Licensing constraints and the internal structure of Laurentian French Vowels

Philippe Gauthier – pgauthi3@uwo.ca

Presented at: 2020 meeting of the Canadian Linguistics Association

Current state of Affaires

- A complete analysis of Laurentian French (LF) vowel system has eluded phonologists for decades;
- Several attempts have come close (Côté 2010, Déchaîne 1991, Dumas 1981, Poliquin 2007, McLaughlin 1986, Reighard 1986)
- Many propose descriptive analyses: distribution of vowels, list of phonemes, etc.
- Few offer explanatory analyses that answer these questions:
  - "What are the properties of LF that entail the phonological phenomena that are observed?"
  - "What is the underlying structure of the vowel system?"
- My goal:
  - To sketch out an analysis of LF that has both descriptive and explanatory power;
  - that both (1) describes the state of affaires in LF;
  - and (2) explains why we see the phonological phenomena that we do

The facts of LF

- Distribution of tenseness – **word-final syllable**:
  - Vowels *generally* obey the "Loi de position" (e.g. see Lyche and Durand, 2004):
    - + TENSE ➔ "open syllables" — - TENSE ➔ "closed syllables"
    - open σ [i y u e ɛ ø o] — *vie, rue, roue, fée, fait, feux, chaud*
    - closed σ [ɪ ʏ ʊ ɛ œ ɔ] — *brique, flute, coupe, faite, jeune, poste*
  - Two vowel-lengthening contexts can "override" the *loi de position* (c.f. Côté, 2010): (A) lexically long vowels, and (B) voiced-fricative lengthening

    (Only a subset of vowels are shown here for simplicity)
    - A. [ø: o:] — *jeûne, paume*
    - B. [i: y: u:] — *cire, pure, sourd*
- Distribution of tenseness – **non-final syllable**:
  - In non-final position, much more variation exists; high vowels exhibit <u>vowel harmony</u> in the following way:
    - - TENSE ➔ followed by a - TENSE +HIGH vowel; +TENSE ➔ elsewhere

    a) VH [ɪ]…[ɪ] — *vinyle*

    b) no VH [i]…[ɛ] — *mitaine*

    c) "opaque VH" [ɪ]…[iː] — *missive*

    ***only high vowels can trigger harmony*

    ***harmony occurs even when the trigger lengthens*

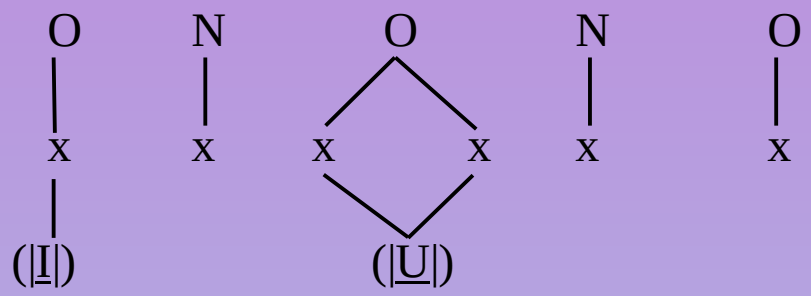
The facts of LF -2

- Summary:
- Vowels prefer to be tense at the end of a word;
- Vowels prefer to be lax and short OR tense and long when followed by a word-final consonant
- The phonology distinguishes a high lax vowel from a mid lax vowel for the purposes of vowel harmony (both in the trigger AND target)

