A two-decade-interval variation in vowel insertion after word-final English and French postvocalic plosives in Korean adaptation

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ABSTRACT

We have investigated whether variation in vowel insertion after word-final English and French postvocalic plosives in Korean adaptation has changed at a two-decade interval by collecting English and French loanword data in the early 1990s and the year 2011. The comparison of our 2011 data to the early 1990s data has revealed that the overall frequency of final vowel insertion and that of no vowel insertion are significantly decreased and increased, respectively, no matter whether the plosives are released, as in French, or not, as in English. For the diachronic change, we propose that Korean syllable structure constraints such as the Coda constraint exert more influence on variation in vowel insertion in the 2011 data than two decades ago and that the more role of the Coda constraint in the 2011 data is due to more direct contact with English and less direct contact with French.

Keywords: variation in vowel insertion, diachronic change, English/French loans, Korean adaptation.

1. INTRODUCTION

English ([1]) and French ([2]) have the phonemic voicing contrast in plosives, and Korean has the three-way phonation contrast in plosives, that is, lenis, aspirated and fortis, with no voicing contrast, ([3], [4], [5]), as shown in (1).

(1) English and French (a) and Korean (b) plosives

		labial	coronal	dorsal
a.	voiced	b	d	k
	voiceless	p	d	g
b.	lenis	p	t	k
	aspirated	p^h	t^h	k^h
	fortis	p’	t’	p’

The three-way laryngeal contrast in the Korean plosives is neutralized into their lenis counterparts by virtue of the Coda Neutralization, as in /ip^h/ → [ip] ‘leaf’; /nat^h/ → [nat] ‘each’; /pak’/ → [pak] ‘outside’; /pu.ʌk^h/ → [pu.ʌk] ‘kitchen’, due to the Coda constraint whereby Korean allows only the three lenis plosives [p, t, k] and the four sonorants [m, n, ŋ, l] in coda or word-final position on the surface.

In our survey of the early 1990s data, the word-final English postvocalic plosives [b, d, g, p, t, k] are borrowed as the Korean plosives /p, t, k, p^h, t^h, k^h/, respectively, when the vowel /**ɨ**/ is inserted, as in (2 i). When no vowel is inserted, the English voiceless plosives [p, t, k] which are borrowed as the aspirated /p^h, t^h, k^h/ undergo the Coda Neutralization ([6]), resulting in the lenis /p, t, k/ in coda position, as in (2 b ii). Some word-final English postvocalic plosives are borrowed with either vowel insertion or no vowel insertion (that is, variable insertion), as in the English words *pyramid*, *zigzag*, *jeep*, *robot* and *cake*.

(2) Korean adaptation of word-final English postvocalic (a) voiced [b, d, g] and (b) voiceless [p, t, k] plosives in the early 1990s data

	English words	Korean adapted forms i.		ii.
a.	tube	t^hju.**pɨ**		
	club			k^h**ɨ**l.lʌ**p**
	bed	pɛ.**tɨ**		
	good			ku**t**
	pyramid	p^hi.la.mi.**tɨ**	~	p^hi.la.mi**t**
	league	li.**kɨ**		
	bag			pæ**k**
	zigzag	tsi.k**ɨ**.tsæ.**kɨ**	~	tsi.k**ɨ**.tsæ**k**
b.	gossip			ka.si**p**
	pipe	p^ha.i.**p^hɨ**		
	jeep	tsi.**p^hɨ**	~	tsi**p**
	robot	lo.po.**t^hɨ**	~	lo.po**t**
	out			a.u**t**
	pack			p^hæ**k**
	shock	sjo.**k^hɨ**		
	cake	k^hɛ.i.**k^hɨ**	~	k^hɛ.i**k**

In the literature, it has been reported that vowel insertion after word-final English postvocalic plosives in Korean adaptation is affected by the following three factors: a) the vowel-tenseness effect that final vowel insertion is more likely when an

English pre-final vowel is tense than when it is lax; b) the voicing effect that final vowel insertion is more likely when an English final plosive is voiced than when it is voiceless; and c) the plosive place of articulation effect that final vowel insertion is most likely when an English final plosive is coronal and least likely when the final plosive is labial ([7], [8]). This observation leads us to raise the questions of whether variation in vowel insertion is affected by the three effects in the 2011 English loan data, as in the early 1990s data, whether it has changed at the two-decade interval and what has caused the diachronic change, if any.

