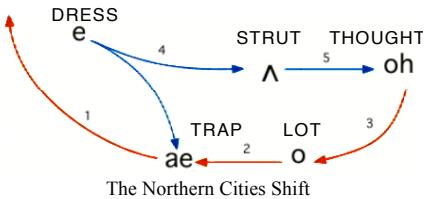


## Escaping the TRAP: Losing the Northern Cities Shift in Real Time

Anja Thiel, University of Bern  
 Aaron J. Dinkin, San Diego State University

*ANAE* (Labov et al. 2006): “diversity of regional dialects in North America is... increasing over time”, in part via ongoing Northern Cities Shift, based on 1990s data. But post-*ANAE*, studies in many communities have found NCS diminishing: Wagner et al. (2016), Driscoll & Lape (2015), Jacewicz et al. (2011), inter alia. Perhaps sociolinguists spoke too soon about robustness of NCS!



### Ogdensburg, New York:

city of 11,000 people in rural northern New York, on Canadian border

9 speakers interviewed in 2008 (Dinkin 2013)

- 7 women, 2 men; born 1922–1989 (mean 1972)
- 7 in-person short sociolinguistic interviews; 2 telephone interviews
- moderate degree of NCS participation, apparently increasing in apparent time—four speakers have mean TRAP higher than DRESS, all among 5 youngest.
- 2 male speakers have lower TRAP than female speakers.
- towns to the east don't have NCS (Dinkin 2013, 2017); to the north is Canada: Ogdensburg is **northeastern limit of the NCS**.

New data from Ogdensburg:

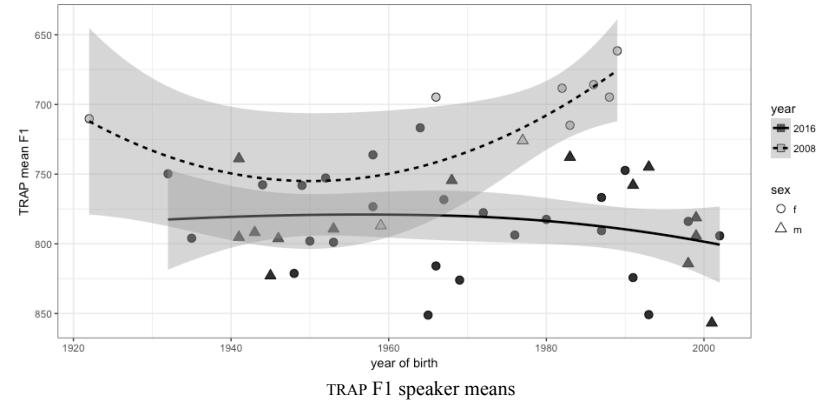
25 women, 14 men; born 1932–2002 (mean 1969); interviewed 2016 by Anja Thiel: full-length interviews, word lists, matched-guise attitudinal experiment.

Research goal: How is NCS socially situated in a small city at the edge of the region?

Normalized formants from conversation and wordlists extracted via FAVE (Rosenfelder et al. 2011). 2008 data re-normalized using same Lobanov method to allow direct comparison. Formants in 2008 data were measured by hand (Dinkin 2013); but Severance et al. (2015) find FAVE measurements usually close to Dinkin's hand measurements, especially for front vowels. Phoneme means are calculated following *ANAE* methodology: excluding tokens before sonorants and after glides and clusters.

