Perception of Stop–Nasal Sequences by Korean Learners of English: An Optimality Theoretic Approach*

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I. Introduction

Much research on speech perception has been concerned with establishing its influence on phonological patterning (Beddor et al. 2001) and vice versa (Hume et al. 1999), as well as their mutual influence (Hume and Johnson 2001). Voiced stop–nasal sequences in English are permissible at the phonetic level and voiceless stop–nasal ones are possible with an inserted glottal stop at the phonetic level. Those sequences in Korean are possible at the phonemic level, but they are not allowed at the phonetic level because of a phonological constraint in Korean, thus realized as nasal–nasal sequences. In second language phonology, in addition, another possibility as a strategy for avoiding stop–nasal sequences would be that an epenthetic vowel might occur between a stop and a nasal, as illustrated in *Batman*. This study explores how Korean learners of English perceive stop–nasal sequences in English and how the second language (L2) perception can be accounted for within Optimality Theory, which accounts for the phonological system of the first

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* I would like to thank three anonymous reviewers for their valuable comments and suggestions. All remaining errors are mine, of course.
language (L1) using a set of violable universal constraints (Prince and Smolensky 1993, Kager 1999). The specific questions addressed here are as follows: (a) How do native Korean listeners perceive English stop-nasal sequences? (b) Is their perception affected by Korean phonology? (c) What factors play a role in their perception? My hypothesis underlying the above research questions is that L1 phonological systems affect L2 perception.

In the following section, I will briefly describe stop-nasal sequences in English and Korean and, in sections III, IV, V, and VI, the experiment, results and discussion, Optimality Theoretic account, and conclusion, respectively.

II. Stop-Nasal Sequences in English and Korean

In (American) English, glottalization takes place in syllable-final voiceless stops or voiceless stop-nasal sequences, whereas it does not occur with voiced stops. (Giegerich 1992). The oral closure for the bilabial, alveolar, or velar stop is usually preceded by glottal closure, so that a glottal stop is coarticulated with the oral stop, as illustrated in (1).

(1) a. syllable-final voiceless stops  b. syllable-final voiced stops
tap  [tʰæ?p]  tab  [tʰæb]
feat  [fɪt]  feed  [fɪd]
c. voiceless stop-nasal
   topnotch  [tʰɑ?pɑtʃ]  subnormal  [səbnorməl]
   seatmate  [si?tmeɪt]  cadmium  [kædmiəm]

d. voiced stop-nasal

Stop-nasal sequences are not allowed in Korean. Thus, stop nasalization occurs automatically in the case of stop-nasal sequences, which are illustrated in (2) (Kim–Renaud 1974, Ahn 1998).

(2) /papmat/ [pammat] ‘the flavor of rice’
/kʰinnada/ [kʰinnada] ‘end’

1) Stops before nasals are usually unreleased whether they are voiced or voiceless. Release hardly ever occurs, especially, in casual speech.