Allophonic Emergence: three ways allophonic rules come to be

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Formal Ways of Analyzing Variation (FWAV)
Háskóli Íslands

Introduction

In this talk, we'll argue that there are at least three ways that allophonic categories can emerge.

We provide evidence that they have all been attested in recent sound changes, and outline a research program with the goal of supporting or falsifying these hypotheses.

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Three paths to allophony
- Mechanical Means
- Spontaneous Phonologization
- Phonological Specialization

Testing for the types
- Effect of duration
- Rate of change

Conclusions

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- **Our interpretation:** some generation reanalyzes a phonetic effect as an allophonic rule, introducing a new rule variant into the populations (of utterances within speakers, of speakers in a speech community).

Mechanical Means

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- **Preaspiration and (some) coda-devoicing in Icelandic** (Árnason, 1980, 1986):

/hattur/ ('hat') → [hahtʏr]
/henta/ ('to suit') → [hɛn̥ta]

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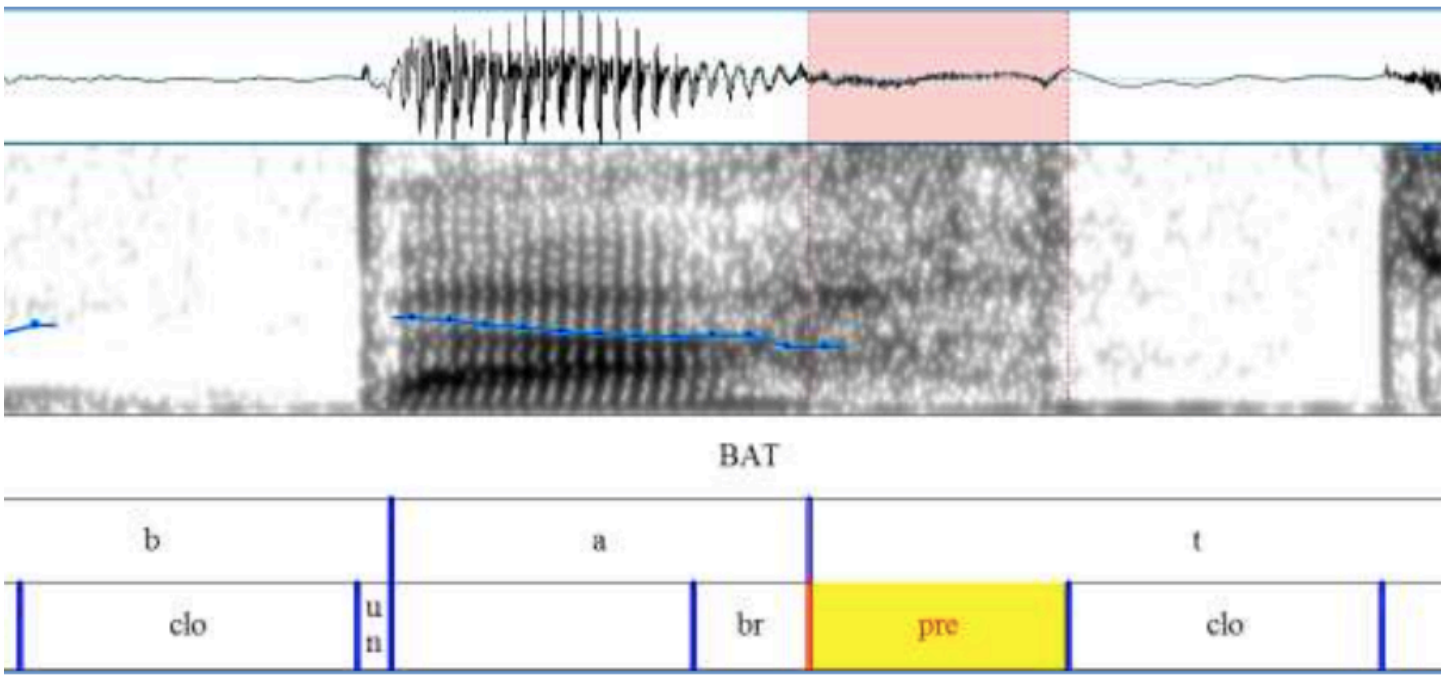
Diachrony (Árnason, 1980, 1986):

1. Icelandic loses contrastive vowel length.
2. Lengthening Rule: vowels in open syllables lengthen, closed syllables shorten (active rule)
3. In short syllables, spread glottis gesture is (mis-)timed in the segment preceding voiceless non-continuant codas.
4. Speakers reanalyze the early-timed gesture as an allophonic rule (our interpretation of Árnason 1986).

- The new rule spreads (and is possibly still spreading in Northern Iceland).

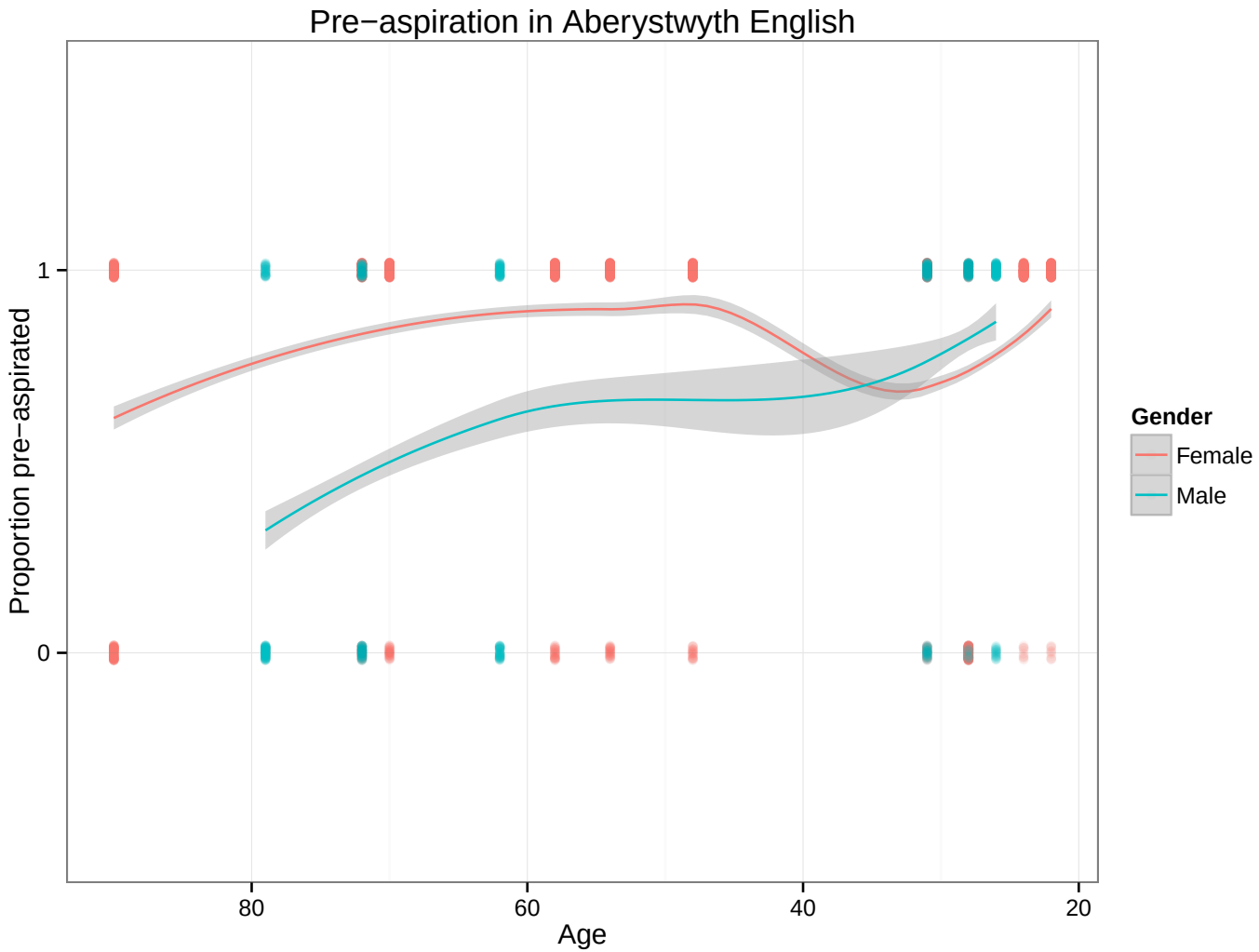
Preaspiration in Aberystwyth English (Hejná, 2014)

