

Conflicting Repairs in Native and Foreign Vocabulary

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LSA, January 2008

Support from NSF BCS-07460227

Problem: Cases in which

- 1. The native language lacks a particular structure.**
- 2. The native language uses a productive process to repair the illegal structure.**
- 3. A different strategy is used to repair this illegal structure in foreign words.**

Proposal

In these cases, the conflicting repair represents misperception of the foreign structure.

- **Case 1: Malayalee English: repair of V_kV**
- **Case 2: Korean loanwords: repair of V_IV**

Malayalam Stop Phonemes (Asher & Kumari 1997)

- In native vocabulary, [p, t, t, t̪, c, k]
(no laryngeal contrasts).
- Singleton and geminate consonants contrast in medial position.

Malayalam Intervocalic Voicing

**Voiceless singleton stops become voiced
intervocalically:**

/makan**/ > [mag**a**n] 'son'**

**(Voicing may be accompanied by lenition
(Asher & Kumari 1997): /mak**an**/ > [may**a**n])**

Only singletons undergo voicing

/mak**an**/ > [mag**an**] 'son'

/cak**ka**/ > [cak**ka**] 'jackfruit'

How are English intervocalic stops realized in Malayalee English?

Malayalee English (Mohanan & Mohanan 2003)

English intervocalic **voiced** stops > **voiced**:

iɾ**g**eet 'irrigate'

fi**g**aɾ 'figure'

bæ:**b**u:n 'baboon'

English voiceless stops? (*VkV in Malayalam)

Prediction: intervocalic **voiceless** stops could be

a) repaired by productive native language
process of intervocalic voicing

('baker' > [be**g**ar]); *or*

b) preserved ('baker' > [be**k**ar]).

Malayalee English

English intervocalic **voiceless** stops >
voiceless geminates

be**kk**ar ‘baker’

pæ:**kk**et ‘packet’

ɾi**pp**o: ɾt ‘report’

Malayalam and Malayalee English grammars conflict

Malayalam ranking:

*VkV >> **Ident(length)** >> Ident(voice)

/VkV/ > [VgV]

Malayalee English Ranking:

*VkV >> Ident(voice) >> **Ident(length)**

/VkV/ > [VkkV]

Malayalam Grammar

/Vkv/	*Vkv	Ident(length)	Ident(voice)
a. Vkv	*!		
b. Vkkv		*!	
>c. VgV			*

Malayalee English Grammar

/Vkv/	*Vkv	Ident(voice)	Ident(length)
a. Vkv	*!		
>b. Vkkv			*
c. VgV		*!	

Learnability problem

What evidence would have been available to Malayalam speakers for reranking of length faithfulness and voicing faithfulness?

- **No evidence from Malayalam**
- **No evidence from English**

Possible Unified Grammar

Ident(voice)-Foreign, *VkV >>

Ident(length) >> Ident(voice)

- **Voicing preserved in foreign forms**
- **Length preserved in native forms**

Source of this ranking?

**General assumption: default ranking = M >> F
(Prince & Tesar 2004, Hayes 2004)**

Possible default ranking: Ident-foreign, M >> F

But foreign voicing specification is
not always preserved

‘possible’ > [pɔ:sɪbL]

‘impossible’ > [ɪmbɔ:sɪbL]

Malayalee English ranking:

*NC[-voice] >> Ident(voice)Foreign, *VkV >>
Ident(voice)

(Ident-foreign cannot always be ranked high)

Alternative Analysis: Misperception

Malayalam speakers interpreted English contrast in terms of Malayalam contrast

English

[VkV]

[VgV]

Malayalam

[VkkV] < /VkkV/

[VgV] < /VkV/

Is this analysis consistent with the acoustics of the 2 languages in contact?

Malayalam ancillary cues to length contrast

Local & Simpson 1999:

1. **Voicing: intervocalic singletons have voicing during closure.**
 2. **Vowel duration: vowels are longer before singletons. Mean V duration:**
 - 76.5 msec before singletons**
 - 58.8 msec before geminates**
- (among other cues)**

English ancillary cues to voicing contrast

1. **Voicing: voiced stops have voicing during closure (e.g., Lisker 1986).**
2. **Duration: vowels are longer before voiced consonants (e.g., Kluender, Deal, & Wright 1988).**

(among other cues)

Cue Confusion

English [VkV] vs. [VgV]:

lack of closure voicing > voiceless consonant.

shorter pre-C vowel > voiceless consonant.

Malayalam [VkkV] vs. [VgV] (</VkV/):

lack of closure voicing > geminate consonant.

shorter pre-C vowel > geminate consonant.

