

Towards an articulatory characterization of liquids – evidence from Spanish and Russian

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The liquids remain an elusive class, because they resist simple characterization. It is unclear why such a diverse group of sounds tends to pattern together in phonological systems (Walsh-Dickey 1997), and what phonetic properties the members of the class might share, if any (Ladefoged & Maddieson 1996), although Gick (2002, 2006) has demonstrated that cross-linguistically, liquids display similar properties in their gestural organization within the syllable.

Two languages which can offer important insights into the nature of liquid classhood are Spanish and Russian. The Spanish liquids are of particular interest because of the variant realizations of the two rhotics, the absence of dark lateral allophony, and a variety of neutralization phenomena exhibited amongst all the members of the class (Hualde 2005). The liquid system of Russian provides an interesting counter-study because of its phonological contrast between palatalized and non-palatalized trills and laterals (Timberlake 2004), and because both non-palatalized liquids have been characterized as velarized (Padgett 2003). It has been suggested that there is a fundamental difference in the articulatory characterization of these two types of laterals – [ɫ] being produced with a dorsal component which is not present in light lateral realizations, and which may be more gradient than categorical in nature (Recasens & Farnetani 1990, Recasens 2004).

An ultrasound study of intervocalic consonant production (/l-r-r-d-s/) by five speakers of different varieties of Latin American Spanish has found evidence for a shared dorsal component amongst the three liquids which is not observed in the production of the obstruents. The dorsal articulation of the lateral and the tap were found to resemble each other most closely, and exhibited dynamic behavior consistent with a dorsal target resembling that of a mid-front vowel. The production of the trill was characterized by a higher resistance to vocalic coarticulation and a dorsal target resembling that of a mid-back vowel.

An ultrasound study of production of /l-l^j-r-r^j-d-d^j-z-z^j/ by five speakers of Russian found that, like Spanish, Russian liquids display higher degrees of resistance to dorsal coarticulatory effects than obstruents. In contrast to Spanish, the dorsal articulatory targets of the lateral /l/ and rhotic /r/ were more similar, consistent with their status as non-palatalized consonants.

The results of these studies suggest that the production of all these liquids – not only trilled rhotics and dark laterals – involves the global coordination of coronal and lingual lingual gestures to a greater extent than that used in the production of obstruents. I argue that a number of phonological phenomena involving liquids in Spanish, Russian and other languages might arise from the shared sonorant properties inherent in these types of articulation.

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