

Abstract

Gestural Characterization of a Phonological Class: the Liquids

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Rhotics and laterals pattern together in a variety of ways that suggest that they form a phonological class (Walsh-Dickey 1997), yet capturing the relevant set of consonants and describing the behavior of its members has proven difficult under feature-based phonological theory (Wiese 2001). In this dissertation, I argue that an articulatory characterization of liquids is better able to reconcile the essential aspects of their phonetic and phonological behavior.

I present data from a broad survey of rhotic and lateral phonology which suggest that, cross-linguistically, the two properties most commonly associated with liquids are their interchangeability (alternation, neutralization and allophony within the class), and their shared phonotactic distribution within the syllable. Liquids act as cluster-enabling segments in complex onsets and codas, most commonly appearing closer to the nucleus than obstruents; when liquids appear adjacent to the nucleus, they often interact with it.

Ultrasound studies were conducted to examine lingual articulation in the liquid consonants which pattern together in Spanish and Russian. Although the liquids in these languages differ in their acoustic properties, manners and places of articulation, they were found to be united by a lower susceptibility to vocalic coarticulation than coronal stops. In light of previous studies showing that rhotics and laterals are produced with both coronal and dorsal (or pharyngeal) constrictions in English (Delattre & Freeman 1968; Sproat & Fujimura 1993; Browman & Goldstein 1995; Gick et al. 2006), this suggests that liquids require more global control of tongue shape than obstruents (Goldstein p.c.). In the languages examined in this study, liquid consonants are characterized by the coordinative production of coronal and dorsal gestures.

I argue that coronal liquid consonants are segments corresponding to recurrent, stable constellations of gestures in which a tongue-tip approximation is coordinated

with a dorsal constriction. Such gestural configurations are inherently sonorous – due to the vocalic nature of the tongue body constriction and the incomplete or sporadic nature of the coronal closure – and therefore afford spontaneous voicing.

I propose that asymmetries in the distribution of liquids in onset and coda clusters result from differences in the coordination of their constituent gestures with respect to the syllabic nucleus. Differences between clear and dark laterals result primarily from differences in dorsal target locations. Differences between rhotics are attributed to variation in the stiffness and degree of damping of tongue-tip and tongue body gestures – trills and retroflex rhotics being characterized by a more highly constrained dorsum, and taps by a lightly damped tongue tip. Phonological processes involving interactions between liquids and nuclei – post-vocalic deletion, coloring and lengthening – result from the blending and interaction of adjacent and overlapping tongue body gestures.