- The same change appears to be in progress in Aberystwyth English, Northwest British English, and possibly other British Englishes.
- As in Icelandic, it effects both vowels preceding voiceless codas and liquids preceding a voiceless consonant in codas (Hejná, p.c.).



Preaspiration in Aberystwyth English (Hejná, 2014)

- New allophone is still spreading:



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Spontaneous Phonologization

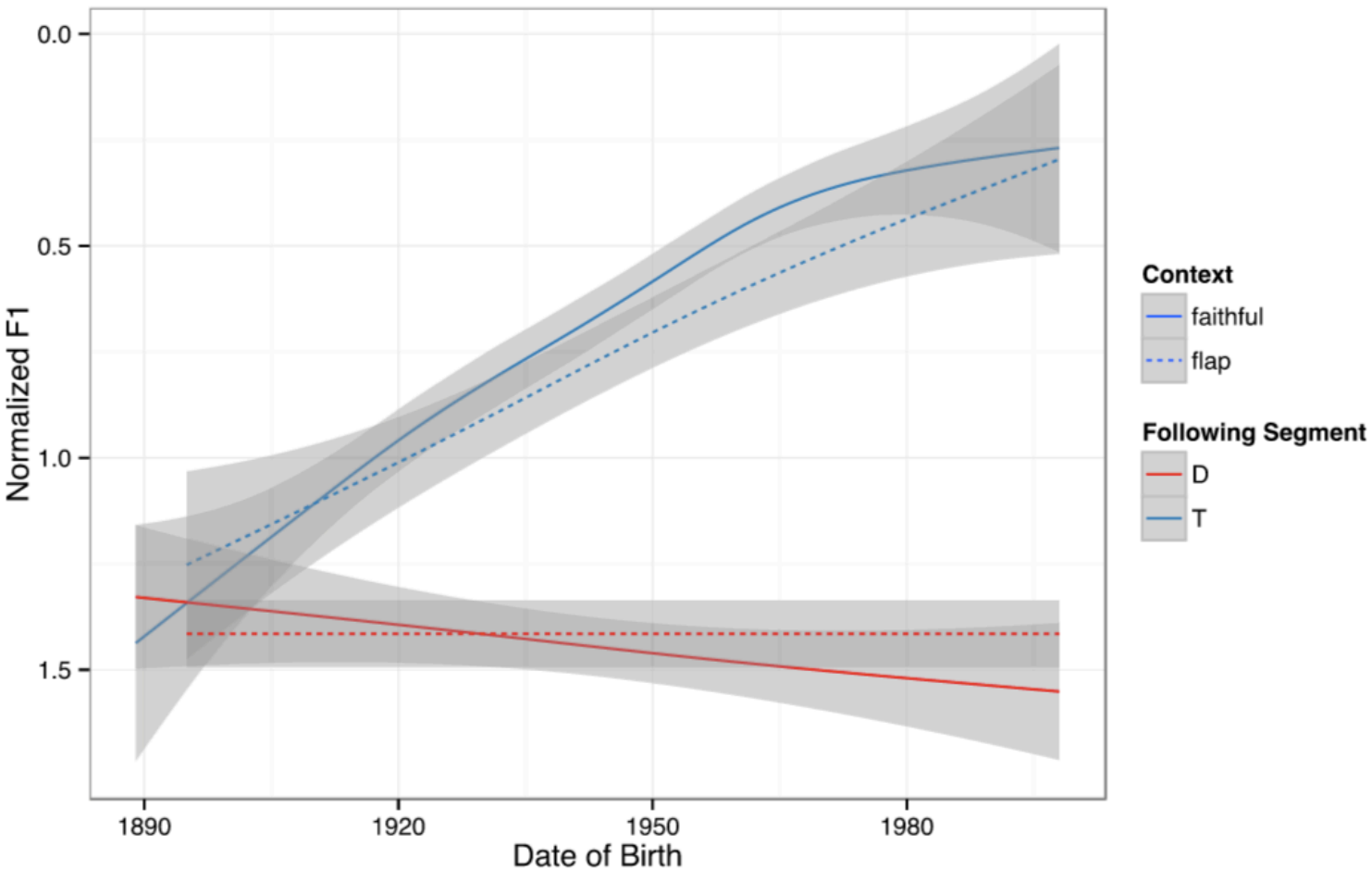
Scenario proposed by Janda and Joseph (2003); Fruehwald (2013)

- Speakers **spontaneously** create an allophone without any phonetic motivation.
  - Allophonic categories emerge in individual speakers' grammars before any phonetic motivation.

Spontaneous Phonologization:

PRICE-raising in Philadelphia English (Fruehwald 2013)

(308 speakers)



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  - Different from Spontaneous Phonologization because it **is** a reanalysis of existing phonetic space.

