

A STUDY OF TONE-SANDHI IN STANDARD CHINESE WITH COMPUTER

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This paper presents the results of measurements of fundamental frequency in Standard Chinese bisyllabic words on a digital computer with the clipping autocorrelation and simplified inverse-filtering techniques. 10kHz sampling rate is used in the former method, and 2kHz in the latter. For that of 2kHz sampling rate, a "real formant" calculating formula is applied to the interpolating compensation in order to obtain the weighting value of fundamental frequency.

142 bisyllabic words of all tone combinations (including the words of "yi" (one), "qi" (seven), "ba" (eight), "bu" (not)) were pronounced by speaker A, while 16 bisyllabic words were pronounced by 3 males and 3 females, respectively.

Experimental results show that when a 1st tone in SC is before or after any other tone, it is always pronounced as high-level although it is generally slightly lowered when placed on the second syllable of a word. The pitch pattern of the 2nd tone is mainly high-rising, but it may be high-falling-rising. However, it is always acceptable to pronounce the 2nd tone as high-rising. A 3rd tone before or after a 1st tone, 2nd tone, and 4th tone is low-falling or low-falling-rising. In case a tone 3 is combined with another tone 3, the first one is high-rising or high-falling-rising. The 4th tone is high-falling. In case two syllables with the 4th tone are put together, the first one does not fall as much as the second one.

The tone alterations of "yi", "qi", "ba" or "bu" are specific for these words and will be discussed in this paper.

The absolute level of pitch may be different for different speakers. Even for the same person, the pitch level may vary, but, in general, the relative pattern of pitch is about the same.