

Laurentian French laxing harmony and the Activity Principle

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Overview

- A strong version of the Activity Principle (Dresher 2015, 2016) predicts that redundant features should not be phonologically active.
- Laurentian French appears to counterexemplify this: allophonic laxing of high vowels feeds a process of laxing harmony (Walker 1984; Poliquin 2006).
- However, an understanding of the French vowel system as a whole shows that the [\pm tense] contrast can plausibly be analyzed as including the high vowels in its scope.

Successive Division Algorithm (SDA)

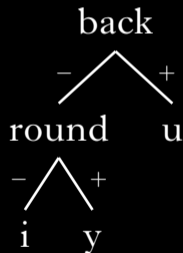
- (1)
 - a. Begin with *no* feature specifications: assume all sounds are allophones of a single undifferentiated phoneme.
 - b. If the set is found to consist of more than one contrasting member, select a feature and divide the set into as many subsets as the feature allows for.
 - c. Repeat step (b) in each subset: keep dividing up the inventory into sets, applying successive features in turn, until every set has only one member.

Two hierarchies for French high vowels

(2) a. $[\pm\text{round}] \gg [\pm\text{back}]$



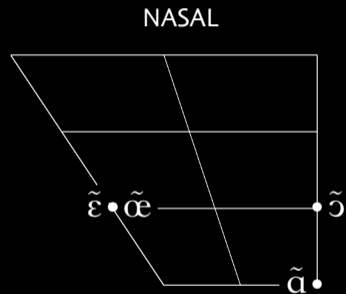
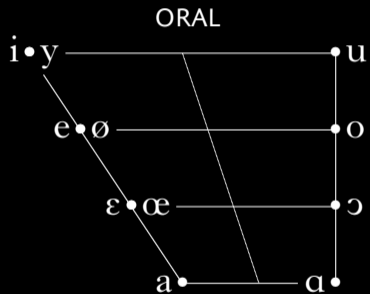
b. $[\pm\text{back}] \gg [\pm\text{round}]$



Assibilation of /t/ and /d/ before /i/ and /y/

- (3) a. *j'ai dit* [ʒedzi]
b. *du pain* [dzypɛ̃]
c. *petit* [p(ə)tsi]
d. *têtu* [tɛtsy]

Figure 1: Vowel contrasts in French



No laxing in final open syllables

- (4) a. *béni* [beni]
b. *début* [deby]
c. *dégoût* [degu]
d. *cru* [kɾy]

Laxing in final syllables closed by a C other than /v z ʒ ʁ/

- (5) a. *élite* [elɪt]
b. *annule* [anɥl]
c. *égoutte* [egøt]
d. *arbuste* [aʁ.bɥst]

Final syllable closed by /v z ʒ ʁ/

- (6) a. *église* [egli:z]
b. *Vésuve* [vezy:v]
c. *écluse* [ekly:z]
d. *sourd* [su:ʁ]

Optional laxing in closed non-final syllables

- (7) a. *mystère* [mɪs.tɛ:ʁ] ~ [mɪs.tɛʁ]
b. *binerie* [bɪn.ʁi] ~ [bɪn.ʁi]
c. *bustier* [bys.tsje] ~ [bys.tsje]
d. *soûlerie* [sɔl.ʁi] ~ [sul.ʁi]
e. *moucheté* [mɔʃ.te] ~ [muʃ.te]

No laxing in open non-final syllables

- (8)
- a. *mitaine* [mi.tɛn]
 - b. *guidons* [gi.dõ]
 - c. *jumelles* [ʒy.mɛl]
 - d. *culotte* [ky.lɔt]
 - e. *bouton* [bu.tõ]
 - f. *coûter* [ku.te]

No laxing in non-final syllables closed by voiced fricatives

- (9) a. *Israël* [iz.ʁa.ɛl]
b. *fuselage* [fyz.la:ʒ]
c. *ouzbèque* [uz.bɛk]

Harmonic laxing in non-final open syllables

- (10) a. *minute* [mɪ.nɪt]
b. *pourrite* [pʊ.ʁit]
c. *stupide* [stsy.pid]
d. *choucroute* [ʃʊ.kʁʊt]

No harmonic laxing before tautosyllabic /v z ʒ ʋ/

(11) *hirsute* [iʋ.syt]

