Introduction

- Theories of optionality model intra-speaker variation in productions, but rely on empirical studies that don’t shed light on this issue.
- Corpus studies reveal population-wide variation and variant frequencies, and native-speaker intuitions do not necessarily reflect production behavior.
- When we model the variation in these sources, what are we modeling? The grammars of different speakers? The multiple grammars that a single speaker controls, i.e. register variation? The variation that a single grammar makes possible?

- What is the extent of intra-speaker variation?
- Are frequency patterns constant across speakers?

We conducted a corpus study of optional schwa deletion in French (e.g. Côté 2001, Dell 1980), focusing on individual behavior rather than the population average.

Our results: the intra-speaker variation described in previous studies is real, but precise frequencies may vary by speaker.

Theories of Variation

- Partial Orders (as e.g. Anttila 1997): multiple rankings are available.
- Markedness Suppression (MS; Kaplan 2011): discard violation marks at random.
- Serial Variation (SV; Kimper 2011): the ranking changes between steps in Harmonic Serialism.
- Stochastic OT (S-OT; Boersma & Hayes 2001): added noise can change the ranking.
- Rank-Ordered Model of Eval (ROE; Coetzee 2004, 2006): all candidates that survive.
- Stochastic OT (S-OT; Boersma & Hayes 2001): empirical tests of the Gradual Learning Algorithm.

Mixed-effects logistic regression models for each context, with these factors:

- Rank-Ordered Model of Eval
- Stochastic OT
- Serial Variation

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Corpus: schwa is dispreferred, but not categorically absent:

- Frequency of prevocalic schwa by subject

Random effect of City significantly improves the model’s performance, but Speaker does not.

⇒ There is inter-dialect variation in the rate of schwa’s omission in this context as approximated by City. But there is no inter-speaker variation beyond this.

Schwa is generally optional here (Côté 2001):

(3) a. une fenêtre b. Ester le salut
   [uʃænɛtʁ]    [əstɛl lad]
   ‘a window’    ‘Estet le salet’

Côté notes three complications:
- Schwa’s omission may not create a CCC cluster in which the middle C is (i) the most sonorous one (4), (ii) a stop and C3 is not a consonant (5).
- These prohibitions weaken if the cluster straddles a prosodic boundary.

(4) a. la douce mesure b. Annuk le salut
   [laduksam]  [anil salt]
   ‘the sweet measure’    ‘Annuk gets him’

- There is inter-dialect variation here in the rate of schwa omission, both between and within dialects.

Implications

- These results support theories that allow intra-speaker variation and inter-speaker differences in frequencies: MS, S-OT, and ROE.
- Other theories need to incorporate ways to allow speaker-specific frequencies.
- The frequency results have another consequence:
  - We must be careful when modeling frequencies derived from a corpus with multiple speakers. The average frequencies across a corpus may represent no actual speaker.

An individual speaker’s grammar is the proper locus for theories of variation. Such theories must leave room for frequency predictions to vary by speaker.