Phonological Status of Voiced Fricatives in Fanchang Wu

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This study investigates the phonological status of voiced fricatives in Fanchang Wu, a Xuanzhou group Wu dialect, using both empirical methods, cross-linguistic comparisional methods, and panchronic phonological methods.

The phonetic nature of voicing contrast of initial consonants in Wu dialects is long being a debatable question. Former research mainly focuses on Wu dialects distributed in coastal areas (i.e., Taihu group, Taizhou group, Oujiang group). Early impressionistic phonologists have different point of view on the phonetic quality of voiced fricatives in Xuanzhou Wu dialects, varying between aspirated voiceless fricatives (Fang, 1966; Zhengzhang, 1987; Meng 1988) and fricatives with a voiceless unaspirated first half and a voiced unaspirated second half (Shen, Hu & Meng, 1962). Zhu (2009) reports that the voiced fricatives in Jingxian Wu are voiceless fricatives followed by a strong aspiration based on spectrograms. Yuan (2019) reports that the voiced fricatives in Xinbo dialect are short devoiced fricatives with an aspiration behind. Hou and Chen's research (2019) shows that the existence of strong aspiration behind the voiceless fricative is a distinctive feature of voiced fricatives in dialects of Xuanzhou group. As a comparison, they point out that voiced initials in the surrounding dialects of Piling Wu group (coastal Wu) do not have a significant strong aspiration. Song (2012) studied the acoustic and articulatory features of voiced and voiceless fricatives in Xianju Wu (Taizhou group) and Wenzhou Wu (Oujiang group). The results show that voiced fricatives are different from voiceless fricatives in three aspects: shorter duration of closure, lower F0, and higher open quotient. Ling's research (2017) on Shanghainese voiced fricatives shows that Shanghainese, and many other Wu dialects are common in the acoustic features of voiced fricatives that the fricative segment can be largely or completely voiceless fricative.

Based on the discussion above, we can form two initial impressions: 1) Both voiced fricatives in coastal Wu dialects and in Xuanzhou Wu dialects are phonetically devoiced. 2) Voiced fricatives in Xuanzhou Wu dialects often cooccur with an aspiration, which is not seen in coastal Wu dialects. Since the phonetic nature of voiced fricatives is different in coastal Wu dialects and in Xuanzhou dialects, this raises a question: how to define he phonological status of voiced fricatives in Xuanzhou Wu dialects. The current study provides a better understanding of the phonological status of voiced fricatives Xuanzhou Wu dialects, using Fanchang Wu as an example. Simultaneous audio and electroglottographic recordings were made from six native Fanchang Wu speakers. A series of cue weighting processes using Linear Discriminant Analysis were done to investigate the relative importance of each phonological features. Based on the results, we point out that voiced fricatives in Fanchang Wu are devoiced in monosyllables, and the duration of the fricative segment is the primary cue in distinguishing voiced and voiceless fricatives. The existence of aspiration following the fricative segment of voiced fricative should only be treated as a secondary cue. A comparison of cross-linguistic experimental reports is then conducted with languages have a similar contrast between two phonetically devoiced fricatives like Korean (Cho, 2002; Chang, 2007) and Hmong (Wu & Wu, 2018) based on detailed and credible results using methods of experimental phonetics. The similar contrast in Korean and Hmong is treated by former scholars as a contrast between aspirated and unaspirated rather than between voiced and voiceless because of the primary importance of aspiration in these languages. Our results show that the contrastive pattern of

fricatives in Fanchang Wu is significantly different from the pattern in Korean and Hmong because of the relative unimportance of aspiration, and should be treated as a voicing contrast rather than aspiration contrast. We further discuss the contrastive pattern in Fanchang Wu should not be treated as aspiration contrast based on the paradigm of Panchronic Phonology (Jacque, 2011). The aspiration element of voiced fricatives in Fanchang Wu neither has a transparent correspondence to a diachronic origin, nor can it represent the voiced fricatives as a whole phonological category. The present study strongly revises the views of previous scholars on voiced fricatives in Xuanzhou Wu dialects: These phonemes still form an independent "voiced" category and should not be treated as "voiceless aspirated". The present study also provides a new idea when dealing with the problem of defining phonological status of specific phonemes in a given language: combining empirical research, cross-linguistic comparison and panchronic phonology is not a bad idea to try.

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