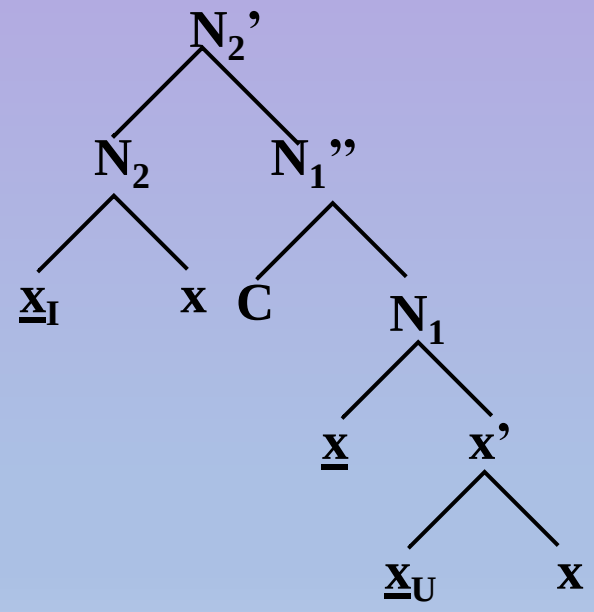
Government Phonology; Insights from GP 2.0

- Quick history:
- GP 1.0 (KLV 1985, 1990, Charette 1991) is "flat" linear phonology (see Scheer 2013) based on elements
- Representations are strings of CV pairs (or O(nset) and N(ucleus)); generally, "coda" consonants are represented as onsets of following empty nuclei
- An element is a fully specified feature matrix and hence fully interpretable; elements are privative;
- 3 main elements used to describe vowels:
  - |I| = "frontness"
  - |U| = "roundness"
  - |A| = "lowness"
- Main innovations in GP 2.0 (see Pöchtrager 2006; Pöchtrager 2018) :
  - Replacing "flat" phonology with tree structures (based on X-bar)
  - Central idea: *If it **interacts** with structure, then it must **be** structure*
  - Replacing |A| with structure: a low vowel has 'more structure' than a high vowel
  - Vowel length is represented by how many points (x's) a nuclear head is in relation with (i.e. how many points it 'licenses')

An example of GP 1.0 representation:

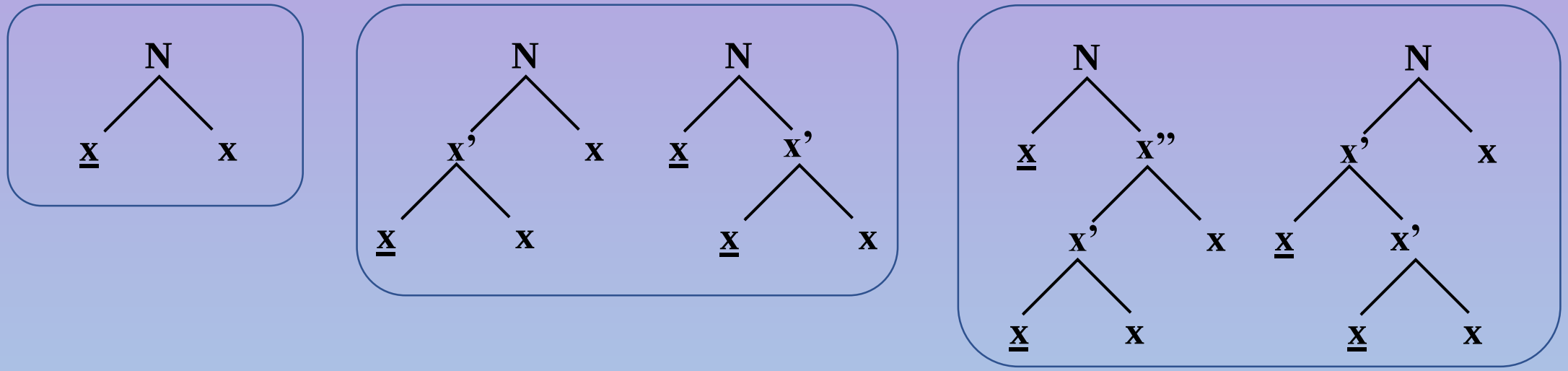


An example of GP 2.0 representation:



