

# **Pronunciation of English consonant clusters by Koreans**

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## **Abstract**

Koreans and English have different phonotactic constraints and phonological rules. It causes Korean learners to have difficulty in pronouncing certain English consonant clusters correctly. This paper aims to discuss what English consonant clusters are difficult for Korean learners to learn and why this difficulty arises by comparing phonotactic constraints and phonological rules of English and Korean.

## **1. Introduction**

Since English has different phonotactic constraints and phonological rules compared with Korean, Korean learners have difficulty in pronouncing certain English consonant clusters correctly. English teachers must investigate what English consonant clusters are difficult for their students to learn and why the difficulty arises. This paper aims to discuss what English consonant clusters are difficult for Korean learners to learn and why this difficulty arises by comparing phonotactic constraints and phonological rules of English and Korean. In this paper, I classified English consonant clusters into three groups — word-initial, word-final, and word-medial consonant clusters (cf. Kreidler 1989).

## **2. Word-initial consonant clusters**

In English, the maximum number of consonants which can appear in word-initial position is three. Clusters of two consonants are composed of one obstruent followed by one sonorant. Clusters of three consonants consist of /s/ followed by a plosive and a sonorant. Since word-initial consonant clusters are not allowed in Korean except the

sequence of a consonant and a glide (cf. Lee 1996), Koreans have a strong tendency to insert the weak vowel /w/ inside the clusters.

### 2.1. Obstruent + /r, l/

Both voiceless and voiced plosives can appear before /r, l/. But only voiceless fricatives can occur before /r, l/.

- (1) a. prawn, brown, train, drain, cream, green, free, thrill, Sri Lanka, shrimp  
 b. play, blame, claim, glad, flat, slim

Since the sequence of an obstruent and /r, l/ is prohibited in Korean, Korean learners tend to insert the weak vowel /w/ inside the cluster (e.g. prawn [p<sup>h</sup>wɾon], brown [bɾaun], play [p<sup>h</sup>wleɪ], slim [sɾlim]). Since /w/ is devoiced before an aspirated plosive or a voiceless fricative (Lee 1996), the insertion of /w/ does not cause a serious perceptual problem. But English teachers have to teach their students to avoid this insertion. Korean learners also tend to pronounce the post-alveolar approximant /r/ as a flap [ɾ]. And some Koreans pronounce /l/ as a flap [ɾ]. These mistakes should also be avoided:

Among the consonant clusters in (1), 'tr' and 'dr' are the most problematic for Korean learners. Koreans tend to pronounce 'train' and 'train' as [t<sup>h</sup>wreɪn] and [ɾwreɪn], by inserting /w/ and pronouncing /r/ as [ɾ]. But these clusters must be pronounced as post-alveolar affricates (cf. Gimson 1965). That is, /t/ and /d/ have to be pronounced as post-alveolar plosives and /r/ has to be pronounced as a post-alveolar fricative.

### 2.2. Obstruent + /w/

Both voiceless and voiced plosives can appear in initial position before /w/. But only voiceless fricatives can appear before /w/.

(2) twin, dwell, quart, Gwen, thwart, swing, schwa

Many Korean learners insert /w/ or /u/ inside the clusters (e.g. twin [t<sup>h</sup>ɰwin], swing [sɰwiŋ], Gwen [g<sup>h</sup>uwen], schwa [ʃɰwa]). When /w/ is followed by a high front vowel and preceded by /k/ as in 'queen, quick', most Koreans pronounce /w/ as [ɰ] (e.g. queen [k<sup>h</sup>ɰi:n], quick [k<sup>h</sup>ɰik]).

### 2.3. Consonant + /j/

Various consonants can occur in initial position before /j/. But only /u:/ can be followed by /j/.

(3) puritan, beauty, tune, duty, cue, fuse, view, super, suit, huge, music, new

Since the sequence of a consonant and /j/ is allowed in Korean, Korean learners have no problem in pronouncing the clusters in (3). But most Koreans pronounce 'suit' and 'super' as [ʃut] and [ʃupə] because /s/ and /j/ are coalesced in Korean. These words must be pronounced as [sju:t] and [sju:pə], or as [su:t] and [su:pə].

### 2.4. /s/ + consonant

Voiceless plosives, voiceless fricative /f/, and nasals can occur in initial position after /s/.

