

## Abstract

Title : Physiological characteristics of sokuon: A preliminary study

Theme : (2) geminate consonants

Presentation preference : (b)

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Sokuon is phonetically regarded as geminate consonant similar to that in languages such as Italian and Finnish. Some researchers (Hattori, for example) claim that laryngeal and/or glottal tension is involved during the production of Sokuon. However, physiological characteristics of Sokuon are not well explored yet. The aim of this study is to examine the phonatory and articulatory properties of sokuon and to compare with those of geminate consonants in other languages. To achieve the goal, we start with laryngeal and glottal observation during sokuon with special reference to the above mentioned claim.

Our previous analysis using high-speed video recordings (at a rate of 4500 frame/sec) suggested that no apparent constriction appears in the larynx during the production of sokuon. However, photo-electric glottogram of the utterances showed a suppression of glottal opening movement at the onset of sokuon during plosives and affricates but not during fricative.

In the present paper, we further analyzed the glottal view of high-speed video images using multi-line kymographs. Materials are the six sets of word pair: echichi – etchi, ekiki – ekki, etete – ette, ekeke – ekke, eshishi – esshi, and esese – esse.

The results confirmed the presence of suppression of glottal opening at the onset part of sokuon (see Fig. 1) which supports the claim. Again, this suppression is apparent during plosives and affricates but not during fricative. The mechanism which leads the suppression and the asymmetry among consonant types will be discussed.

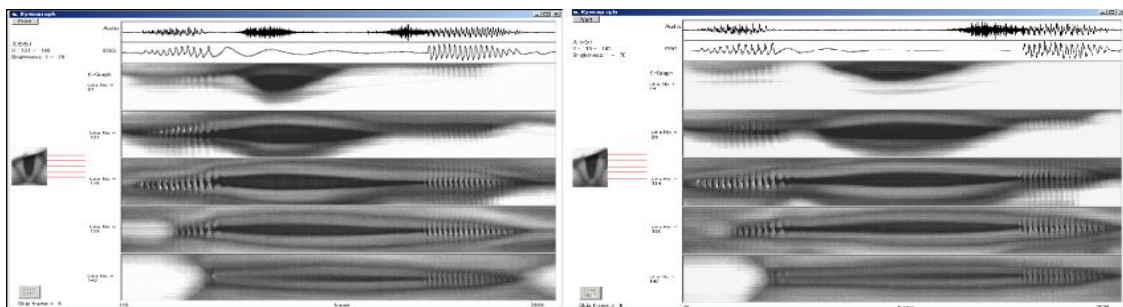


Figure 1: Kymograph of /echichi/ (left) and /etchi/ (right).

