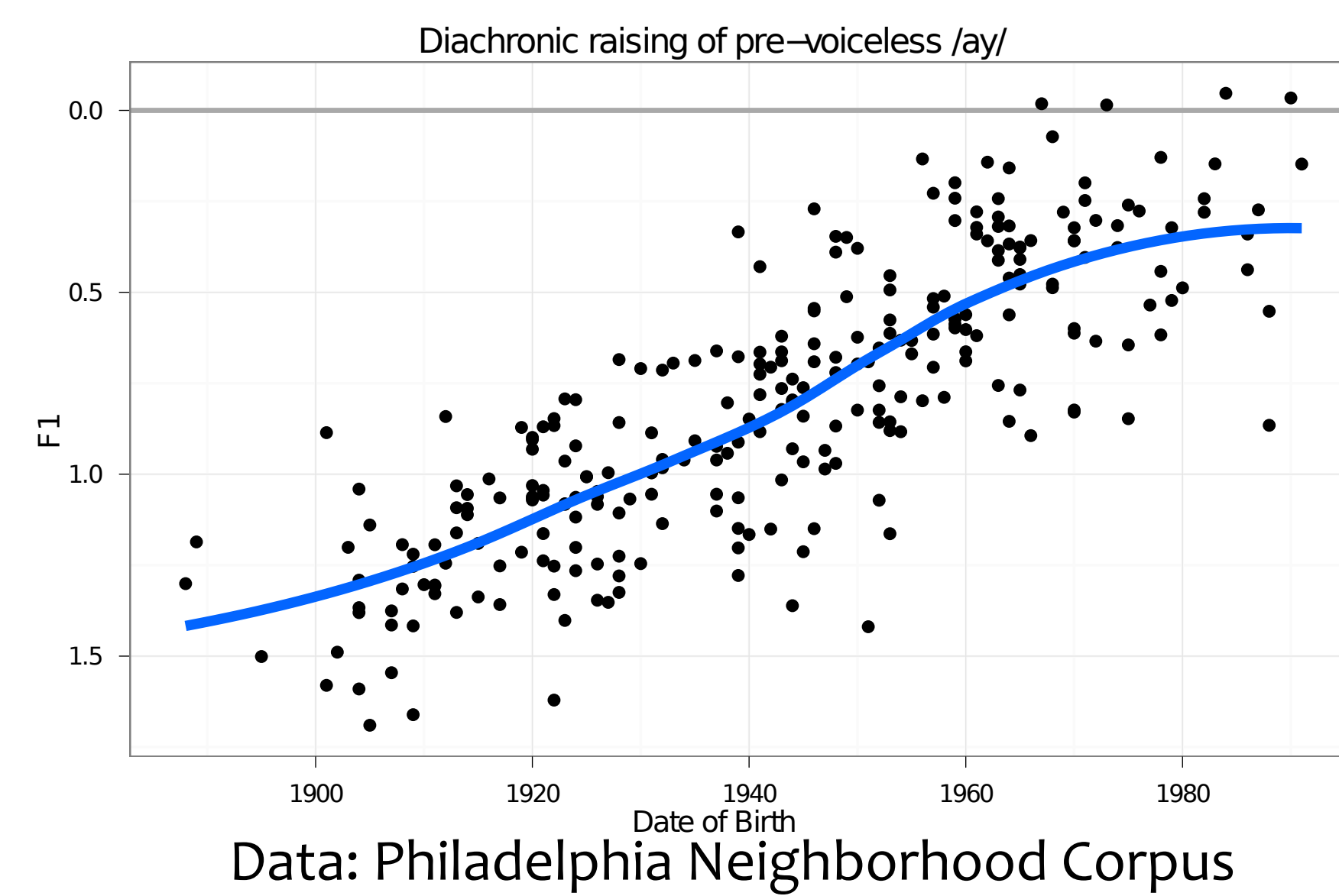


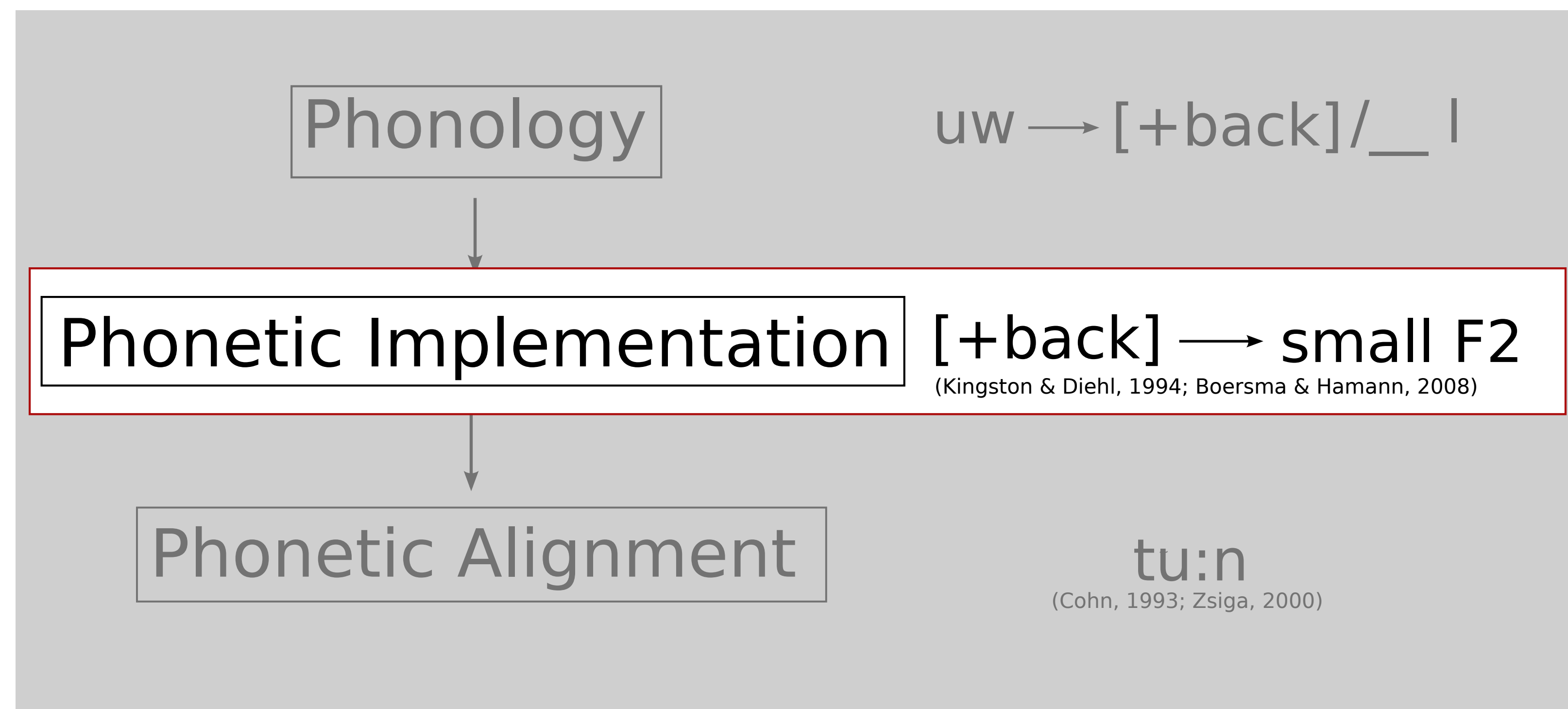
Using Speech Community Data as Phonological Evidence

