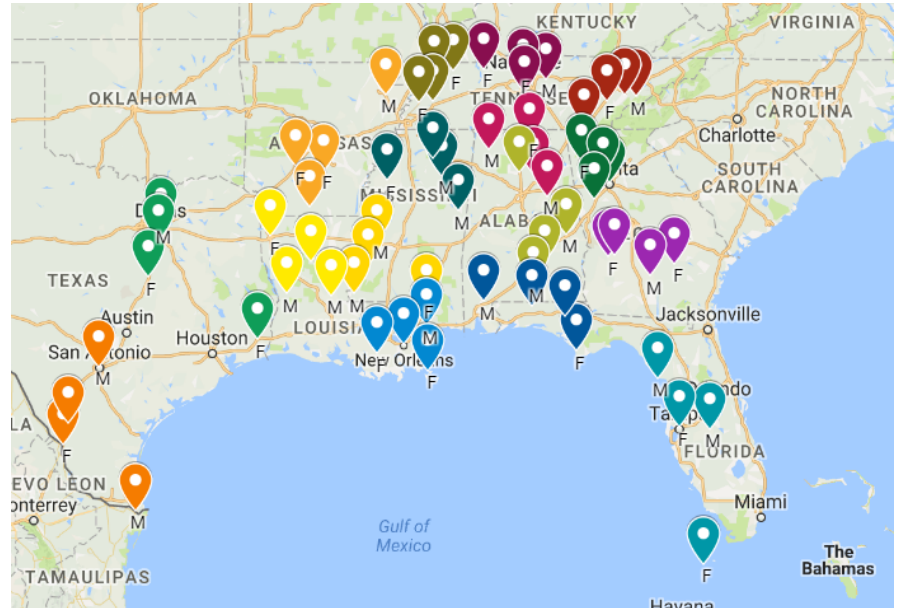

Automated Large-Scale Phonetic Analysis: DASS

William A. Kretzschmar, Jr.,
Joseph Stanley, Katherine Kuiper
University of Georgia

DASS

- 64 interviews available on a portable USB drive
- 370 hours of sound files--c. 200Gb, about 5000 files in all—plus metadata
- LICHEN user interface software



Map by Peggy Renwick

University of Georgia: Paulina Bounds, Steven Coats, William A. Kretzschmar, Jr., Tony Snodgrass
University of Oulu: Ilkka Juuso, Lisa Lena Opa-Hänninen, Tapio Seppänen

NSF grant for automated phonetic analysis

- Automatically extract stressed vowels in the DASS interviews
- 1.5 million tokens overall
- Extent of variation in vowels pronounced by one individual
- Variation across regional and social categories of speakers
- Challenge for generalizations based on small datasets, like Labov's Southern Shift

Forced alignment with automatic formant extraction

- Computational goal since 1970s
- P2FA as early success (Yuan and Liberman 2008), used with automatic formant extraction in Evanini 2009.
- P2FA has turned into FAVE (Rosenfelder et al. 2011)
- DARLA (Dartmouth Linguistic Automation), Reddy and Stanford 2015.

Why DASS?

- LAGS already widely used in analyses of Southern speech (e.g. Dorrill 2003, Feagin 2003, Schönweitz 2001, and Thomas 2005).
- Thomas (2001) has demonstrated successful acoustic analysis of our old recordings.
- The Atlas web site gets about a million accesses per year in recent years, so it is already a dataset that people want to use
- DASS makes a good sample across the South

The pilot study (Renwick and Olsen 2015)

- Ten speakers from section AK or LAGS, in Southeast Georgia, about 30 hours of audio.
- Manual transcription of files, with semi-automated alignment using Perl and formant extraction in Praat, with manual adjustments
- For one speaker (LAGS 195), the study found 76,735 words, as opposed to the 800+ targets that LAGS looked for: way more phonetic information!

