



1-1-2006

# Output-to-output Correspondence Revisited

Hye Jin Han

*University of Chicago, [hyejin@uchicago.edu](mailto:hyejin@uchicago.edu)*

---

# Output-to-output Correspondence Revisited

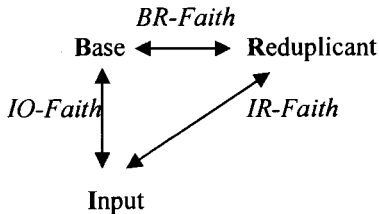
# Output-to-Output Correspondence Revisited

Hye Jin Han

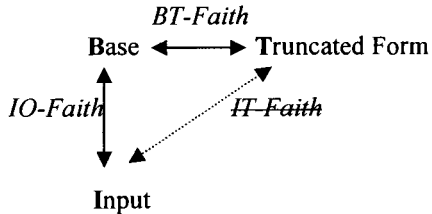
## 1 Introduction

Benua's (1995) seminal work on Output-to-Output Correspondence (OOC) posits two kinds of word derivations. Different from the derivation of reduplicants, truncated forms are *transderived*; they are derived through the *Base*, and blind to the *Input*<sup>1</sup>, as in (1b). It means that the mapping from the *Input* to the *Base* is prior to the mapping from the *Base* to the related truncated forms, and the *Base* essentially functions as a real input to truncation/(secondary) affixation. Thus, the truncation model (1b) does not have *I(nput)T(runcatum)-Faith* relation, while the reduplication model (1a) posits *I(nput)R(eduplicant)-Faith*.

(1) a. Reduplication

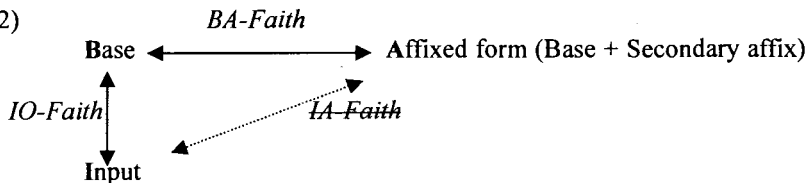


b. Truncation



This transderivational analysis of truncated forms can be further extended to any word-to-word derivations, such as *secondary affixations*. The derivation model for secondary affixation (2), therefore, does not have *I(nput)A(ffixed form)-Faith*, just like the truncation model (1b). (Here, the term *Affixed form* does not include words with *primary affixes*, which are considered to be derived from a stem, not from a word).

(2)



<sup>1</sup>The italicized *Input* and *Base* refer to *Input* and *Base* in Benua's (1995) model.

The central points that Benua (1995) makes clear for her model (1b) are as follows:

- “There is no correspondence relation between the input and the truncated output form. This predicts that truncated words will never be more faithful to the underlying stem than the base is.” (p. 82)
- “The base essentially functions as an input to truncation/(secondary) affixation, in that the truncated/affixed word is required to be faithful to the base in the same way that an ordinary output is required to be faithful to its lexical input.” (p. 129)
- “Without a case in which the truncated form is more faithful to the underlying stem than its base is, there is no evidence for a correspondence relation between the input and the truncated form.” (p. 132)

In this paper, I raise a argument against Benua (1995)’s analysis, showing that there are clear examples of truncated forms and words with secondary affixes which are derived directly from the *Input*. Since they are more faithful to the *Input* than to their *Bases* are, the existence of *IT/IA-Faith* is indispensable. This implies that it is not the case that all truncated forms and words with secondary affixes are transderived.