Josef Fruehwald
University of Pennsylvania

Phonetic Change

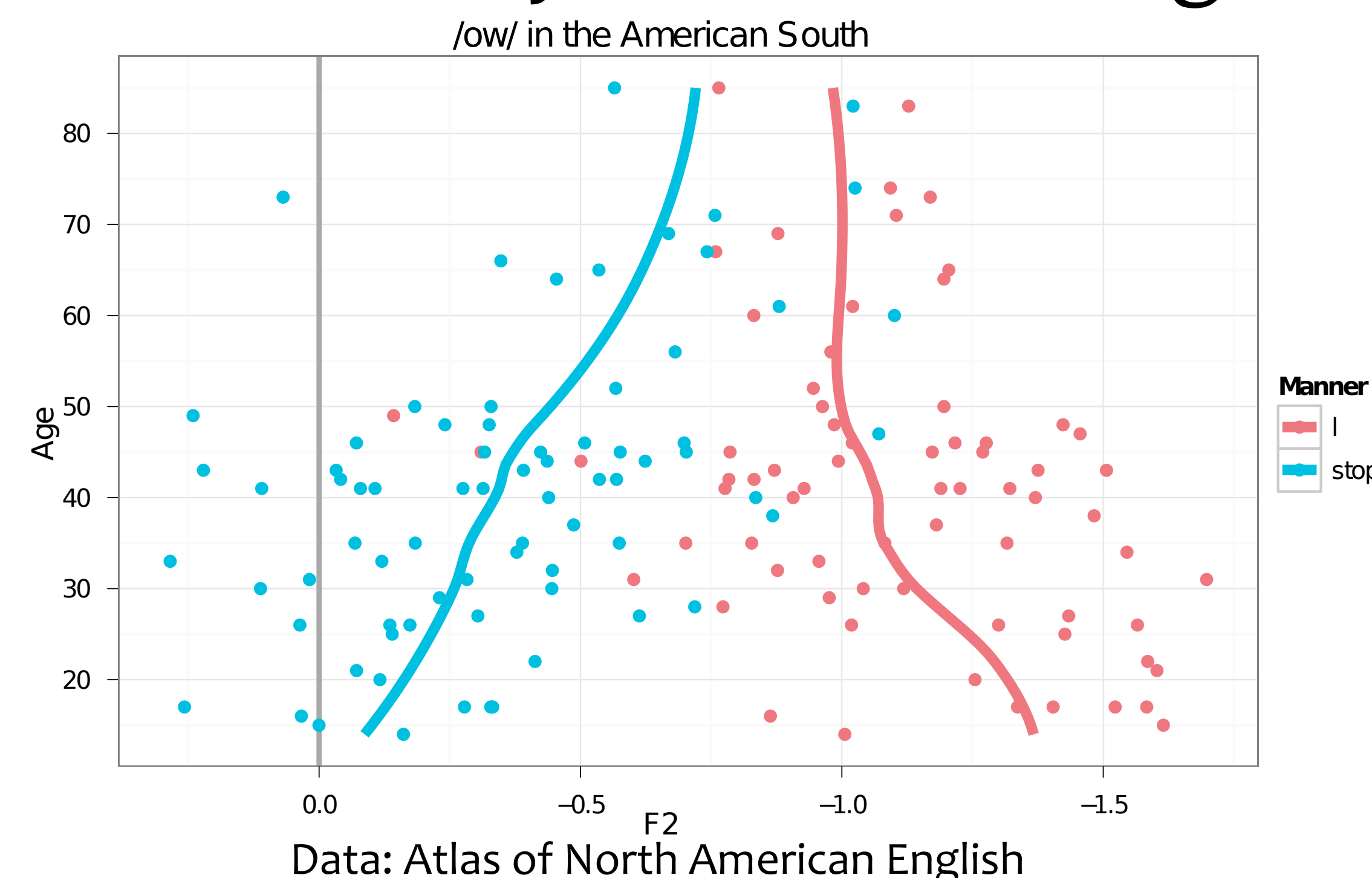


In a phonetic change, a phonetic target moves continuously through phonetic space. (Labov, Yaeger & Steiner, 1972)