As in the Korean adaptation of word-final English postvocalic plosives, vowel insertion, no vowel insertion or variable insertion (either vowel insertion or no vowel insertion) occurs after word-final French postvocalic plosives in our survey of the early 1990s data. With the /ɨ/ vowel insertion, as in (3 i), the word-final French postvocalic voiced plosives [b, d, g] are borrowed as the Korean lenis plosives /p, t, k/, respectively, and the voiceless plosives [p, t, k] as either /p^h(p'), t^h(t'), k^h(k')/ or the sequences /p.p^h(p'), t.t^h(t'), k.k^h(k')/. When no vowel is inserted, the French voiceless plosives [p, t, k] which are borrowed as /p^h(p'), t^h(t'), k^h(k')/ undergo the Coda Neutralization ([6]), resulting in the lenis /p, t, k/ in coda position, as in (3 b ii). Not only vowel insertion and no vowel insertion but also variable insertion occurs, as in the French words *Philippe* and *cognac*.

(3) Korean adaptation of word-final French postvocalic (a) voiced [b, d, g] and (b) voiceless [p, t, k] plosives in the early 1990s data

	French words	Korean adapted forms	
		i.	ii.
a.	robe	lo.**pɨ**	
	Gide	tsi.**tɨ**	
	gigue	ki.**kɨ**	
b.	Joseph	tsjo.sɛ.**p^hɨ**	
	Philippe	p^hil.li**p**.**p^hɨ** ~	p^hil.li**p**
	Colette	k^hol.lɛ**t**.**t^hɨ**	
	baguette	pa.kɛ.**t^hɨ**	
	croquette		k^hɨ.lo.k^hɛ**t**
	Jacques	tsa**k**.**k'ɨ**	
	Cognac	k^ho.nja**k**.**k^hɨ** ~	k^ho.nja**k**
	Mauriac		mo.li.a**k**

While word-final English counterparts are unreleased at a normal speech rate ([1]), French postvocalic plosives are usually released with the schwa [ə] in word-final position ([9]) (e.g. *cape* [kapᵊ] 'cape', *bath* [batᵊ] 'good', *sac* [sakᵊ] 'bag', *crabe* [krabᵊ] 'crab', *Sade* [sadᵊ] (surname), *bague* [bagᵊ] 'ring'). Given the difference in release between word-final English and French postvocalic plosives, we are concerned with whether the release of the French plosives has to do with vowel insertion in Korean adaptation, in both the early 1990s and the year 2011 and whether the variation in vowel insertion after the French plosives shows the same pattern to that after English counterparts at the two-decade interval, no matter whether the plosives are released, as in French, or not, as in English.

2. METHOD

In order to address these issues, we have collected the early 1990s English and French loanword data from the book published by the National Academy of the Korean Language (NAKL 1995) which is a complete collection of loanword data from all the textbooks, dictionaries and daily newspapers in the early 1990s in Korea and also from books on French literature and culture published in 1990. The total number of the early 1990s data is 10,493 for English loans and 1,395 for French loans. In our survey of the 2011 data, we have referred to one loanword dictionary, data collection from the National Institute of the Korean Language (NIKL 2011) and thirteen books on American/English and French culture which have recently been published in Korea, to a Google online survey and to daily expressions used frequently in mass media. The total number of our 2011 data is 9,534 for English loans and 1,386 for French loans.

Our corpora were based on type counts, not token counts, as in our main data sources such as NAKL (1995), NIKL (2011) and the loanword dictionary. Then, any given loanword was classified as belonging to one of the three categories, that is, *vowel insertion*, *variable insertion* and *no vowel insertion* for each time period. If a loanword was found two times with vowel insertion and one time without vowel insertion, for example, it was classified as variable insertion.

