LANGUAGE ATTITUDES TOWARDS FRENCH VARIETIES - ASIAN SPEAKERS AND WHITE SPEAKERS

CONSULTANT: SHUYI TAN

1. Description of Survey Participants

There are 90 participants involved in the study, among whom 83 completed the survey. The following analyses will be based on the 83 participants who have completed the whole survey (64 females, mean age = 20.4 years, range = 17 - 46 years). For the cultural and linguistic background of the participants, most of the participants are multilingual (41 speak two languages, 17 speak three languages, and 12 speak four languages). The majority speak English as their first language ($N = 68$), and other native languages are included (6 speak Mandarin, 3 speak Spanish, 2 speak Cantonese, 2 speak Hindi, 1 speaks Korean, and 1 speaks German). 70% of participants were born in Canada (N = 58), among which 39 grew up in the province of British Columbia. Of those who were not born in Canada, 13 were born in Asian countries, and the rest come from American, European, and African countries. 6 participants have a linguistic or French background for their field of study. In terms of years of studying French, with $10 - 15$ (N = 26) and $0 - 5$ (N = 25) years being the most common lengths, they are followed by $5 - 10$ years (N = 20) and more than 15 years (N = 4). When asked about the preferred type of French to learn, 48 answered French from France, 11 answered French from Quebec, and 21 had no preference. In the end, participants reported that their French teacher(s) were from Quebec (N = 35), France (N = 33), and elsewhere (N = 15). More profile statistics of participants are demonstrated in Table B.7 in the appendix.

2. Statistical Analysis

Statistical analyses were conducted using R version 4.0.2 (2020-06-22). To examine the effect of speaking accent on language attitudes across four dimensions, we summed up the scores based on each dimension, then analyzed the matched-guise data using the *anova_test* function for one-way repeated ANOVA and *pairwise_t_test* for post-hoc analysis from the *rstatix* R package, and the results were visualized using the *ggboxplot* function from the *ggpubr* R package. For the effect of speaker race on language attitudes across four dimensions, the aggregated scores were analyzed using two-sided paired sample t-tests and Wilcoxon tests with the *t.test* function and the *wilcox* function from the stats R package respectively. In addition, to test if participants held significantly more positive attitudes toward white speakers compared to Asian speakers in general, without considering the four dimensions, again a one-sided paired sample t-test and a Wilcoxon test were implemented using the same functions as above. In the end, to simultaneously evaluate the effect of accent and race on language attitudes, we performed two-way ANOVAs using the *anova_test* function from the *rstatix* R package, with speaker accent and race being the two within-subject factors. After finding that the interaction effect was significant, we again conducted a post-hoc analysis using the *pairwise_t_test* function from the *rstatix* R package and visualized the results using the *ggboxplot* function from the *ggpubr* R package.

Date: December, 2022.

2.1. **Attitudes toward Speaker Accent.** The recordings recruited in the survey feature Quebec, European (also known as French from France), L2, Acadian, and African accents, and the speakers are either white or Asian. Survey participants were asked to evaluate the recordings by giving ratings to nine survey questions. To facilitate the comparison, nine survey questions are categorized into four dimensions as follows:

- **General Perspective**
  - This is beautiful French
- **Solidarity**
  - This person is dynamic
  - This person is nice
  - This person is social
- **Status**
  - This person is professional
  - This person is a leader
  - This person is educated
- **Understandability**
  - The speaker is easy to understand
  - This person would be a good French teacher at UBC

The repeated measures ANOVA will be conducted after combining the ratings of speakers with the same accent. The repeated measures ANOVA is used to analyze data where the same subjects are measured more than once. To ascertain statistically significant differences, paired t-tests between the levels of the within-subjects factor, which is accent in this study, are adopted. P-values are adjusted using the Bonferroni multiple-testing correction method.

2.1.1. ***General Perspective and Solidarity Dimension.*** Table 1 presents results from ANOVAs to determine attitudes among five accents on a general perspective and three solitary dimensions. For the general perspective, participants rated to evaluate whether a certain accent is considered to be "beautiful". It is shown in Table 1 European French and Quebec French were more likely to be complimented as beautiful French than L2 French, African French, and Acadian French with statistical significance. Similarly, people held significantly more positive attitudes toward Quebec French and European French compared to the other three varieties. Even though the mean score of European French is slightly higher than the mean of Quebec French, the minor difference is not statistically significant.