Current Proposal -1

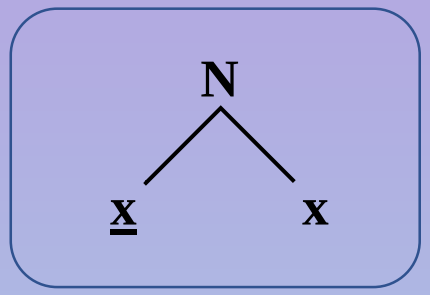
- A nuclear head position is represented by "x";
- Nuclear heads can merge with a complement (x) and project to a bar position (x'); can also merge with a projection (i.e. bar position);
- For simplicity, I use "N" (rather than x' or x'') to represent the highest nuclear projection here
- N can then merge with consonants (C), thereby projecting upwards even further (N', N'', etc.)
- Basic vowel structure (all possibilities shown):

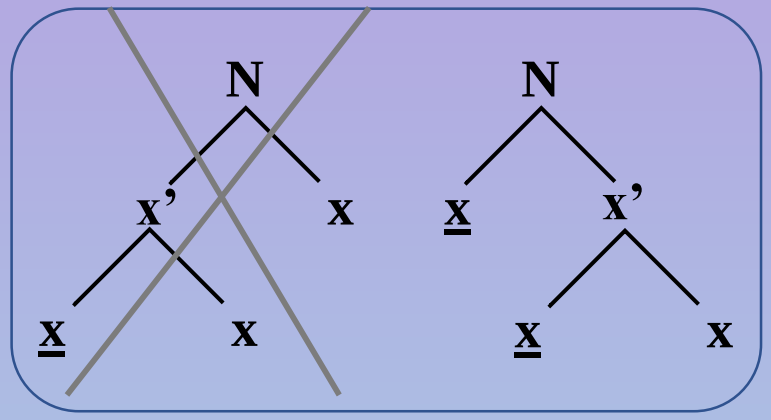


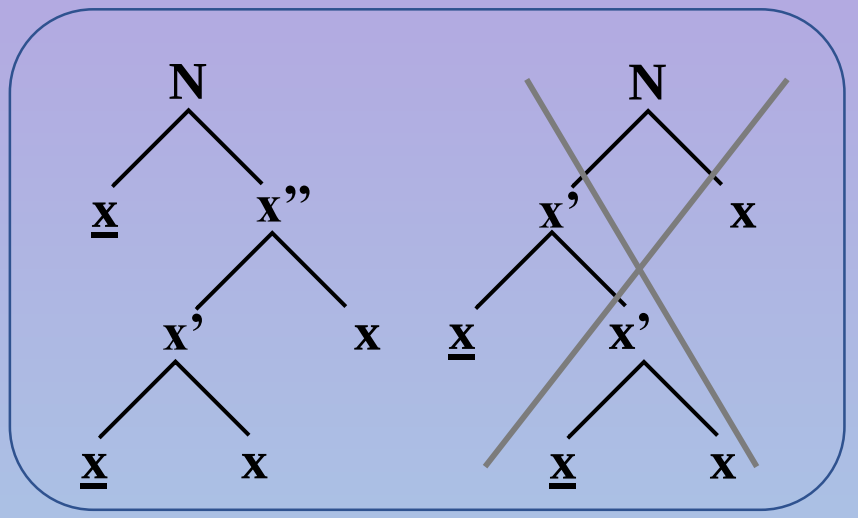
- high vowels Mid vowels Low vowels

Current Proposal -2

- Assumption: higher heads always project to N in Laurentian French



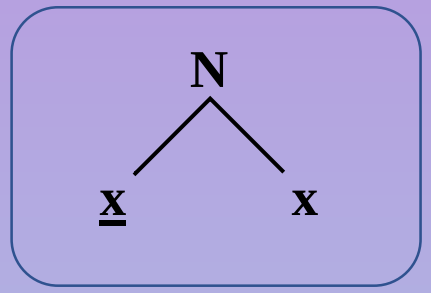


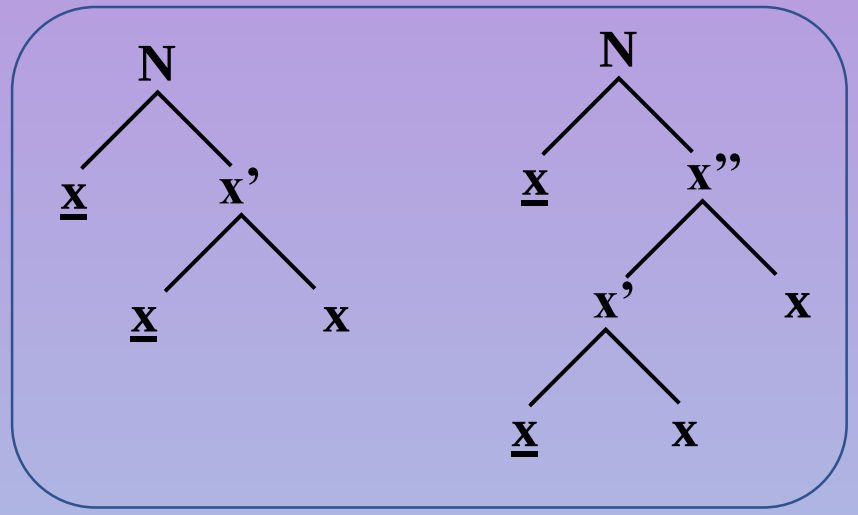


