Ethnolinguistic vowel differentiation in Manitoba English

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Research Goal & Study Foci

GOAL: To document acoustic production differences among ethnic groups in the English dialect spoken in Manitoba, Canada.

Phonological processes investigated:

1. Post-coronal /uw/-fronting
2. Pre-nasal and pre-velar raising of /æ/, i.e. *ban*– and *bag*–raising
3. *Canadian Raising* of pre-voiceless /aw/

Research Context

While ethnolinguistic research in Canada is a growing area of study, the Canadian Prairies (Manitoba, Saskatchewan & Alberta) remain under-researched:

- Prior research (Onosson et al., 2019) established that Filipinos in Winnipeg exhibit more lowered/retracted productions of the *Canadian Shift* vowels /æ, ɛ, ɪ/ than other Winnipeggers, but similar to larger centres e.g. Toronto
- Broader ethnolinguistic variation in Manitoba is mostly unstudied

Mennonite–Manitobans

Mennonites are one of Manitoba's most important ethno-religious groups:

- After becoming 5th Canadian province in 1870, two "Mennonite Reserves" established in Manitoba, attracting nearly 40% of ≈18,000 late 19th C. Mennonites migrating from Imperial Russia to N. America (Loewen, 2001)
- 25% of all Canadian Mennonites reside in Manitoba (Statistics Canada, 2016)
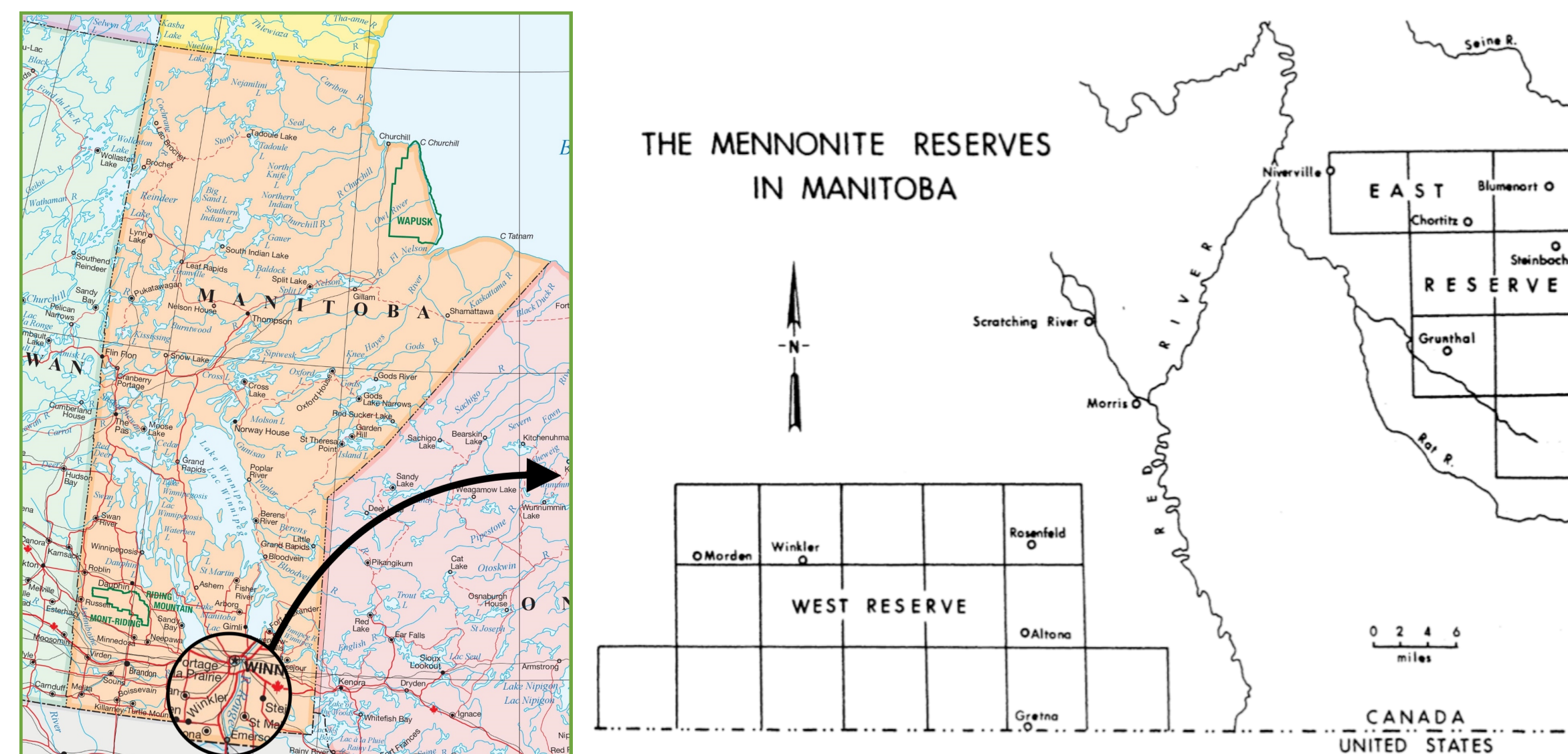- German is the second-most widely-spoken L1 in Manitoba at 63,825 speakers

