Mind your /ti/'s and q's: A subsegmental approach to affrication in Quebec French

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The present paper addresses two issues surrounding the well-known process of affrication in Quebec French (QF), whereby /t,d/ canonically become [t^s, d^z] before /i,y/. In this paper, I discuss the ramifications of new evidence that high vowel devoicing (HVD) often accompanies stop assibilation (ASB) but is necessarily only a partial assimilation. Specifically, I propose that the combination of Agreement by Correspondence Theory and Q Theory ('ABC+Q', Inkelas & Shih 2016) has certain advantages in its ability to model affrication as a bimodal process operating on subsegments.

Variationist studies of QF show that preceding fricatives and affricates are among the more significant contexts triggering HVD, regardless of their voicing (Cedergren & Simoneau 1985). This process is noted to be incomplete at times (Gendron 1966), and data from an informal pilot study suggest that it co-occurs with affrication on /ti/ sequences more often than not (105/155, 68%). Of these tokens, on average 33% of total vowel duration was voiceless. Data from both the Hochelaga-Maisonneuve corpus (Blondeau et al. 2012) and additional experiments are currently being collected and analyzed.

Q Theory (e.g., Shih & Inkelas 2014) accounts well for both affricates and such partial assimilations in that what are traditionally called segments (Q) are in fact composed of maximally 3 subsegments (q) which may be heterogenous. Paired with ABC Theory (e.g., Walker 2000), these representations can be implemented in an OT framework. CORR constraints reference various similarity conditions, motivating co-indexation, while ID-qq constraints penalize co-indexed subsegments mismatching for a given feature.

Given the independence of ASB & HVD, I propose the following similarity conditions: (1) [T.TURB], the resemblance between the turbulence of coronal stop release into a high vowel and fricatives (e.g., Kim 2001), and (2) the similarity between high vowels and fricatives (e.g., Faytak 2014), [TURB]. The separation of these two conditions allows us to model the optionality of HVD in weighted grammars. A tableau in a Maximum Entropy Grammar (e.g., Hayes & Wilson 2008), assuming 65% frequency of realizations with both processes and 35% only assibilating, is presented in (1).

(1)

/C(t t t)V(i i i)/	CORR$_i$ [T.TURB] 10	ID-qq (cont) 10	ID-qq (voi) 10	CORR$_j$ [TURB] 0.62	ID-IO (cont) 0.29	ID-IO (voi) 0	*H*	e^H	*p*
a. C(t t t)V(i i i)	-1						-10	0	0
b. C(t t t$_i$)V(i$_i$ i i)		-1					-10	0	0
c. C(t t s$_i$)V(i$_i$ i i)				-1	-1		-0.91	0.4	0.35
d. C(t t s$_{i,j}$)V(i$_{i,j}$ i i)			-1		-1		-10.29	0	0
e. C(t t s$_{i,j}$)V(i$_{i,j}$ i i)					-1	-1	-0.29	0.75	0.65

Beyond partial HVD, the current model can easily be expanded to model high vowel fricativization (Cedergren & Simoneau 1985), and with the addition of a constraint favouring voicelessness, the partial to complete devoicing of the consonantal segment in /di, dy/ sequences (Bento 1998).

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