Phonological Specialization

In a categorical dimension (e.g. a consonant changes from k > t, as in Hawaiian):

- A phoneme changes from A to B, but while A and B are in variation (**doublet**), they gradually become specialized for different phonological contexts, faster than one replaces the other.
  - General case of categorical specialization, as in Kroch (1994); Fruehwald and Wallenberg (2013, In preparation), due to "Principle of Contrast".

$$/\text{k}/ \rightarrow [\text{k}] \ / \ \text{Context}_1$$
$$/\text{k}/ \rightarrow [\text{t}] \ / \ \text{Context}_2$$

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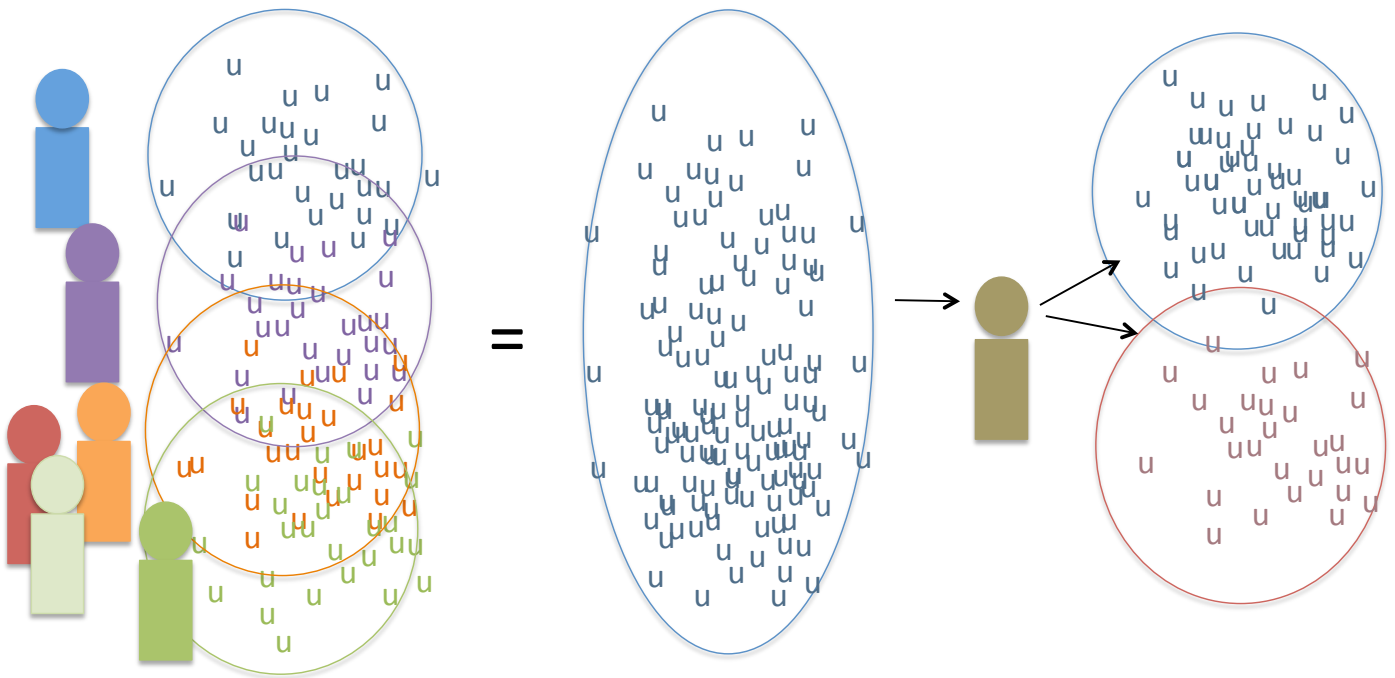
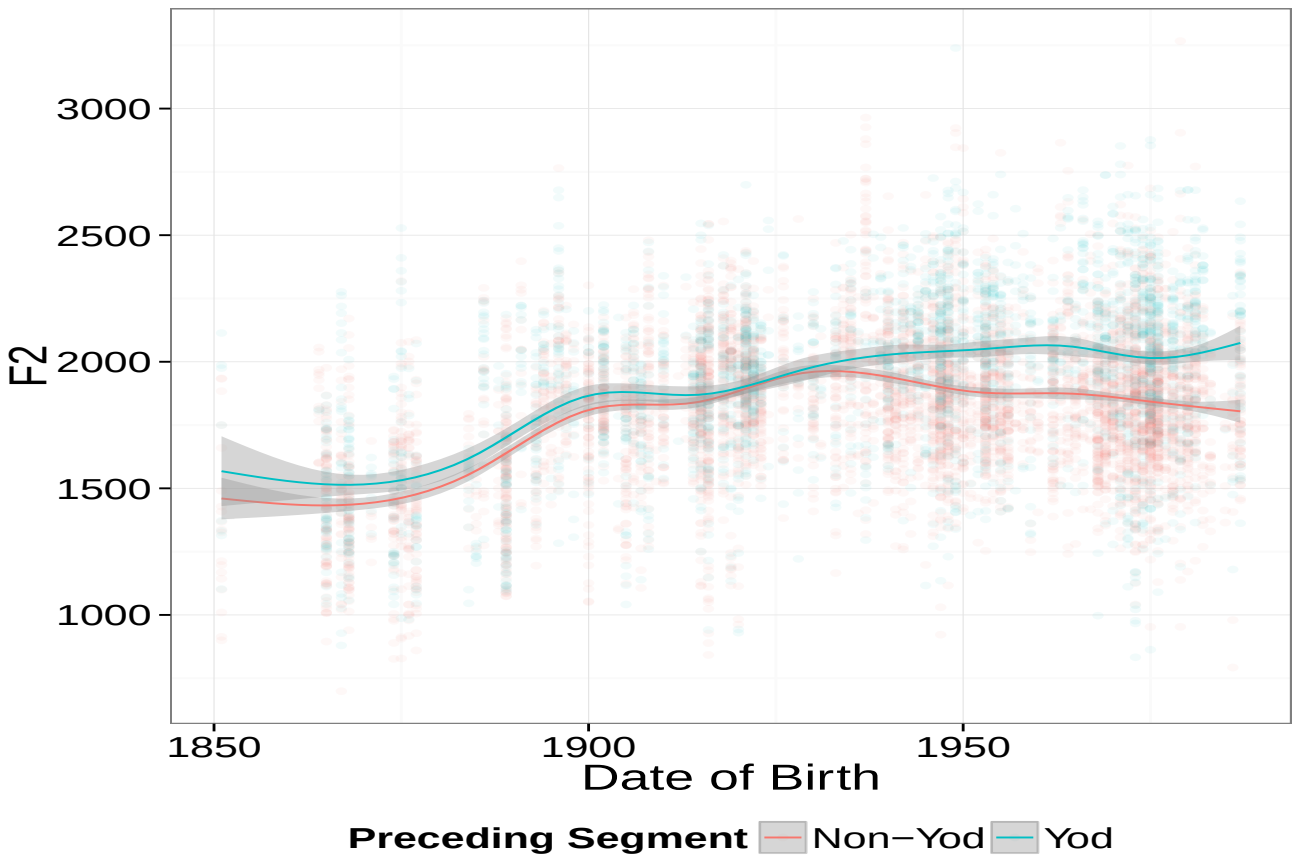