Fig. 1: The Mennonite Reserves in Manitoba (Ledohowski, 2003)

Filipino–Winnipeggers

Filipinos are one of the largest ethnic groups in Manitoba's capital, Winnipeg:

- Regular migration to Manitoba from the Philippines began in late 1960s; it remains the #1 international source of migrants to the province
- Filipinos make up 9.7% of Winnipeg's population (cf. 2.3% nationally), with the largest concentration in the north-west quadrant of the city
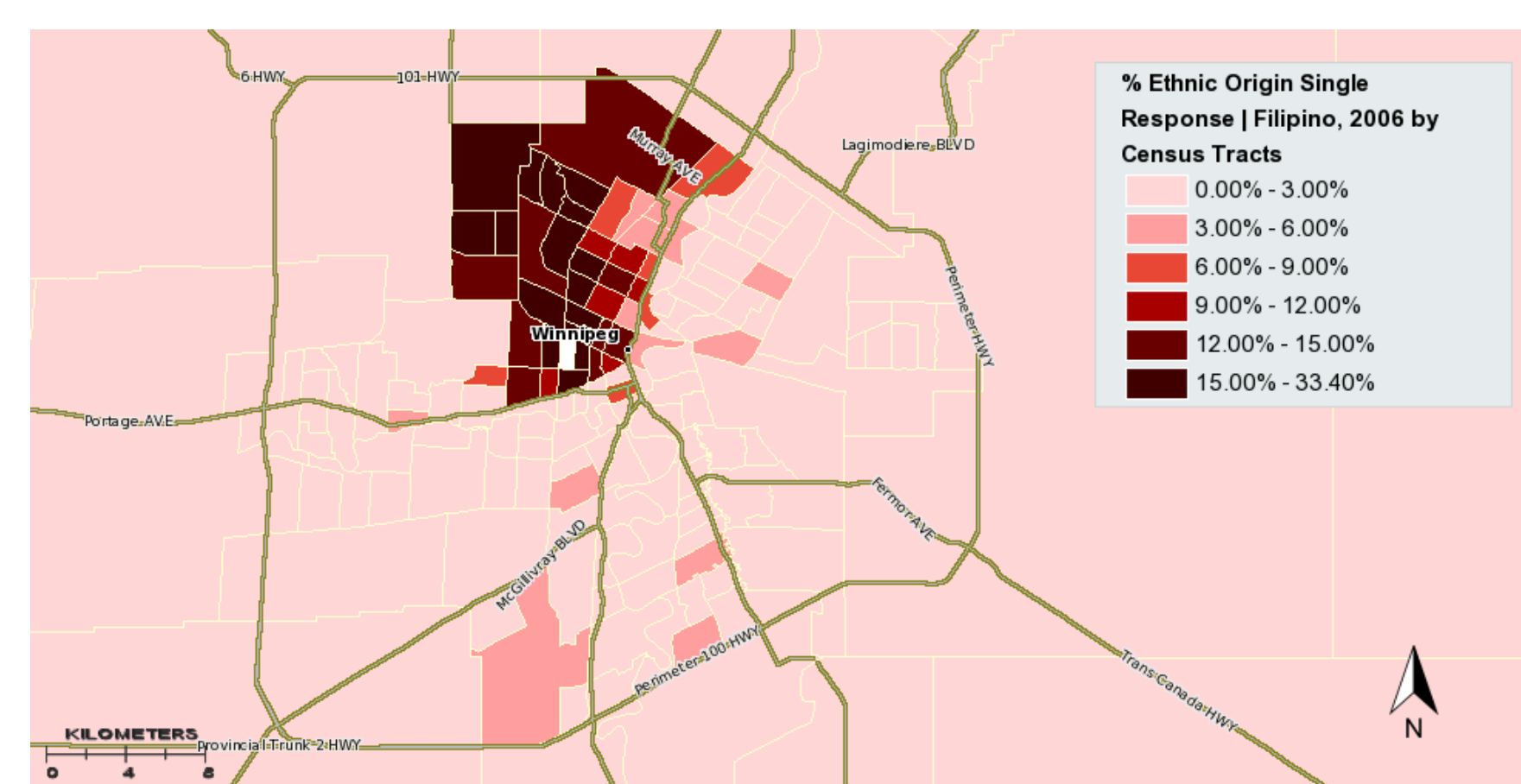- Tagalog is the second-most widely-spoken L1 in Winnipeg at 48,530 speakers

