ABSTRACT

Formant transitions as effective cues to differentiate the places of articulation of Ban Pa La-u Sgaw Karen nasals

Karnthida Kerdpol

Department of Linguistics, Faculty of Arts
Chulalongkorn University
Bangkok, Thailand
E-mail: karnthida.k@gmail.com

The Sgaw Karen dialect of Ban Pa La-u, Amphoe Hua Hin, has four nasals: /m/, /n/, /ɲ/ and /ŋ/ in the initial position. From a review of the relevant literature, the initial /ɲ-/ has been less studied acoustically due to the lack of palatal nasals in the consonant system of most languages spoken throughout the world, thus, this Sgaw Karen dialect is suitable for investigating the place of articulation of nasals.

The acoustic characteristics examined include the duration intensity, and formant frequency of nasal murmur and the formant frequency of the vocalic transition of the following vowels, /a/ and /ɔ/. The significance of each acoustic characteristic as a place cue has been statistically tested with ANOVA and Tukey's HSD.

The results confirm the previous findings (Liberman et al. 1954, Malécot 1956, Recasens 1983, Harding and Meyer 2003) that transition is a better cue to differentiate the places of nasal articulation. Furthermore, this study found that among the formant frequencies of vocalic transition, the F2 transition is the most effective cue to identifying the places of nasal articulation, i.e. /ɲ-/ has the highest F2 frequency value at the nasal-vowel juncture, followed by /n-/, /ŋ-/ and /m-/ respectively. The relational pattern between F2-F3 transitional directions can also aid in differentiating nasal articulation places; however, the pattern of transitional direction depends on the vocalic context. The patterns of F2-F3 transitional directions among the places of articulation clearly differ in the /ɔ/ context. In the case of the /a/ context, the patterns of F2-F3 transitional direction between /n-/ and /ŋ-/ are very similar. With regard to nasal formants, they are not a place cue. Although the second nasal formant (NF2) has consistent relational patterns, it lacks statistic significance among /m-/, /n-/ and /ɲ-/, implying their similarities. Also, intensity and duration of nasal murmur cannot be used as cues to differentiate the places of nasal articulation.