Phonological Specialization:

GOOSE-NEW split in New Zealand English (Seyfarth and Sneller 2014)



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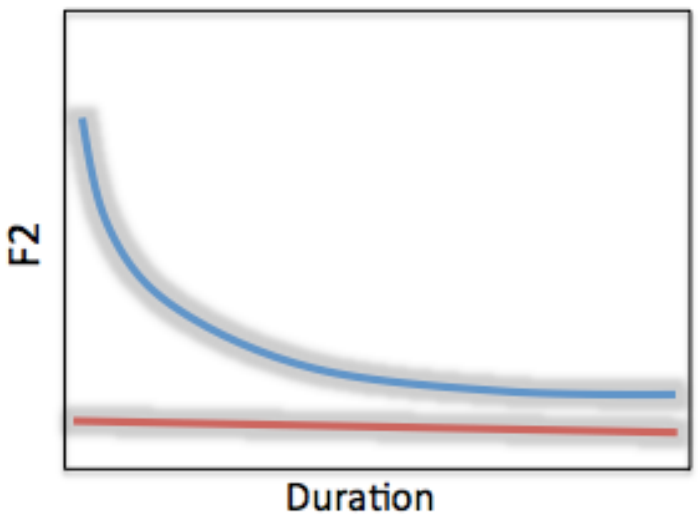
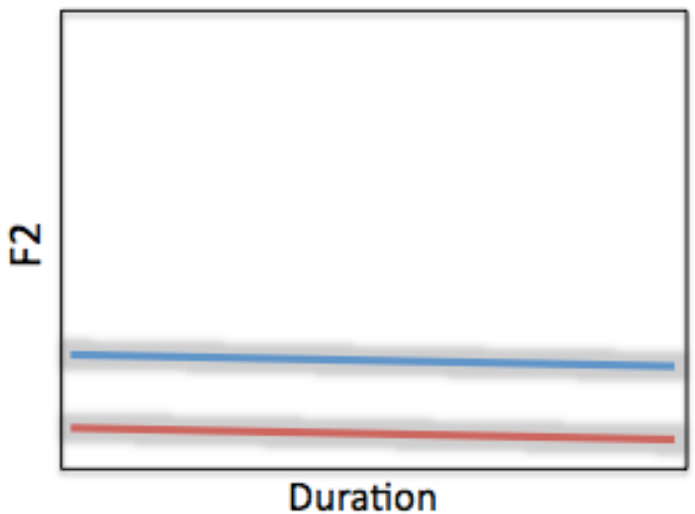
Does a surface distinction map to one underlying category or two?

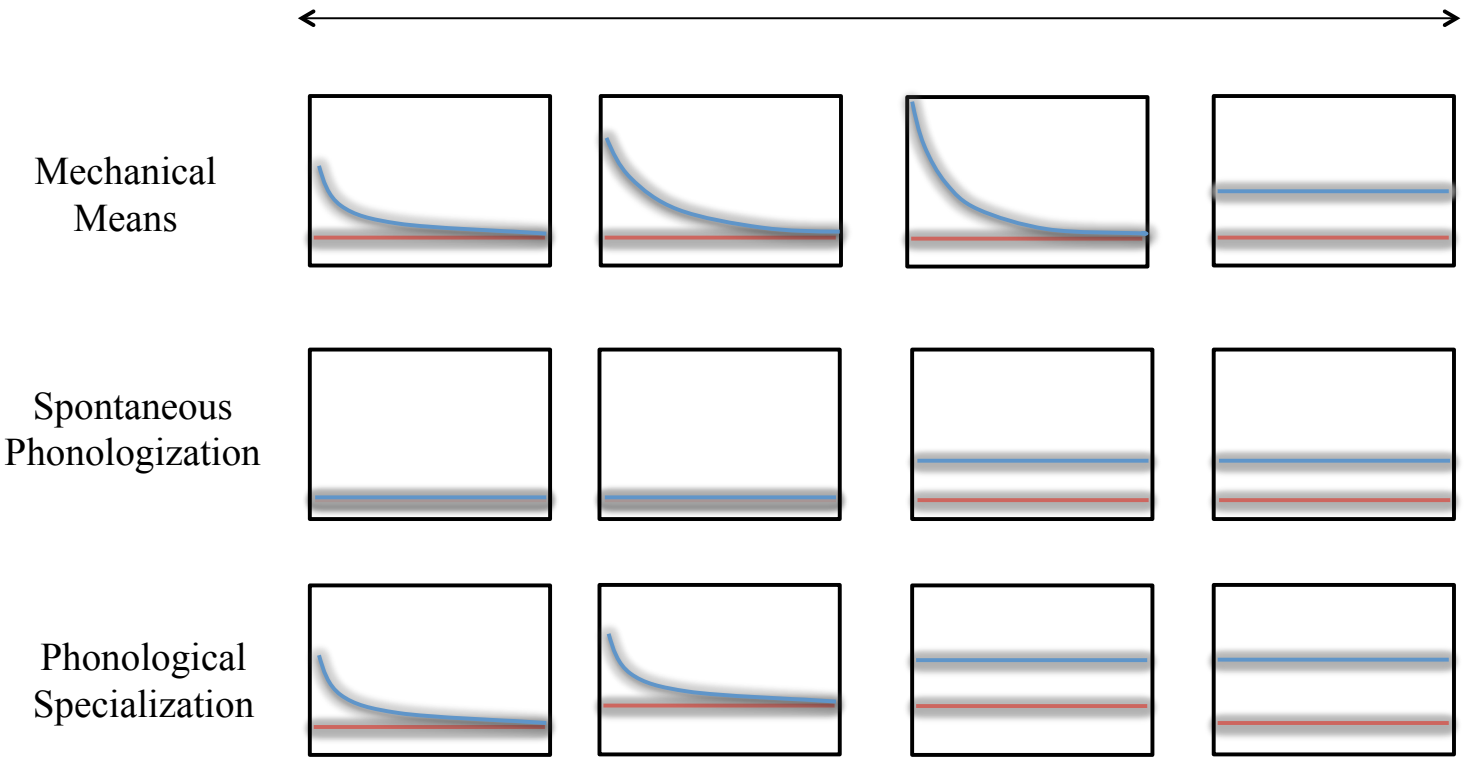
Effect of duration

- If a difference in acoustic output is caused by coarticulation, it will increase for short tokens (Strycharczuk, 2012).
- If the difference is caused by allophony, it will be present in the long tokens too.





