

# Why do Korean and Cantonese Use a Non-rhotic Accent in English Loanword Adaptation?\*

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## <Abstract>

### **Why do Korean and Cantonese use a non-rhotic accent in English loanword adaptation?**

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This paper deals with non-rhoticity of Korean and Cantonese in English loanword adaptation. These two languages have quite different cultural and historical backgrounds with respect to English. The influence of the American accent prevails in Korea while in Cantonese the influence is British. However, the treatment of coda-/r/ from English illustrates that both languages are the same in that they use a non-rhotic accent. The main point of this paper is to show that the non-rhoticity of these two languages must be accounted for by their native phonological systems rather than extralinguistic factors such as historical, social and / or cultural backgrounds.

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## 1. Introduction

This paper is concerned with the phonological adaptation of English loanword in Korean and Cantonese<sup>1)</sup>. In particular, it focuses on how both languages treat the segment /r/ in coda position of English. The motivation of this paper is inspired by the following quotations;

The reader should bear in mind that Hong Kong is a British colony and that most of the loan words have probably been from British R.P. [Received Pronunciation: SJR] ... Two of the most important facts about R.P. are the lack of [r] in coda position and the lack of 'flapping'. (Yip 1993: 265)

As Cantonese forms are based upon British pronunciation, coda /r/ is not normally represented in the Cantonese forms. (Silverman 1992: 297)

If we interpret these quotations quite literally, the fact that English loanwords in Cantonese are non-rhotic is based upon the British accent, and reflects cultural and historical factors of Cantonese. In other words, since Hong Kong was a British colony, the British accent influenced the form of English loanwords in Cantonese. If this is the case, then we predict that the forms of English loanwords in Korean contain a greater American influence, precisely because English loanwords in Korean are based upon the American accent (i.e. General American; henceforth GA); Korea has been heavily influenced by the United States of America since 1945.<sup>2)</sup> In fact, this prediction is partly true in that Korean adopts the American rather than the British accent with respect to vowel-quality: e.g. 'dot' and 'hip hop' are realised as [tat] and [hiphap] rather than as [tot] and [hiphop], respectively. However, the forms of English loanwords in Korean are the same as those of Cantonese concerning

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1) The loanword phonology of both languages has been dealt with in various theoretical frameworks. For rule-based approaches, see Ahn (1992) and Kim (2000) for Korean, and Silverman (1992) for Cantonese. For a government approach, see Rhee & Heo (2000) for Korean. For OT approaches, see Kang (1996), Kang (1996), Yoo (1996) and Cho (1998) for Korean and Yip (1993) and Jacobs & Gussenhoven (to appear) for Cantonese.

2) The effect of the American accent is enormous in Korea. Korea has a US Army TV broadcasting station. English education at schools is carried out in American English. Accordingly, most Koreans are more familiar with the American than the British accent.

rhoticity; i.e. coda /r/ of English is not allowed. Both languages use a non-rhotic accent when they adapt English loanwords despite cultural and historical differences. The main point of this paper is that the choice between rhotic and non-rhotic accents in loanword adaptation does not depend on extralinguistic factors but on phonological factors of the languages in question. This paper does not assume a particular theoretical framework to provide a formal account of the phenomenon in question. Rather, it presents a theory-neutral description of facts about loanword phonology of Korean and Cantonese. With respect to syllable structure, the discussion is largely based upon Fudge (1969) and Selkirk (1982); onsets, rhymes, nuclei and codas are recognised as syllabic constituents. This paper is organised as follows. Section 1 presents an overview of different English accents and of how rhoticity can be analysed phonologically. In section 2, I briefly introduce how Korean and Cantonese treat English loanwords segmentally as well as syllabically. Section 3 provides an analysis of the adaptation of the segment /r/ of English and an account of why both languages employ a non-rhotic accent. The final section summaries the main point of the paper.

## 2. Rhotic vs. non-rhotic accents in English

One fundamental division in English accent types depends on a difference in phonotactic distribution of the segment /r/. In the rhotic accents, /r/ can occur in preconsonantal and final positions as well as in initial and intervocalic positions. In the non-rhotic accents, on the other hand, /r/ may occur initially and intervocalically but not in preconsonantal and final positions. The rhotic accents include those of Scotland, Ireland, Canada, Barbados, certain western parts of England, and most of the United States, including GA. The non-rhotic accents include those of Australia, New Zealand, South Africa, Trinidad, certain eastern and southern parts of the United States, and most of England and Wales, including Received Pronunciation (henceforth RP).<sup>3)</sup> With respect to the articulatory phonetic value of /r/, it is described as 'a voiced post-alveolar frictionless continuant (or approximant) [ɹ]' (Gimson 1989: 207). In GA, in particular, on the realisation of the vowel-plus-/r/ sequences, the vowel and

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3) Those data are from Wells (1982).

