Coarticulatory Effect Blocking American English Hyperrhoticity

The highly common /r/-sounds in American English (AmE), referred to as hyperrhoticity (cf. de Jong 1998, 2011, Britton 2007, McMahon 2009, Gick et al. 2010), are reflected in the affluence on both the tap and the flap, the second elements of the diphthongs, the stressed syllabic consonants with the long duration, etc. Paradoxically, the rhoticitization does not obligatorily proceed to all of the forms; the phonetic implementation on the majority notwithstanding, the others are, by way of a sequential restriction, prohibited from surfacing in the phonology.

Phonologists would agree to the abstract point of view on this issue. On the assumption that the sonority hierarchy for stressed vowels is higher than or identical to that for unstressed ones (de Lacy 2004), for example, it implies a reasonable outcome that the syllabic rhotic in the stressed syllables (e.g. heard [hɻːd]) occurs only in the monosyllables. The reason for it comes from the fact that polysyllabic words lead to the less sonorous stressed nuclei than the unstressed vowels such as [i] and schwa.

Phonetic conditionings are hypothesized to hold true for the following sequences: (a) */t/ → [ɾ] when preceded by a voiceless obstruent /s, f, k/, (b) [tn̩] vs. [ʔn̩] vs. *[ɾn̩], (c) [ʊɹ] → [ɻ] vs. *[ɪɹ] → [ɻ]. Building on the contemporary functional phonology, in particular, evidenced by coarticulatory effect (cf. Beddor 2007, 2009, see also Kochetov and So 2007, Hall and Hamann 2010, Flemming to appear), the present paper argues that the effect the restriction of the occurrences has on the AmE rhotics is grounded in the three physical activities posited below.

Given the surface forms [ɹɹ, lɾ, nɾ] (*party*, *guilty*, *kentish*) and the nonsurface ones *[fɾ, sɾ, kɾ] (*often*, *estate*, *active*), and also the tap having the smaller value than the lateral and nasals, but the larger one than voiced fricatives (Oda 2009), the outcome of the coda-finals in Kahn's ambisyllabicity thereafter might seem to stem from the sonority contour. The prosodic approach to allophones (Jensen 2000), however, takes precedence on the syllabic phonology and utterance is employed as the conditioning of the tap. This implies that the sonority-based account might not make sense. According to de Jong (1998), the tap and the [d] in AmE have a gradient difference. Some listeners perceive the tap as it is, but others do not. The accent does not have the majority of the sequences that consists either of /f, s, k/ plus a voiceless or voiced fricative. The one of /f, s, k/ plus a nasal has also minor distribution. The ban on the clusters at issue does not stem from articulatory difficulty due to the preparation for the tap beforehand. In comparison with two voiceless obstruents and obstruent + sonorant consonant, the perceptual difficulty arises on them.

The reason why the unpronounced form *[ɾn̩] does not occur in contrast to the surface [tn̩] and [ʔn̩] (*eaten*, *button*) stems from the sequential articulation. After the articulation of the tap is made by making a contact of the tip of the tongue with alveolar ridge, the tip returns to the neutral position and, once again, moves toward alveolar for alveolar nasal. This movement requires that the articulators be shifted three times (contact, return and contact) and that speakers have more difficulty relative to the double movements for the two pronounceable forms. I observe that this sequence, if any, necessitates the medial schwa.

The high back vowel causes the syllabic formation to occur (*jour* [jɻ]), but the corresponding front one does not (*here* *[hɻ]). When speakers articulate the [ʊ], the back of the tongue is raised and the lips are rounded. By contrast, for the [ɪ], the front of the tongue is raised and no lip-rounding is accompanied. The former is closer to the central approximant of /r/ with regard to both the posture and the rounding. Hall (2004) employs the term 'incompatibilty' in the account for marked /rj/ sequences that are implied to be tip plus blade and concave plus convex. The same terminology made at this point represents the case in which the compatibility leads to an allophonic formation, but the incompatibility does not.