Fig. 2: The Filipino Population in Winnipeg (Kelly, 2007)

Data & Methods

The *Languages In the Prairies Project* (LIPP; Rosen & Skriver, 2015) contains $N = 108$ **transcribed sociolinguistic interviews** with Manitobans: 39 West-Reserve Mennonites, 21 East-Reserve Mennonites, 29 Filipino-Winnipeggers & 19 un-differentiated European-Winnipeggers (i.e. "white"). Audio was processed in FAVE (Rosenfelder et al., 2014), yielding $n = 505{,}870$ **vowel tokens**. Statistical analysis was conducted in R (R Core Team, 2019), and plots generated with `ggplot2` (Wickham & Winston, 2019).

Post-coronal /uw/-fronting

The *Atlas of North American English* (ANAE; Labov et al., 2006) documented both general and post-coronal fronting of /uw/, [Kuw] and [Tuw] respectively, throughout Canada. LIPP results indicate that Manitoba speakers lag somewhat behind N. American F2 averages for both [Kuw] (LIPP = 1336 Hz vs. ANAE = 1433 Hz) and [Tuw] (LIPP = 1730 Hz vs. ANAE = 1811 Hz).

ANOVA of /uw/ F2 distribution by *coda context* and *ethnicity* indicated that Mennonite speakers exhibit significantly ($p<0.001$) greater post-coronal /uw/-fronting than European-Winnipeggers by +45 Hz; Filipino- and European-Winnipeggers /uw/ F2 distributions were not significantly different from each other.
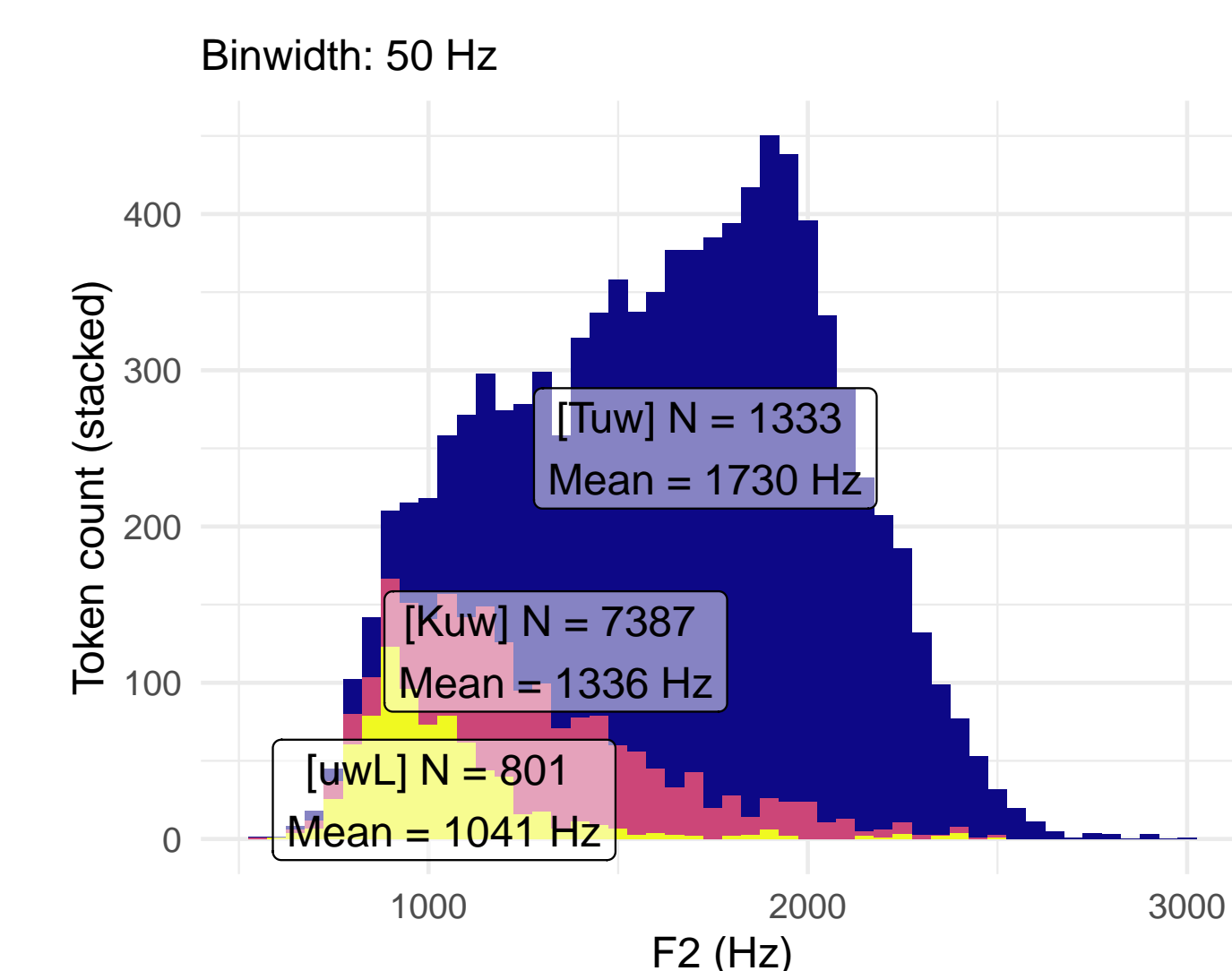