In Section 2, the existence of *IT/IA-Faith* for truncated forms and words with secondary affixes will be supported by three case studies: Korean hypocoristics, the linking-/r/ in the Lower Southern American English, and Korean consonant cluster simplification. Korean hypocoristics clearly show that truncated forms are actually derived directly from the *Input*, in addition to supporting that there exists *IT/IA-Faith*. In Section 3, alternative explanations of transderivational analysis are provided for some data presented in supporting of OOC: Hypocoristics in New York and Philadelphia English (Benua 1995), Epenthesis and Spirantization in Tiberian Hebrew (Benua 1995), and Korean consonant cluster simplification among some speakers (Kenstowicz 1994). In Section 4, I conclude that the additional transderivational mechanism proposed by Benua (1995) is not necessary, not finding the central motivation which differentiates two models shown in (1a) and (1b), namely (non)existence of *IT/IA-Faith*.

## 2 IT/IA-Faith in “Transderived” Forms

### 2.1 Korean Hypocoristics with Vocative Suffix -a/-ya (Shin 1989)

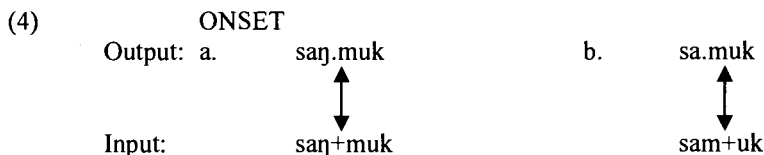
Shin (1989) shows that Korean hypocoristics are formed by truncating the first morpheme of the *Input* and attaching a vocative suffix /-a/ or /-ya/

(which are allophonic alternants). Some examples are given in (3). In (3a)-(3d), the second syllable of each name (both in the underlying form and the citation form) ends in a consonant, so the suffix /-a/ attaches. In (3e)-(3g), the second syllable of each name ends in a vowel, so the suffix /-ya/ attaches.

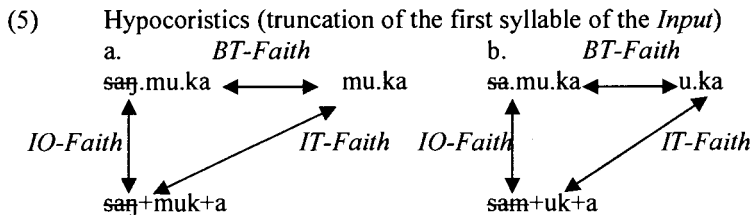
(3)

	<u>Underlying Form</u>	<u>Citation Form</u>	<u>Hypocoristic</u>
a.	saŋ+muk	saŋ.muk	mu.ka
b.	sam+uk	sa.muk	u.ka
c.	cin+suk	cin.suk	su.ka
d.	ci+suk	ci.suk	su.ka
e.	cin+su	cin.su	su.ya
f.	cin+u	ci.nu	u.ya
g.	ci+su	ci.su	su.ya

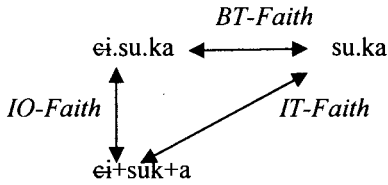
Since Korean has Onset constraints, the second syllables in the citation forms for (3a) and (3b) have the same syllable structure, CVC, while the second syllables in the underlying forms are different, being CVC and CV, respectively. This is shown in (4).



If truncation were blind to the *Input* as Benua (1995) argued, we expect the same hypocoristics for (4a) and (4b), since hypocoristics should be blind to the morpheme boundary in the *Input*. However, we get different hypocoristics for (4a) and (4b), as in (5). The example (6) shows that it is not the case that truncation applies to the first CVC of the *Base*.



(6)



In order to account for Korean hypocoristics, the existence of *IT-Faith* is indispensable. By positing undominated *IT-Faith* (MAX-IT and DEP-IT in (7)), we can get the right results. Without positing *IT-Faith*, Korean hypocoristics cannot be accounted for.

(7)

- a. IT-Faith >> Phono-Constraints  
 b.

	Input: /muk+a/ Base: /mu.ka/	MAX-IT	ONSET
i	uk.a	m!	**
ii	u.ka	m!	*
iii	mu.ka		
iv	muk.a		*!

c.