- high vowels
- Mid vowels
- Low vowels

Current Proposal -3

- Recall: High vowels form a **natural class** with respect to vowel harmony



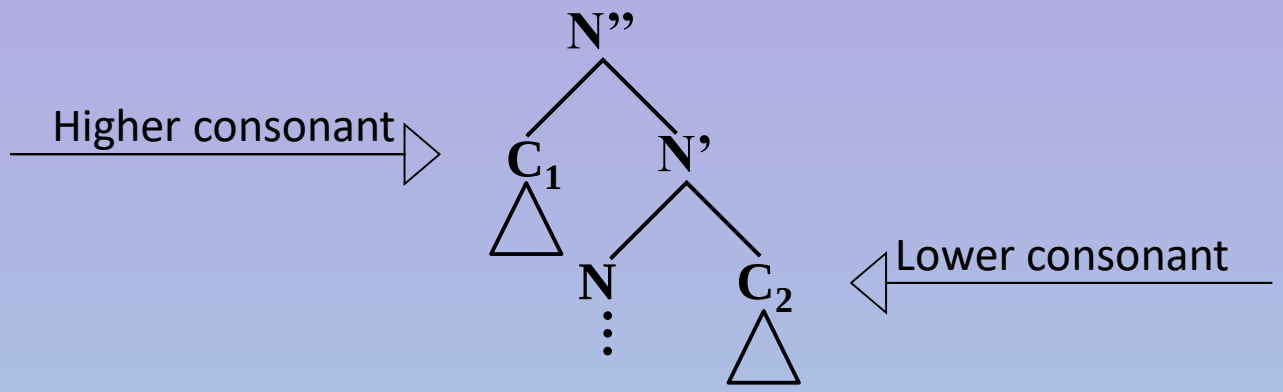


High vowels contain 1 nuclear head

mid/low vowels contain 2 nuclear heads

Current Proposal -4

- Basic Higher structure (see Pöchtrager 2006 for a detailed explanation of this structure)
- Here we focus on nuclear structure, hence consonant structure is obscured (triangles)
- We are also focusing on "higher" structure here, so lower structure is obscured here (3 vertical dots)
- Nucleus can merge with a consonant on its right (C_2) and/or its left (C_1)

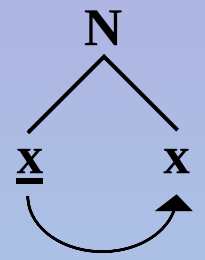


Constraint on "lower consonant":
Must be the final consonant of the domain
(§ Pochtrager, 2006, p. 122)