(4) spy, star, sky, sphere, smile, snow

The voiceless plosives /p, t, k/ lose their aspiration after /s/ in English. But Korean learners tend to pronounce these plosives with strong aspiration (e.g. spy [s(ɰ)p<sup>h</sup>ai], star [s(ɰ)t<sup>h</sup>a:], sky [s(ɰ)k<sup>h</sup>ai]).

### 2.5. /s/ + plosive + /r, l, w, j/

When three consonants appear in initial position, the first sound is /s/ and the second a plosive and the last a sonorant /r, l, w, j/

- (5) a. spray, street, scream  
 b. splash, sclerosis  
 c. squint  
 d. spew, student, skew

Many Korean learners insert /w/ between consonants and pronounce the plosives with strong aspiration (e.g. spray [sʰpʰrɛi], street [stʰrɛt], splash [splʰrɛʃ]). Many Koreans pronounce /r/ in (5a) and /l/ in (5b) as a flap [ɾ]. And most Koreans pronounce /w/ in (5c) as [ɥ] (e.g. squint [skʰɥɪnt]).

## 3. Word-final consonant clusters

Up to three consonants can occur in word-final position in English. Clusters of two consonants are composed of /l/ and a consonant, a nasal and an obstruent, or two obstruents. Clusters of three consonants consist of three obstruents, a nasal and two obstruents, a liquid and two obstruents, or two liquids and one plosive. Since word-final consonant clusters are not allowed in Korean, Koreans tend to insert the weak vowel /w/ inside and after these clusters.

### 3.1. /l/ + Consonant

Various consonants can appear after /l/ in word-final position.

- (6) help, bulb, belt, held, world, milk, belch, bulge  
 shelf, delve, wealth, pulse, Welsh, film, kiln

Since the sequence of /l/ and an obstruent is allowed in Korean, Korean learners

do not insert the vowel /u/ inside the /l/-obstruent cluster. But most Koreans insert /u/ or /i/ inside /l/-nasal clusters (e.g. film [filum]/[filim], kiln [kilun]). Many Koreans insert /u/ after most /l/-obstruent clusters (e.g. help [help<sup>h</sup>u], milk [milk<sup>h</sup>u]), but /i/ after palato-alveolar consonants (e.g. belch [belʃi]/[belʧi], bulge [bʌlʰi]/[bʌlʰi], Welsh [welʃi]/[welʧi]). Since dark 'l' does not exist in Korean, Koreans pronounce /l/ in the /l/-consonant cluster as clear 'l'.

In American English, where r-coloured vowels exist, the tip of the tongue moves forward to pronounce the alveolar lateral /l/ when an r-coloured vowel is followed by /l/ (e.g. world [wɜːld]). But most Koreans who learn American English do not pronounce the r-coloured vowels correctly (i.e. world [wɔːld(u)]).

### 3.2. nasal + obstruent

Various consonants can appear after a nasal in word-final position.

(7) lamp, ant, lunch, change, nymph, warmth, month, length, rinse, lens

Since the sequence of a nasal and an obstruent is allowed in Korean, the vowel /u/ is not inserted inside the cluster. But many Koreans insert /i/ after palato-alveolar consonants (e.g. change [tʃeɪnʧi], lunch [lʌnʧi]) and /u/ after the other consonants (e.g. lamp [lɛmp<sup>h</sup>u], rinse [rɪnsu]). Koreans also tend to pronounce the word-final /z/ as an alveolo-palatal affricate (e.g. lens [lɛnʧu]).

### 3.3. fricative + plosive

Only two fricatives /s, f/ can appear before a plosive in word-final position.. /p, t, k/ can occur after /s/ but only /t/ after /f/.

(8) lisp, list, risk, left

Many Korean learners insert the vowel /u/ inside and after the fricative-plosive

cluster (e.g. *lisp* [lisɥp<sup>h</sup>ɯ], *left* [lefɥt<sup>h</sup>ɯ]). The sequence of a fricative and a plosive often appears in the past forms of verbs ending in a fricative (e.g. *breathed*, *brushed*, *shaved*). The vowel of /ɯ/ is also inserted inside and after this sequence.

### 3.4. plosive + fricative

Only /s, z, ʃ/ can occur after a plosive in word-final position.