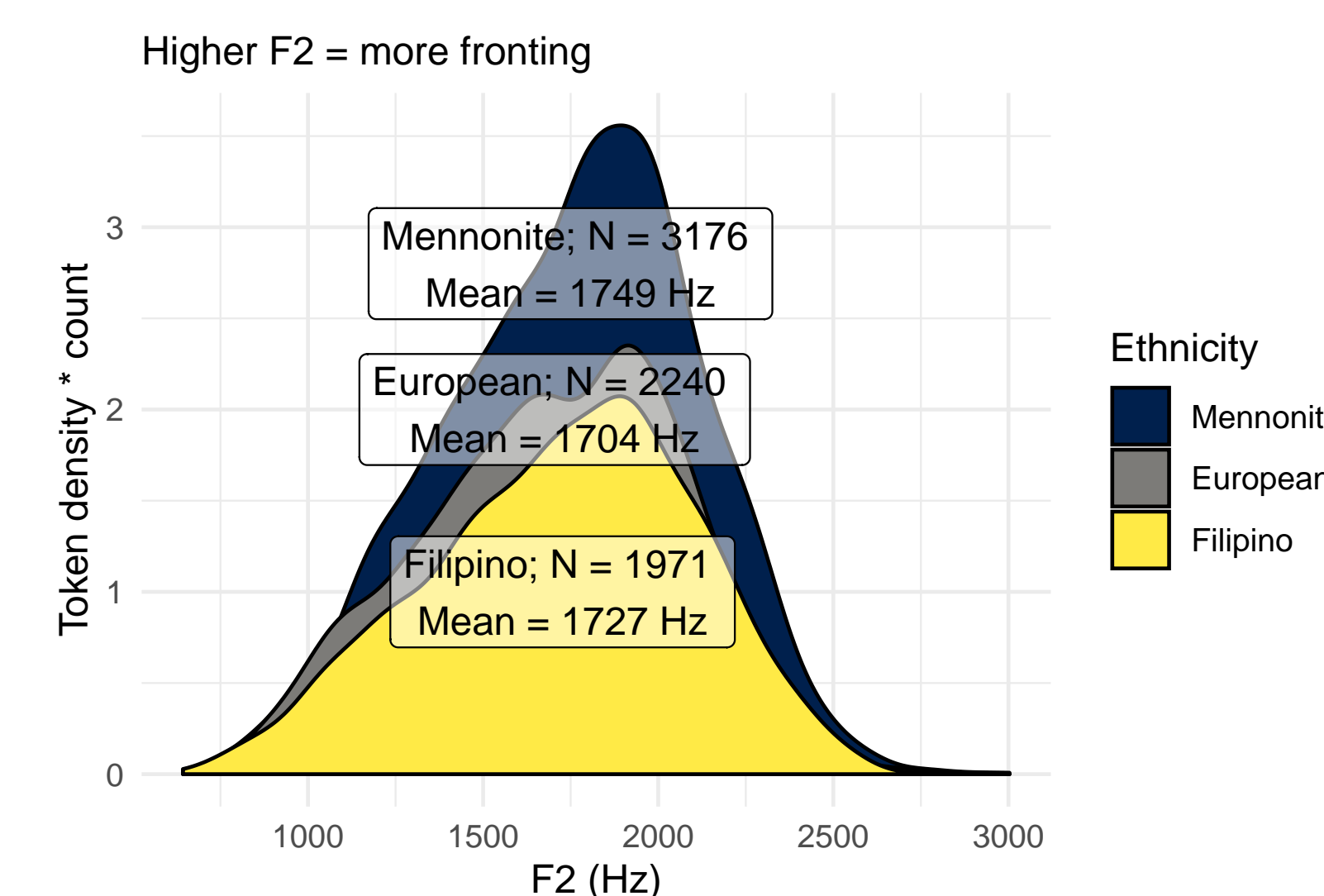Fig. 3: Distribution of /uw/ F2 by phonological context

