

Fricative vowels as an intermediate stage of vowel apicalization

Fang Hu¹ and Feng Ling²

¹Institute of Linguistics, Chinese Academy of Social Sciences, Beijing, China

²Shanghai University, Shanghai, China

¹hufang@cass.org.cn; ²lingfengsh@shu.edu.cn

Apical vowels are widely distributed in Chinese dialects (Karlgren, 1915-26), whereas fricative vowels or strident vowels are less known in Chinese dialects (Hu, 2007; Ling, 2011) as well as in other languages (Ladefoged and Maddieson, 1990). This paper is an acoustic and articulatory study of fricative vowels in the Suzhou dialect of Wu Chinese, and further argues that acquiring frication is an intermediate stage of vowel apicalization.

The acoustic study was based on 20 speakers, 10 male and 10 female. And four of them, 2 male and 2 female, also participated in the palatographic and linguagraphic study. Three additional male speakers participated in the electromagnetic articulographic study (EMA, the Carstens AG500 system).

The production of fricative vowels in Suzhou is characterized by visible turbulent frication from the spectrograms, and a significantly lower harmonics-to-noise ratio vis-à-vis the plain counterpart. The formant data show that the fricative [i] and [y] have a comparatively greater F1 and smaller F2 and F3 values than their plain counterparts. In the acoustic F1/F2 plain, the fricative vowels are located in a position between their plain counterparts and apical counterparts [ɿ ʉ]. Linguographic data reveal that more laminal part of the tongue is involved in the production of the fricative [i], as compared with the plain [i], which is basically anterodorsal. And the EMA study confirms a comparatively advanced lingual configuration in the production of the fricative vowels vis-à-vis their plain counterpart.

Diphthongization and apicalization are two commonly detected phonetic and/or phonological processes for the development of high vowels (Hu, 2007, 2013), with the process of apicalization being of particular importance to the phonology of Chinese dialects. Acquiring frication initiates the sound change. However, our data suggest that spectral characteristics of fricative vowels or apical vowels play a more important role in defining the vowel contrasts. In other words, plain high vowels, fricative high vowels, and apical vowels distinguish in place of articulation, namely being anterodorsal, laminal, and apical respectively; and frication becomes a concomitant and redundant feature in the production of fricative or apical vowels.

Hu, F. 2007. On the distinctive features for the high front vowels in Ningbo and Suzhou Wu Chinese – with reference to the sound change of high vowels. *Zhongguo Yuwen [Chinese Language]*, 5: 455-465.

Ling, F. 2011. A phonetic study of vowel [i] in Suzhou Chinese. *Yuyanxue Luncong [Studies in Linguistics]*, 43: 177-193.