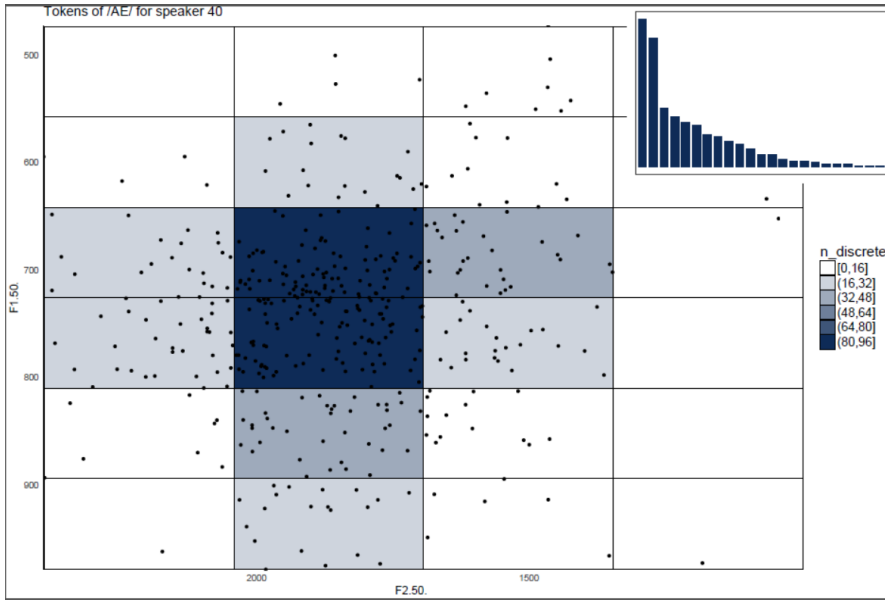
Our progress: the short story

- 35 part-time undergraduate transcribers
- Transcriptions with Transcriber tool (available free online)
- 3 graduate assistants and our administrative assistant monitor transcription and quality control
- Forced alignment with DARLA, automatic formant extraction with modified FAVE

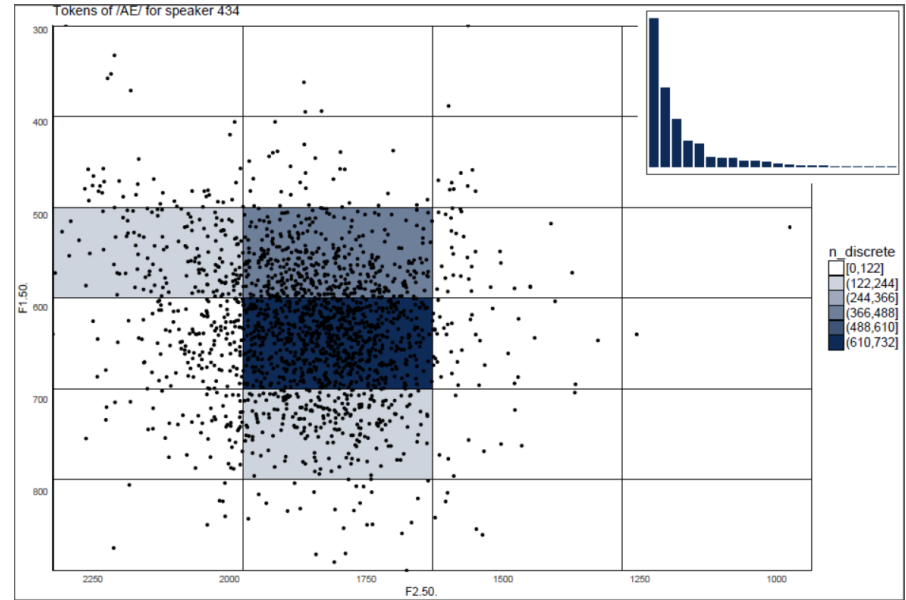
Initial results: æ

Speaker 40 (F, W, 38, TN)

Speaker 434 (M, B, 90, AL)



