

The Phonological Adaptation of Foreign Liquids in Korean

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1 Introduction

This paper considers the ways that *l*-sounds and *r*-sounds are adapted in words that are borrowed into Korean, a language which makes no contrast between lateral and central liquids. Most loanwords are from English, but other languages, where the pronunciation of liquids differs from that English, serve as a source of borrowings for Korean as well. Foreign liquid adaptation in Korean is interesting not only for its variability in sourcing, however, but also for the light it appears to shed on the perceptual organization of the sound system. In the course of this paper, we will show how liquids in English as well as other languages are produced and perceived within the phonological system of Korean, and how conforming to its syllable structure plays a major role in the adaptation of foreign words.

2 The Korean liquid

It is generally known that there is just one liquid phoneme in Korean since the language makes no distinction between /l/ and /r/. As exemplified in (1), the allophones of the liquid phoneme in Korean alternate phonetically according to their position in syllable structure: lateral [l] when filling the coda position, but central tap [ɾ] when occupying the onset. In geminate structures, the moraic portion in the syllable coda determines the articulation of both parts (Iverson and Sohn 1994; Ahn 1998).

- (1) Geminate vs. simplex liquids in Korean: /LL/ ([ll]) vs. /L/ ([l] in codas, [ɾ] in onsets)

seolbim	‘New Year’s garb’	seori	‘frost’
gyeoul	‘winter’	gyeouri	‘winter (nominative)’
ppalli-ppalli	‘quickly’	jeolle-jeolle	‘shaking one’s head’
mulli	‘physics’	muri	‘a group, unreasonableness’
hallye	‘circumcision’	harye	‘celebration’
sallang-hada	‘be chilly’	sarang-hada	‘to love’
mulle	‘a spinning wheel’	murye	‘impoliteness’
sillyeok	‘ability’	siryek	‘eye sight’

As seen in *seo*[l]*bim* ‘New Year’s garb’ (coda) versus *seo*[ɾ]*i* ‘frost’ (onset), or *gyeou*[l] ‘winter’ (coda) versus *gyeou*[ɾ]*i* (onset), [l] and [ɾ] alternate phonetically according to their position in syllable structure. In geminate structures, the left or moraic portion occupying the syllable coda determines the articulation of both parts, which is thus uniformly lateral: *ppa*[ll]*i*-*ppa*[ll]*i* ‘quickly’ (**ppa*[ɾɾ]*i*-*ppa*[ɾɾ]*i*, **ppa*[ɾl]*i*-*ppa*[ɾl]*i*, **ppa*[lɾ]*i*-*ppa*[lɾ]*i*). Likewise, there are minimal pairs with word-medial lateral geminates [ll] versus central [ɾ], such as *mu*[ll]*i* ‘physics’ versus *mu*[ɾ]*i* ‘a group, unreasonableness’ and *ha*[ll]*ye* ‘circumcision’ versus *ha*[ɾ]*ye* ‘celebration,’ and so forth. In view of these distributions, the appropriate underlying representation of the Korean

liquid is arguably neither lateral nor central, but rather indeterminate between the two types of articulation, i.e., /L/. That is to say, the phonological representation of the liquid should be neutral with respect to the phonetic differences between [l] and [ɾ] (as per Iverson and Sohn 1994).

3 Adaptation of foreign liquids in Korean

3.1 Adaptation of English rhyme liquids

Even though the feature [lateral] is not distinctive in Korean, source language laterals are generally adapted as an *l*-sound, either [l] (simplex) or [ll] (geminate), whereas central liquids are typically adapted as an *r*-sound, the tap [ɾ]. As lateral [l] is the only liquid that can occupy the coda position in Korean, source language lateral and rhotic codas and other liquid equivalents must be rendered accordingly.

(2) Adaptation of English rhyme liquids in Korean

a. Source in a lateral nucleus: [ɫ] → [ʌl]	b. Source in a lateral coda: [ɫ] → [l]
sseokeul ‘circle’	Milweoki ‘Milwaukee’
tekeul ‘tackle’	gildeu ‘guild’
syeoteul ‘shuttle’	pildeu ‘field’
ssempeul ‘sample’	dipolteu ‘default’
gugeul ‘google’	ssil ‘seal’
teibeul ‘table’	deuril ‘drill’
c. Source in a rhotic nucleus: [ʀ] → [ə]	d. Source in a rhotic coda: [ɾ] → ∅
ssenteo ‘center’	pakeu ‘park’
paudeo ‘powder’	hadeu ‘hard’
keoten ‘curtain’	pateuneo ‘partner’
sseobisseu ‘service’	Babel ‘(Tower of) Babel’
ereo ‘error’	seukapeu ‘scarf’
pepeo ‘pepper’	syapeu ‘sharp’

