

## Abstract

This instrumental phonetic study investigates lingual articulation and coarticulation in standard Japanese. A series of experiments were conducted using electropalatography (the Reading EPG2). The principal aim is to extract EPG correlates of spatiotemporal parameters relevant to the realisation of ten consonantal segments [t, d, n, ɲ, r, s, ʃ, ʒ, ts, tʃ]; two vocoids [i] and [j]; and four palatal(ised) segments ([ɲ, ʃ, r<sup>j</sup>, k<sup>j</sup>]). Data for VCV (vowel-consonant-vowel) sequences was obtained from two Japanese speakers. Qualitative and quantitative analyses were performed to identify the basic features of various lingual articulations; the interdependency between the two components of the tongue; and the degree of coarticulatory effects together with their temporal extent. Of particular importance is the identification of the articulatory properties that are unexplained by the feature specification.

A particular focus is placed on the articulatory realisation of palatalisation. The spatiotemporal manifestations of intergestural coordination and timing between the primary articulatory gesture and the (secondary) dorsal gesture are examined in detail. Assuming that palatalisation is a specialised use of the raising gesture of the tongue body, we argue that: (i) the dorsal gesture for palatal(ised) consonants incorporates certain aspects of the articulatory nature of the high front vowel /i/ and the approximant /j/; (ii) there are two ways of resolving antagonistic gestures by the tongue, blending and sequencing, the choice between them depending on the primary articulation; and (iii) speakers employ two contrastive timing strategies for the raising gesture of the tongue dorsum to effect palatalisation. The discussion includes the issue of articulatory complexity.

Based on a detailed parametric specification of vocalic and consonantal gestures, the main discussion is devoted to the nature of the phonetic representation and the phonetic characteristics of standard Japanese. We develop a parametric analysis of certain phonetic processes: child phonology; synchronic sound changes; and vowel devoicing.