Effect of duration: Predictions



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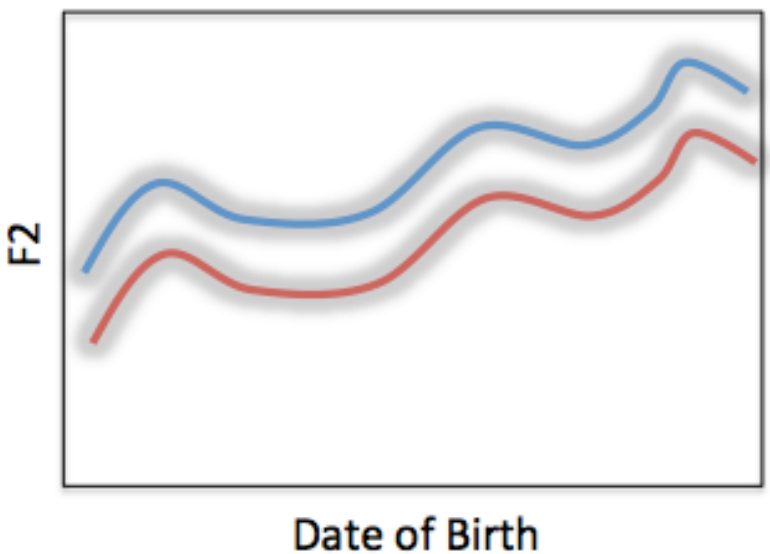

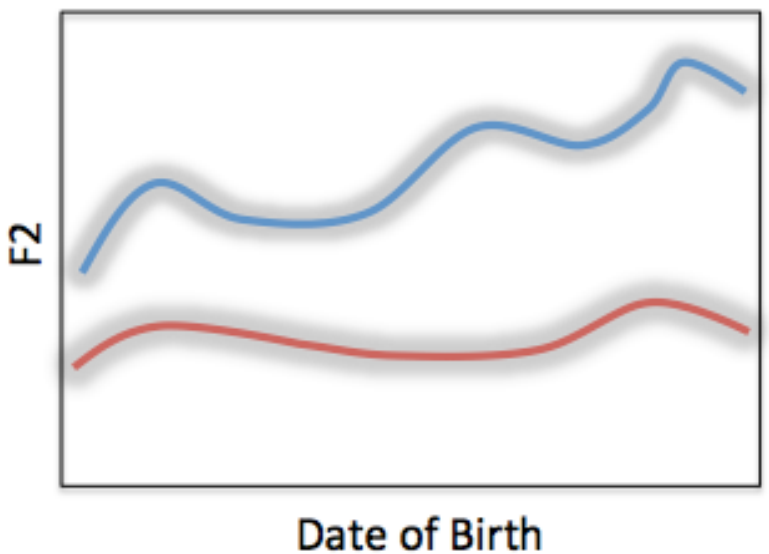

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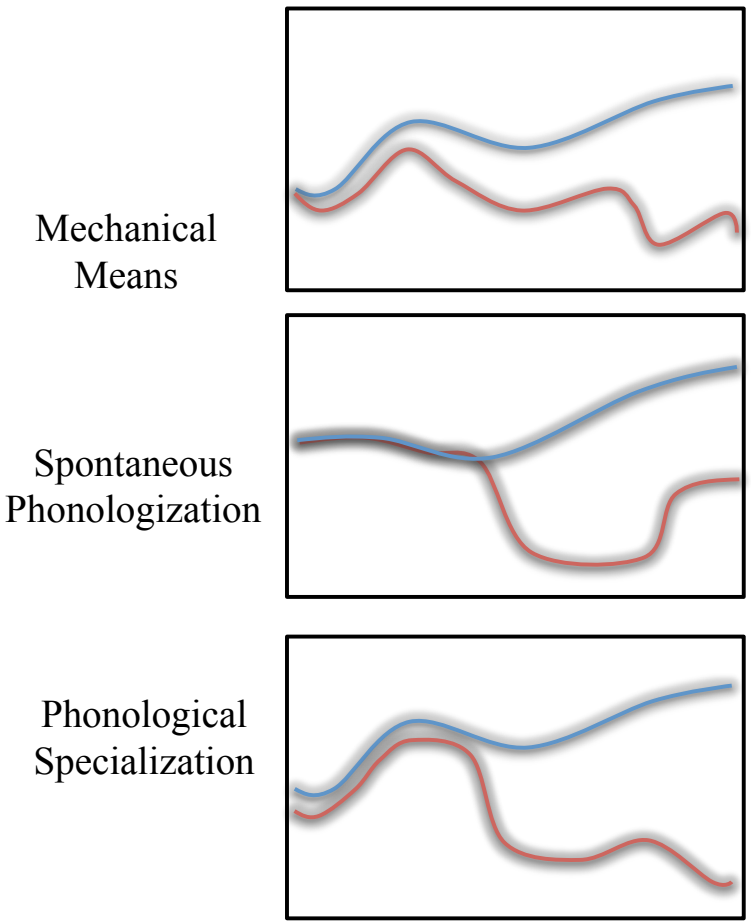

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- Questions going further: how does allophone emergence relate to phoneme emergence?
- What's the role of learned phonetic targets (pre-phonological) in allophonic split, or gradient phonological rules in Bermúdez-Otero's work?

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Thank you!

Effect of duration: Mechanical means

Mechanical means

- Because the allophonic split is the result of accruing phonetic effects, we should see an effect of duration for most speakers, until a reanalysis has been made.
- After the reanalysis, as the new allophone spreads, the earlier effect of duration should decrease over time.

Effect of duration: Mechanical means

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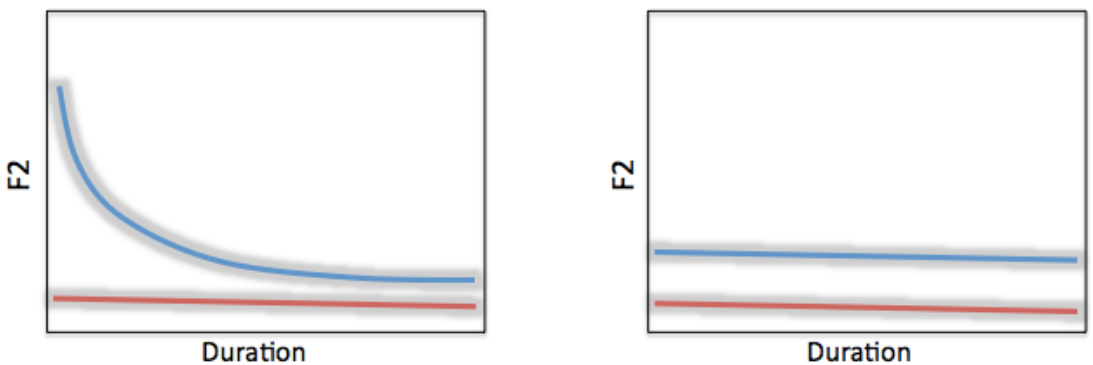