	Input: /uk+a/ Base: /mu.ka/	DEP-IT	ONSET
i	uk.a		**!
ii	u.ka		*
iii	mu.ka	m!	
iv	muk.a	m!	*

## 2.2 Linking-/r/ in Lower Southern American English

In Lower Southern American English, non-prevocalic /r/ drops, as shown in (8). For example, the word *appear* does not have the coda /r/.

(8)

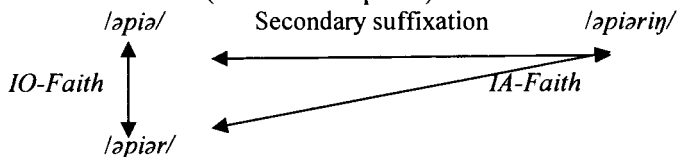
*appear*

	əpiər	*CODA /r/	MAX-IO
i	əpiər	*!	
ii	əpiə		*

However, when *-ing*, which is a level 2 suffix, attaches, the underlying /r/ emerges in some Lower Southern American English. If *IA-Faith* were not

allowed as Benua (1995) argued, then the emergence of this linking-/r/ cannot be accounted for. Positing MAX-IA is necessary to get the right result, as in (10).

- (9) Level 2 affixation (*IA-Faith* is required)



- (10) a. IA-Faith  
b.

Input	/əpiər-ɪŋ/	MAX-IA
Base	/əpiə-ɪŋ/	
a. $\sigma$	əpiə.rɪŋ	
b	əpiə.ɪŋ	*!

Since no intrusive-/r/ is allowed in this dialect, the emergence of the /r/-sound cannot be seen as an instance of intrusive-/r/<sup>2</sup>.

### 2.3 Korean Consonant Cluster Simplification

The third piece of evidence for *IA-Faith* comes from Korean consonant cluster simplification. Korean does not allow any consonant clusters, but rather simplifies them in citation form, as in (11)<sup>3</sup>. For example, the underlying form for the word ‘life’ is /salm/, but the citation form is [sam]. The evaluation is given in (12). This is attained by ranking the NO COMPLEX CODA higher than MAX-IO.

- (11)
- |    |                        |                      |           |
|----|------------------------|----------------------|-----------|
|    | <u>Underlying form</u> | <u>Citation form</u> |           |
| a. | /kaps/                 | [kap]                | ‘price’   |
| b. | /neks/                 | [nek]                | ‘spirit’  |
| c. | /talk/                 | [tak]                | ‘chicken’ |

<sup>2</sup>Some Lower Southern American English allows linking-/r/, but does not allow intrusive-/r/ (Trudgill and Hannah 2002).

<sup>3</sup>Either C<sub>1</sub> or C<sub>2</sub> may undergo deletion in C<sub>1</sub>C<sub>2</sub> consonant clusters (eg. kaps → kap, salm → sam), but the discussion of the specifics of this topic is beyond the scope of this paper.

- d. /salk/ [sak] 'price'
- e. /alm/ [am] 'knowledge'
- f. /salm/ [sam] 'life'

(12)

	salm	*CC]σ	MAX-IO
a.	sam		*
b	salm	*!	

However, both the underlying consonants emerge before a vowel. Thus, when the nominative case maker *-i* attaches, the consonant that deletes in the citation form also appears in the nominative form. Some examples are given in (13).

(13)

	<u>Underlying form</u>	<u>Citation form</u>	<u>Nominative</u>	
a.	/kaps/	/kap/	kap.si	'price'
b.	/neks/	/nek/	nek.si	'spirit'
c.	/talk/	/tak/	tal.ki	'chicken'
d.	/salk/	/sak/	sak.si	'price'
e.	/alm/	/am/	al.mi	'knowledge'
f.	/salm/	/sam/	sal.mi	'life'

It is clear that case-markers are not primary suffixes, since they can attach even to truncated forms<sup>4</sup>, as in (14). Thus, affixing a case-marker is clearly a word-to-word derivation in Benua's (1995) framework, and, if she were correct, should not be able to refer to the *Input*. However, without positing *IA-Faith*, the emergence of the underlying consonants which delete in the citation form cannot be accounted for. The evaluation is given in (15).