/r/ are often merged into a single sound segment: an r-coloured vowel, often transcribed as [ə:] in the case of /ə:/ plus /r/: e.g. 'bird' [bɜ:rd].

In the generative literature, non-rhoticity is analysed as 'r-dropping' (cf. Wells 1982) or 'r-deletion' (cf. Giegerich 1992). Roughly speaking, /r/ is deleted before a consonant or in final position, or, in terms of syllable structure, /r/ in coda is deleted. Those analyses imply that for both RP and GA, there is no difference between the rhotic and non-rhotic varieties on the underlying level of representation since a coda /r/ is listed in the lexicon. The difference between RP and GA is that the rule 'r-dropping' or 'r-deletion' is present in RP but not in GA. However, the application of this rule is suspended when the next word beginning with a vowel follows at phrase level. For instance, the phrases 'near me' and 'far gone' are realised as [nɪə mi:] and [fɑ: gɒn], but 'near us' and 'far away' are realised as [nɪər ʌs] and [fɑ:r əweɪ]. This liaison effect is known as 'linking-/r/' (cf. Gimson 1989)<sup>4</sup>.

### 3. The Overview of Korean and Cantonese in English Loanword Adaptation<sup>5</sup>)

In this section, I show briefly how Korean and Cantonese adopt English loanwords focusing on consonants<sup>6</sup>). The consonant inventories of Korean and Cantonese are shown in (1) and (2) respectively.

#### (1) Korean consonant inventory

aspirated: p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>, c<sup>h7</sup>    tensed: p', t', k', c', s'    plain (or lenis): p, t, k, c, s, h  
nasal: m, n, ŋ                    liquid: l or r

4) There is an analogous process of linking-/r/: 'intrusive-[r]' (cf. Gimson 1989). [r] is frequently inserted after a schwa: e.g. 'Russia and China' [rʌsəʀ ən tʃaɪnə], 'idea of' [aɪdɪə əv] etc.

5) The Cantonese data are largely based on Silverman (1992) and Yip (1993). Additional data were confirmed by an informant.

6) In this paper, I do not deal with prosodic, tonal and vowel-related matters concerning the English loanwords of both languages.

7) Palato-alveolar affricates in Korean are represented by /c<sup>h</sup>/, /c'/ and /c/ for notational convenience. However, for English, I follow the IPA to represent /tʃ/ and /dʒ/ for them.

(2) Cantonese consonant inventory

aspirated: p<sup>h</sup>, t<sup>h</sup>, ts<sup>h8</sup>, k<sup>h</sup>, k<sup>w</sup> plain: p, t, ts, k, k<sup>w</sup>  
 fricative: f, s, h nasal: m, n, ŋ liquid: l

Concerning the consonant transformation from English to the host language, English voiceless stops are realised as aspirated stops and voiced ones are converted into plain stops in both languages, as shown below.

(3)	English	Korean	Cantonese	English	Korean	Cantonese
	'pie'	[p <sup>h</sup> ai]	[p <sup>h</sup> ay]	'captain'	[k <sup>h</sup> ɛpt <sup>h</sup> in]	[k <sup>h</sup> ɛp t <sup>h</sup> ɔn]
	'tie'	[t <sup>h</sup> ai]	[t <sup>h</sup> a:y]	'boxing'	[paks <sup>h</sup> iŋ]	[pok siŋ]
	'D.D.T.'	[titit <sup>h</sup> i]	[ti ti t <sup>h</sup> i]	'game'	[keim]	[kem]

With respect to other obstruents, coronal fricatives /s/ and /z/ realised as [s] (or [s']) and [c] respectively in Korean, and they are merged into [s] in Cantonese. The labial fricative /f/ and /v/ is realised as [p<sup>h</sup>] and [p] in Korean and as [f] and [w] in Cantonese. Regarding affricates, /tʃ/ and /dʒ/ in English are realised as [c<sup>h</sup>] and [c] in Korean, and as [s] or [ts] in Cantonese. Relevant examples are shown below.

