Variable affix position in Korean partial reduplication*

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Overview
- ✓ Introduction: affixation in Optimality Theory (OT)
- ✓ The data: Korean partial reduplication
- ✓ An OT analysis of the data

Affixation in OT

1. Constraints on morpheme placement in Optimality Theory.

e.g. Constraints aligning affixes peripherally (EDGEMOST, Prince & Smolensky 1993)

- ✓ Gradient evaluation: Assign one violation-mark for each segment that intervenes between the designated edges of an affix and prosodic word.
- ✓ Categorical counterparts (McCarthy 2003): e.g. PREFIX(-af-) '–af- is not preceded by a segment within the prosodic word'

2. Normal affixation: EDGEMOST is dominant.

a. Affixes are word edges. No infixation. *un*-happy, *h-*un*-appy; month-*ly*, *mon-*ly*-th

b. Affixes have fixed directionality. The same affix must be either a prefix or a suffix, not both. *happy-*un*, **ly*-month

- Among two possible deviations from normal affixation, infixation data have been discussed and analyzed in the OT literature: e.g. um-infixation in Tagalog.

3. um-infixation in Tagalog: Tagalog prefixes CV affixes but infixes VC affixes after initial C cluster.

a.	aral	um-aral	'teach'
b.	sulat	s-*um*-ulat	'write'
c.	gradwet	gr-*um*-adwet	'graduate'

4. A standard OT analysis of um-infixation: EDGEMOST is outranked by a phonological constraint.

/ um + sulat /		NOCODA	EDGEMOST	CONTIGUITY
a.	UM.su.lat	** !		
b. ☞	sU.Mu.lat	*	s	*
c.	su.UM.lat	** !	su	*
d.	su.lU.Mat	*	sul !	*
e.	su.la.Umt	*	sula !	*
f.	su.la.tUM	*	sulat!	

- Notice: CONTIGUITY prohibiting medial epenthesis or deletion must be low-ranked.

5. ***PHONO, CONTIGUITY*** >> ***EDGEMOST***

The affix attaches to its stem …
- ✓ in the direction of the input, when PHONO and EDGEMOST are not in conflict.
- ✓ in the opposite direction when PHONO and EDGEMOST are in conflict.

→ Variable position of the same affix (e.g. Huave (Noyer 1993, Fulmer 1997))

Korean Partial Reduplication

6. Patterns of partial reduplication in Korean onomatopoeic and mimetic vocabulary may be classified by the alternating part of the base and its reduplicant.

a. ∅ ~ coda: sa-sa***k*** 'crisp', culu-lu***k*** 'sound of rain dropping'
b. ∅ ~ onset: allok-***t***alok 'varicolored', ulkit-***p***ulkit 'colorful'

* This talk is based on the work with Lee Hyemin.

c. alternation of vowels: s***i***lluk-s***ɛ***lluk ‘with repeated twitching’

d. alternation involving more than a single segment: ***si***ŋkɨl-***pə***ŋkɨl ‘smilingly’

7. Meanings of partially reduplicated forms

- Sometimes, it is difficult to pin down the exact meaning.
- Roughly,
  - ✓ ∅ ~ coda: a partial lengthening, or temporal extension of the base form meaning.
  - ✓ the rest: mixed, not uniform, sounds or shapes

8. Focus of the paper: patterns involving the alternation of zero and onset consonants.

All relevant words consist of two parts, P1 and P2: e.g., $[allok]_{P1}$-$[tallok]_{P2}$

9. Four different types of partial reduplication involving onset alternation (based on Chae 2003)

a. Type I (C-deletion): P2, not P1, can be independent: e.g., [ollok-**pollok**], [pollok] O.K., but *[ollok].

b. Type II (C-epenthesis): P1, not P2, can be independent: e.g., [**əlluk**-təlluk], [əlluk] O.K. but *[təlluk].

c. Type III: Both P1 and P2 can be independent: e.g., [**ulləŋ-c^{h}ulləŋ**], [ulləŋ] and [c^{h}ulləŋ] all O.K.

d. Type IV: Neither can be independent: e.g., [ulak-pulak] O.K. but *[ulak], *[pulak].