(14)

	<u>Nom</u>	<u>Acc</u>	
a.	rimokon-i	rimokon-ul	'remote control'
b.	puro-ka <sup>5</sup>	puro-lul	'professional'
c.	ama-ka	ama-lul	'amateur'

<sup>4</sup>The following examples are from loanword abbreviations in Japanese (Itô 1990). The same truncation pattern exists in Korean, as in (14).

rimotkonturol → rimokon 'remote control'  
 puropesseyнал → puro 'professional'  
 amachue → ama 'amateur'

<sup>5</sup>-ka is an allomorphic alternant of the nominative case maker *-i*.



(15)

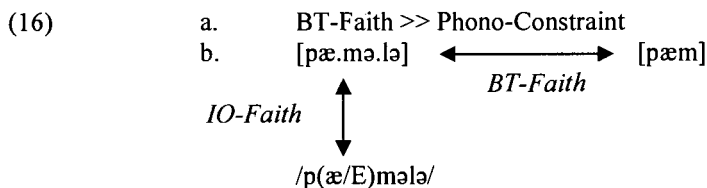
	Input: /salm+i/ Base: /sam+i/	*CC]σ	MAX-IA
a.	sal.mi		
b.	sa.mi		!
c.	salm.i	*!	

### 3 Alternative Explanations

#### 3.1 Hypocoristics in the New York and Philadelphia Dialects of English (Benua 1995)

While Benua (1995) presents hypocoristics in New York and Philadelphia dialects of English as an example in supporting of Output-to-Output Correspondence (OOC), Hale et al (1997)<sup>6</sup> argues her analysis suffers from misanalysis and implausible predictions.

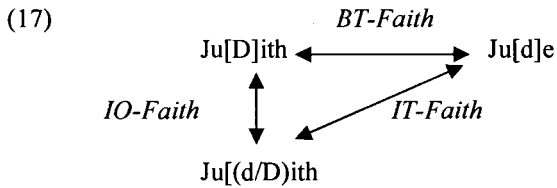
According to Benua (1995), the lax [æ] in the hypocoristic [pæm] violates the Phono-Constraints, which is æ-tensing in closed syllables. Since, the lax [æ] is reliably present only in the *Base*, the occurrence of the lax [æ] in hypocoristics is considered to be evidence of OOC. Thus, BT-Faith is undominated under her analysis.



Hale et al (1997), however, points out that the truncated form in (17) shows the necessity of IT-Faith. While the contrast is neutralized to flap [D] in the output form of *Judith*, underlying /t/d contrast is maintained in the truncated form.

---

<sup>6</sup>Hale et al (1997) argues against some other better-known claims originally adduced in support of OOC constraints (the incomplete/complete phase distinction of Rotuman, as analyzed by McCarthy (1995) and the treatment of Base Identity and Uniform Exponence in Kenstowicz (1994)), saying that they cannot be justified.



Furthermore, they suggest that truncated hypocoristics are actually lexicalized, as shown in (18).

- (18)
- |          |     |
|----------|-----|
| Robert   | Bob |
| Edward   | Ted |
| Margaret | Peg |

Even though it may be argued that there are some exceptional cases of lexicalization of hypocoristics, the example (17) still shows that *IT-Faith* is necessary in forming hypocoristics in New York and Philadelphia dialects of English.

### 3.2 Epenthesis and Spirantization in Tiberian Hebrew (Benua 1995)

Benua (1995) shows that *BT-Faith* constraints are not universally undominated. In her analysis of Tiberian Hebrew, imperatives are transderived through imperfectives by truncation, but there are two phonological rules that apply normally even in the truncated imperative forms (violating *BT-Faith*).

