Phonologically-conditioned cyclicity: suffix's phonological shape can affect cyclic effects in base-derivative pairs

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1. Introduction

- The phonology of derivatives can be:
  - *regular*: the *derivative* follows the language's phonotactics, i.e. it behaves like monomorphemic neighbours.
  - *cyclic*: the *derivative* bears resemblance to *its base* beyond what is predicted by the language's phonotactics.
- There are cases where cyclic effects in base-derivative pairs are *phonologically conditioned* (Kenstowicz 1996).

Research question: what kind of phonological properties can condition cyclic effects in base-derivative pairs?

- van Oostendorp (2004) proposed that cyclicity can be conditioned by *suffix's phonological shape*, based on Dutch data.

(1) a. Stress is regular with *vowel-initial* suffixes
envoud [ˈenvɑut] 'simplicity'
eenvoud-ig [enˈvɑud-əx] 'simple'
b. Stress is cyclic with *consonant-initial* suffixes
televisie [ˈteləvizi] 'television'
televisie-achtig [ˈteləvizi-ˌʔɑxtɪx] 'television-like'

- van Oostendorp proposed *resyllabification* + *derived-environment effect* (DEE) as a mechanism to account for this pattern:
  - V-initial suffix → *resyllabification* of stem-final C → *stress shift*
  - C-initial suffix ↛ *resyllabification* of stem-final C ↛ *stress shift*

Goals:

- provide additional empirical evidence from Standard French for *the suffix's phonological shape* conditioning cyclic application in derivatives.
- propose a similar *derived-environment effect* analysis to van Oostendorp's, but which does not involve *resyllabification*.

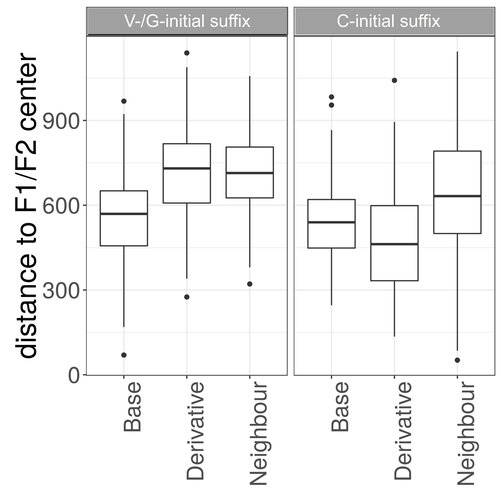
- Why Standard French (SF)? Literature (Dell 1985; Nguyen & Fagyal 2008) suggests that suffix's phonological shape conditions conditions application of *Loi de Position* (LdP) in derivatives:

(2) a. Regular application of LdP with V- and G-initial suffixes
fêt-ons 'we party' [fetɔ̃]/*[fɛtɔ̃] ≠ *fête* [fɛt]
b. Cyclic application otherwise
fête-rons 'we will party' [fɛtʁɔ̃]/*[fetʁɔ̃] = *fête* [fɛt]

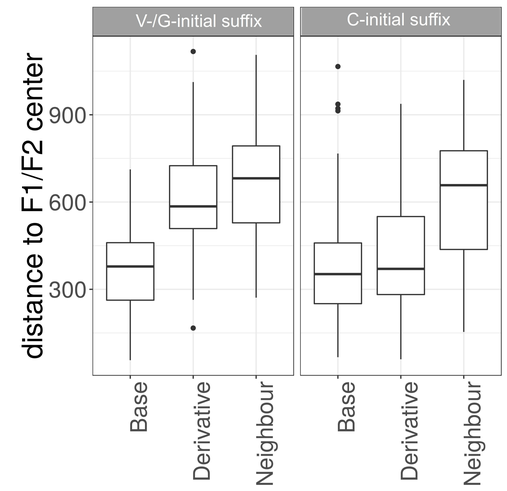
2. Methods

- To test cyclicity in SF, three forms must be compared:
  - Derivative (e.g. *fêt-ard* 'partier')
  - Base (e.g. *fête* 'party')
  - Phonotactic baseline/Neighbour (e.g. *feta*)
- 42 Derivative-Base-Neighbour triplets were selected.
- 14 bases for each of the three vowels occuring stem-finally in consonant-final bases: [ɛ, o, ɔ] (e.g. *fête*, *côte*, *vol*)
- Neighbour matches syllabic structure in Derivative (control for LdP) + vowel after the target vowel (control for V harmony).
- Words embedded in carrier sentence (3 repetitions of each word)
  - *On dit pas X, on dit Y.* (e.g. X = *fitard*, Y = *fêtard* (= target))
- 10 speakers from Paris (4 women speakers analyzed so far)

