

Sample Paper: High Vowel Devoicing in Québécois

by Bruce Hayes

1. Background

The purpose of this paper is to describe and analyze a process of High Vowel Devoicing in Québécois. Québécois is a dialect of French spoken in Canada, principally in the province of Quebec. According to my consultant, most forms of Québécois are mutually intelligible with continental French.

My consultant for this paper, Kie Zuraw, is a native speaker of Québécois. Kie's parents are English speakers, but when Kie grew up in Montreal she was sent to French-speaking daycare and later, school. She thus learned Québécois from her peer group, starting in the sandbox. Kie was also exposed considerably to the (basically continental) variety of French spoken by the largely Moroccan teachers in her school.

Kie spent her high school years in Urbana, Illinois; returned to Montreal for college, and has spent the last few years in Los Angeles as a linguistics graduate student. Her judgment is that her Québécois has survived these "droughts" of input data fairly intact.

The words used in this project were thought up by Kie and me (I using my dilapidated high school French). Kie brought along a very fat French dictionary, which helped a great deal.

Other than Phinney (1980), cited below, I can't find any reference sources on high vowel devoicing. I know I must have read somewhere that Québécois devoices high vowels between voiceless consonants, but I can't remember where. At any rate, now I have learned, with my own ears, that this is true.

2. Phonetics: The Contrast of Voiceless High Vowels vs. Zero

The first challenge in analyzing the voiceless high vowels of Québécois is to hear them. They are subtle. I found that by collecting minimal and near-minimal pairs for high vowel vs. zero, under good listening conditions, I could hear them pretty well. Here are some cases:

['stab]	'stable'
[sɪ'tab]	'citable'
[su'si]	'worry'
['si]	'yes (in cases of contradiction)'

[spiχ]	‘one turn of a spiral’
[su̟piχ]	‘to sigh’

My only reference source, Phinney (1980), claims that high vowels are *deleted*, not devoiced. These minimal pairs suggest she is wrong, although perhaps there really is deletion for those particular speakers Phinney studied.

3. The Environment of High Vowel Devoicing

It can be seen in all of the words above that the high vowel occurs (a) in stressless position; (b) surrounded by voiceless consonants. Here are some other words that make the same point:

[si̟'tχõ]	‘lemon’
[si̟'te]	‘to cite’
[pi̟s'tøl]	‘type of old French coin’
[ku̟s'to]	‘Cousteau’
[ʃu̟'kχut]	‘sauerkraut’
[,ynivɛχsi̟'te]	‘university’
[,paχtsi̟si̟'pe]	‘to participate’

As the last form shows, there is no prohibition against having voiceless vowels in consecutive syllables.

When at least one of the consonants surrounding the high vowel is voiced, then the vowel stays voiced:

[tsi̟'ɾe]	‘to pull’
[si̟'ne]	‘to sign’
[mu̟'tõũ]	‘sheep’
[ly̟'nɛt]	‘eyeglasses’
[ly̟'te]	‘to struggle’

Further, the vowel really does have to be high. In the following examples, the target vowel (boldface>) is stressless, and surrounded by voiceless consonants. But since it is not high, so it stays voiced:

[so̟'sis]	‘sausage’
[,fi ʃ a'sjõ]	‘put in a file-1 plur. imperfect subjunctive’
[ka'to]	‘proper name’

When asked, Kie explicitly rejects pronunciations like *[so̟'sis] or *[ka'to].

Note in the second word, the high vowel /i/ occurs surrounded by voiceless consonants. But it does not devoice, because it bears secondary stress. For more on stress in Québécois, see below.

Putting all these observations together, I propose the following phonological rule:

High Vowel Devoicing

$$\left[\begin{array}{l} +\text{syllabic} \\ +\text{high} \\ -\text{stress} \end{array} \right] \rightarrow [-\text{voice}] / [-\text{voice}] ___ [-\text{voice}] \quad (\text{optional})$$

That is: “Devoice a stressless high vowel when it is surrounded by voiceless sounds.” The rule assumes that all vowels are underlyingly voiced, so a vowel will appear as voiced unless High Vowel Devoicing applies to it.

4. Optionality

High Vowel Devoicing is stated as being optional. In our elicitation session, Kie applied it most of the time, but every once in a while suppressed the rule. In the data, if High Vowel Devoicing *can* apply to a form, the form is transcribed with a voiceless vowel. But, as far as we can tell, the voiced vowel is always an *option*, in extra-careful speech.

5. The Blocking Effect of Secondary Stress

In longer words, the effects of secondary stress can be seen. If our ears tell us right, secondary stress occurs on the first syllable of any word has three or more syllables. (The primary stress is always on the last syllable.) One might say that Québécois “wants” to have an initial secondary stress, but not in monosyllables (where the only syllable bears *primary* stress), nor in disyllables (where we would get two stresses adjacent to each other). Thus, you need a word of at least three syllables for the secondary stress to show up.

In the following words, all trisyllabic, secondary stress blocks High Vowel Devoicing in the vowel of the first syllable:

[₁ pista ¹ fje]	‘pistachio tree’
[₁ sykχi ¹ e]	‘sugar bowl’
[₁ kutøz ¹ mã]	‘in a costly way’
[₁ supœ ¹ ɛi]	‘soup-ery’ (made-up word)

These may be compared with the disyllabic forms earlier, where the high vowels were completely stressless, and therefore underwent devoicing.