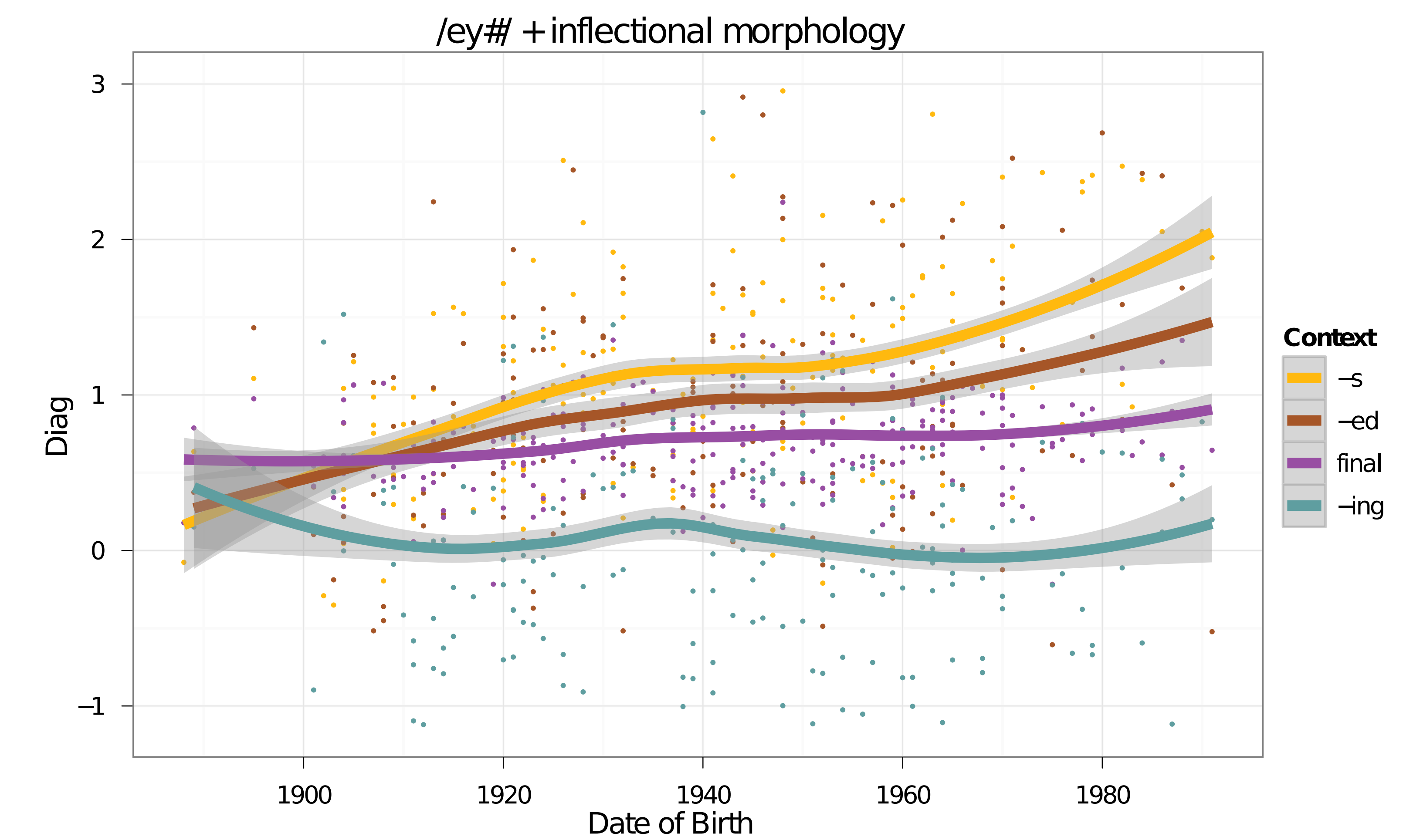