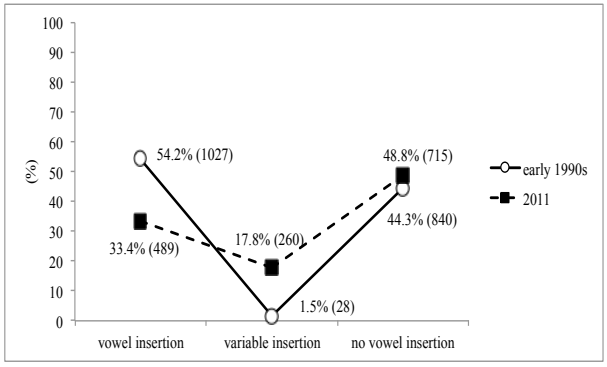
3. VARIATION IN VOWEL INSERTION

The frequency of vowel insertion, variable insertion and no vowel insertion after the word-final English postvocalic plosives [b, d, g, p, t, k] in the early 1990s and the 2011 data is presented in Figure 1. The difference in final vowel insertion between the early 1990s and 2011 data is statistically significant ($\chi^2 = 144.21$, df = 1, $p < 0.001$),

indicating that the overall frequency of final vowel insertion is significantly decreased in the 2011 data. However, that of variable insertion and no vowel insertion is significantly increased in the 2011 data, compared to that in the early 1990s data (χ^2 = 279.321, df = 1, $p < 0.001$ for variable insertion; χ^2 = 6.762, df = 1, $p = 0.009$ for no vowel insertion).

As in the literature, the collection of our early 1990s and 2011 English data confirms the observation that vowel insertion after word-final English postvocalic plosives in Korean adaptation is affected by three factors: the vowel-tenseness effect, the plosive voicing effect and the plosive place of articulation effect. However, the three effects have weakened in our current 2011 data, compared to the early 1990s data. For example, vowel insertion is significantly decreased and variable insertion is significantly increased after English tense vowels (χ^2 = 175.859, df = 1, $p < 0.001$ for vowel insertion; χ^2 = 266.916, df = 1, $p < 0.001$ for variable insertion) as well as after English lax vowels (χ^2 = 39.197, df = 1, $p < 0.001$ for vowel insertion; χ^2 = 67.878, df = 1, $p < 0.001$ for variable insertion) in the 2011 data, as compared to the early 1990s.

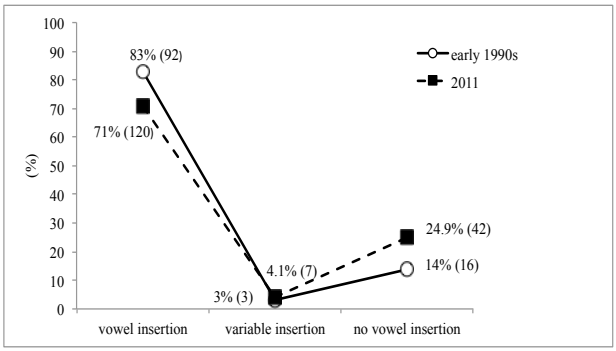
Figure 1: The comparison of overall frequency of variation in vowel insertion after word-final English postvocalic plosives in the early 1990s and 2011 data.



Similar to the variation in vowel insertion after word-final English postvocalic plosives, the overall frequency of final vowel insertion in French words which end in a postvocalic plosive is decreased and that of no vowel insertion is increased in the 2011 data, compared to those in the early 1990s data, as shown in Figure 2. The difference in final vowel insertion between the early 1990s and 2011 data is statistically significant (χ^2 = 5.14, df = 1, p = 0.0232), indicating that the overall frequency of final vowel insertion is significantly decreased in the 2011 data. In contrast, the overall frequency of no vowel insertion is significantly increased in the 2011 data, compared to that in the early 1990s data (χ^2 = 4.444, df = 1, p = 0.035), whereas that of variable insertion between the early 1990s and 2011 data is not significant (χ^2 = 0.403, df = 1, p = 0.526).