(9) *lapse*, *spitz*, *fox*, *AIDS*, *width*, *depth*

Since the sequence of a plosive and a fricative is allowed in Korean, Korean learners do not insert the vowel /ɯ/ inside the plosive-fricative cluster. But they tend to insert /ɯ/ after the cluster (e.g. *lapse* [lɛpsɯ], *fox* [foksɯ]/[faksɯ]). In the case of 'width', /ɯ/ is often inserted because Koreans have difficulty in pronouncing /d/ and /θ/ consecutively. Another problem that Koreans have is that they pronounce the clusters 'ts' and 'dz' as alveolo-palatal affricates (e.g. *spitz* [s(ɥ)p<sup>h</sup>itɯ], *AIDS* [eiɬɯ]).

### 3.5. plosive + plosive

When two plosives appear in word-final position, the second plosive is always /t/ and the first plosive is either /p/ or /t/.

(10) *adopt*, *act*

Since the sequence of two plosives does not occur in word-final position, many Koreans insert /ɯ/ after this cluster (e.g. *adopt* [ɔdopt<sup>h</sup>ɯ]/[ɔdapt<sup>h</sup>ɯ], *act* [ɛkt<sup>h</sup>ɯ]). But Koreans do not insert /ɯ/ inside the cluster because the sequence of two plosives is allowed in word-medial position in Korean.

### 3.6. plosive + fricative + plosive

If a word-final consonant cluster consists of three obstruents, the last two

obstruents are /s/ and /t/.

(11) text, midst

In the case of 'text', many Korean learners pronounce this word as [t<sup>h</sup>ekst<sup>h</sup>u] by inserting the vowel /u/ at the end. But in the case of 'midst', /u/ is often inserted both after the first plosive and at the end (e.g. [midu<sup>h</sup>st<sup>h</sup>u]).

### 3.7. nasal + two obstruents

When two obstruents are preceded by a nasal in word-final position, the final obstruent is normally /t/ or /s/. The sequence of two fricatives after a nasal does not occur.

(12) prompt, distinct, glimpse, jinx, against, amongst

Although some Korean learners insert the vowel /u/ between the two obstruents (e.g. glimpse [glimp<sup>h</sup>usw], amongst [əmoŋsɔt<sup>h</sup>u]), most Koreans do not insert /u/ inside the cluster. But many Koreans insert /u/ after the cluster (e.g. distinct [dist<sup>h</sup>iŋkt<sup>h</sup>u], jinx [tʃiŋksu]).

## 4. Word-medial consonant clusters

Up to four consonants can appear in word-medial position in English. Many word-initial clusters and word-final clusters can also occur in word-medial position. There are also consonant clusters which appear only in word-medial position. Since some consonant clusters are not allowed in Korean, the vowel /u/ is often inserted inside these clusters.

### 4.1. Clusters which also occur word-initially.

The following is a list of consonant clusters which also appear in word-initial

position. As discussed in chapter 2, many Koreans insert /w/ inside these clusters.

- (13) whisper, master, whiskey, April, citrus, Audrey, sacred, problem  
necklace, awkward, Edward, mistress, resplendent, distress

#### 4.2. Clusters which also occur word-finally

The following is a list of consonant clusters which also appear in word-final position. Since these clusters are followed by a vowel, the insertion of /w/ after these clusters does not occur.

- (14) captain, tipsy, doctor, candy, temper, panther, rancid  
seldom, helmet, dictation, condemn, impel, insist

#### 4.3. Clusters which occur only in medial position

##### 4.3.1. two obstruents

When a plosive is followed by an obstruent in word-medial position, Koreans do not insert /w/ inside the cluster. But in the case of 'napkin', many Koreans insert /w/ inside the cluster (i.e. [nɛp<sup>h</sup>ɰk<sup>h</sup>in]). Koreans often insert /w/ if the first obstruent is a fricative (e.g. husband [həðwɒndw], diphtheria [dɪp<sup>h</sup>ɰt<sup>h</sup>eria]).

- (15) rugby, hasband, obtain, subside, napkin  
option, fracture, aesthetic, asphalt, diphtheria

Since a lenis obstruent is tensified after an obstruent (cf. Lee 1996), Korean learners tend to pronounce /b/ in 'rugby' as an unaspirated tense plosive (i.e. [rəkp̄i]). But this tensification does not cause any serious perceptual problem.