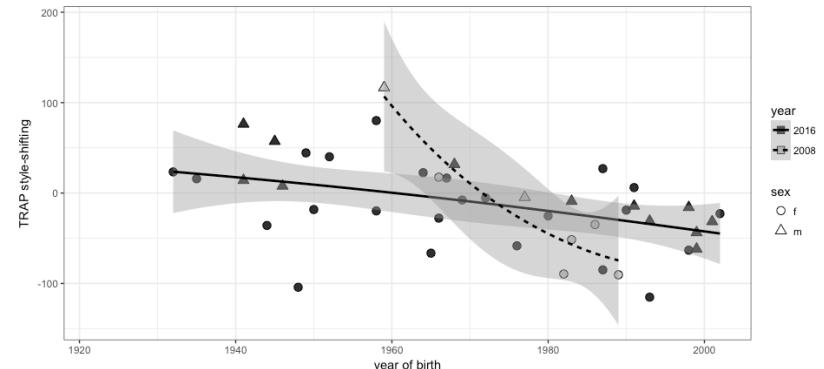
### Results: TRAP in 2016 data vs. 2008 data

- Unlike 2008, no 2016 speakers have TRAP higher than DRESS
  - In 2008, 5 speakers have mean TRAP F1 < 700 Hz; in 2016, none do
  - No significant age or gender correlation of spontaneous-speech TRAP in 2016
- Despite seeming trend toward NCS in 2008, 2016 looks like a **stable non-NCS system**; 2016 also has backer LOT and seemingly fronter DRESS than 2008.



### Results: style-shifting

- Most **younger** speakers shift **away** from NCS TRAP-raising in wordlist style
- Most **older** speakers shift **toward** raising in wordlist style; exceptions are all female I.e., **direction of style-shifting is reversing** in apparent time; women lead this change.



Difference between spontaneous and wordlist TRAP F1 means. A positive value means the vowel is more raised in wordlist style than spontaneous speech. Five speakers did not produce wordlists.

### Mixed-effects linear model of interacting predictors of TRAP F1:

age (in 2016), gender, style, year of interview, plus phonological factors (omitted for conciseness). Reference level: female, spontaneous speech, 2016 interview. Random factors: speaker, word.

predictor	coefficient	p
wordlist × age	-1.18 / year	$7 \times 10^{-9}$
wordlist	+61.8	$3 \times 10^{-5}$
2008	-97.5	0.0003

predictor	coefficient	p
wordlist × male	-27.5	0.002
2008 × male	+67.6	0.045
intercept	814 Hz	

3-way interaction age × year × style removed due to likelihood that it's due to one outlier in 2008.

### Matched-guise experiment in 2016:

Raised & unraised TRAP vowels spliced into sentences read by 3 male non-NCS voices.

TRAP vowels taken from Ogdensburg and Canton speakers from Dinkin (2013) data.

Raw F1: 600 Hz raised, 782 Hz unraised. Normalized to original speakers: 721 Hz, 880 Hz.

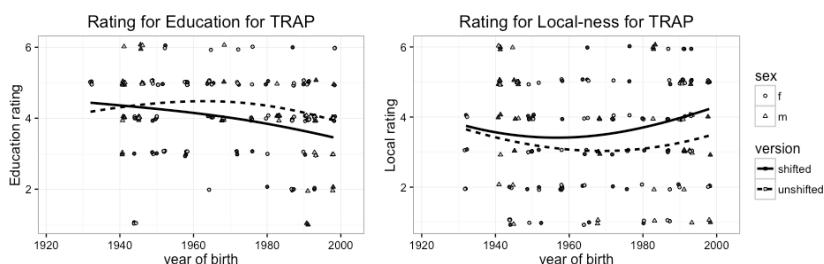
Each stimulus: 3 carrier sentences from one voice, containing two TRAP tokens each.

6 TRAP stimuli per participant: 2 guises (raised vs. unraised) × 3 carrier voices.

Participants evaluated guises on 6-point forced choice scale on 5 categories:

friendliness, education, age, local-ness, Canadian-ness.

**Results:** young speakers judged raised TRAP **less educated** but **more local** than unraised; older speakers **didn't distinguish** raised/unraised TRAP on those dimensions.  
(But apparent rating differences between carrier voices suggest something perhaps more complex.)



### Regression results for judgments of **educatedness** (left) and **localness** (right).

Predictors: guise; carrier voice; education, gender, age of listener. Random factor: listener.