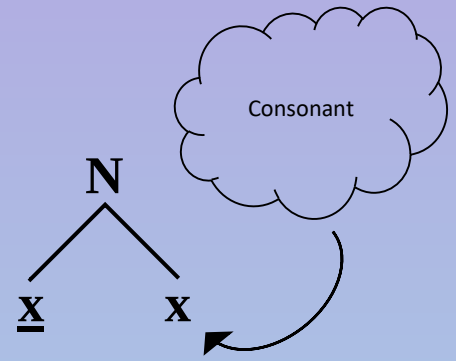
This ensures that only word-final consonants merge here

Current Proposal -5

- Each non-head position must be in a licensing relationship (see Pöchtrager 2006 for a list of possible licensing relationships; see Pöchtrager 2020 for the original discussion over the insight into tenseness used in the current analysis)
- For our purposes, I will use arrows to illustrate a licensing relationship; the type of license is omitted
- Recall: tense vowels need not be followed by a consonant; Lax vowels only appear before a consonant
- We can represent this in the following way:
  - A (non-head) x-point within a vowel must always be licensed;
  - an x within lax vowels enters into a licensing relationship with the "following consonant";
  - The same x point within tense vowels is licensed by the nuclear head

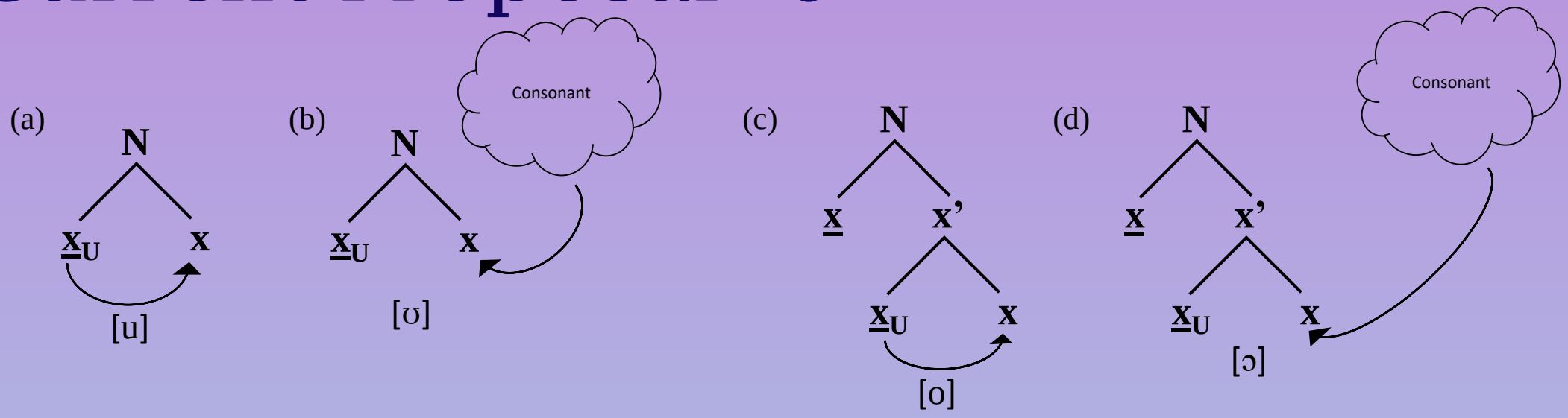


tense
Licensed from within



Lax
Licensed from without

Current Proposal -6

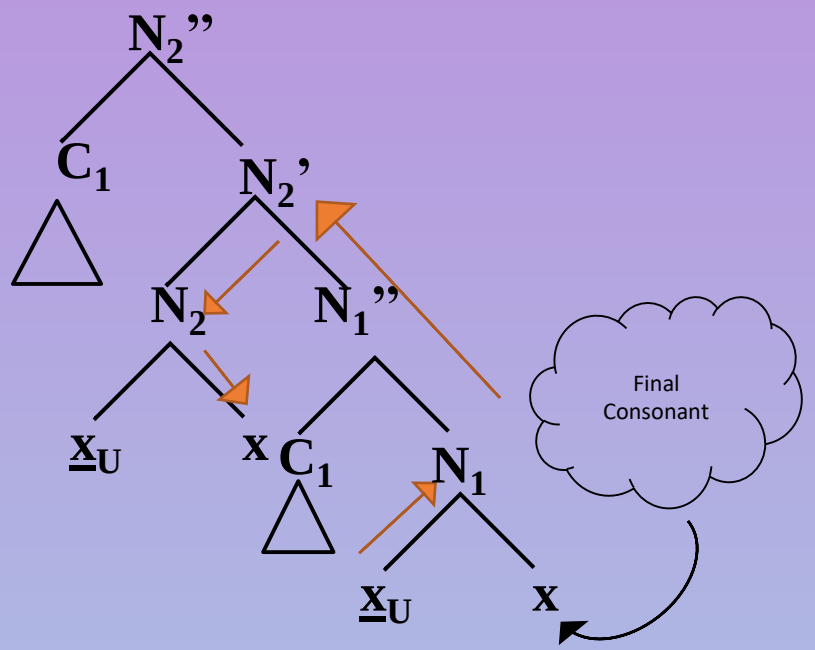


