpha \) in R. If \( \alpha \) is \([\gamma \text{voice}]\), then \( \beta \) is \([\gamma \text{voice}]\).

(26) Normal application of \textit{coda devoicing} in Washo reduplication:
*\textit{Voiced-Coda} \gg \text{IDENT-IO(voice)} \gg \text{IDENT-BR(voice)}

6.2. Overapplication in Malay
(27) Overapplication in Malay nasal harmony:
- ham`@ → h\boxed{m`h}@h\boxed{m`h}
- waN`i → \boxed{w}N`i-\boxed{w}N`i
- a\boxed{N}än → \boxed{a}N\boxed{än}-\boxed{a}N\boxed{än}
- a\boxed{N}ên → \boxed{a}N\boxed{ên}-\boxed{a}N\boxed{ên}

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) *Navoral:
*[nas] \sim \text{[nas, vocalic]}
(29) *Vnasal:
No nasal vocoids.

(30) IDENT-IO(nasal):
Let \( \alpha \) be a segment in I, and \( \beta \) be a correspondent of \( \alpha \) in O. If \( \alpha \) is \([\gamma \text{nasal}]\), then \( \beta \) is \([\gamma \text{nasal}]\).

(31) Nasal harmony in Malay:
\( \text{NVoral} \gg *\text{Vnasal} \gg \text{IDENT-IO(nasal)} \)
Overapplication of nasal harmony in Malay:
Ident-BR(nasal), *NV→ *Vnasal ≥ 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 visible 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], [u] in Japanese:

a. #g
   (i) geta
   (ii) giri
   (iii) gai-koku
b. VgV
   (i) kæi
   (ii) oyu
   (iii) koku-nai

(35) Underapplication of voiced velar stop nasalization in reduplicated mimetics:

a. gara-gara
b. geji-geji
c. gera-dera

(36) PostVCLS:
No voiced velar oral Stops.

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

(38) Ranking for underapplication of voiced velar stop nasalization in Japanese:
Ident-BR(nasal), *[g] , ≥ 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 accommodated that show different templatic effects? (Indexing? As in RED1=X, RED2=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