##### 4.3.2. obstruent + nasal

Since the sequence of an obstruent and a nasal is not allowed in Korean, Koreans

normally insert /w/ inside the cluster (e.g. akne [ɛk<sup>h</sup>ɯni], arithmetic [ərisʌmetik], dogma [dɔgʌmɑ], magnet [mɑgʌnet]).

(16) acme, acne, arithmetic, dogma, magnet

But the first obstruent assimilates to the following nasal when two morphemes or words are combined (e.g. topmost [t<sup>h</sup>ɒmmost<sup>h</sup>w], top model [tɒm model]).

#### 4.3.3. obstruent + liquid

Since the sequence of an obstruent and a liquid is not allowed in Korean, many Koreans insert /w/ inside the cluster (e.g. every [ebwɛri], muffler [mɒp<sup>h</sup>ɯlɒ], butler [bʊθɯlɒ], athlete [ɛsɯli:t]).

(17) gosling, every, muffler, peddler, butler, maudlin, athlete

#### 4.3.4. nasal + voiced obstruent

Since the sequence of a nasal and a voiced obstruent is allowed in Korean, Koreans do not insert /w/ inside the cluster. But many Koreans pronounce voiced fricatives as plosives or affricates (e.g. Denver [dɛmbə], clumsy [k<sup>h</sup>ɯlɒmɕi]).

(18) timber, finger, kingdom, Denver, clumsy

#### 4.3.5. nasal + nasal/liquid

Since the sequence of two nasals is allowed in Korean, Koreans do not insert /w/ between the two nasals. But /n/ is often pronounced as /m/ before /m/ (i.e. enmity [emmit<sup>h</sup>i]) due to the influence of the decoronalization process in Korean (cf. Lee 1996).

(19) enmity, amnesia, only, Henry

When a nasal and a liquid occur one after another in Korean, the nasal becomes /l/ due to the lateralization process (cf. Lee 1996). Hence many Koreans pronounce 'only' and 'Henry' as [oli] and [heli] respectively.

#### 4.3.6. /l/ + /r, w/

Since the sequence of /l/ and /w/ is allowed in Korean, Koreans have no difficulty in pronouncing /l/ and /w/ consecutively. But Koreans tend to pronounce the sequence of /l/ and /r/ as a single /l/ or /r/ (e.g. already [oredi]/[oledi]) because the /l-/r/ sequence does not exist in Korean.

(20) already, always

#### 4.3.7. consonant + /j/

Since the sequence of a consonant and /j/ is common in Korean, Koreans have no difficulty in pronouncing this cluster.

(21) onion, failure

#### 4.3.8. three consonants

When three consonants occur consecutively in word-medial position, Koreans might insert /w/ after the second consonant (e.g. country [kant<sup>h</sup>ʷri], pilgrim [p<sup>h</sup>ilgʷrim], pamphlet [p<sup>h</sup>amp<sup>h</sup>ʷlet]).

(22) a. anthracite, belfry, country, pilgrim, pamphlet

b. antler, empty, function

c. capstan, instant, textile

#### 4.3.9. four consonants

If a word-medial consonant cluster consists of four consonants, the last consonants

are composed of /s/, /p, t, k/ and /r, l/. Some Koreans tend to insert /w/ after the second and the third consonants.

(23) instrument, obstruct, express, exclaim

### 5. Conclusion

So far, I have discussed what problems Korean learners have in pronouncing English consonant clusters by comparing phonotactic constraints and phonological rules of English and Korean. The pronunciation problems that Koreans have can be summarized as follows:

1) Most Koreans tend to insert /w/ or /i/ inside and after the consonant clusters. /i/ is inserted after palato-alveolar consonants and /w/ after other consonants.

2) Many Koreans pronounce fricatives as plosives or affricates..

3) Many Koreans pronounce /p, t, k/ occurring after /s/ with strong aspiration.

4) Many Koreans pronounce /r, l/ as flap [ɾ].

5) Among the consonant clusters, 'tr, dr, sj, nl, nr, lr' are especially difficult for Koreans.

I believe that these problems can be overcome if systematic training is offered to Korean learners.

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