Effects of obstruent voicing on vowel *F*0: implications for laryngeal realism

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It has sometimes been suggested that obstruents in languages with two-way laryngeal contrasts involve either aspiration or closure voicing. For example, Beckman et al.(2013) argue that in languages like German, where word-initial /p t k/ are voiceless aspirated, /b d g/ do not involve an 'active' gesture for voicing. In a language like French, the reverse should hold: if /b d g/ involve an active gesture to maintain closure voicing, then/p t k/ should not requireany inherent enhancement. This idea is made formally explicit in the so-called 'laryngeal realism' literature (e.g. Iverson and Salmons, 1995; Honeybone, 2005), which argues that a privative feature [voice] is active in languages like French and Dutch, while in German or English the feature in question is [spread glottis].

Relevant to this proposal is the phenomenon of *consonant-related F0 perturbations* (C*F*0: Kingston and Diehl, 1994; Kingston, 2007), which condition the pitch of vowels following initial obstruents. In languages with a two-way voicing contrast, C*F*0 is higher following the voiceless member of the pair than the voiced member, regardless of any other aspects of phonetic realization. Iverson and Salmons (1995) suggest that this dichotomy is caused by pitch *lowering* following [voice] segments in languages like French or Dutch, but pitch *raising* following [spread glottis] segments in languages like German or English (1995:384). Thus in a language like German, phonologically voiced/underspecified stops would not be predicted to perturb C*F*0, while in French, it is the phonologically voiceless stops which should be phonetically 'inert'.

In this paper, we discuss the implications of Kirby and Ladd's 2016 study of C*F*0 in two 'true voicing' languages (French and Italian),which compares the effects of voiced and voiceless obstruents on *F*0 to those of a sonorant baseline. Voiceless obstruents in both languages are found to raise *F*0, while *F*0 following (pre)voiced obstruents patterns together with /m/, similar to the voiceless unaspirated stops of American English (Hanson, 2009). In both French and Italian, *F*0 is significantly depressed, relative to sonorants, *during* the closure for voiced obstruents, but cannot be differentiated from sonorants *after* the release of oral constriction. These findings suggest that in at least some 'true voicing' languages, while the lenis series involves a gesture to support voicing, so too the fortis series is involves a gesture to support *devoicing*. On this basis, we argue that a phonological typology based on phonetically derived features is doomed to an ever-increasing explosion of types (cf. Keating, 1984). This is in no way a claim that phonetic implementation does not influence phonological patterning, but rather that the flexible, redundant, and simultaneous nature of phonetic parameters make them ill-suited to being pressed into service as abstract, atemporal phonological features.

References

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