(4)	English	Korean	Cantonese	English	Korean	Cantonese
	'sexy'	[seks <sup>h</sup> i]	[sek si]	'freezer'	[p <sup>h</sup> iricə]	[fi sa]
	'valve'	[pɛlpi]	[wa low]	'engine'	[encin]	[en tsin]
	'clutch'	[k <sup>h</sup> ilɬɛc <sup>h</sup> i] <sup>9)</sup>	[kik lik si]	'inch'	[inc <sup>h</sup> i]	[in tsi]

Concerning syllable structure, both languages disallow branching onsets, and allow only a single consonant in coda position. When C-liquid clusters occur in onset position in English, there is a crucial difference between the two languages as shown in (5).

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8) The symbols /ts<sup>h</sup>/ and /ts/ are from Yip (1993). They correspond to palato-alveolar affricates. In this paper, I follow Yip's transcription to represent the phonetic forms of Cantonese.  
 9) When a palato-alveolar affricate of English occurs finally in Korean, the vowel [i] rather than [ɨ] emerges. In terms of Element Theory (cf. Kaye, Lowenstamm and Vergnaud 1985), this process can be accounted for by the spreading of the element I from the affricate to the following vowel. A similar analysis was proposed within Feature Theory (cf. Yoo 1996).

(5)	English	Korean	Cantonese
	'break'	[pʰɛikʰi]	[pik lik]
	'print'	[pʰirintʰi]	[pʰi lin]
	'printer'	[pʰirintʰə]	[pʰin tʰa]
	'broker'	[pʰɾokʰə]	[puk kʰa]

In Korean, those segments in branching onsets are preserved by insertion of the vowel [i]. However, in Cantonese, different patterns are noted in that both segments with the epenthetic vowel [i] occur as in 'break' and 'print', but one of them is deleted as in 'printer' and 'broker'. Epenthesis takes place if the output of deletion would be monosyllabic: e.g. 'plum' \*[pam]. In contrast, deletion occurs if the output of epenthesis would contain more than three syllable: e.g. 'printer' \*[pʰilintʰa]. In deletion, less sonorous segments are survived. The generalisation is then that deletion is blocked if the output would be smaller than two syllables<sup>10</sup>.

With respect to sC clusters in English, both consonants are manifested in both languages as shown below.

(6)	English	Korean	Cantonese
	'spanner'	[sipʰɛnə]	[si pa la]
	'stick'	[sitʰik]	[si tik]
	'switch'	[siwicʰi]	[si wit tsi]

There is a process which is related to syllable weight in Cantonese. The minimal syllable in Cantonese must have two moras; all vowels are long in open syllables or syllables are closed by a consonant. This constraint exerts an influence on the phonetic shapes of English loan words through gemination.

(7)	English	Cantonese	English	Cantonese
	'copy'	[kʰap pʰi] <sup>11</sup>	'shutter'	[sat tʰa]
	'letter'	[let tʰa]	'guitar'	[kit tʰa]

10) Silverman (1992: 318) notes that there are exceptions to this generalisation: e.g. 'clutch' [kik lik tsi] and 'spring' [si pit liŋ]

11) In Cantonese, all syllable-final vowels are long (Yip 1993: 274)

We notice that there is also a geminate formation process in Korean due to the segmental constraint on a liquid [l]. This segment is allowed to occur only in medial onset position where only a geminate of [l] can occur in native Korean: e.g. /talli/ 'to run', /kælli/ 'to get stuck'.<sup>12)</sup> When Korean adapts English loanwords where medial [l]s are present, one way to represent them is l-gemination to preserve the phonetic identity of the source language.

(8)	English	Korean	English	Korean
	'film'	[p <sup>h</sup> illim]	'highlight'	[hailaiti]
	'vanilla'	[panilla]	'floor'	[p <sup>h</sup> illou]

In the next section, I examine how Korean and Cantonese accommodate consonants in coda position from English.

#### 4. The Adaptation of coda consonants from English

In the previous section, we see that Korean and Cantonese adopt a different strategy to treat two onset consonants of English: the former employs multiple i-insertion for preserving segmental identities and the latter utilises deletion and i-insertion depending the number of syllable of outputs in question. This section focuses on English loanwords which contain a single final coda consonant.

First, let us look at s-final words from English. In those cases, both languages insert the vowel [i] and [ɨ] after /s/ respectively as shown below.