Words with three high vowels

| (12) | | NO HARMONY | PENULT ONLY | INITIAL ONLY | ITERATIVE |
|------|------------------|---------------|---------------|---------------|---------------|
| a. | <i>juridique</i> | [ʒy.βi.dzi:k] | [ʒy.βI.dzi:k] | [ʒY.βi.dzi:k] | [ʒY.βI.dzi:k] |
| b. | <i>limousine</i> | [li.mu.zin] | [li.mʊ.zin] | [lI.mu.zin] | [lI.mʊ.zin] |
| c. | <i>illumine</i> | [i.ly.min] | [i.lY.min] | [I.ly.min] | [I.lY.min] |
| d. | <i>dissimule</i> | [dzi.si.mɯ] | [dzi.sI.mɯ] | [dZI.si.mɯ] | [dZI.sI.mɯ] |

Table 1: Cross-classification of parameters

| | NON-ITERATIVE | ITERATIVE |
|---------|----------------|----------------|
| PENULT | [ʒy.bɪ.dzɪk] | [ʒY.Bɪ.dzɪk] |
| | [i.le.ʒɪ.tsɪm] | [i.le.ʒɪ.tsɪm] |
| INITIAL | [ʒY.bɪ.dzɪk] | [ʒY.Bɪ.dzɪk] |
| | [ɪ.le.ʒɪ.tsɪm] | [ɪ.le.ʒɪ.tsɪm] |

Optional dissimilatory laxing

- (13) a. *midi* [mɪ.dzi] ~ [mi.dzi]
b. *fini* [fɪ.ni] ~ [fi.ni]
c. *chimie* [ʃɪ.mi] ~ [ʃi.mi]
d. *Zoulou* [zʊ.lu] ~ [zu.lu]

No dissimilatory laxing of non-identical vowels

- (14) a. *Julie* [ʒy.li]
b. *hibou* [i.bu]
c. *ciguë* [si.gy]
d. *poulie* [pu.li]

Opaque interaction of harmony and tensing

- (15)
- a. *piqûre* [pɪ.ky:ʁ]
 - b. *russise* [ʁY.sɪ:z]
 - c. *humour* [Y.mu:ʁ]
 - d. *poussive* [pʊ.sɪ:v]

Table 2: Derivation of *russise*

| U.R. | /ɸysiz/ |
|------------------------|-----------|
| Syllabification | ɸy.siz |
| Closed-Syllable Laxing | ɸy.siz |
| Harmony | ɸY.siz |
| Tensing | ɸY.siz |
| Lengthening | ɸY.si:z |
| S.F. | [ɸY.si:z] |

Tense high vowels in English loanwords

(16)

| | LOANWORD | | NATIVE ANALOGUE |
|----|--------------|--------|--------------------|
| a. | <i>mean</i> | [min] | <i>mine</i> [mɪn] |
| b. | <i>boom</i> | [bum] | <i>boum</i> [bʊm] |
| c. | <i>jeans</i> | [dʒin] | <i>fine</i> [fɪn] |
| d. | <i>suit</i> | [sut] | <i>route</i> [ʁʊt] |

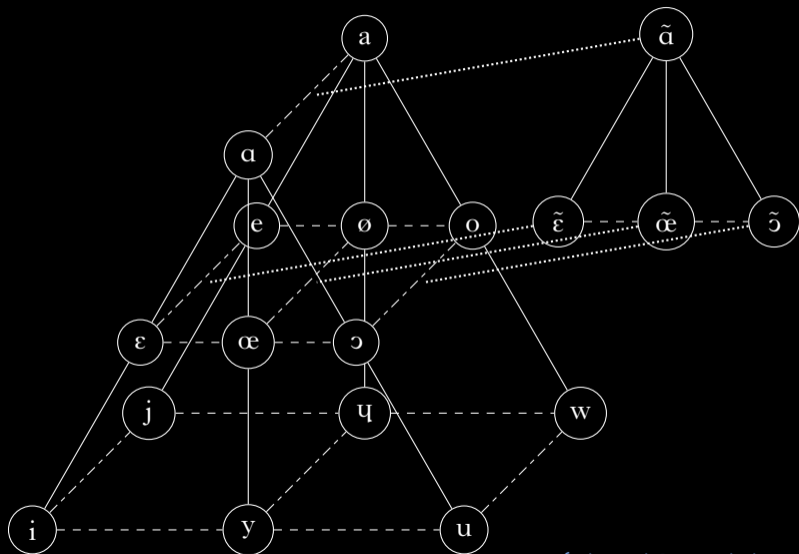
Tense–lax contrasts in the mid vowels

- (17) a. *fée* [fe] *fait* [fɛ]
b. *jeûne* [ʒø̃n] *seul* [sœ̃l]
c. *rôle* [ʁõl] *colle* [kɔ̃l]

Contrasting non-final tense and lax mid vowels

- (18) a. *beauté* [bɔte] < *beau* [bo]
b. *botté* [bɔte] < *botte* [bɔt]