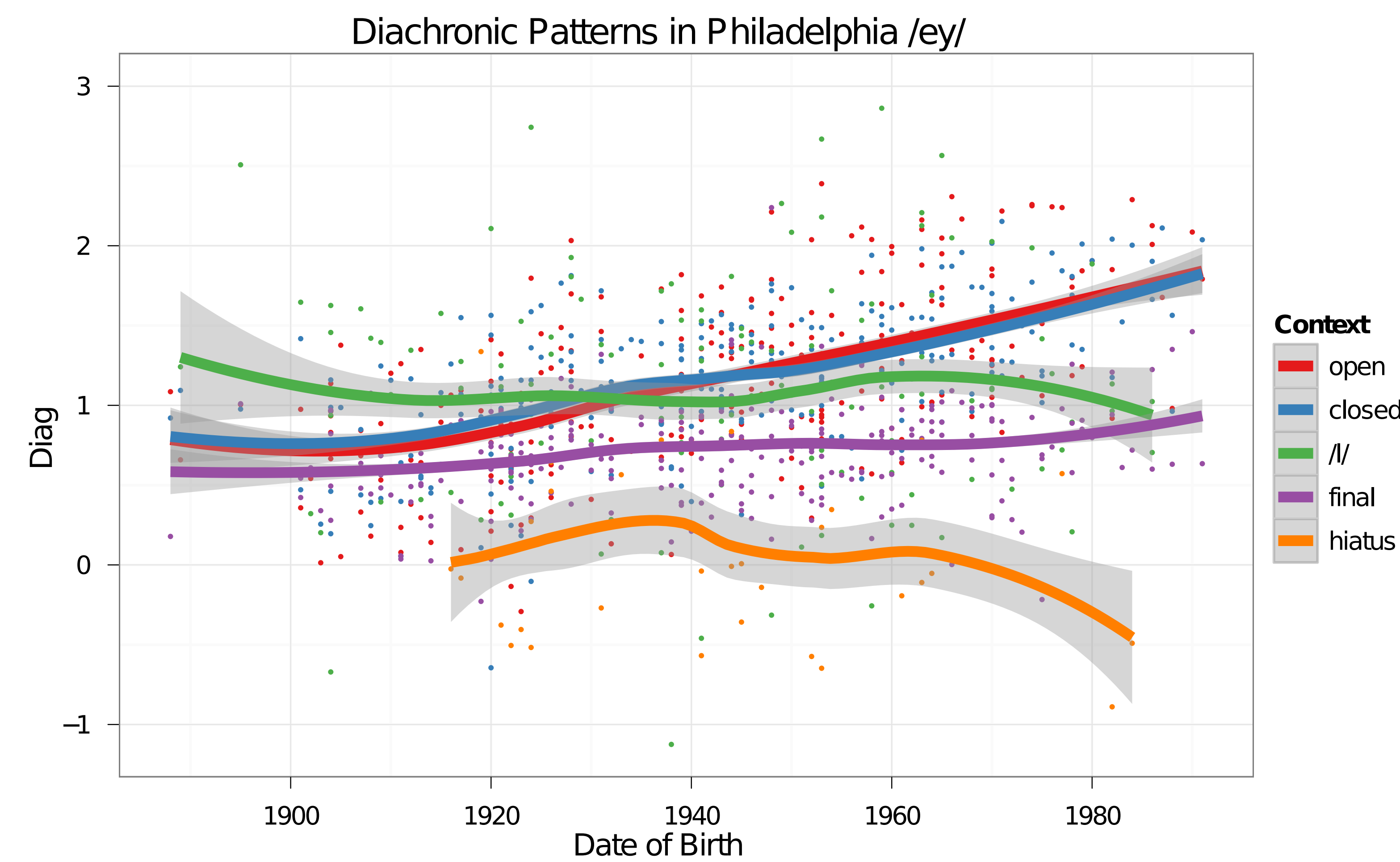