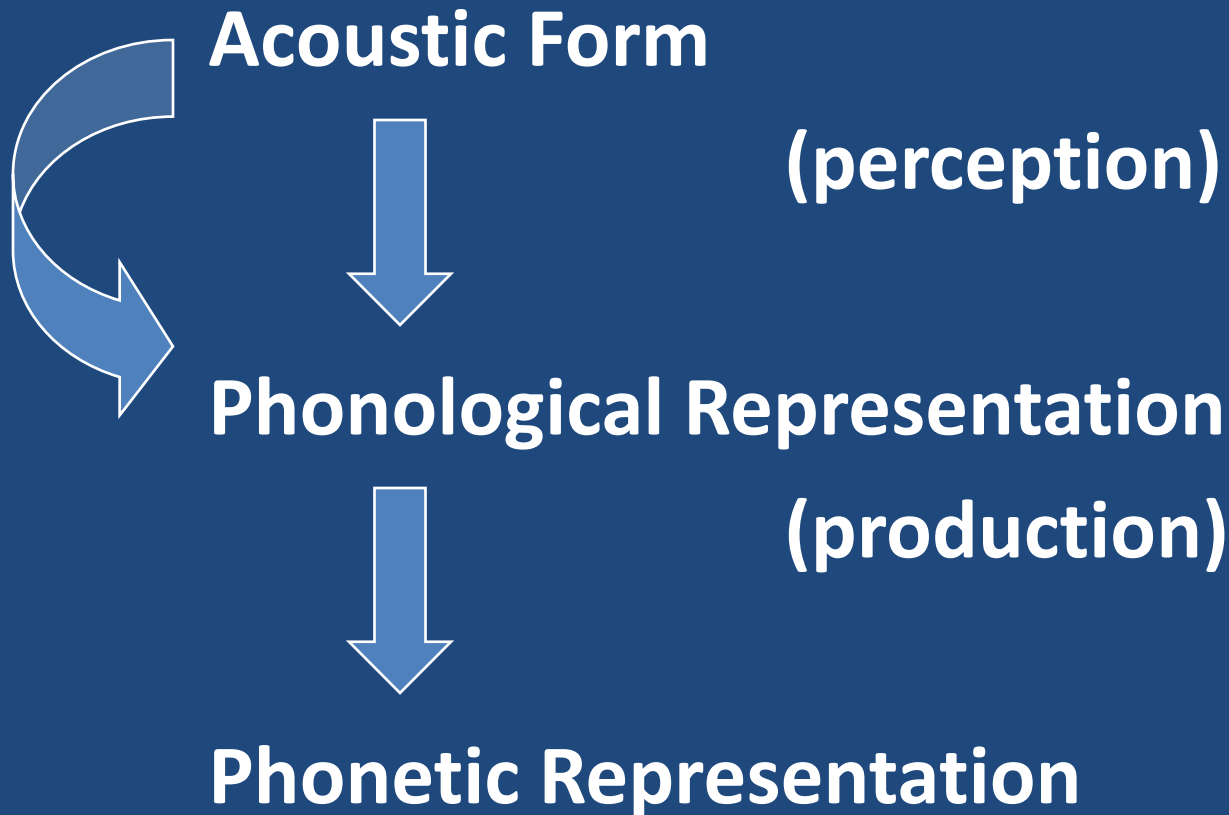
No Conflict

Malayalee English pattern can be understood as misperception of English structures:

[VkV] interpreted as [VkkV].

Perception: [VkV] heard as [VkkV]

Production: /VkV/ => [VgV], /VkkV/ => [VkkV]



Case 2

**Conflicting repairs in Korean native vocabulary
vs. adaptation of English words**

Korean Liquid Phonemes: /r/ and /l/ do not contrast

/r/ occurs in syllable onset

(word-initially and between vowels)

/l/ occurs in syllable coda

(word-finally and before a consonant)

Korean Liquid Alternation (Lee 2001)

a. /l/

ta l	'moon'
ma l	'horse'
sa l .ku	'apricot'

b. /r/ (tap)

ta. r -i	'moon (nom.)'
ma. r -i	'horse (nom.)'
sa. r am	'person'

- **How are intervocalic liquids adapted in loanwords?**

Korean Adaptation of medial [r] (Kenstowicz 2005, Oh 2005, among others)

intervocalic 'r' > [r]

k^ho:rasɪ

'chorus'

orenʒi

'orange'

misɪt^heri

'mystery'

Intervocalic [l]? (*[VlV] in Korean)

Prediction: Intervocalic [l] could be

- a) repaired by productive native language process of tapping ('Cola' > [k^ho^ra]), *or***
- b) preserved ('Cola' > [k^ho^la])**

Korean Adaptation of medial [l] (Kenstowicz 2005, Oh 2005, others)

intervocalic /l/ > [ll]

chello

‘cello’

sillik^hon

‘silicon’

k^holla

‘cola’

Some Doublets: ‘kilo’ > [kiro], [killo]

Orthography not determining factor

Oh (2005):

orthographic 'll' > [ll] 99.9%

orthographic 'l' > [ll] 84%

Strong trend toward [ll], regardless of spelling.