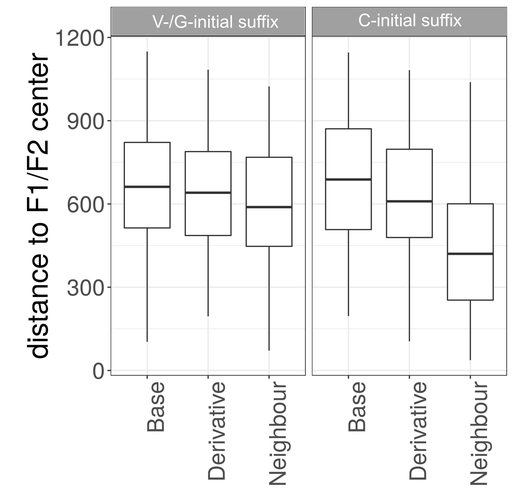
3. Results



(a) Base with [ɛ]



(a) Base with [ɔ]



(c) Base with [o]

Model comparison

- Dependent variable: distance to F1/F2 center
- Fixed effects:
  - VowelBase (ɛ, o, ɔ)
  - ConsonantalContext (_CV, _CGV, _CLV, _CCV, _C#)
  - Interaction: VowelBase, ConsonantalContext
- Random effects: random intercept by speaker and by item

- 4 models were fit to the data:
  - *Fully phonotactic model*: Derivative = Neighbour
  - *Fully cyclic model*: Derivative = Base
  - *Morphologically-conditioned cyclicity*: Derivative = Base if inflection; Derivative = Neighbour otherwise
  - *Phonologically-conditioned cyclicity*: Derivative = Neighbour if V or G-initial suffix; Derivative = Base otherwise

- Results:

	AIC	BIC
Phonotactic model	24465.46	24598.50
Cyclic model	24415.79	24565.46
Phono/cyclic (morph)	24437.50	24587.17
Phono/cyclic (phono)	**24381.18**	**24530.84**

In Standard French, suffix's phonological shape conditions cyclic application in derivatives.

4. Discussion

- Resyllabification of stem-final C does not necessarily trigger regular application of LdP.
- C-liquid clusters are syllabified as onsets in French (Goslin & Frauenfelder 2000), but *liquid-initial suffixes* trigger *cyclic application* in stems.

(3) Cyclicity with liquid-initial suffixes
fête-rons 'we will party' [fɛtʁɔ̃]/*[fetʁɔ̃] = *fête* [fɛt]

- Alternative DEE analysis: modification of *release properties* of stem-final C induced by suffix triggers regular application of LdP (Storme 2017).
  - $V_{\neq ə}$/G suffix → adds *formant transitions* to stem-final C → *LdP*
  - $C_{\neq G}$ suffix ↛ adds *formant transitions* to stem-final C ↛ *LdP*
  - cf. Storme (2017): C is more similar _# and _L than _# and _G.
- How to explain cyclicity before epenthetic schwa?

(4) Cyclicity before epenthetic schwa
maigr-e-let 'thin-DIM' [mɛgʁəle]/*[megʁəle]
= Base *m*[ɛ]*gre* ≠ Neighbour [e]*crevisse*

- [ə] is the *epenthetic* vowel: it can be *epenthesized* in the base (e.g. *maigr*[ə]).
- When epenthesized in the derivative (e.g. *maigr*[ə]*let*), it therefore does not add new formant transitions that cannot be added in the base.

6. Conclusion

- The preliminary results of this pilot study support van Oostendorp's claim that *suffix's phonological shape can condition cyclic effects*.
- However, the results do not support the idea that *resyllabification* of stem-final C is crucial in explaining the pattern.
- Goals:
  - Analyze other participants' data + run follow-up experiment
  - Control for other factors aside LdP + vowel harmony.
  - E.g. consonants flanking V, base/derivative frequency, etc.

References

Dell, François. 1985. *Les règles et les sons. second, revised, edition*. Paris: Hermann.
Goslin, Jeremy & Ulrich H. Frauenfelder. 2000. A comparison of theoretical and human syllabification. *Language and Speech* 44:409–436.
Kenstowicz, Michael. 1996. *Base-Identity and Uniform Exponence: Alternatives to Cyclicity* 363–393. University of Salford: European Studies Research Institute.
Nguyen, Noaɥel & Zsuzsanna Fagyal. 2008. Acoustic aspects of vowel harmony in French. *Journal of Phonetics* 36:1–27.
van Oostendorp, Marc. 2004. Crossing morpheme boundaries in dutch. *Lingua* 114:1367–1400.
Storme, Benjamin. 2017. Perceptual sources for derived environment effects and closed-syllable vowel laxing. MIT, PhD Dissertation.

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