Formal/Phonology

A Phonetic Duration-based Analysis of Loan Adaptation in Korean and Japanese

The aim of this paper is to investigate a question about how English, a stress-timed language, is perceived to Japanese and Korean speakers with different types of linguistic rhythm. Loanword adaptation is to find the closest match between a source word and a phonotactically permissible output in the native language. We try to answer the question by examining loan adaptation in Japanese and Korean. (1) summarizes the claims made in this paper.

(1) a. Both Korean and Japanese speakers perceive the differences between tense and lax vowels, and stressed and unstressed vowels in English as phonetic duration.
   b. The apparently different modes of loan adaptation between Korean and Japanese are determined by output-to-output correspondence between subphonemic durations of vowels and consonants in the source and the native language.
   c. The phonetic duration-based analysis argues for the Phonetic Approach (Silverman 1992; Steriade 2001) as opposed to the Phonological Approach (Lacharité and Paradis 2002) to loan adaptation.

Kang (2003) argues that vowel epenthesis in Korean as shown in (A) result from enhancement of perceptual similarity based on phonetic (degree of release), phonological (voicing) and morphophonemic constraints (the place of articulation) in Korean. By reanalyzing the data in the NAKL list which Kang (2003) referred to, we will maintain that vowel epenthesis in Korean is in fact to preserve phonetic vowel duration of English. Consonantal duration also plays a crucial role in loan adaptation. Sub-phonemic duration difference in English /s/, shorter [s] (in clusters) and longer [s] (elsewhere), gives rise to categorically different adaptation between [s] and [s'] in Korean as given in (B) (Kim & Curtis 2000). Oh (2006) attributes the asymmetry between singleton voiced stops and voiced stops in clusters with respect to word-initial tensification shown in (C) to different closure duration of English stops. English post-s stop is uniformly adapted into Korean as aspirated as shown in (D) (Oh 1996). The short unaspirated stop in English cannot be loaned as tense to avoid a notable durational difference in consonant closure since an intervocalic tense stop is geminate phonetically in Korean (Han 1992). The English stop after /s/ cannot be interpreted as lax either due to intervocalic voicing. Thus, the unaspirated stop can only be rendered as aspirated.

Subphonemic duration of vowels and consonants also affects loan adaptation in Japanese. Gemination in (E) is similar to vowel epenthesis in Korean in that stressed and unstressed lax vowels behave differently in loan adaptation. Word-internal gemination is exclusively triggered by a stressed lax vowel, while word-final gemination is also caused by an unstressed lax vowel. The vowel duration before geminates is longer than that before singletons in Japanese (Fukui 1978; Kawahara 2005). Following Kato (2005), consonant gemination in Japanese is argued to reflect preceding vowel duration through output-to-output correspondence. Furthermore, consonant duration also determines gemination adaptation. As shown in (Ed) and (Ee), the short consonant duration of a stop in a cluster and a voiced fricative does not trigger gemination. Loan adaptation in Japanese and Korean can be rightfully understood as output-to-output correspondence between phonetic durations of the source and the native language. Such phonetic duration-based analysis of loan adaptation argues for the Phonetic Approach.
(A) Vowel epenthesis in English stop adaptation in Korean (Kang 2003)
  a. Vowel epenthesis after a stressed lax vowel
     cut         \[k^h \text{ʌ} \text{i}] \sim [k^h \text{ʌ}]
     gag         [kæg \text{i}]
  b. No vowel epenthesis after an unstressed lax vowel
     gallop      \[kell\text{ʌ}^p\] \*\[kell\text{ʌ}^p\text{i}\]
  c. Vowel epenthesis after a tense vowel and a diphthong
     week        [wik\text{ɪ}]
     cake        \[k^h\text{eik}\text{i}] \sim [k^h\text{eik}]

(B) English /s/ adaptation as [s] or [\text{s'}] in Korean (Kim & Curtis 2000)
  a. sign [s'ain]  bus [p\text{ʌ}s\text{i}] \sim [p\text{ʌ}s\text{i}]
  b. star [s\text{ɪ}t\text{a}]  test [t\text{ɪ}s\text{i}]

(C) English word-initial singleton voiced stop adaptation as tense in Korean (Oh 2006)
  a. gown [kaun] \~ [k'aun]  ball [pol] \~ [p'ol]
  b. drama [t'i\text{rama}] \*\[t'i\text{rama}\]  green [k'irin] \*\[k'irin\]

(D) English unaspirated stop adaptation as aspirated in Korean (Oh 1996)
  a. star [s\text{ɪ}t\text{a}] \*[s\text{ɪ}t\text{a}]  spy [s\text{ɪ}p\text{ai}] \*[s\text{ɪ}p\text{ai}]  sky [s\text{k}\text{a}i] \*[s\text{k}\text{a}i]
  b. strike [s\text{ɪ}t\text{ɪ}rak\text{ɪ}k\text{i}] \*[s\text{ɪ}t\text{ɪ}rak\text{ɪ}k\text{i}]  screen [s\text{k}\text{ɪ}rɪn] \*[s\text{k}\text{ɪ}rɪn]

  a. Word-medial gemination after a stressed lax vowel
     kitchen       [ki\text{tʃi}N] \*[ki\text{tʃi}N]
     cookie        [kukki] \*[kuki]
  b. Word-final gemination after a lax vowel
     cut           [katto] \*[katto]
     black         [burakku] \*[buraku]
     tulip         \[ju:ri\text{ppu}] \*[ju:ri\text{ppu}]
  c. No gemination after a tense vowel and a diphthong
     escalate      [esukare:to] \*[esukare:to]
     beacon        [bi:koN] \*[bi:koN]
  d. No gemination in an obstruent cluster
     tact          [takuto] \*[takkuto]
     mixer         \[mikisa:] \*[mikkisa:]
  e. No gemination in voiced fricatives
     love          [rabu] \*[rabbu]
     give          [gibu] \*[gibbu]