It is possible to show that it really is *stress*, and not trisyllabicity alone, that blocks High Vowel Devoicing in these forms. If the high vowel is in the *medial* syllable of a word having at least three syllables, it will be stressless and thus devoice:

[₁ õfi̯mã]	‘the process of making into files’ ¹
[₁ sosi̯sõ]	‘little sausage’
[₁ plastsi̯ke]	‘to destroy with plastic explosives’
[₁ plastsi̯si̯te]	‘plasticity’
[₁ plastsi̯fi̯kaʼsjõ]	‘the process of laminating in plastic’

6. Alternations

Québécois has many suffixes, and also a rigid system of final stress assignment. This means that when a monosyllabic stem is augmented by a monosyllabic suffix, the stem must lose its stress, since the stress would fall on the suffix syllable. We would predict, then, that high vowels in stems, when surrounded by voiceless consonants, will *alternate* in voicing. The forms given below show this to be the case.

For reasons of space, I must omit a discussion of the morphology that gives rise to these alternations. Suffice it to say that Kie recognizes all the forms below as being morphologically related; that is, each suffixed form is plainly identifiable as being morphologically derived from the stem listed above it. See Appendix II for a list of some of the rules of Québécois morphology that are involved.

[ʼsvk]	‘sugar’, or ‘put sugar on-pres. sg.’
[sv̥kχe]	‘sugared’ ²
[ʼfi̯]	‘file’
[fi̯ʼje]	‘to put into a file’
[ʼku]	‘cost’
[ku̯ʼtø]	‘costly’

There is another, more striking pattern of alternations arises because of the secondary stress pattern mentioned earlier. If we add a *disyllabic* suffix (or two monosyllabic suffixes) to a monosyllabic stem, then the stem falls in the position of secondary stress, and as such it resists devoicing. Here are further forms of the paradigms above that show this:

[₁ sykχi̯e]	‘sugar bowl’
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¹ This word was made up, but sounds fine.

² Note that there is also an alternation of vowel tenseness here. I believe this is allophonic: stress vowels before a voiceless obstruent get lax.

[₁ fɪʃa'sjõ]	'put in a file-1 plur. imperfect subjunctive'
[₁ kutøz'mã]	'in a costly way'

7. Analysis

The rules mentioned already can be stated as follows, in the order that is needed for the analysis to work:

Final Stress:	Assign main stress to the last syllable.
Secondary Stress:	Assign secondary stress to the initial syllable, <i>unless it directly precedes the main stress, or already has main stress.</i>
High Vowel Devoicing:	as above

The rules must be applied in this order, because: (a) Secondary Stress must “know” where the primary stress is (to avoid “bumping into” the primary stress); (b) High Vowel Devoicing must “know” where the stresses are (because both primary and secondary stresses block devoicing). Here are some derivations showing how the rules work:

8. Illustrative Derivations

'file'	'to put into a file'	'put in a file-1 plur. imperfect subjunctive'	'the process of making into files'	
/fiʃ/				lexicon entry for 'file'
—	/fiʃ-e/	—	—	Morphology: N → V 'to do something to involving N' and X → Xe in [Verb, +infinitive] V + asjõ → N 'the process of V-ing' (missing morphological rule here)
—	—	/fiʃ-asjõ/	—	
—	—	—	/ã-fiʃ-mã/	
'fiʃ	fi'ʃe	fiʃa'sjõ	ãfiʃ'mã	Phonology: Final Stress
—	—	₁ fiʃa'sjõ	₁ ãfiʃ'mã	Secondary Stress
—	fɪ'ʃe	—	₁ ãfɪ'ʃmã	High Vowel Devoicing
[₁ fɪʃ]	[fɪ'ʃe]	[₁ fɪʃa'sjõ]	[₁ ãfɪ'ʃmã]	output

9. A Cloud on the Horizon

I am baffled why one particular word showed a voiceless vowel where the analysis says it shouldn't:

[sɪ̥ta'sjõ] 'citation'

This "should be" [sɪta'sjõ], with initial secondary stress and a voiced /i/. The analysis given above works for all the data but this form, and so I am reluctant to give it up entirely. Some possibilities to consider are:

- That voicing in vowels, contrary to what I thought, is phonemic.
- That secondary stress, contrary to what I thought, is phonemic. The "phonemic stresslessness" of the first syllable of [sɪ̥ta'sjõ] is what allows its high vowel to devoice.

I hope that further research may dispel this mystery.

References

Phinney, Marianne (1980) "Evidence for a Rhythm Rule in Quebec French," *Proceedings of the Tenth Meeting of the North Eastern Linguistic Society, Cahiers linguistiques d'Ottawa* 9.4, 369-382.

Appendix I: Full Set of Words Elicited (omitted, to spare the trees)

Appendix II: Some Morphological Rules of Québécois

N + je → N	N+je means "thing that contains or bears N"
V + e → A	'having undergone the action of V'
N → V	'to do something to involving N' (compare English <i>to file</i>)
V + asjõ → N	Vasjõ means 'the process of V-ing'
N + õ → N	N + õ means 'little N'
N + -ø → A	'N-ø means 'abounding in N' Re /t/: we're not telling ³
A + ite → N	A + ite means 'the quality of being A'
N + œɛ → N	Nœɛ means 'person who engages in something involving N'
A + mǎ → Adv ⁴	

V → Ve

when [+infinitive]