As we can observe in the data in (2), coda [l] in English is rendered straightforwardly as [l] (2b) while the phonetically syllabic lateral is rendered as [l] along with an epenthetic vowel inserted before it, [ʌ] + [l] (2a). The vowel [ʌ] is inserted here since it is the least marked vowel in Korean. English /r/ outside of the syllable onset is realized as schwa in Korean when it serves as a rhotic nucleus [ʀ] in the source language (2c), but when preceded by a vowel and functioning as a coda, English /r/ is not manifested at all in Korean (2d). Rhotic [ɾ] in the coda position is not in the recipient language’s syllable nature at all, hence the source language coda [ɾ] is not manifested here. However, because the nucleus is greater in phonetic value or content than the coda, and is the core element of the syllable, only the rhotic value in the nucleus is deleted, leaving the schwa value still in place. Nonrhotic articulation ([ʀ] → [ə]) and the deletion of coda /r/ are characteristics of several varieties of English, too (e.g., Standard British; Ladefoged 2001), reflecting the consonantally ‘weak’ position of the syllable coda (Vennemann 1988).

3.2 Adaptation of English onset liquids

In conforming to it syllable structure requirements, then, rhotic [ɾ] in codas is deleted since lateral [l] is the only possible coda liquid in Korean. Onset liquids, however, appear to show sensitivity to a feature that is redundant and thus presumably not even salient in Korean, because lateral

(3) Adaptation of English onset liquids in Korean

a. Source in a rhotic consonant: [ɹ] → [r]	b. Source in a lateral: [l] → [ll]
seuteuraikeu ‘strike’	Balli ‘Bali’
meteuro ‘metro’	polliseu ‘police’
Meri ‘Mary’	sselleodeu ‘salad’
radio ‘radio’	tekeunolloji ‘technology’
keorieo ‘career’	bollling ‘bowling’
c. Source in a rhotic consonant: [ɹ] → [l]	d. Source in a lateral: [l] → [r]
no examples	robi ‘lobby’
	raiteu ‘light’
	auteurain ‘outline’
	Sseinteuruseu ‘Saint Louise’
	Honolluru ‘Honolulu’
	ssolliroki ‘soliloquy’
	Marayaram ‘Malalayam’

liquids are generally adapted as lateral [ll] (3b) and central liquids as the nonlateral tap [r] (3a). Although word-initial liquids, both [ɹ] and [l], are rendered as the tap [r], word-medial [ɹ] and [l] from English are rendered as [r] and [ll], respectively. This is surprising since the feature [lateral] is not distinctive in Korean. But the manifestation of a source lateral [l] varies depending on its location in the corresponding syllable. Word-medially, it is not the case that Korean speakers perceive a lateral onset and manifest it either as a tap [r] or a geminate [ll]; rather, they perceive the source lateral onset as a lateral coda of the preceding syllable and make it geminate. This is because a word-medial liquid must be geminate if it is to be lateral in Korean, and geminates are organized with their first half in the coda, their second or onset half then sharing the predictable lateral property. Hence lateral [l] in English words such as ‘salad,’ ‘technology’ and ‘bowling’ is manifested as [ll], as in *sselleodeu*, *tekeunolloji* and *bollling*.

Still, the lateral liquid in words like ‘outline’ and ‘Saint Louise’ is articulated as a central tap in the recipient language rather than geminate [ll], even though it is positioned word-medially. We can explain those words by considering them to be compounds; thus, word-medial onset [l] in these source language words is perceived as the initial sound of the second word, which Koreans regularly pronounce as a tap, the only possible liquid in that position.

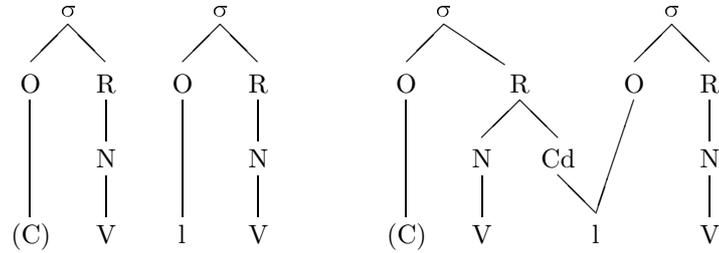
Word-initially, as already reviewed, both lateral and central source language liquids are structured as onsets, hence with a tap (*robi* ‘lobby,’ *raiteu* ‘light,’ *auteurain* ‘out-line’), but even word-medially a tap may arise in the manifestation of a lateral if there is a series of liquids in the source word: *Marayaram* ‘Malalayam,’ *Honolluru* ‘Honolulu,’ *solliroki* ‘soliloquy’. There may well be variation in how these words are adapted, in fact (*Mallayaram?*, *Honollullu?*), but it seems that the basic principle at play is to avoid sequences of syllables in the same word with geminate liquids. We know of no native Korean words which are configured with multiple geminate liquids in series, so perhaps this is the basis of the avoidance.

The overall idea is that the feature [lateral] as such is not being perceived at all, and so is not available in the phonology, but rather the acoustic signal of the source language pronunciation is being perceived and prosodically organized directly according to the available contrastive categories of the receiving language. One might wonder that the reason that English onset /l/ is being construed as a coda is precisely because it is [lateral] phonetically, but in our view this does not mean that Koreans are perceiving the feature [lateral] itself; rather they are perceiving syllable structure through the prosodic lens of their own language, which forces liquid sounds that are phonetically but not contrastively lateral to be organized into codas rather than onsets.