- Note: in LF, we will posit that it is always the lowest head that bears the elements
- Consonants merged in the nuclear structure licence the available x-point (b, d)
- When no such licenser is available, the x-point has no choice but to get licensed by the nuclear head (a, c)
- In high vowels, elements are annotated on the higher projection (which is the only available). This leaves them free to "percolate" or influence higher structure.
- In mid vowels, elements are annotated on lower projection. This creates a barrier in their realm of influence.

Current Proposal -7

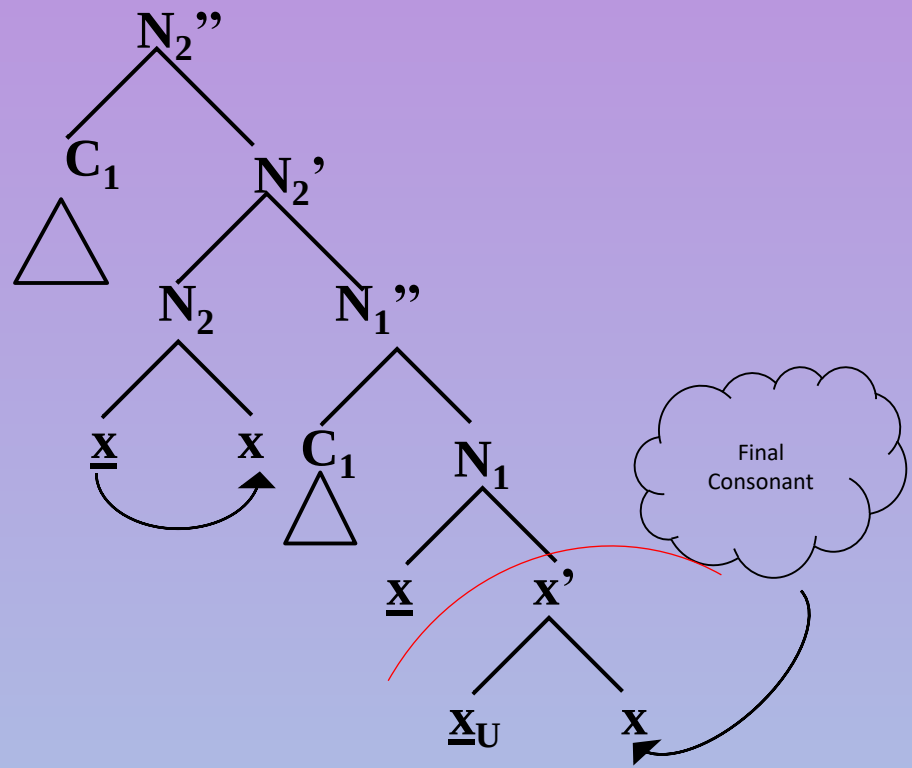
- In both cases: final consonant licenses the available x-point; the nuclear head is free (but not obligated) to license other notes
- In (a): nuclear head in N_1 licenses the available x-point in the preceding high vowel, both of which are visible to each other;
- In (b), nuclear head in N_1 is blocked by the higher nuclear head, so cannot influence preceding vowel