Figure 2: Contrasts in the French vowel system

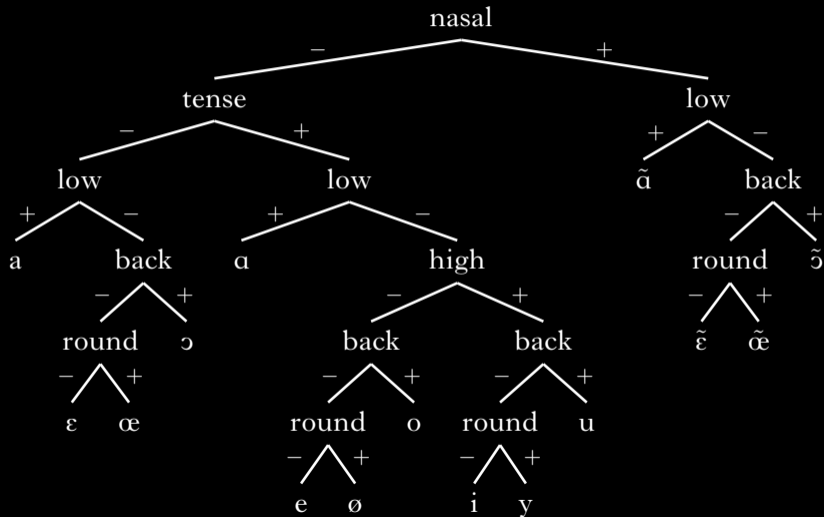


(adapted from Jakobson & Lotz 1949: 157)

Neutralization of the /ɑ/-/a/ contrast in open final syllables

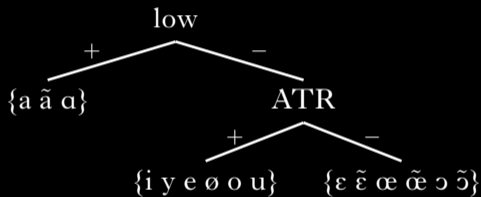
| | | | | |
|------|-----------------|-------------|--------------|---------|
| (19) | CLOSED FINAL | | OPEN FINAL | |
| a. | <i>chatte</i> | [ʃat] | <i>chat</i> | [ʃɑ] |
| b. | <i>basse</i> | [bas] | <i>bas</i> | [ba] |
| c. | <i>plate</i> | [plat] | <i>plat</i> | [pla] |
| | OPEN NON-FINAL | | OPEN FINAL | |
| d. | <i>entasser</i> | [ã.ta.se] | <i>tas</i> | [ta] |
| e. | <i>sénateur</i> | [se.na.tœʁ] | <i>sénat</i> | [se.nɑ] |
| f. | <i>tabagie</i> | [ta.ba.ʒi] | <i>tabac</i> | [ta.ba] |

Figure 3: Proposed feature hierarchy for French vowels



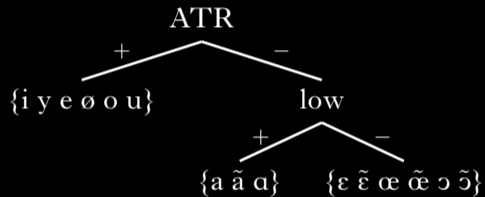
Ordering binary $[\pm\text{low}]$ and $[\pm\text{ATR}]$

(20) a. $[\pm\text{low}] \gg [\pm\text{ATR}]$



| | low | ATR |
|-----|-----|-----|
| /a/ | + | |
| /e/ | - | + |
| /ɛ/ | - | - |

b. $[\pm\text{ATR}] \gg [\pm\text{low}]$



| | low | ATR |
|-----|-----|-----|
| /a/ | + | - |
| /e/ | | + |
| /ɛ/ | - | - |

Coalescence of /a/ and /e/ with specifications as in Fig. 3

| | | | | | |
|------|-----------------|---|-------------------|---|---------|
| (21) | /a/ | + | /e/ | → | [ɛ] |
| | -nasal | | -nasal | | -nasal |
| | -tense | | +tense | | -tense |
| | +low | | -low | | -low |
| | | | -high | | (-high) |
| | | | -back | | -back |
| | | | -round | | -round |

Conclusions

- The contrastive hierarchy in Fig. 3 makes it possible to say that $[\pm\text{tense}]$ is phonologically active on high vowels without abandoning the Activity Principle: Poliquin's (2006) account of harmony does not require a non-contrastive feature to be phonologically active.
- The hierarchy is also consistent with attested patterns of assibilation (Burstynsky 1968) and coalescence (St-Amand 2012).
- Incorporating Jakobson & Lotz's (1949) proposal that the $/\alpha/-/a/$ opposition is a tense–lax contrast removes St-Amand's (2012) objection to binary features.

References

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