(9)	English	Korean	Cantonese
	'bus'	[pəsi]	[pasi]
	'ace'	[eisi]	[ey si]
	'boss'	[posi]	[po si]

Epenthesis is triggered by the fact that the segment /s/ is not allowed to occur in

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12) The liquid [l] cannot occur in initial position in native Korean. But, this constraint is relaxed for [l] to occur in loanwords: e.g. 'radio' [latio], 'laser' [leicə].

coda position for both languages; in native Korean, a stem-final /s/ undergoes neutralisation to become [t] (e.g. /pəs/ 'friend' [pət], but in the nominative form /pəs + i/ [pəsi]). Thus, i-insertion is motivated to preserve the segmental identity from the source language. The same account may apply to Cantonese.<sup>13)</sup>

With respect to the labial fricative /f/ in coda from English, Korean and Cantonese employ a different method to accommodate it. In Korean, as mentioned earlier, it is represented by [p<sup>h</sup>] since Korean does not have /f/ in the consonant inventory. While /f/ is present in the inventory in Cantonese, it becomes [p] if it occurs in coda position due to the fact that /f/ cannot occur in coda in native Cantonese. Relevant examples are shown below.

(10)	English	Korean	Cantonese
	'lift'	[lip <sup>h</sup> it <sup>h</sup> i]	[lip] <sup>14)</sup>
	'shaft'	[sjap <sup>h</sup> it <sup>h</sup> i]	[sap]

Concerning nasals, when they occur in coda from English words, they are realised as they are, without segmental changes and epenthesis. For nasals in both languages can appear in coda position.

(11)	English	Korean	Cantonese
	'rum'	[ləm]	[lam]
	'sink'	[siŋk <sup>h</sup> i]	[siŋ]
	'engine'	[encin]	[en tsin]

Korean and Cantonese do not allow aspirated obstruents in coda position.<sup>15)</sup> When they occur in this position in English loanwords, some differences are observed.

(12)	English	Korean	Cantonese
	'cut'	[k <sup>h</sup> ətɨ] or [k <sup>h</sup> ət]	[k <sup>h</sup> at] *[k <sup>h</sup> at <sup>h</sup> i]
	'tape'	[t <sup>h</sup> eip <sup>h</sup> i] or [t <sup>h</sup> eip]	[t <sup>h</sup> eyp] *[t <sup>h</sup> eip <sup>h</sup> i]

13) Silverman (1992: 299) points out that segmental processes are virtually non-existent due to the highly constrained nature of the Cantonese morphophonology. This implies that there are no words with a final /s/ in coda position in native Cantonese.

14) In the Cantonese forms, we can see deletion of the final consonant of English words. See Silverman (1992) and Yip (1993) for detailed discussions on this matter.

15) Voiceless stops in English are realised with or without audible release in final position. In stop clusters, however, the first stop has no audible release (cf. Gimson 1989: 159-160).



'cake' [k<sup>h</sup>eik<sup>h</sup>i] or [k<sup>h</sup>eik] [k<sup>h</sup>eyk] \*[k<sup>h</sup>eyk<sup>h</sup>i]

In Cantonese, only one form is realised; final aspirated stops become unreleased and unaspirated in coda position. In Korean, however, another output is possible in that *-insertion* takes place to maintain the segmental value from the source language. One reasonable and plausible account of *i-insertion* as in (12) is that Korean chooses a strategy to maximise the distinction between voiceless and voiced stops in English by inserting the vowel [i]. As mentioned earlier, voiceless and voiced stops of English are realised as aspirated and lenis stops in Korean respectively. In native Korean, when these two types of stops occur in coda position, the aspirated stop undergoes neutralisation to become lenis. If neutralisation applies to English loanwords, then the distinction between them would disappear; e.g. 'bet' /pet<sup>h</sup>/ [pet] and 'bed' /pet/ [pet]. The result would be undesirable in a sense that there is no way to distinguish one another since these forms are exactly identical phonetically. To avoid such the result, *i-insertion* is triggered to maintain the phonetic values from the source language.<sup>16)</sup>

Finally, let us consider how liquids of English are adapted in both languages. Cantonese recognises a single liquid /l/ at the underlying level and it can occur in onset position but not in coda: e.g. /lo/ 'fetch'. English has two distinctive phonemes /l/ and /r/, but both segments are realised as [l] in Cantonese as shown below.

