The acoustic realization of the Spanish phonemic tap-trill contrast: bridging the divide between Heritage and L2 Spanish speakers

Mark Amengual
University of California, Santa Cruz

Although in the last few decades there has been an increase in the amount of studies investigating the linguistic abilities of Spanish heritage speakers, Heritage Spanish phonetics and phonology has received considerably less attention, especially in comparison to research on heritage language morphosyntactic knowledge or studies aimed at devising pedagogy tailored to meet heritage language learners' linguistic needs (Potowski, 2013; Rao & Ronquest, 2015). The general assumption has been that these early bilinguals have a benefit in pronunciation as a result of early exposure to the minority language (Au et al., 2008; Knightly et al., 2003) but at this point we cannot say that we understand the phenomenon of heritage language phonological acquisition since there are still very few studies in the phonological/phonetic domain that have empirically investigated the Spanish pronunciation of SHS (Rao, 2014, 2015; Boomershine, 2012; Ronquest, 2012; Henriksen, 2015). The goal of this study is to bridge the divide between the heritage language and L2 literatures with regard to the investigation of the phonemic tap-trill contrast (/ɾ/-/r/).

Spanish has a voiced alveolar tap [ɾ] and a voiced alveolar trill [r] that contrast in intervocalic position whereas American English only has a voiced alveolar approximant [ɹ]. A Spanish speaker is necessarily going to have to maintain the Spanish tap-trill contrast in intervocalic position to adequately communicate the contrasts signaled by the difference between these two sounds. Previous research, however, has demonstrated a great deal of inter-speaker and intra-speaker variability in the articulation of phonemic taps and trills by monolingual Spanish speakers (Blecua, 2001; Willis, 2007; Bradley & Willis, 2012; Henriksen & Willis, 2010), in part due to the fact that trills are notably complex to articulate (Widdison, 1998; McGown, 1992). The Spanish tap and trill contrast has been shown to be an especially challenging contrast to acquire as both a L1 and L2: they are the last sounds to be acquired by L1 Spanish children (Carballo & Mendoza, 2000; Jimenez, 1997; Vihman, 1996) and they are also acquired late by L2 learners and require higher levels of proficiency in the L2 (Face, 2006; Waltmunson, 2005).

The present study examines the acoustic realization of the Spanish tap-trill contrast (/ɾ/-/r/) of 40 heritage Spanish speakers and 20 late L2 learners of Spanish in Northern California. The acoustic analyses examined the number of occlusions and overall duration in the production of phonemic trills, while the phonetic variants of the phonemic tap were based on the degree of apical constriction: true tap, approximant tap, and perceptual tap. The results indicate that even though there is much individual variation, many speakers produce intervocalic phonemic trills with a non-canonical single apical occlusion maintaining the rhotic phonological contrasts largely by means of segmental duration, and this is especially true for L2 learners and heritage Spanish speakers who are most English-dominant on a language dominance continuum. These data confirm that heritage speakers are a heterogonous group that varies greatly as a result of language dominance, and that English-dominant heritage speakers and L2 learners are most likely to exhibit a modified system to maintain the rhotic phonological contrast. These findings add to our understanding of the sources of individual variation in heritage and L2 pronunciation by investigating a largely understudied bilingual population that has traditionally been ignored in bilingual phonetic research.