Fig. 4: Density of post-coronal /uw/ F2 by ethnicity

Pre-nasal and pre-velar /æ/-raising

Boberg (2008) documented pre-velar /æ/-raising in the Prairies exceeding pre-nasal /æ/-raising, as measured by F1 values, a configuration unique to this region. Most studies of pre-nasal /æ/-raising conflate the three nasal consonants. However, as /m, n, ŋ/ involve radically distinct articulations, there is no *a priori* justification for conflating these; findings from LIPP suggest they should be treated distinctly.

ANOVA of /æ/ F1 distribution by coda segment found that each nasal was significantly different from every other nasal, but /m/ was *not* significantly different from non-nasal codas. The most substantial and significant raising patterns, as compared with non-pre-velar/nasal /æ/, were found for coda /ŋ/ at –93.1 Hz, /g/ at –77.1 Hz, /n/ at –65.5 Hz. These results indicate that /ŋ/ is best classified together with /g/ when discussing pre-velar raising, that /m/ should not be distinguished from non-nasal codas, and that "pre-nasal" /æ/-raising should probably be restricted to coda /n/.

Analysis of /æ/ F1 distributions by *ethnicity* within each coda type found significantly different results only pertaining to coda /n/. Both Mennonite and Filipino speakers exhibited higher F1 values—that is, less *ban*-raising—than European-Winnipeggers, by +10.2 and +15.8 Hz respectively.
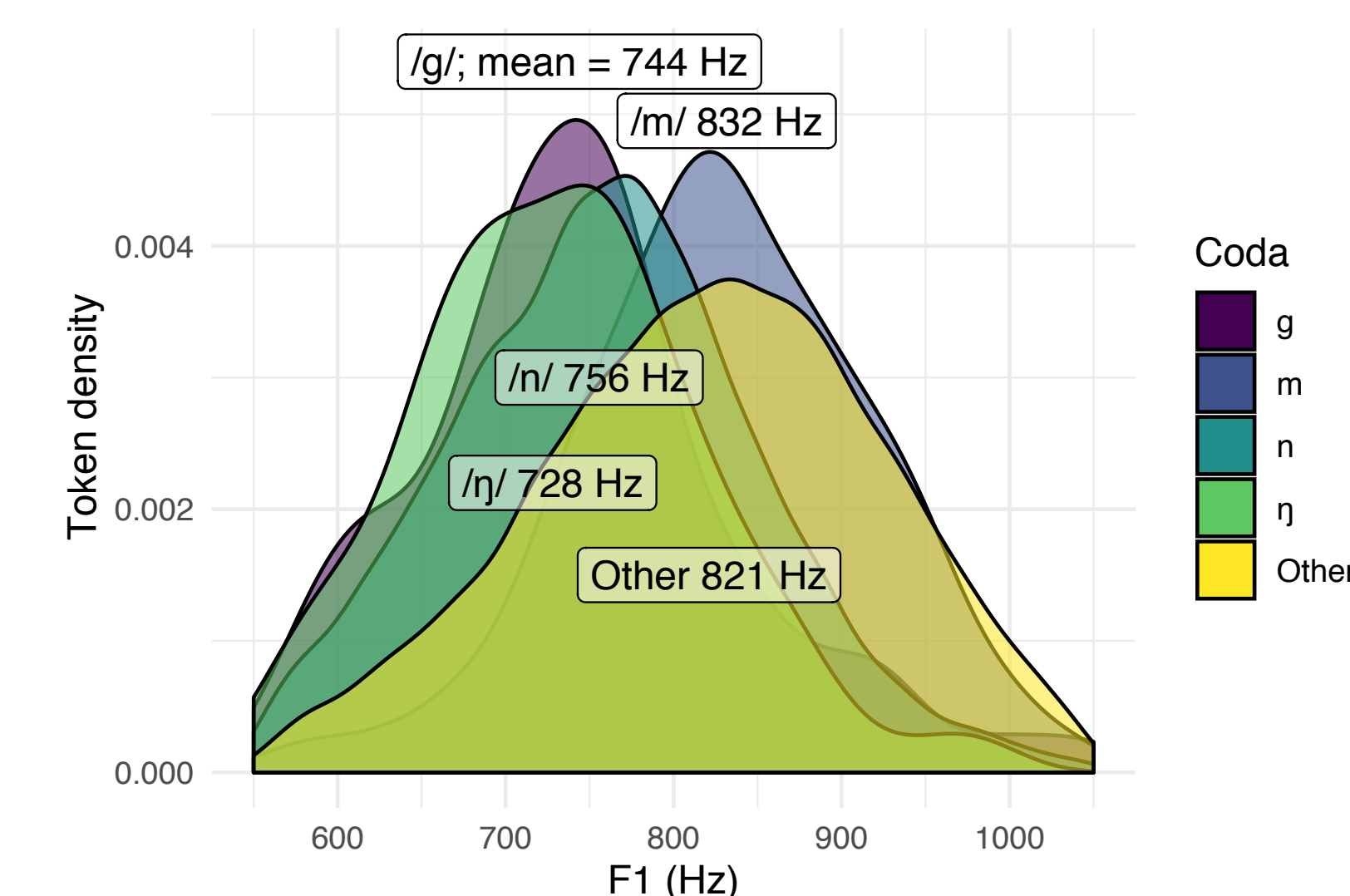