Effect of duration: Spontaneous phonologization

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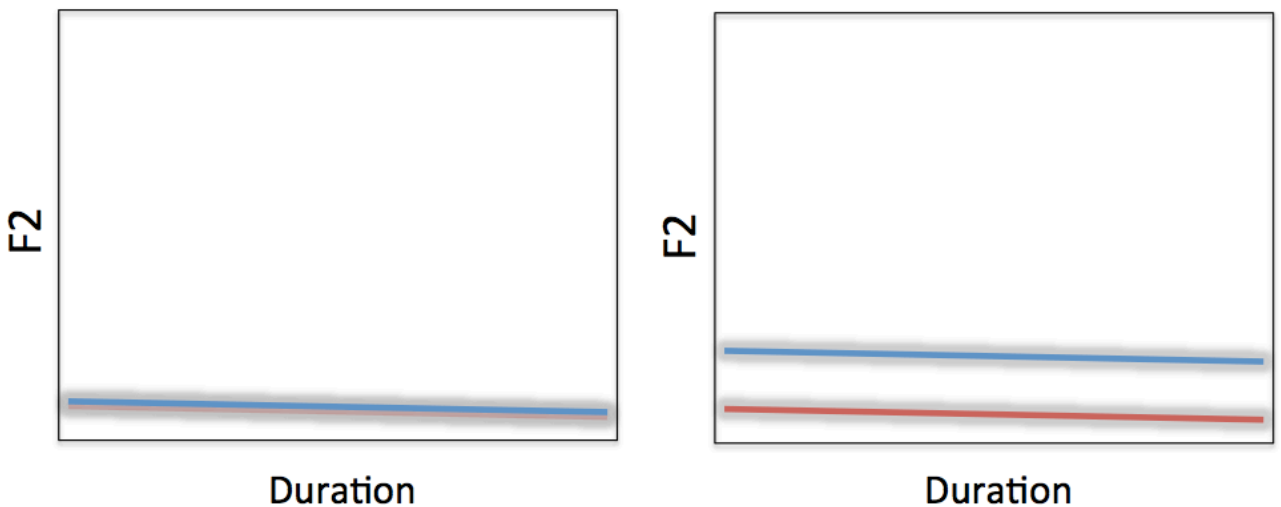
- Because there is no phonetic effect that precedes the phonological effect, we should see no effect of duration at any time
  1. Speakers with one category show no coarticulation (no difference to be found)
  2. Speakers with two categories show two phonological categories (no effect of duration)

Effect of duration: Spontaneous phonologization

Spontaneous phonologization



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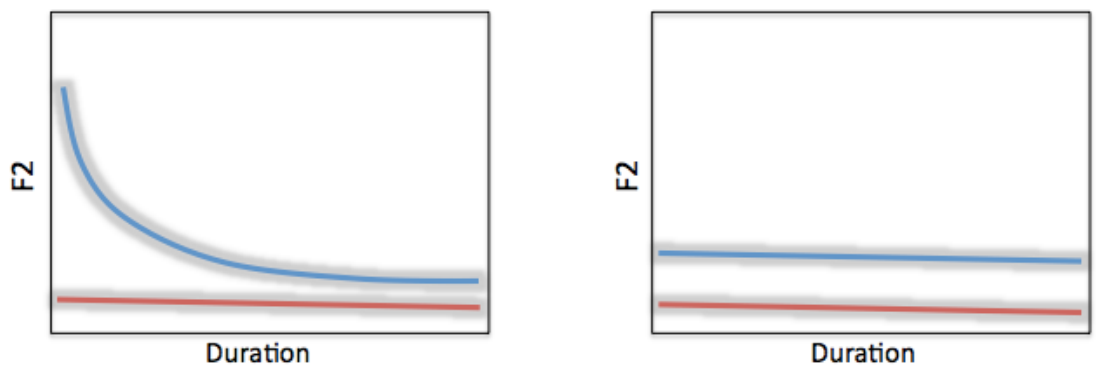
- and younger speakers with two distinct categories for tokens of all duration

Effect of duration: Phonological specialization

Phonological specialization



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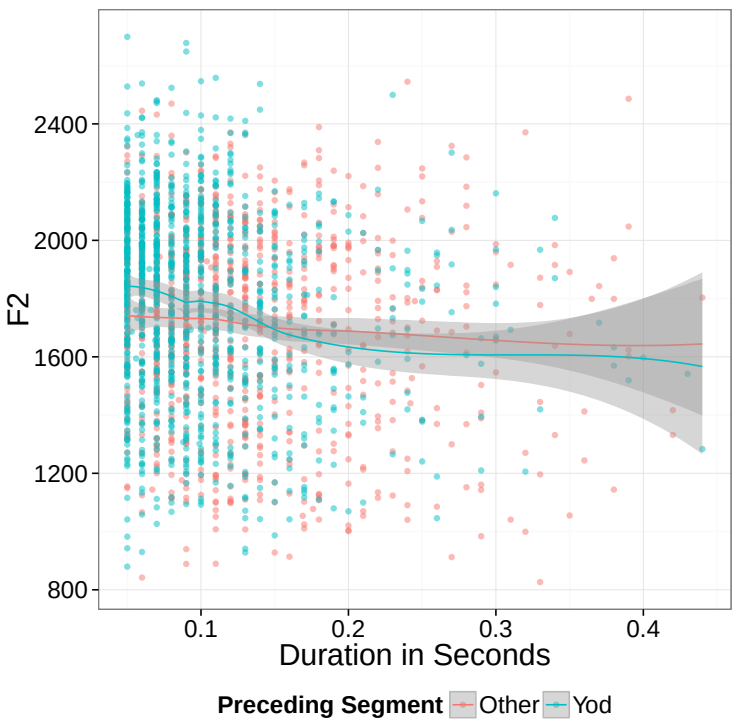
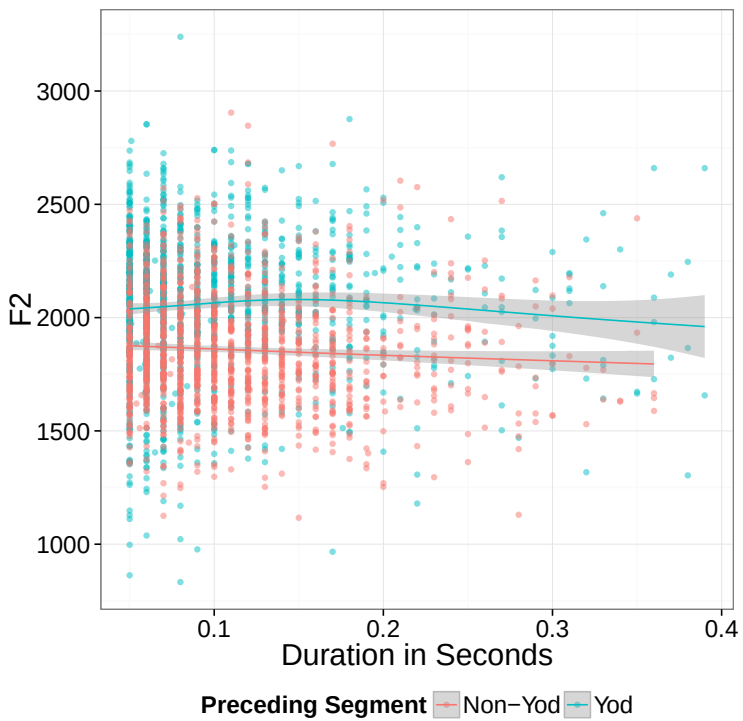
Phonological specialization in New Zealand English