The first rule is epenthesis. Tableau (19) shows that both No Complex Onset and MAX-IO dominate DEP-IO, resulting in epenthesis. The second rule is spirantization. No Post-Vocalic Stop states that a stop must spirantize after a vowel, and No Spirantization states that a stop cannot spirantize. Since these are allophonic alternants, the relevant ranking must be the one in (20b)

- (19) \*COMPLEX ONSET, MAX-IO >> DEP-IO

	Input: /gbül/	*σ [CC	MAX-IO	DEP-IO
i	/gbül/	*!		
ii	/bül/		g!	
iii	/gəbül/			ə

- (20) a. \*V-STOP      A stop must spirantize after a vowel  
           \*SPIR        A stop cannot spirantize  
       b. \*V-STOP >> \*SPIR

Data in (21) show that imperatives are formed by truncation of the initial CV of imperfectives.

(21)

	<u>Root</u>	<u>Imperfective</u>	<u>Imperative</u>
a.	/ktb/	/yiktob/	/kətob/
b.	/shq/	/yishaq/	/səhaq/
c.	/lmd/	/yilmad/	/ləmad/
d.	/ydʕ/	/yēdaʕ/	/daʕ/
e.	/yšb/	/yēšēb/	/šēb/

In (22), both epenthesis and spirantization occur in truncated forms, violating *BT-Faith*. In (22a), the spirantized *k* in the imperfective becomes non-continuant stop, and the non-continuant stop *t* becomes spirantized. Epenthesis also occurs after *k* in the imperative, since the truncation of the first CV in the imperfective results in complex onset in the imperative.

(22)


	<u>Imperfective</u>	<u>Imperative</u>
a.	/yiktob/	/kətob/
b.	/yishaq/	/səhaq/
c.	/yilmad/	/ləmad/

Based on the data, Benua (1995) concludes that *BT-Faith* cannot be a monolithic requirement. While some *BT-Faith* dominates Phono-Constraints, some are not, as shown in (23). Epenthesis and spirantization in Tiberian Hebrew are examples of the latter case.

(23) *BT-Faith* >> *Phono-Constraint* >> *BT-Faith* (Epenthesis, Spirantization)

However, if we posit *IT-Faith*, the same result can be attained quite simply without introducing non-monolithic *BT-Faith*, as in (24).

(24) *Phono-Constraint* >> *IT-Faith*

	yi-ktb	Epenthesis	Spirantization	IT-Faith
a. 	kətob			ətob!

b.	ktb	**!		
c.	kəto <b>b</b>		tb!	


### 3.3 Korean Consonant Simplification in Kenstowicz (1994)

Dealing with the Korean consonant simplification data, Kenstowicz (1994) argues that Korean consonant simplification cases support OOC. As seen in 2.3, the underlying consonants usually emerge before a vowel-initial suffix, as in (25c).

- (25)
- |    |            |                           |
|----|------------|---------------------------|
| a. | /kaps/     | 'price' (underlying form) |
| b. | /kap/      | 'price' (citation form)   |
| c. | /kap-si/   | nominative                |
| d. | /kap-k'wa/ | 'price and ...'           |


However, Kenstowicz (1994) points out that the younger generation of Seoul speakers has generalized the cluster simplification process to apply even before vowel-initial inflections in all nouns, as in (26). The fact that (26a) is the winning candidate implies that OOC with the *Base* counts more important than IOC (Input-Output Correspondence) with the *Input* for these speakers.

- (26) B(ase)A(ffixed form)-Faith

	Input: kaps-i Base: kap-i	BA-Faith
a. 	kap.i	
b.	kap.si	s!

Hale et al. (1997) questions Kenstowicz's (1994) analysis. According to Hale et al. (1997), the underlying form could be /kap/, not /kaps/ for those who generalized the cluster simplification. Thus, /kap.i/ can be attained without OOC, as in (27).

- (27)

	Input: kap-i Base: kap-i	IA-Faith
a. 	kap.i	
b.	kap.si	s!