Reference level: shifted guise, carrier voice J.

predictor	coefficient	p
unshifted	+0.310	0.041
voice R	+0.224	
voice T	+0.463	0.046

predictor	coefficient	p
unshifted	-0.5	0.023

Divide into older and younger cohorts at 1960:

guise coefficients for **younger speakers alone**: +0.5 (educatedness), -0.71 (localness); for **older speakers alone** (n.s.): -0.02 (educatedness), -0.16 (localness).

NCS TRAP-raising developing from an **indicator** into a **marker** (Labov 2001:196)—younger speakers **both evaluate it negatively** and **style-shift away from it**.

Could the difference between 2008 and 2016 data be due to **methodological differences**?

Pre-scheduled interviews, non-native speaker as interviewer in 2016:

this could promote somewhat more careful speech than in 2008.

F1 difference between 2008 and 2016 is bigger than between wordlist and spontaneous; unlikely that slightly-more-careful interview could account for a difference that large.

Seems we must conclude: **communal change** away from raised TRAP in Ogdensburg.

In 2008 younger speakers led NCS, but shifted away from it in careful speech; by 2016, negative evaluation was strong enough to spread to spontaneous speech too.

Gender pattern is reminiscent of loss of Philadelphia dialect features (Labov et al. 2013): women led the change from below, but now lead the retreat from it.

But in 2016 Ogdensburg, apparent-time retreat is only clearly visible in wordlist style; spontaneous speech shows no significant age trend.

**Why** the flat age distribution, when we see apparent-time NCS loss in other cities?

NCS apparently relatively new to Ogdensburg—young speakers retreat from TRAP raising, but older speakers never had much of it to begin with.

### Conclusion:

This study shows a role of **communal change** in the indicator/marker transition:

- a change from below develops negative social evaluation;
- when the stigma becomes prominent enough, groups who share that evaluation **retreat** from the local feature.

By this process, Ogdensburg apparently lost its NCS TRAP-raising within eight years.

### References:

- Dinkin, Aaron J. (2013). Settlement patterns and the eastern boundary of the Northern Cities Shift. *Journal of Linguistic Geography* 1.1:4–30.  
 Dinkin, Aaron J. (2017). Changing Phonology, Stable Borders: The Low Back Merger in Northern New York. Paper presented at CLA annual conference, Toronto.  
 Driscoll, Anna & Emma Lape (2015). Reversal of the Northern Cities Shift in Syracuse, New York. *Penn Working Papers in Linguistics* 21.2:41–47.  
 Jacewicz, Ewa, Robert A. Fox, & Joseph Salmons. Vowel change across three age groups of speakers in three regional varieties of American English. *Journal of Phonetics* 39.4:683–693.  
 Labov, William (2001). *Principles of Linguistic Change, vol. 2: Social Factors*. Malden, Mass.: Blackwell.  
 Labov, William, Sharon Ash, & Charles Boberg (2006). *Atlas of North American English*. Berlin: Mouton de Gruyter.  
 Labov, William, Ingrid Rosenfelder, & Josef Fruehwald (2013). One hundred years of sound change in Philadelphia: Linear incrementation, reversal, and reanalysis. *Language* 89.1:30–65.  
 Rosenfelder, Ingrid, Joe Fruehwald, Keelan Evanini, & Jiahong Yuan (2011). FAVE (Forced Alignment and Vowel Extraction) Program Suite. <http://fave.ling.upenn.edu>.  
 Severance, Nathan, Keelan Evanini, & Aaron Dinkin (2015). Examining the performance of FAVE for automated sociophonetic vowel analyses. Paper presented at NAWV 44, Toronto.  
 Wagner, Suzanne, Alexander Mason, Monica Nesbitt, Erin Pevan, & Matt Savage (2016). Reversal and reorganization of the Northern Cities Shift in Michigan. *Penn Working Papers in Linguistics* 22.2:171–179.