Rate of change: Mechanical means

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- Because the allophonic split is the result of accruing phonetic effects, we should see a gradual drift in the two variables

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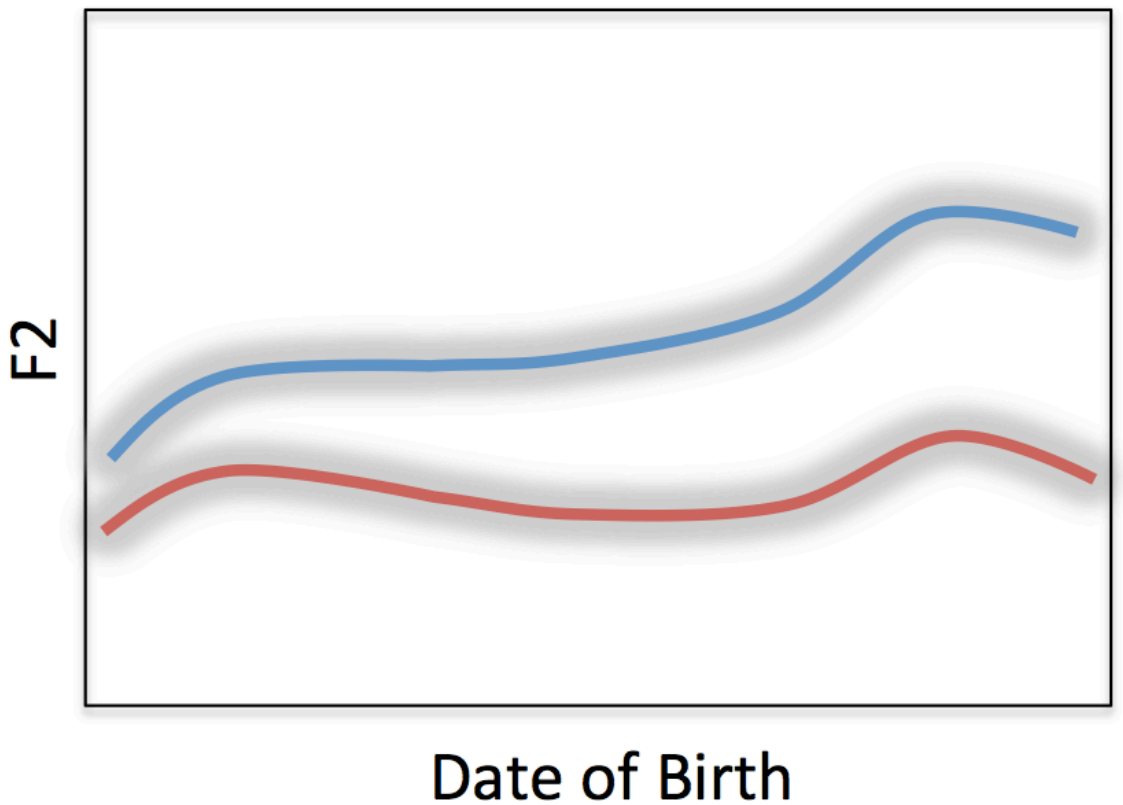

Rate of change: Spontaneous phonologization

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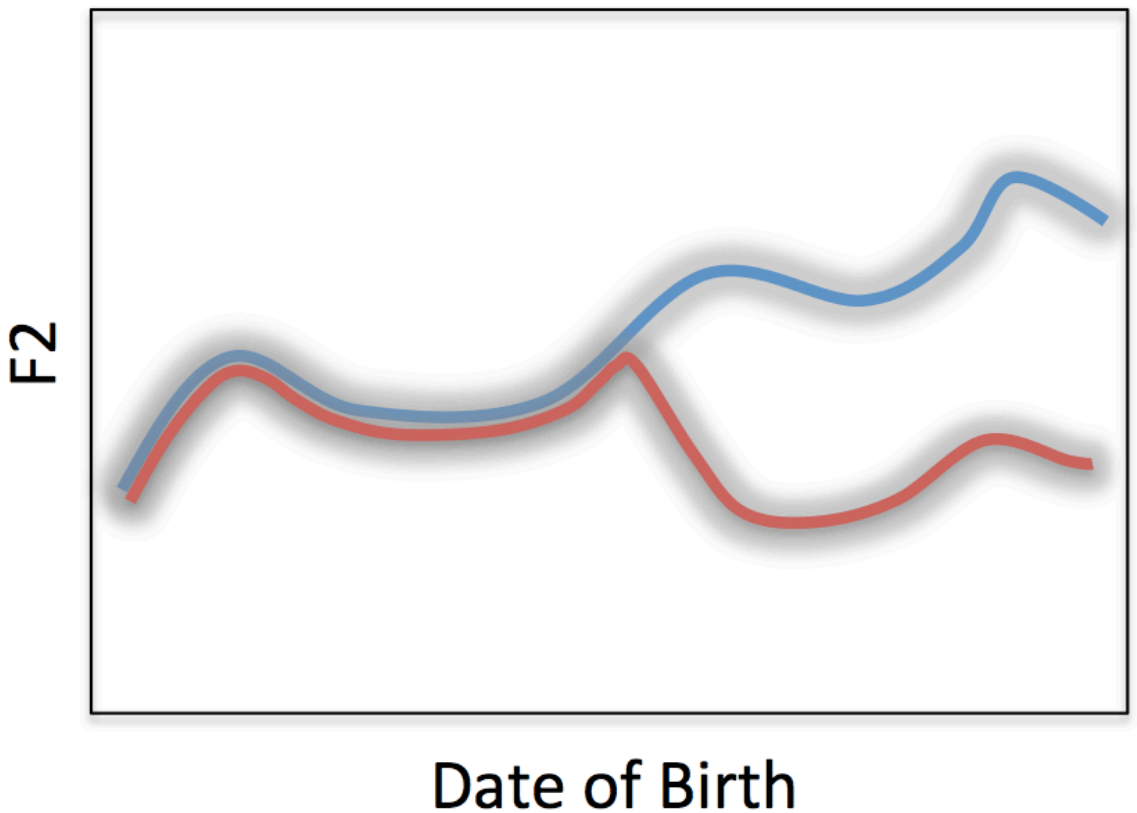