This criticism seems to be well-founded. First, children who are not good at Korean orthography tend to generalize the cluster simplification in

the same way as the younger generation of Seoul speakers do. However, they will fix it as they learn the grammar. Actually, such generalization of cluster simplification even before vowel is quite prevalent, not limited to young Seoul speakers. However, it is generally considered to be a mistake. People who know Korean grammar will correct the pronunciation as soon as they are reminded of the correct underlying form. More importantly, there are some group of nouns which still do not undergo the same generalization, even among the same speakers; *sal-mi* ‘life+NOM’ or *al-mi* ‘knowledge+NOM’ are never pronounced as *sa-mi* or *a-mi*. These nouns are special, in that only one coda consonant is coming from the root and the other coda consonant carries the categorical information that they are nouns. With this reason, people can be more aware of the correct underlying form for these nouns, so that people do not mistakenly generalize consonant cluster simplification to these nouns. The tableau for /*sal.mi*/ given in (28) shows that IA-MAX cannot be ignored, even among the younger generation of Seoul speakers.

(28) IA-Max >> Phono-Constraint

	Input: /salm.i/ Base: /sam.i/	IA-MAX	*CC]σ
a. $\sigma$	sal.mi		
b.	salm.i		*!
c.	sa.mi	!!	

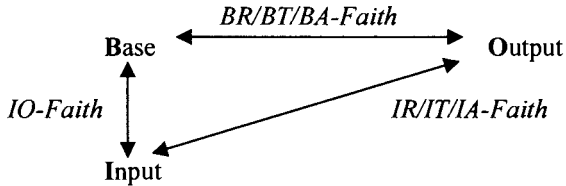
Therefore, generalization of cluster simplification seems to come from the confusion of using incorrect underlying forms.

#### 4 Conclusion

The three sets of data in section 2 cannot be explained by Benua (1995), and the only way to explain them is to posit *IT/IA-Faith* in truncated forms and words with Class 2 affixes. Some data given in supporting of OOC can receive alternative explanation by positing *IT/IA-Faith*. The data presented in this paper shows that it is not the case that the *Base* always functions as an input to truncation/(secondary) affixation. Truncation and secondary affixation may apply to the *Input*, and in such cases, the notion of *transderivation* is not required. Different from Benua’s (1995) claim that truncation/secondary affixation does not need *IT/IA-Faith*, *IT/IA-Faith* is clearly required, as in (28). The reduplication model then would not be very different from the reduplication model (1a), and there is no need to posit

another derivational mechanism for truncation which is different from the reduplication model.

(28) Truncation/Secondary Affixation



## References

- Benua, Laura. 1995. Identity Effects in Morphological Truncation. In *Papers in Optimality Theory*, ed. J. Beckman, L. Walsh Dickey, and S. Urbanczyk. University of Massachusetts Occasional Papers 18:77–136. Amherst, MA: GLSA.
- Hale, Mark, Madelyn Kissock, and Charles Reiss. 1998. Output-Output Correspondence in Optimality Theory. *Proceedings of WCCFL XVI*. Stanford: CSLI.
- Itô, Junko. 1990. Prosodic Minimality in Japanese. *CLS 26-II: Papers from the Parasession on the Syllable in Phonetics and Phonology*, 213–239.
- Kenstowicz, Michael. 1994. Base identity and uniform exponence: alternatives to cyclicity. In *Current Trends in Phonology: Models and Methods*, ed. J. Durand and B. Laks. Salford: University of Salford, 363–394.
- Trudgill, Peter, and Jean Hannah. 2002. *International English: A Guide to the Varieties of Standard English*, 4<sup>th</sup> Edition. New York: Oxford University Press.
- Shin, Seung-Hoon. 1989. Correspondence in Korean Hypocoristic Truncation. *Japanese/Korean Linguistics* 7:595–610. Stanford: CSLI.

Department of Linguistics  
 University of Chicago  
 1010 E. 59th Street  
 Chicago, IL 60637  
 hyejin@uchicago.edu