(a)



VH: [ʊ] [ʊ]

(b)



Non-VH: [u] [ʊ]

Current Proposal -8

- Some final observations and points for future research:
- A. What is the exact nature of "license from within" and "license from without"? Crucially, are they the same thing?
  - At first blush, they seem different. For example, lexically long vowels only appear long when followed by a final consonant. So there is a possible outside licenser available. But, according to Pöchtrager 2006, length is encoded as m-command from the nuclear head. So "license from within" wins out and forms a long (and tense) vowel.
- B. What is the nature of the relationship between the two internal nuclear heads?
  - At first blush, the idea that a barrier is formed between the two nuclear heads also explains why only high front vowels trigger assibilation of alveolar stops (t/d ➔ t^s/d^z). If the difference between a [i] and [e] is the location of the element (higher vs. lower head), and only higher heads can percolate up the tree, then this explains why only high vowels can influence preceding stops.
  - However, why does the barrier allow licensers from without to penetrate inside (e.g. in the case of a following consonant licensing a mid vowel)?
  - Are there any other characteristics that separate these two heads?
  - Are there languages which annotate all elements on the higher head?
- C. Lexical length vs derived length
  - So far, the assumption has been that the non-head x-point seeks out a licenser, first by looking outside to a following consonant, then by looking inside, to the nuclear head.
  - How do we capture a lexically long vowel in this model? What about a vowel that is lengthened due to the following consonant? These remain unclear.

Bibliography

- Charette, M. (1991). *Conditions on phonological government*. Cambridge: Cambridge University Press.
- Côté, M.-H. (2010). La longueur vocalique devant consonne allongeante en contexte final et dérivé en français laurentien. In Y. Frenette, F. Martineau, & C. LeBlanc (Eds.), *Vues sur les français d'ici*. Presses de l'Université Laval.
- Dechaine, R.-M. (1991). Stress in Quebecois: Evidence from High Vowels. *Papers from the Regional Meetings, Chicago Linguistic Society*, *27*(1), 107–118.
- Dumas, D. (1981). Structure de la diphtongaison québécoise. *The Canadian Journal of Linguistics*, *26*(1), 1–61.
- Kaye, J., Lowenstamm, J., & Vergnaud, J.-R. (1985). The Internal Structure of Phonological Elements: A Theory of Charm and Government. *Phonology Yearbook*, *2*, 305–328.
- Kaye, J., Lowenstamm, J., & Vergnaud, J.-R. (1990). Constituent Structure and Government in Phonology. *Phonology*, *7*(2), 193–231.
- Lyche, C., & Durand, J. (2004). Structure et variation dans quelques systèmes vocaliques du français: L'enquête Phonologie du français contemporain (PFC). In G. Aub-Buscher, A. Coveney, M.-A. Hintze, & C. Sanders (Eds.), *Variation et francophonie: Mélanges*. L'Harmattan France.
- McLaughlin, A. (1986). Les Emprunts à l'anglais et la phonologie des voyelles hautes en français montréalais. *Revue québécoise de linguistique théorique et appliquée*, *5*(4), 179–214.
- Pöchtrager, M. A. (2006). *The structure of length*. Universität Wien.
- Pöchtrager, M. A. (2018). Sawing off the branch you are sitting on. *Acta Lingustica Academica*, *65*, 47–61.
- Pöchtrager, M. A. (2020). Tense? (Re)lax! *Acta Lingustica Academica*, *67*(1), 53–71.
- Poliquin, G. C. (2007). *Canadian French vowel harmony*. Harvard University.
- Reighard, J. (1986). Une analyse concrète du système vocalique du français montréalais. *Revue quebecoise de linguistique theorique et appliquee*, *5*(4), 281–308.
- Scheer, T. (2013). Why phonology is flat: The role of concatenation and linearity. *Language Sciences*, *39*, 54–74.