In particular, the frequency of vowel insertion after word-final French voiced plosives is not significant in the comparison of the early 1990s and 2011 data (χ^2 = 0.723, df = 1, p = 0.395). But the frequency of vowel insertion after word-final French voiceless plosives is significantly decreased (χ^2 = 4.694, df = 1, p = 0.03) and that of no vowel insertion is significantly increased (χ^2 = 3.961, df = 1, p = 0.047) in the 2011 data than two decades ago, whereas the frequency of variable insertion is not significant (χ^2 = 0.372, df = 1, p = 0.542).

Figure 2: The comparison of overall frequency of variation in vowel insertion after word-final French postvocalic plosives in the early 1990s and 2011 data.



4. DISCUSSION

As for the diachronic change in variation in vowel insertion after word-final English and French postvocalic plosives, we propose that Korean syllable structure constraints such as the Coda constraint exert more influence on variation in vowel insertion in the 2011 data than two decades ago and that the more role of the Coda constraint in the 2011 data is due to more direct contact with English and less direct contact with French.

First, we suggest that the significant decrease in vowel insertion and the significant increase in variable insertion and no vowel insertion after word-final English postvocalic plosives have to do with more direct contact with English in 2011 than two decades ago. In the past, vowel insertion always occurred after English word-final postvocalic plosives when English words were borrowed from Japanese before and during the Japanese colonization of Korea (1910-1945) ([10]). This is because a word-final plosive is not allowed in Japanese, such that any English words ending in a plosive are borrowed with vowel insertion (e.g., *surabu* for the English word 'slab'), and then Japanese-mediated English words were used in

Korea. However, since the Korean war (1950-1953), English words began to be borrowed directly from American English into Korean with Japanese-mediated English words being gradually replaced with direct English loans. Especially, direct contact with English has been more easily made through Internet or overseas education in the U.S. than in the early 1990s. Given that word-final English counterparts are unreleased at a normal speech rate ([1]) and that coda consonants are usually unreleased in Korean ([11]), more direct contact with English yields to such a significant increase in variable insertion and no vowel insertion in the 2011 data than in the early 1990s data. Therefore, word-final English postvocalic plosives are more likely to be borrowed as coda consonants with no vowel insertion by virtue of Korean syllable structure constraints such as the Coda constraint than two decades ago.

In addition, the diachronic change in vowel insertion after word-final English postvocalic plosives leads to the weakening of the vowel-tenseness effect, the plosive voicing effect and the plosive place of articulation effect in the 2011 data, compared to the early 1990s data. As a result, word-final English postvocalic plosives are more likely to be linked to a coda position by virtue of the Korean Coda constraint in the 2011 data.

Second, we propose that the significant increase in no vowel insertion after word-final French postvocalic plosives is due to the fact that Koreans have much less direct contact with French than two decades ago. It has been mandatory for all students to take English in general high schools not only in the early 1990s and in 2011. Thus, there is no change in overall frequency of students taking English at the two-decade interval. In contrast, other foreign languages such as French have been optionally taken as a second foreign language. Recently students are much less likely to take French in general high schools than in the early 1990s. For example, according to [12], the number of students taking French in general high schools was 318,345 (22.6%) among the total of 1,406,891 students in 1991. Yet, it has decreased to 26,994 (1.8%) among 1,474,111 students in 2011, which is significant ($\chi^2 = 295101.32$, df = 1, $p < 0.001$). The significant decrease of students taking French in 2011 compared to 1991 indicates much less direct contact with French in 2011. Due to this, we assume that French postvocalic plosives are more likely to be borrowed as coda consonants with no vowel insertion just like English counterparts in 2011, even though word-final French plosives are released in the source language ([9]).

From the diachronic change in variation in vowel insertion after word-final English and French postvocalic plosives in the early 1990s and 2011 data, we may predict that vowel insertion and no vowel insertion after the plosives would be more decreased and increased, respectively, if present sociolinguistic environments are not changed. This would lead to a more role of the Coda constraint in the Korean adaptation of English and French words, no matter whether the plosives are unreleased, as in English or released, as in French.

To sum up, we have found that variation in vowel insertion after word-final English and French postvocalic plosives in Korean adaptation has changed at the two-decade interval and that the Korean Coda constraint has exerted more influence in 2011 than in the early 1990s. It is concluded that the present study confirms the role of the recipient language's phonology in interlanguage loanword adaptation.

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