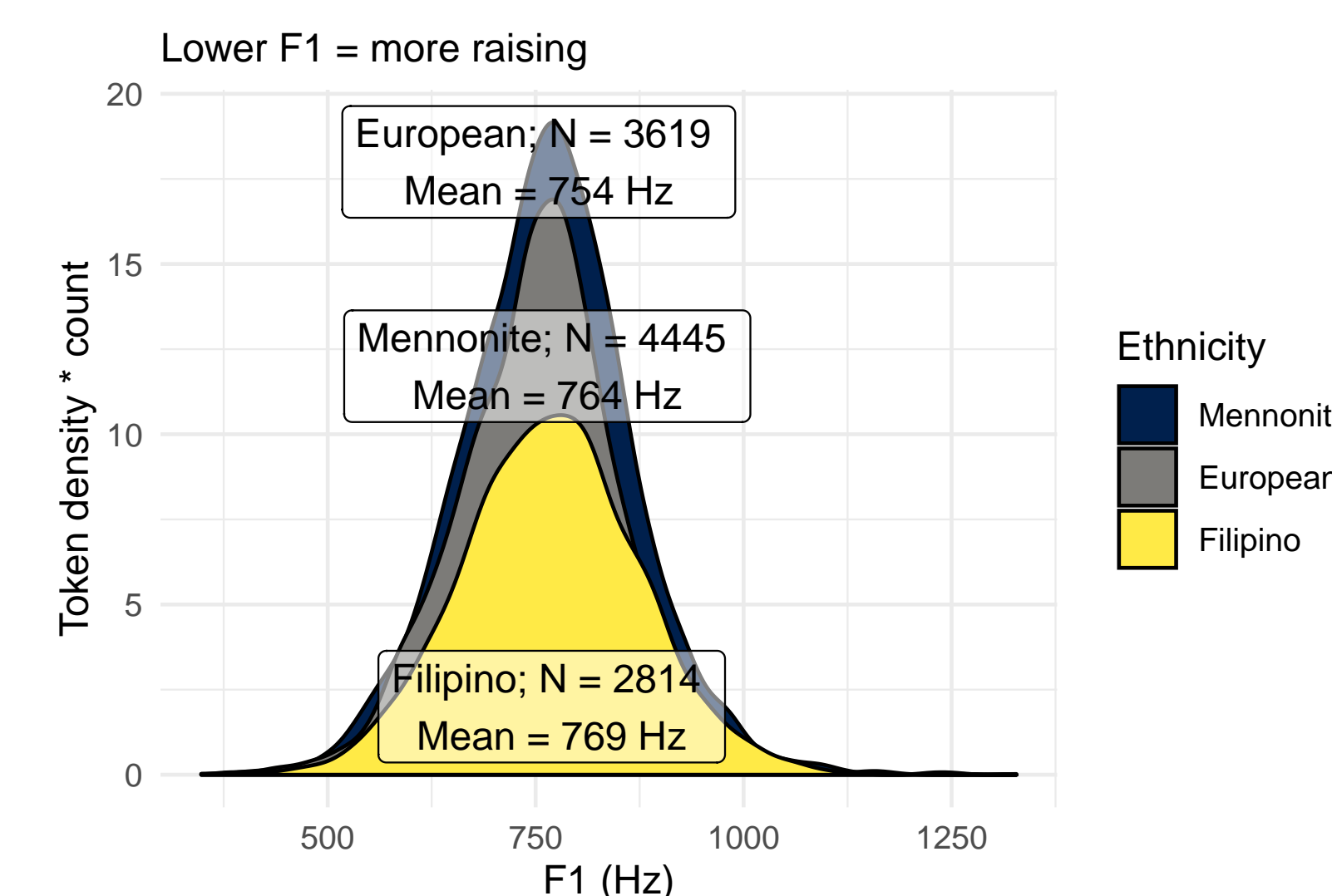Fig. 5: Distribution of /æ/ F1 by coda

Fig. 6: Distribution of pre-nasal /æ/ F1 (i.e. *ban*-raising) by ethnicity

Canadian Raising of /aw/

Occurrence of Canadian Raising was evaluated using GAMs (Hastie & Tibshirani, 1987) comparisons of formant trajectories across the five intervals provided by FAVE. Unsurprisingly, robust raising of pre-voiceless /aj, aw/ occurred generally in the LIPP data, as measured by F1 trajectories.