Conflict in native and foreign repairs

Native Language ranking:

*nonmoraic[l] >> *Ident(length)* >> Ident(lat)

Loanword Ranking:

*nonmoraic[l] >> Ident(lat) >> *Ident(length)*

Problem: no evidence to support this reranking.

Alternative analysis: Adaptation represents misperception

English [r]-[l] contrast interpreted in terms of
Korean [r]-[ll] contrast.

mu.ri	'group'	mul.li	'physics'
mə.ri	'head'	məl.li	'far'

Korean [r]-[l] contrast: cues

1. presence/absence of laterality
2. consonant duration

muri = [-lateral, short] 'group'
mulli = [+lateral, long] 'physics'

But: Duration is not a useful cue

Oh 2005: English onset [l] durations averaged between Korean [l] and [r].

O'Connor et al. 1957, Underbakke et al. 1988, Polka and Strange 1985: English (initial) [r] is **longer** (longer F1 transition) than [l].

Korean

English

VrV

VlV

VrV

VlV

shorter longer

longer shorter

[-lat]

[+lat]

[-lat]

[+lat]

Laterality

Kim (2007) suggests that laterality is the dominant cue.

Subjects: speakers of Korean, minimal English proficiency

Kim (2007) Stimuli

1. Real words containing VllV, e.g. [mulli].
2. Real words containing VrV, e.g. [muri].
3. Nonwords containing VIV, e.g. [*muli], produced by shortening the [l] in VllV words.

Kim (2007) Task

Listeners heard stimuli such as [muri] (real word), [mulli] (real word), [*muli] (nonword).

Forced choice for nonword: Did you hear 'muri' ('group') or 'mulli' ('physics')?

Results

[V|V] identified as

[V|I|V] 324 90%

[VrV] 36 10%

Kim (2007) results suggest that

Duration is not the major cue for the [r]-[l] contrast. Laterality is sufficient to cue this contrast.

Next Question

Is laterality still the dominant cue with

a. nonwords?

b. stimuli that include long nonlaterals?

c. participants with greater familiarity with English?

1. Identification Experiment

Subjects: 10 NSs of Korean residing in US

Identification Stimuli

1. Nonsense word containing **VllV** ([elle])
2. Nonsense word containing **VrV** ([ere])
3. Nonsense illegal word containing **VlV** ([ele]) produced by shortening the [l] in **VllV** words.
4. Nonsense illegal word containing **VrrV** ([erre])

Identification Task

Listeners heard (edited) words like [e|e] or [er|re].

Forced choice: Did you hear [er|e] or [e||e]?

Identification Results

		Stimuli			
		elle	ere	edited ele	erre
Answer	elle	200	1	198	6
	ere	0	199	2	194
Total		200	200	200	200

Identification Results

Koreans classify [e^le] (lateral, short) as [e^lle] (lateral) rather than [e^re] (short).

Koreans classify [e^rre] (non-lateral, long) as [e^re] (non-lateral) rather than [e^lle] (long).

Next question: Can they **discriminate**

[e^le] – [e^lle] , [e^le] – [e^re] , [e^re] – [e^rre] ,
[e^lle] – [e^rre]?

2. Discrimination Experiment

AXB: Listeners heard three words and decided whether the second word sounds similar to the first word or the third.

e.g., elle-ere-ere
elle-elle-ele

Prediction

If duration and laterality are **equally important**,

Pair	Duration	Laterality	Accuracy
elle-ere	diff	diff	best
elle-ele erre-ere	diff		bad
ele-ere elle-erre		diff	bad

Prediction

- If duration is **less important** than laterality,

Pair	Duration	Laterality	Accuracy
elle-ere	diff	diff	best
elle-ele erre-ere	diff		worse
ele-ere elle-erre		diff	bad

Discrimination Results

Laterality alone (but not duration alone) cues the contrast as well as laterality plus duration.

Pair	Duration	Laterality	Accuracy%
elle-ere	diff	diff	97.5%
elle-ele erre-ere	diff		85.5%
ele-ere elle-erre		diff	98.0%

Summary

Conflicting repairs:

Malayalam: $VkV > VgV$

Malayalee English: $VkV > VkkV$

Korean: $VlV > VrV$

English loans: $VlV > VlIV$

Conclusion

- **There is no conflict! The native language production grammar specifies a single repair.**
- **The apparent conflict results from the assumption that listeners perceive the foreign form accurately. But listeners interpret FL cues in terms of NL contrasts.**

Thank you!

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We acknowledge support from NSF BCS-07460227 to E. Broselow, M. Huffman, and N. Squires.