

# PHONETIC TYPOLOGY OF THE CONSONANTS OF CHINESE DIALECTS

Wai-Sum Lee

ctllee@cityu.edu.hk

Eric Zee

ctlzee@cityu.edu.hk

Phonetics Lab, Department of CTL, City University of Hong Kong

## Abstract

The paper presents typological facts about phonetic inventories of consonants of the Chinese dialects. A really and genetically balanced representative sample of 86 Chinese dialects were selected for analysis from seven major Chinese dialect families: *Mandarin Chinese* (10), *Min* (10), *Wu* (10), *Hakka* (10), *Yue* (10), *Gan* (10), and *Xiang* (10), and four minor dialect families, *Jin* (5), *Hui* (5), *Ping* (3), and *Tu* (3).

Some typological generalizations of the syllable-initial consonants in open syllables and syllable-final consonant in closed syllables across the dialects are as follows.

Syllable-initial consonants. (i) Except for the bilabial and alveolar implosives [ɓ ɗ], all the other consonants are pulmonic. (ii) The most frequent consonants are voiceless obstruents [p t k p<sup>h</sup> t<sup>h</sup> k<sup>h</sup> ts ts<sup>h</sup> s f], nasals [m n ŋ], and liquid [l], to be followed by [ç tç tç<sup>h</sup> h ɳ v z b d [g ʂ tʂ tʂ<sup>h</sup> dz z dʒ j ʃ tʃ tʃ<sup>h</sup> ʧ fi w z k<sup>w</sup>k<sup>hw</sup> ŋ ʋ ɸ dʒ<sup>m</sup> b ç<sup>ŋ</sup>g ɣ pf p<sup>h</sup> m<sup>h</sup> ɰ<sup>m</sup> ɰ<sup>n</sup> d<sup>h</sup> n<sup>h</sup> ʈ ʂ<sup>h</sup> ʃ<sup>h</sup> ʃ<sup>w</sup>] in descending order. (iii) Voiceless obstruents are more frequent than the voiced counterparts. (iv) Labial, alveolar, and velar stops and nasals are more frequent than those of the other places of articulation. (v) Voiceless alveolar and labio-dental fricatives are more frequent than voiceless fricatives of the other places of articulation. (vi) Bilabial fricative, lateral fricative, and glottalized, pre-nasalized and doubly articulated stops and nasals are rare. (vii) The size of the inventory of consonants of the 86 dialects ranges from 14 to 33, and the most frequent ones are those with 17, 18, 19, 20, 21, 22, 23, and 24 consonants.

Syllable-final consonants. (i) The only consonants that occur in the syllable-final position are [-p -t -k -ʔ -m -n -ŋ]. (ii) The number of dialects with only (C)V, (C)VS, or (C)VN syllables (S = stop; N = nasal) is 2 (2 dialect families (*df*, henceforth)), 4 (2 *df*), or 36 (8 *df*), respectively. (iii) The number of dialects with both (C)VS and (C)VN is 44 (8 *df*). (iv) The number of dialects with (C)VS syllables is 48 (9 *df*), and the number of dialects with (C)VN syllables is 80 (11 *df*). (v) There is only a single dialect in which all the final consonants [-p -t -k -ʔ -m -n -ŋ] occur. (vi) The most frequent pattern is [-n -ŋ] which occurs in 22 dialects (7 *df*), to be followed by [-p -t -k -m -n -ŋ], [-ʔ -ŋ], [-ŋ], [-t -k -n -ŋ], [-ʔ], [-n], [-t -ʔ -n -ŋ], [-ʔ -n -ŋ], [-p -k -m -ŋ], [-m -ŋ], [-p -ʔ -m -n -ŋ], and [-m -n] in descending order. (vii) The most frequent syllable-final consonant is [-ŋ] which occurs in 75 dialects (11 *df*), to be followed by [-n], [-t], [-k], [-ʔ], [-m], and [-p] in descending order.

The findings will be discussed in connection with some of the assumptions made in Lindblom and Maddieson (1988): (i) constancy of the sonorant-obstruent proportions, (ii) the number of obstruents as a function of consonant inventory size; (iii) the number of basic, elaborated and complex articulations as a function of consonant inventory size; and (iv) maximum perceptual distinctiveness as a principle for structuring consonant inventories. The paper also addresses the issue of compensation in sound inventory structure - whether a simple inventory in one area such as the consonants is compensated by an elaboration of vowels and tones in a sound system (Maddieson, 1999).

## References

- Maddieson, I. (1999). In search of universals. PROCEEDINGS OF THE INTERNATIONAL CONGRESS OF PHONETIC SCIENCES, San Francisco, August, 1999, 2521-2528.
- Lindblom, B. and I. Maddieson (1988). Phonetic universals in consonant systems. In L.M. Hyman and C.N. Li (eds.), LANGUAGE, SPEECH AND MIND; STUDIES IN HONOUR OF VICTORIA A. FROMKIN. London, Routledge, 62-78.

Keywords: phonetic typology, consonants, Chinese dialects