Unity Principle

- a) Phonological Unity → Phonetic Unity
- b) ¬Phonetic Unity → ¬Phonological Unity



/ey/ in Philadelphia



Synchronic Phonological Analysis

$_C \neq _ \#$
 $_C \neq _ V$
-and-
/l/ is [-C] (Ash, 1982)

} /ey/ → +peripheral/ _C...]_word

Diachronic Phonetic Change

/ey/ +periph More Phonetically Peripheral
/ey/ -periph Diachronically Stable

Diachronically Stable Phonetic Effects

_ [l] has a peripheralizing effect
_ V has a laxing effect

The Philadelphia Neighborhood Corpus

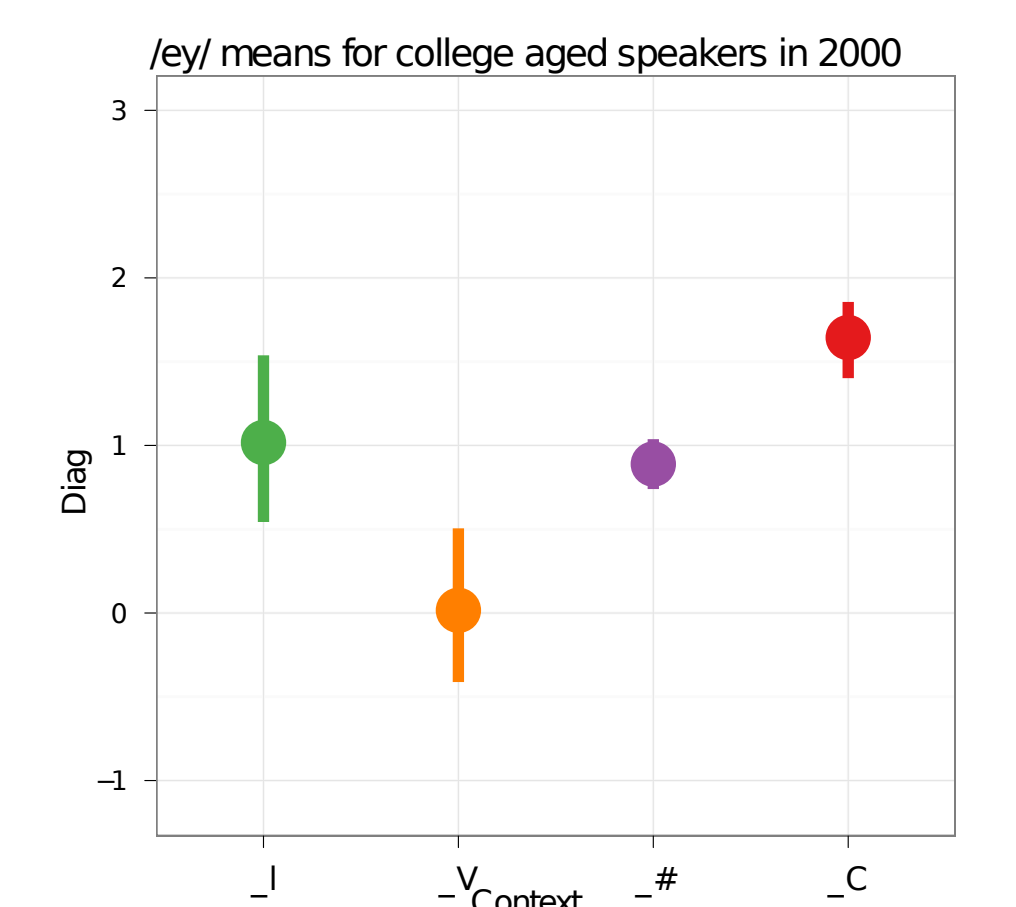
- 272 interviews with native Philadelphians
- Interviews conducted between 1973 and 2010
- Dates of birth between 1888 and 1991

The Data

- Transcribed and automatically force aligned
- Vowel formant data automatically extracted using the FAVE suite (Rosenfelder, Fruehwald, Evanini & Yuan, 2011; fave.ling.upenn.edu)
- 654,820 vowel measurements

Value of Speech Community Data

The natural class behavior evident in the speech community data is not apparent in smaller subsets of the same data.



Future Directions

- This analysis assumes that the phonological /ey/ peripheralization process already existed in the dialect, or entered into it simultaneously with the phonetic change.

- Eventually, there must be a phonological reanalysis in the course of most phonetic changes.

References

Automatic Alignment and Analysis of Linguistic Change, NSF Contract 921643
Boersma, P. & Hamann, S., 2008. The evolution of auditory dispersion in bidirectional constraint grammars. *Phonology*, 25(3)217-270
Cohn, A., 1993. Nasalisation in English: Phonology or Phonetics. *Phonology*, 10(1)43-81
Kingston, J. & Diehl, R. L., 1994. Phonetic knowledge. *Linguistics*, 70(3)419-454
Labov, W., 2001. *Principles of Linguistic Change: Volume 1: Social Factors*. Language in Society. Blackwell, Oxford
Labov, W., Ash, S., & Boberg, C., 2006. *The Atlas of North American English. Phonetics, Phonology and Sound Change*. Mouton de Gruyter, Berlin
Labov, W. & Rosenfelder, I., New tools and methods for very large scale measurements of very large corpora. Paper presented at the New Tools and Methods for Very Large Scale Phonetics Research Workshop.
Philadelphia Neighborhood Corpus of LING560 Studies, 1972-2010, with support of NSF contract 921643 to W. Labov.
Rosenfelder, I., J. Fruehwald, K. Evanini & J. Yuan 2011, FAVE Program Suite. fave.ling.upenn.edu
Zsiga, E., 2000. Phonetic alignment constraints: consonant overlap and palatalization in English and Russian. *Journal of Phonetics*, 28:69-102