Low back merger encroaching at a stable dialect boundary in northern New York

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Dialect regions of Upstate New York (Dinkin 2009, 2011, 2013) include:
• Inland North (central and western NY): characterized by Northern Cities Shift
• North Country (northeast corner of NY): advanced LOT/THOUGHT merger; no NCS
LOT/THOUGHT merger mostly absent in Inland North; but strongest incipient evidence for it is at northern edge of Inland North, near Canada and North Country (Dinkin 2011).

Boundary between Inland North & North Country is in St. Lawrence County—sparsely-populated rural region (16/km²), across St. Lawrence River from E Ontario—sharply separating communities of Ogdensburg & Canton.

Research questions in this paper:
1. Is merger in northern NY due to proximity of Canada?
   • Nearest large cities are in Canada—likeliest source of diffusion?
   • But Boberg (2000) argues sound change doesn’t diffuse across the border.
2. Why is there a dialect boundary between Ogdensburg and Canton?
   • Boundary is quite sharp—no other populated places between the two
   • No clear evidence for different settlement sources (cf. Dinkin 2013).
   • They differ in several economic & geographic features:

<table>
<thead>
<tr>
<th>Ogdensburg</th>
<th>Canton</th>
</tr>
</thead>
<tbody>
<tr>
<td>city</td>
<td>village</td>
</tr>
<tr>
<td>on the river, with border crossing</td>
<td>20 miles from the river</td>
</tr>
<tr>
<td>low middle-class population</td>
<td>low population born outside NY</td>
</tr>
<tr>
<td>two prisons</td>
<td>two universities</td>
</tr>
<tr>
<td>further west</td>
<td>further east</td>
</tr>
</tbody>
</table>

Significant differences between towns and apparent-time change toward merger were found in linear-regression models of multiple indices of LOT/THOUGHT merger.

Minimal-pair judgments:
Each speaker gave judgments on two minimal pairs (usually cot-caught, don-dawn); each speaker is assigned score from 0 (both pairs merged) to 4 (both pairs distinct).

Linear regression model of judgment score vs. town, year of birth, gender, and education predicts these scores by town:

<table>
<thead>
<tr>
<th>Town</th>
<th>Alex Bay</th>
<th>Ogdensburg</th>
<th>Watertown</th>
<th>Massena</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview</td>
<td>3.80</td>
<td>3.63</td>
<td>2.03</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Sharp difference between eastern & western halves of data: more merged on east side.

Apparent-time trend toward merger in judgments ≈ –0.43 per decade

Adjusted Euclidean distance (Nycz & Hall-Lew 2014) estimates F1/F2 distance between speakers’ central phonetic targets of LOT and THOUGHT phonemes.

Linear regression of speakers’ ED-Adjusted vs. town, year of birth, gender, and education predicts these distances by town:

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</tr>
</thead>
<tbody>
<tr>
<td>Median age</td>
<td>166</td>
<td>282</td>
<td>155</td>
<td>168</td>
</tr>
<tr>
<td>Canton</td>
<td>261</td>
<td>140</td>
<td>133</td>
<td>16</td>
</tr>
</tbody>
</table>

Still mostly an east-west difference, but Alex Bay patterns with eastern half; LOT/THOUGHT substantially closer there than other towns with non-merged judgments.

Apparent-time trend toward shrinking Euclidean distance ≈ –28 Hz per decade

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1 One speaker in Waddington ended the interview without completing elicitation tasks.
2 All modeled results shown by town set year of birth = 1973, the median age of the sample.
Bhattacharyya’s affinity (cf. Strelluf 2016, Johnson 2015): measures degree of overlap between phonetic distributions of two phonemes, ranges from 0 (completely separate) to 1 (total overlap).

Model of speakers’ Bhattacharyya affinity of LOT/THOUGHT phonemes (excluding pre-/l, r/) vs. town, year of birth, gender, education predicts these values by town:

<table>
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<th>Massena</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>587</td>
<td>382</td>
<td>668</td>
<td>722</td>
</tr>
<tr>
<td>292</td>
<td>292</td>
<td>383</td>
<td>696</td>
<td>710</td>
</tr>
</tbody>
</table>

Alexandria Bay still patterns with the eastern half as more merged.