This is what accounts for the [lateral] property of these liquids, as displayed graphically in (4).

(4) Perception of ‘(C)V[l]V’ syllable structure in English and Korean

(a) English (source language) (b) Korean (recipient language)



For example, English ‘salad’ [sæ.ləd] goes through this interpretation when it is adapted in Korean, resulting in a geminate lateral split between coda and onset, [sʰɛ.l.lə.dɯ].

Rather than pointing to perceptual awareness in loanword adaptation of features that are not salient in the recipient language, like [lateral] (H. Kang 2003) in Korean (also [voice] per Y. Kang (2003)), then, onset liquids in the source language can be seen to be rendered according to the syllable structure distinctions of Korean, which are indeed perceptually salient between onset and coda (the site of extensive neutralization in the language; Ahn and Iverson 2004). That is, lateral liquids are ‘heard’ not so much as laterals but as codas, while English vocalic *r*-sounds are apprehended as consonantal taps when in the relatively strong position of the onset, and not at all when in the coda.

On the other hand, consonantly strong *r*-sounds in the coda, as in French, are perceived as onsets (5), as that is the only prosodic position in which these are possible in Korean. But because *r*-sounds in the coda position in languages such as French and German present seemingly the same kind of input as English, it might be conjectured that Koreans would perceive those liquids as being in the coda, and coda /r/ is supposed to be deleted in loanwords. However, non-English coda /r/ is articulated as a tap [ɾ] in the onset position, as exemplified in (5).

(5) Adaptation of nonvocoid coda /r/, as perceived from languages other than English

a. As an onset tap [ɾ]

Jakareuta	‘Jakarta’	areubaiteu	‘Arbeit’ [via Japanese?]
Poreutugal	‘Portugal’	pareupe	‘parfait’
Poreusye	‘Porsche’	poreuno	‘porno(graphy)’
Hambureukeu	‘Hamburg’	jureu	‘(tous les) jours’
Syubereuteu	‘Schbert’	Noreuwei	‘Norway’

b. As a coda lateral [l] or as Ø (rare)

Mongmareutteu	‘Montmartre’	Syelbureu	‘Cherbourg’
[moŋmaɾɯtʰɯ]	[mɔ̃maɾtɾə]	[ʃɛlburɯ]	[ʃɛɾbur]

In general, coda /r/ in loanwords from languages other than English is realized in the onset position, as illustrated in (5a), unlike English coda /r/, which is dropped. That is because consonantly strong *r*-sounds in the coda, as in French, are perceived as onsets, as that is the only prosodic position in which these are possible in Korean. This is to say that *r*-sounds imported from other languages are so consonantly strong that they can not be deleted like the

English rhotic coda [ɹ]. Rather, they are perceived as a tap [ɾ] in the onset, the only position where a nonlateral liquid can occur in Korean.

Interestingly, it is the perception of the *r* as being a consonantly strong variant which determines adaptation as an onset, not its phonetic reality. In the pronunciation of Standard German, it has been pointed out to us, coda *r* is actually vocalized to a nonsyllabic vowel-like sound usually transcribed as [ɐ], as in *Butter* [bʊtɐ] ‘butter’. The same is true of the coda *r* in the German names *Porsche* [pʰoɐʃə] or *Hamburg* [hambʊɐk]. The manifestation in Korean of these German coda *r*-sounds as an onset tap [ɾ] is thus based on phonological perception, not phonetic reality, because these sounds are not articulated with tongue contact in the standard version of the source language.

There are not many cases of the kind illustrated in (5b), where source language *r* is either retained in the coda and articulated as the lateral [l], or deleted. The unusual retention of coda *r* as a lateral exemplified in the first *r* of the French city name *Cherbourg* [ʃɛrbur], which we romanize as *Syelbureu* [ʃɛlburɥ]. The deletion of final *r* is seen in another French place name, *Montmartre* ([mɔ̃martrə]), romanized as *Mongmareutteu* ([moŋmarɥtʰɥ]). Both of these possibilities conform to the syllable structure of Korean, too, showing that the perception of foreign liquids is in terms of their place in the syllable structure of the recipient language rather than redundant phonetic features.

4 Conclusion

In sum, it is more reasonable to say that Koreans are apprehending foreign liquids in terms of syllable structure alignments than in terms of laterality. This is because the feature [lateral] is not distinctive in the language, but of course its differences in syllable structure are, and it is presumably a principle of phonological perception that listeners are not usually aware of redundant features in their language. It is thus important for the theory of phonology generally to be able to interpret loanword adaptations in phonological terms that are salient in the receiving language.

The adaptation of foreign liquids in Korean, a kind of turning ‘upside-down’ of the phonology (Leben and Robinson 1977), thus does not call for the elevation of subphonemic features to the level of overt perceptual prominence, but rather for recognition of the salience of prosodic structure in phonological processing and perception.

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