**Taking a *q* from Vowels:**
**Expanding Q Theory in Light of the Laurentian French Vowel System**

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**Introduction**. In Q Theory (Inkelas and Shih 2016, 2017), segments are represented as a sequence of temporally ordered targets. Based on consonants' structures (e.g. stops' intra-segmental sequence of closure, release, and then aspiration) and the cross-linguistic tendencies for vowels to have a maximum of three tone targets (producing a rising-falling contour tone, for instance), it was hypothesized that the default number of subsegments ("*q*", grouped in parentheses) for a segment is three. Garvin et al. (2018) demonstrated that some languages may represent segments with more than three subsegments (geminates as $(q^1q^2.q^3q^4)$) or with fewer than three (flaps as $(q^1q^2)$ and excrescent vowels as $(q^1)$). In this study, we motivate radical underspecification, weight assignment parameters, and subsegmental structure based on gradient vowel weight and phonological alternations in Laurentian French.

**Gradient Vowel Weight**. Recent work on Laurentian French (redacted) shows that vowels are not cleanly divided into two groups with respect to their likelihood of attracting prominence (similar to weight-sensitive stress shift), but instead are organised on a scale of prominence attraction likelihood. We show that having an inventory of subsegmental structures of $(q^1)$, $(q^1q^2)$, $(q^1q^2q^3)$ and $(q^1q^2.q^3q^4)$ for vowels accurately captures the main weight categories and explains these vowels' gradient propensities to attract prominence, further supported by constrained underspecification and a structural interpretation of subsegments. $q^2$ – the steady state – acts as a head, with $q^2$ and $q^3$ contributing segmental weight similar to how the rhyme generally determines syllable weight. For example, $(q^1q^2.q^3q^4)$ is best analysed as $(q^1q^2.q^2q^3)$, merging two tripartite segmental structures by eroding the offset of the first and the onset of the second, and the $(q^1q^2)$ monophthong in Laurentian French is truly $(q^1q^3)$, consistent with results from work on vowel-inherent spectral change in English (e.g. Morrison and Nealy 2007).

**Phonological Alternations**. The large vowel inventory found in French is subject to several phonological alternations affecting vowels' qualities (e.g. Côté 2012, Walker 1984). For example, most vowels are shortened word-finally, and vowels only diphthongise only a subset of the time when they surface as phonologically long. We show that the shortening process can be formalised as the loss of a final-vowel subsegment, which explains oral vowels' reduced propensity to preserve weight in final open syllables and their inability to be diphthongised (no target to change). We also show that nasal vowels are best represented as having a consonantal final subsegment, which motivates their lack of word-final shortening, their capacity to be diphthongised in final open syllables, and their increased likelihood of attracting prominence. Furthermore, the consistent application of liaison in this context is therefore the result of the nasal consonant in $q^3$ producing effects previously argued to motivate an underlying floating consonant (e.g. Encrevé 1988). The representations argued for by gradient weight patterns are confirmed and enhanced by vowels' participation in phonetic and phonological alternations.

**Discussion**. Based on an analysis of the Laurentian French vowel system in combination with cross-linguistic phonetic and phonological patterns, we motivate subsegmental underspecification, propose parameters to determine weight using Q-Theoretic representations, and suggest structure organising subsegments. We additionally demonstrate how patterns like diphthongisation, word-final shortening, prominence shifting, phonetic variation and liaison argue for consistent subsegmental representations of Laurentian French vowels.

**References**


Côté, Marie-Hélène. 2012. “Laurentian French (Québec): extra vowels, missing schwas and surprising liaison consonants”. In: R. Gess, C. Lyche, and T. Meisenburg, Eds. *Phonological variation in French: illustrations from three continents*. Amsterdam: John Benjamins.

Encrevé, Pierre. 1988. *La liaison avec et sans enchaînement*. Seuil, Paris.

Garvin, Karee, Myriam Lapierre, and Sharon Inkelas. 2018. “A Q-theoretic approach to distinctive subsegmental timing”. *Proceedings of the Linguistic Society of America* 3.9: 1-13.

Inkelas, Sharon and Stephanie Shih. 2017. "Looking into segments". *Proceedings of AMP 2016*. Linguistic Society of America.

Inkelas, Sharon and Stephanie Shih. 2016. "Re-representing phonology: consequences of Q Theory." *Proceedings of NELS 46*.

Morrison, Geoffrey Stewart and Terrance M. Nealy. 2007. “Testing theories of vowel inherent spectral change”. *The Journal of the Acoustical Society of America* 122.

Walker, Douglas C. 1984. *The Pronunciation of Canadian French*. Ottawa, Canada: University of Ottawa Press.