10. Type I (Only P2 can be independent.)

	Partial Reduplication	Single occurrence		Total reduplication	
a.	ulkɨt-pulkɨt	*ulkɨt	pulkɨt	*ulkɨt-ulkɨt	pulkɨt-pulkɨt
b.	ollok-pollok	*ollok	pollok	*ollok-ollok	pollok-pollok
c.	ulluk-pulluk	*ulluk	pulluk	*ulluk-ulluk	pulluk-pulluk
d.	ult^{h}uŋ-pult^{h}uŋ	*ult^{h}uŋ	pult^{h}uŋ	*ult^{h}uŋ-ult^{h}uŋ	pult^{h}uŋ-pult^{h}uŋ
e.	əmpəŋ-təmpəŋ	*əmpəŋ	təmpəŋ	*əmpəŋ-əmpəŋ	təmpəŋ-təmpəŋ
f.	ukɨl-c’ukɨl	*ukɨl	c’ukɨl	*ukɨl-ukɨl	c’ukɨl-c’ukɨl

11. Type II (Only P1 can be independent.)

	Partial red	Single occurrence		Total reduplication	
a.	als’oŋ-tals’oŋ	als’oŋ	*tals’oŋ	als’oŋ-als’oŋ	*tals’oŋ tals’oŋ
b.	əlməŋ-təlməŋ	əlməŋ	*təlməŋ	əlməŋ-əlməŋ	*təlməŋ-təlməŋ
c.	aoŋ-taoŋ	aoŋ	*taoŋ	aoŋ-aoŋ	*taoŋ-taoŋ
d.	umul-c’umul	umul	*c’umul	umul-umul	*c’umul-c’umul

12. Type III (Both P1 P2 can be independent.)

	Partial red	Single occurrence		Total reduplication	
a.	asak-pasak	asak	pasak	asak-asak	pasak-pasak
b.	adɨk-padɨk	adɨk	padɨk	adɨk-adɨk	padɨk-padɨk
c.	ukɨl-pukɨl	ukɨl	pukɨl	ukɨl-ukɨl	pukɨl-pukɨl

13. Type IV (Neither P1 nor P2 can be independent.)

	Partial red	Single occurrence		Total reduplication	
a.	osun-tosun	*osun	*tosun	*osun-osun	*tosun-tosun
b.	aki-caki	*aki	*caki	*aki-aki	*caki-caki

14. An interesting observation: Regardless of type, P1 begins with a vowel or glide whereas P2 begins with a consonant (mostly, obstruent). (Chae 2003)

- No words consist of C-initial P1 and V-initial P2. *[**t**əlluk-**ə**lluk]

15. Assumptions

- Words, at least those of types I, II, IV, have reduplicative structure: RED *plus* Base.
- The position of RED with respect to the Base is specified in the input, as a prefix or a suffix.
- The Part which can be independent is the Base.

16. Surface morphological structure

- Type I ([_ulkɨt-pulkɨt]: C-deletion in P1): RED is realized as a **prefix**.
- Type II ([əlluk-***t***əlluk]: C-epenthesis in P2): RED is realized as a **suffix**.
  ⇨ The same affix may be realized as a prefix or suffix at surface.

An OT analysis of the observed variable affix position

17. A basic sketch of a proposed OT analysis

a. Dominant constraints
- ✓ PHONO: V-initial constituent should precede C-initial constituent within a word.
- ✓ OCP: The Base and its reduplicant must not be identical. (This is a morpheme-specific constraint.) (cf. Yip 1998)

b. Crucial ranking: PHONO, **CONTIGUITY**, OCP >> **EDGEMOST**

18. An analysis: if RED is a suffix in the input.

(i) Type II: [əlluk-təlluk] (surface suffix)

/ əlluk + RED /	PHONO	CONTIG	OCP	EDGEMOST
a. ☞ əlluk-<u>***t***əlluk</u>				
b. əlluk-<u>***ə***lluk</u>			*!	
c. <u>***t***əlluk</u>-əlluk	*!			*****
d. əl-<u>***t***əlluk</u>-luk		*!		***

(The reduplicant is underlined.)

(ii) Type I: [ollok-pollok] (surface prefix)

/ pollok + RED /	PHONO	CONTIG	OCP	EDGEMOST
a. pollok-<u>***o***llok</u>	*!			
b. ☞ <u>***o***llok</u>-pollok				******
c. pollok-<u>***p***ollok</u>			*!	