tokens of æ

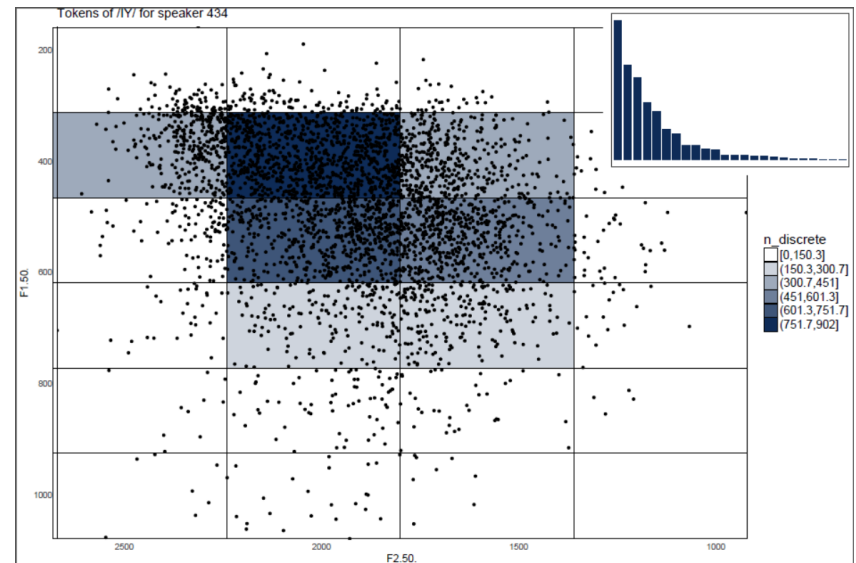
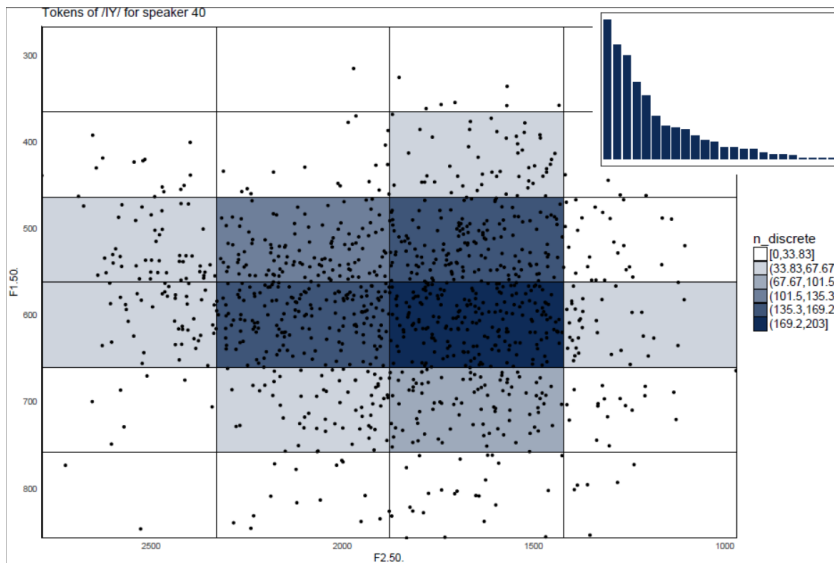


tokens of æ

Initial results: i

Speaker 40 (F, W, 38, TN)

Speaker 434 (M, B, 90, AL)



tokens of i

tokens of i

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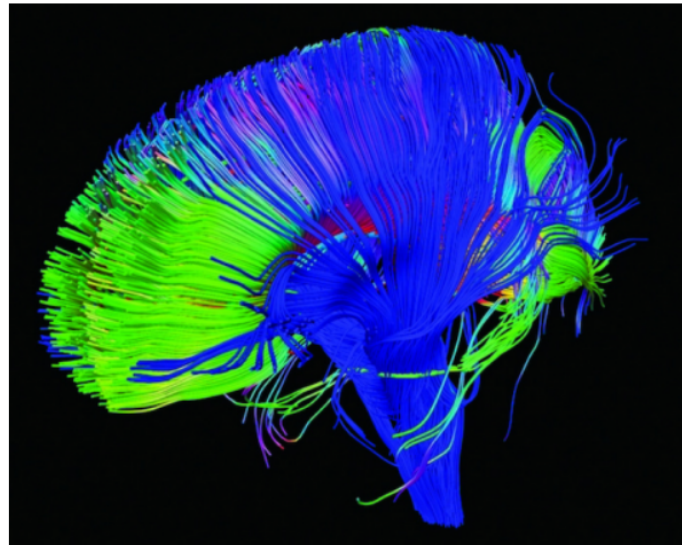
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Defining Complex Systems

Submitted by katie.ireland on Fri, 11/04/2016 - 14:55



Thanks for your patience!

Selected References

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