(13)	English	Cantonese	English	Cantonese	English	Cantonese
	'print'	[p <sup>h</sup> i lin]	'break'	[pik lik]	'lorry'	[lo ley]
	'salad'	[sa löt]	'coil'	[k <sup>h</sup> oy low]	'file'	[fay low]

In (13), we can see that [l] represents both liquids of English and it occurs in onset position. In particular, the coda /l/ in English occurs in onset as in 'coil' and 'file'.<sup>17)</sup> Given the distribution of /l/, non-rhoticity in Cantonese is due to the fact that

16) One remaining question is that why aspirated stops undergo neutralisation as in the form 'cut' [k<sup>h</sup>ət] from [k<sup>h</sup>ət<sup>h</sup>i]. To deal with the question is beyond the scope of this paper. For a detailed discussion of this matter, see Rhee & Heo (2000).

17) An interesting process occurs in the words 'coil' and 'file' where [l] is followed by a diphthong [ow]. In this context, Cantonese has *i-epenthesis* as in the case 'bus' [pa si]. Presumably, this process may be due to the fact that Cantonese speakers perceive 'dark-l [ɫ]' as [l] followed by a rounded vowel [ow] (as suggested by Lisa Cheng, personal

/l/ cannot occupy coda position. Accordingly, (13) clearly indicates that non-rhoticity in this language is attributed to the language-specific coda condition, not to the fact that English loanwords are based on British English pronunciation.

In native Korean, a liquid is realised either [r] or [l] depending on the context where it occurs: [r] occurs intervocally and [l] occurs elsewhere: e.g. [sa:ram] 'human being', [mal] 'horse', [talli] 'to run' and [nals'i] 'weather'.<sup>18)</sup> With respect to /l/ of English, as we have seen in (8), either a geminate occurs or [l] occurs in coda position.

(14)	English	Korean	English	Korean
	'vanilla'	[panilla]	'floor'	[p <sup>h</sup> illou]
	'HIL'	[hil]	'medal'	[metal]

Word-initial English /r/ is realised as [l] (cf. footnote 12) and intervocalic /r/ is realised as [r].

(15)	English	Korean	English	Korean
	'radio'	[latio]	'(X)-ray'	[(eks'i) lei]
	'bearing'	[peariŋ]	'cherry'	[t <sup>h</sup> eri]

(14) and (15) illustrate that only [l] occurs in coda position in English loanwords. If an /r/ were to be allowed to occur in coda in a word like 'car', its phonetic form would be [k<sup>h</sup>al] since only [l] occurs in this position. If so, this phonetic form would be non-distinguishable from 'Carl' [k<sup>h</sup>al]. In order to avoid such a result, Korean employs a sort of r-deletion in coda, which is exactly the same as that in RP. Indeed, with respect to the treatment of /r/ in loanword phonology, Korean has the same distribution of /r/ as that of RP in that [r] occurs only in onset: e.g. 'bearing' [peariŋ]. This shows that Korean speakers do perceive the phonetic difference between [l] and [r] in loanwords despite the fact that these segments are in complementary

communication).

18) The issue of the underlying segment of liquids in Korean has been controversial. Some (cf. Ahn 1985 among others) argues that /l/ is underlying liquids. Others (cf. Rhee & Heo 1998) claim that /r/ is the underlying segments. In additionm, Sohn (1986) proposes both segments /l/ and /r/ are separate phonemes.

distribution in native Korean. Like Cantonese, non-rhoticity in Korean is ascribed to the coda condition specific to Korean: [r] is prohibited in the coda. However, non-rhoticity between the two differs in that /r/ of English is allowed to occur intervocalically in Korean and it is converted into [l] in onset position in Cantonese.

## 5. Conclusion

When a foreign word is adopted in a host language, its phonetic shape usually undergoes phonological changes in conformity with the segmental and the syllabic system of the host language. The segmental system deals with the transformation for segments of a source language which are lacking in the segmental inventory of a host language. The syllabic system deals with the (re-)adjustment of segments or the repair strategy (cf. Paradis & Lacharité 1997) which may violate language-specific syllabic conditions. Typical instances of those syllabic readjustments involve deletion of consonants and insertion of vowels.

This paper briefly examines these two systems of loanword phonology of Korean and Cantonese in a descriptive way. In particular, it focuses on the non-rhoticity of both languages in English loanword adaptation. Some argue that non-rhoticity of English loanwords in Cantonese is due to historical and cultural aspects of Hong Kong. However, this paper points out that this is not the case when English loanwords in Korea are taken into consideration, precisely because English loanwords in Korean are influenced by the American accent, and yet Korean adopts the non-rhotic accent. Non-rhoticity of both languages is attributed to the coda condition of both languages in that /r/ cannot occur in coda position.

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