19. An analysis: if RED is a prefix in the input.

(i) Type I: [ollok-pollok] (surface prefix)

/ RED + pollok /	PHONO	CONTIG	OCP	EDGEMOST
a. ☞ <u>ollok</u>-pollok				
b. pollok-<u>ollok</u>	*!			******
c. <u>***p***ollok</u>-pollok			*!	

(ii) Type II: [əlluk-təlluk] (surface suffix)

/ RED + əlluk /	PHONO	CONTIG	OCP	EDGEMOST
a. <u>t</u>əlluk-əlluk	*!			
b. ☞ əlluk-<u>t</u>əlluk				*****
c. <u>ə</u>lluk-əlluk			*!	
d. əl-<u>t</u>əlluk-luk		*!		**

Why V-initial constituent precedes C-initial constituent?

20. V-initial constituent precedes C-initial constituent to obey …

- One possibility: **syllable-morpheme edge alignment**
- ALIGN(C, R; σ, R): Align right edges of Constituents of a reduplicative complex and a syllable.

(i) $[VC..C]_{P1}[CV..]_{P2}$ → P1's final consonant closes a syllable, obeying ALIGN.
(ii) $[CV..C]_{P1}[VC..]_{P2}$ → P1's final consonant would form a syllable with the following P2's initial vowel, violating ALIGN.

21. Problems

a. Most relevant words consist of Constituents ending with a consonant. But, there are some words which include constituents ending with a vowel.

In such cases in which ALIGNMENT is not relevant, the V-initial constituent precedes the C-initial constituent:

e.g. [aki-caki] ‘full of interest’.

b. There are some words ending with [ŋ] which cannot be an onset in Korean, and they also follow the general pattern. e.g. [aoŋ.taŋ] ‘squabblingly’

22. Sequencing generalizations of partially reduplicated forms in Korean (Chae 2003)

a. Vowel alternating forms: **higher ~ lower**
(i) i ~ ɛ: mik’ɨn.mɛk’ɨn, s***i***lluk-s***ɛ***lluk (ii) ɨ ~ a: tɨk’ɨm.t’ak'ɨm
(iii) u ~ a: mulk’ɨləm.malk’ɨləm

b. Alternations involving more than a single segment: **zero/glide ~ C**

→ **less obstruent C ~ more obstruent C** (with some exceptions)

23. Alternations involving more than a single segment (Chae 2003)

	alternating segments	example words
a.	∅ ~ p	antal.poktal, osa.pasa, ancəl.pucəl
b.	∅ ~ c	əkɨm.cikɨm
c.	∅ ~ t	uksikɨl.tɨksikɨl
d.	∅ ~ k	oksin.kaksin
e.	∅ ~ m	oŋsoŋ.maŋsoŋ, əli.mali
f.	w ~ t	waksikɨl.təksikɨl,
g.	h ~ c	həkəp.cikəp, hətuŋ.cituŋ
h.	h ~ p	hɨci.puci
i.	h ~ m	hɨŋc^{h}əŋ.maŋc^{h}əŋ
j.	s ~ p	siŋkɨl-pəŋkɨl
k.	s ~ k	sinan.konan
l.	k ~ c	kalp^{h}aŋ.cilp^{h}aŋ
m.	k ~ m	kontɨlɛ.mantɨlɛ

24. Similar sequencing generalizations in other languages

a. English (e.g. Pinker 2000: 163)

(i) Vowel alternating forms: **higher ~ lower** (fiddle-faddle, ping-pong, zig-zag…)

(ii) Consonant alternating forms: **less obstruent C ~ more obstruent C** (okey-dokey, walkie-talkie, willy-nilly, wing-ding, hocus-pocus, hully-gully, super-duper…)

But, teenie-weenie, peewee…

b. Japanese mimetic and onomatopoetic words (Tadakura Otsuka personal communication): aku.seku, abe.kobe, ake.suke, ata.huta, yaki.moki…

25. Conclusions

a. In standard OT analysis of affixation, especially infixation, an important assumption is that constraints on affix position can be violated.
b. An expected pattern from such an analysis is that the underlyingly specified position of an affix may be different at surface to obey a high-ranking phonological constraint.
c. We have shown that Korean partial reduplication data involve such cases of variable affix position and provided an OT analysis of it.
d. The ordering restrictions of Korean partial reduplication seem to be universal.

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