Apparent-time trend toward increasing overlap ≈ +.04 per decade

Results so far:

- Sharp boundary between more merged east half, unmerged west half
- Merger progressing in apparent time throughout the region
- Alexandria Bay patterns as unmerged in judgments but more merged in production
- Proximity to Canadian border does not appear to play much role in degree of merger

Watertown & Ogdensburg maintain distinction by having LOT frontier than other towns, but Gouverneur maintains it without much fronting of LOT:

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<th>Massena</th>
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</thead>
<tbody>
<tr>
<td>1500</td>
<td>2890</td>
<td>2927</td>
<td>2908</td>
<td>2936</td>
</tr>
<tr>
<td>2599</td>
<td>2599</td>
<td>2733</td>
<td>2908</td>
<td>2790</td>
</tr>
</tbody>
</table>

Mixed-effects linear regression of LOT F2 vs. town, year of birth, gender, education, style, onset, coda; speaker and word as random effects.

Gouverneur instead appears to have higher/backer THOUGHT than other towns:

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<th>Massena</th>
</tr>
</thead>
<tbody>
<tr>
<td>353</td>
<td>353</td>
<td>202</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>544</td>
<td>544</td>
<td>299</td>
<td>186</td>
<td></td>
</tr>
</tbody>
</table>

Mixed-effects linear regression of front diagonal index (F2–2F1) of THOUGHT, as above.

Why the difference between Gouverneur vs. Ogdensburg/Watertown?

LOT-fronting and THOUGHT-lowering are part of Northern Cities Shift.

Compare another indicator of NCS, raising and fronting of TRAP:

much less present in Gouverneur than Ogdensburg, Watertown, or even Alex Bay.

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<td>361</td>
<td>553</td>
<td>202</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>544</td>
<td>544</td>
<td>299</td>
<td>186</td>
<td></td>
</tr>
</tbody>
</table>

Mixed-effects linear regression of front diagonal index (F2–2F1) of TRAP, as above but also excluding prenasal tokens.

- Watertown & Ogdensburg: low back distinction with NCS
- Gouverneur: low back distinction but substantially less evidence of NCS
- Alex Bay: low back distinction in judgments only; intermediate NCS in TRAP
- eastern half of sample: low back merger, no NCS

Massena & Ogdensburg are economically & demographically very similar; difference between them hard to attribute to anything but east-west position.

Is low back merger in northern NY due to proximity of Canada?

Towns closer to Canada aren’t consistently associated with more (or less!) merger. Alex Bay may be an exception, but merger has a different character than the eastern half.

Why is there a dialect boundary between east and west portions of the region?

NCS is present in Watertown, Alex Bay, Ogdensburg, but not elsewhere. Why there?

In 19th C., Ogdensburg was the easternmost limit of shipping from Lake Ontario: “Ogdensburg is considered as being at the foot of the lake, because there is little descent in the river to this place, below which the rapids commence, and the river navigation ends.” (Hayward 1854:504; cf. also Willoughby 1960:1)

So the dialect boundary represents a break in historical patterns of transport/commerce—no longer relevant to today’s transportation, but still reflected in dialectology.

Why does Gouverneur lack NCS while Watertown and Ogdensburg data have it?—possible result of real-time change? Did it originally have NCS, but lose it? Thiel & Dinkin (2017) find Ogdensburg has mostly lost NCS since 2008; maybe Gouverneur is the same, and 2014 data postdates loss of NCS there?

Why does Alexandria Bay have low back merger in production?

Tiny tourist town (population ≈ 1000) with a relatively mobile population: perhaps dialect contact introduces approximation of LOT/THOUGHT—no necessarily due to border specifically, but contact with other Americans?

Acknowledgements:

Thanks to my research assistants Niuyesh Ikhanani and Shane Taylor, who transcribed most of the new interviews; Christopher Strelluf, for assistance implementing Bhattacharyya’s affinity in R; and Anja Thiel, for many productive conversations on the dialectology and history of St. Lawrence County.

References:


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\[3\] Reference level: null onset, /æ/ coda, spontaneous speech. Tokens preceding /l/, /r/ excluded.