GAMs comparisons of per-diphthong formant trajectories by *coda voicing* indicate significant differences by *ethnicity* for pre-voiceless /aw/. Across the entire formant trajectory, Mennonites exhibit the greatest degree of pre-voiceless raising (lower F1), and Filipinos the least, while Europeans fall in between the two with partial overlap of Filipino production during the initial 1/3 of the diphthong, i.e. the nucleus.
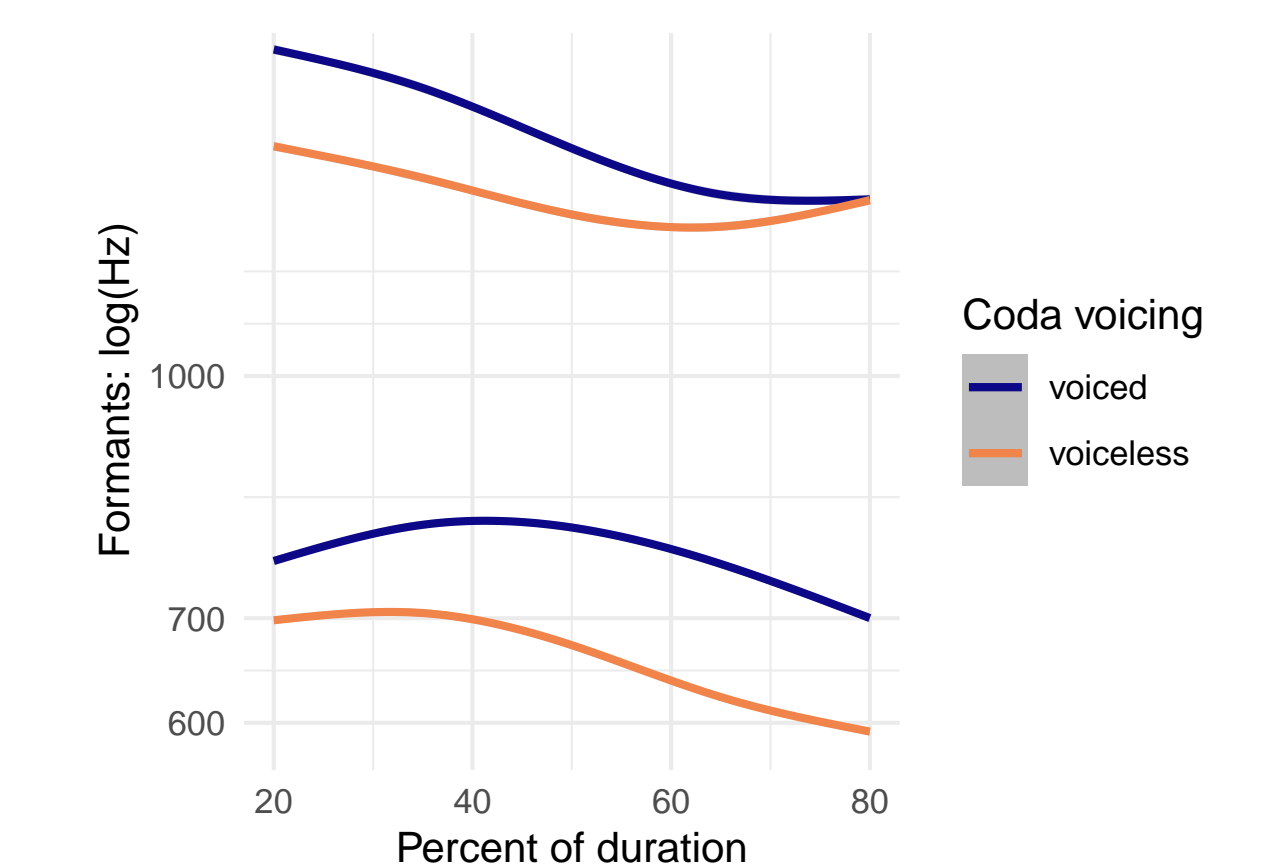