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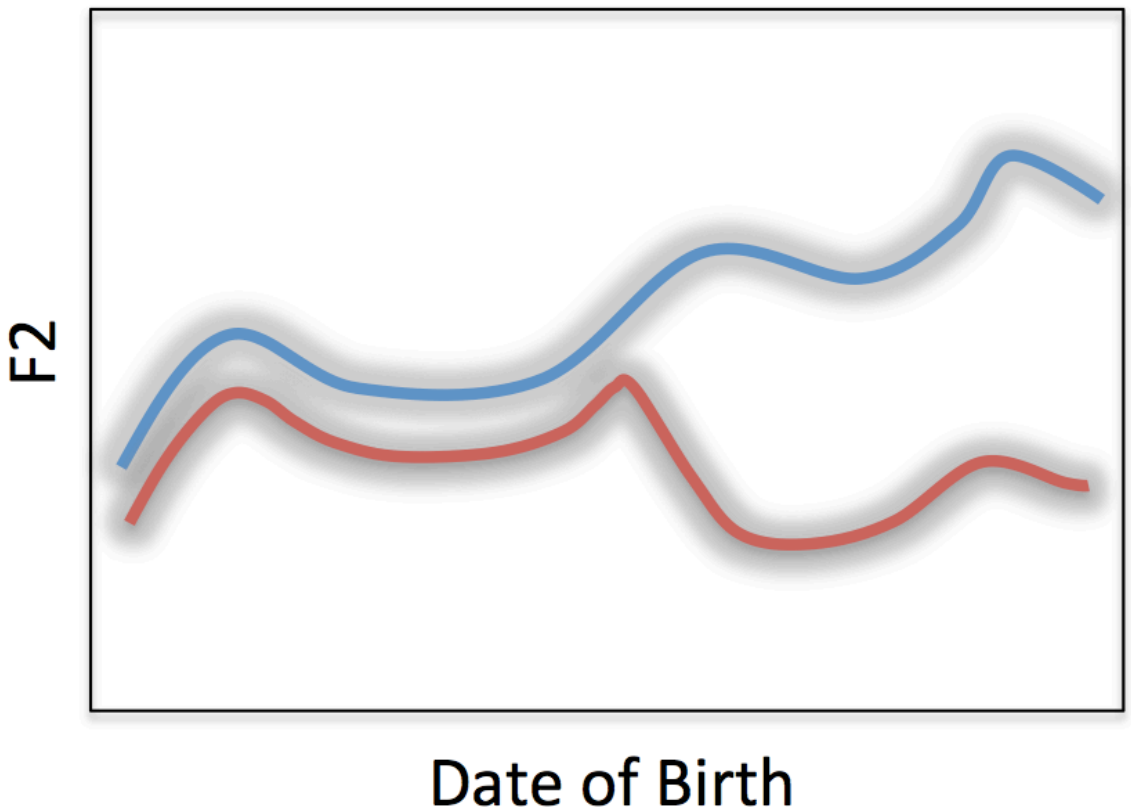
- Because the allophonic split occurs suddenly, we should see both variables in lock step until the community spontaneously creates a new category
- However, we may still see an effect of coarticulation for the early speakers

Rate of change: Phonological specialization

Phonological specialization



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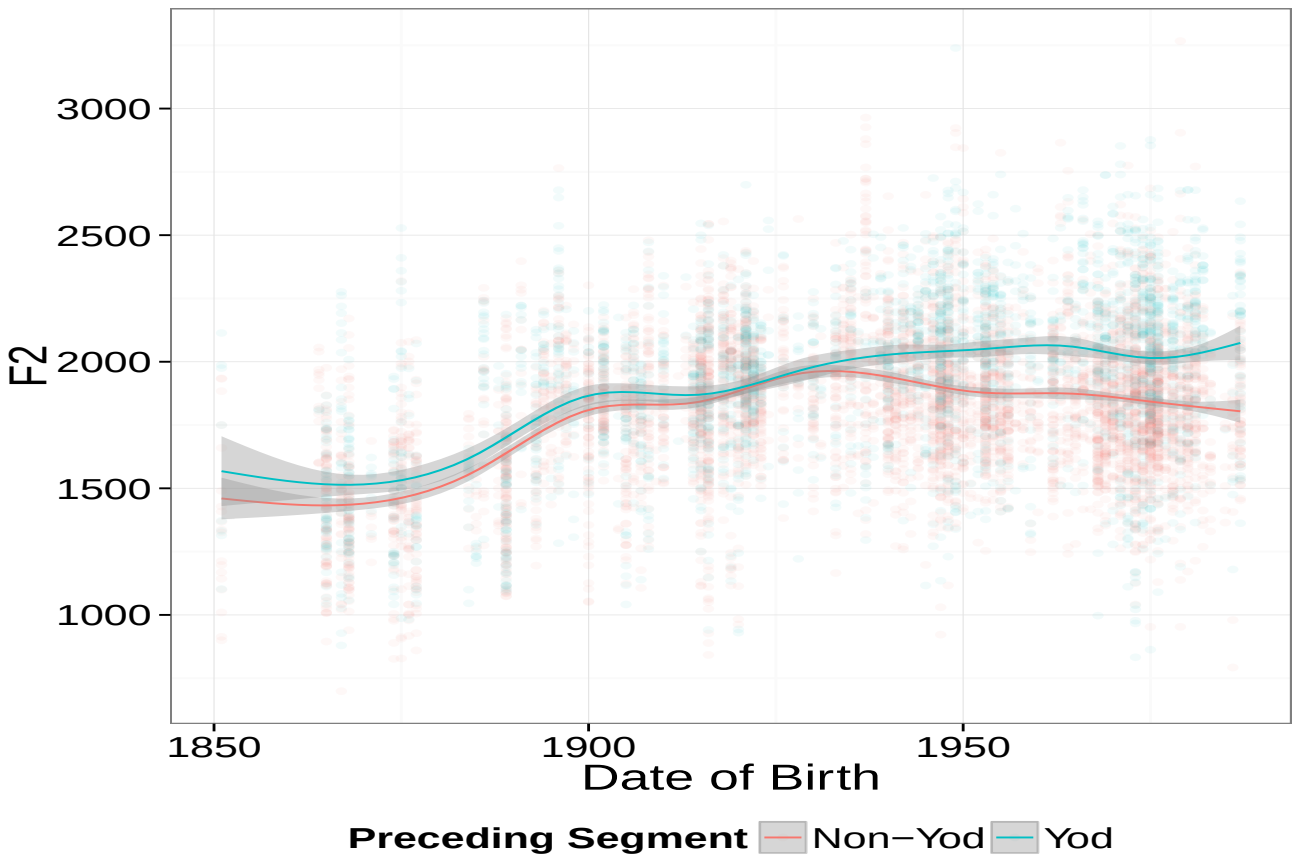
Phonological specialization in New Zealand English /u/-fronting



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