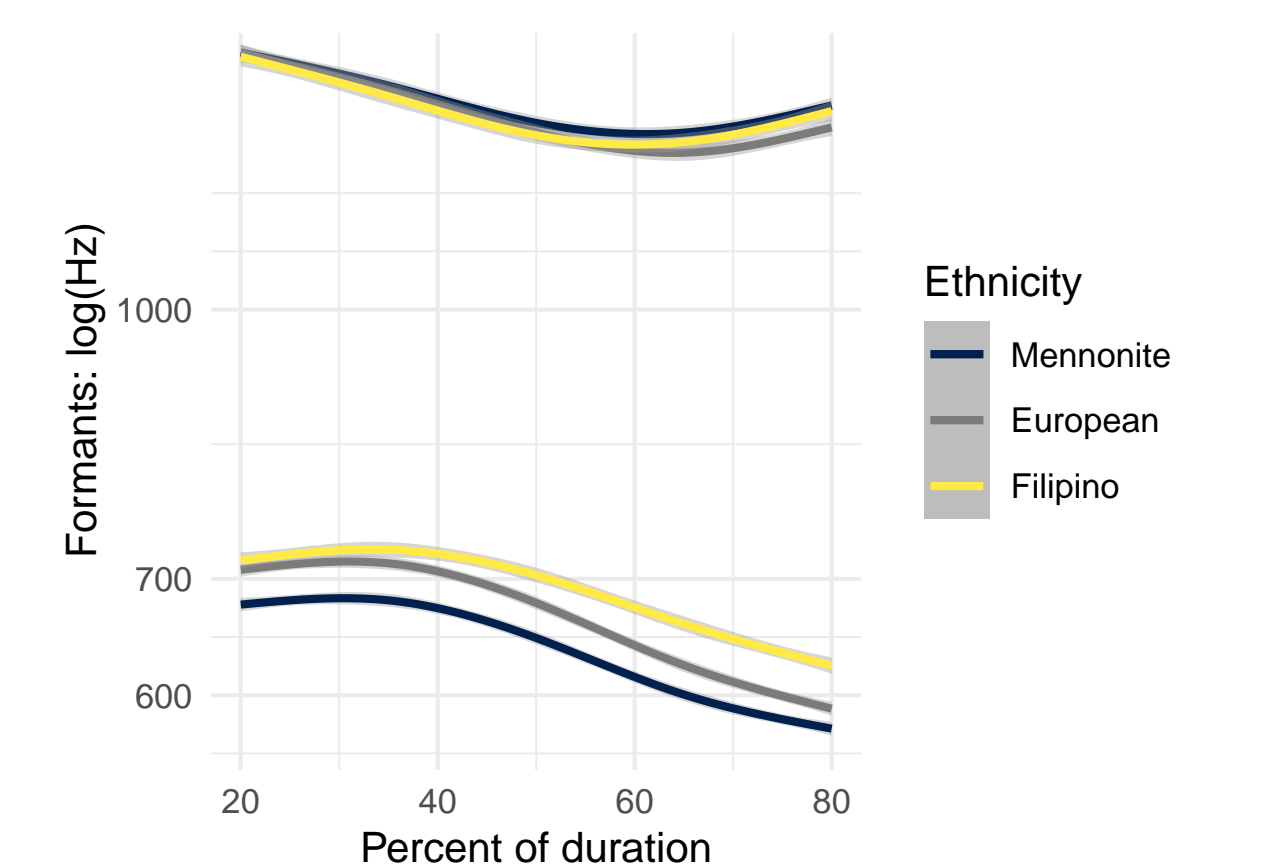Fig. 7: /aw/ formants by coda voicing

Fig. 8: Pre-voiceless /aw/ formants by ethnicity

Conclusion

The results presented here have identified sometimes subtle, yet significant acoustic vowel production distinctions related to ethnicity among Anglophone Manitobans. Within Canada, Manitoba and the other Prairie provinces are often overlooked in favour of more populous (e.g. Ontario, British Columbia) or historic (Atlantic Canada) anglophone regions. The results garnered thus from from LIPP support further investigation of differences related not only to ethnicity but also locale, urbanity, age, sex/gender, socioeconomic status, and other demographic characteristics, within this vast region of the country.

Acknowledgment

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