	$\mu_{Acadian}$	$\mu_{African}$	μ_{L2}	$\mu_{European}$	μ_{Quebec}	F Statistics	p-value
Beautiful French	6.5	7.9	7.9	10.6	10.3	111.4	4.95e-48
Dynamic	7.0	6.2	7.8	9.6	9.5	76.9	1.5e-37
Nice	8.1	7.6	8.8	9.4	9.5	31.62	1.82e-16
Social	7.7	6.7	8.7	9.5	9.5	66.94	3.32e-30

TABLE 1. Results of Repeated Measures ANOVA on General Perspective and Solitary Dimensions by Speaker Accent

Figure A.2 visualized the results of repeated measures ANOVAs and posthoc tests for general perspectives and solidarity evaluations. Each boxplot summarises the spread of scores for the five varieties of French studied. Joining lines and asterisks are used to denote the magnitude of statistical significance by p-value in the following way: **** $= 1e-04$, *** $= 0.001$, ** $= 0.01$, and * $= 0.05$. No asterisk means no statistical significance.

2.1.2. ***Status Dimension.*** In terms of status dimensions, it evaluates the French varieties from three aspects: professionalism, leadership, and education. Table 2 contains the mean scores and the test results of repeated measures ANOVAs, and Figure A.3 shows the distribution of scores for each variety of French and the results of pair-wise t-tests, which indicate that language attitudes toward Quebec French and European French were extremely close, and these two varieties were more favored by participants compared to other three varieties with statistical significance. Then among Acadian French, African French, and L2 French, L2 French received the most positive ratings in mean scores, while the statistical significance only occur in professionalism and leadership.

	$\mu_{Acadian}$	$\mu_{African}$	μ_{L2}	$\mu_{European}$	μ_{Quebec}	F Statistics	p-value
Professional	7.3	7.8	8.6	10.1	10.0	60.4	4.23e-24
Leader	6.9	6.8	8.0	9.5	9.7	70.7	5.46e-29
Educated	7.6	8.0	8.5	10.2	10.2	66.3	1.21e-27

TABLE 2. Results of Repeated Measures ANOVA on Status Dimensions by Speaker Accent

2.1.3. ***Understandability.*** As demonstrated in Table 3, Quebec French was considered to be the easiest to understand, and the understandability of L2 French and European French was also high and close, which were then followed by Acadian French and African French. It is shown in Figure A.3 shows that the pair-wise difference between Quebec French and Acadian French, Quebec French and African French, L2 French and Acadian French, L2 French and African French, and Europe French and African French is statistically significant.

	$\mu_{Acadian}$	$\mu_{African}$	μ_{L2}	$\mu_{European}$	μ_{Quebec}	F Statistics	p-value
Easy to Understand	7.2	7.6	9.6	9.5	10.0	57.9	2.11e-30
Good French Teacher	5.5	6.8	7.2	9.8	10.2	70.7	4.34e-48

TABLE 3. Results of Repeated Measures ANOVA on Understandability by Speaker Accent

2.2. **Attitudes toward Speaker Race.** In order to examine if participants held noticeably different language attitudes to white speakers compared to Asian speakers, we performed a paired one-sided two-sample t-test and a one-sided Wilcoxon. The results are presented in Table 4, where we see that the p-values from both tests are less than 0.05, which indicates that the difference between the two groups is statistically significant. To be more precise, participants tended to give higher scores to Asian speakers than white speakers with statistical significance.

	Alternative Hypothesis	Test Statistics	p-value
Paired t-test	True difference in mean <0	-8.6	<2.2e-16
Paired Wilcoxon Test	True location shift <0	22585.5	1.486e-12

TABLE 4. Paired t-test and Wilcoxon test between the group of White speakers and the group of Asian speakers

To locate the source of significant difference in language attitudes related to speaker race, the ratings were also examined in terms of general perspective, solitary dimensions, and status dimension. As evidenced by Table 5, the mean ratings given to the two race groups are close, except for the evaluation of leadership. The p-values from two-sided pair t-tests and the two-sided Wilcoxon

test verified the statistical significance of the difference, Otherwise, no statistical significance was detected in all other aspects. As a supplementary test, we also perform a one-sided paired test (p = 0.003) and a one-sided Wilcoxon test (p = 0.004) on leadership, which confirmed that Asian speakers were rated significantly more positively than white speakers in terms of leadership.

		μ_{White}	μ_{Asian}	p-value$_{t-test}$	p-value$_{Wilcox}$
General Perspective	Beautiful French	21.6	21.6	0.790	0.612
Solidarity	Dynamic	19.9	20.2	0.295	0.302
	Nice	21.6	21.7	0.556	0.549
	Social	20.9	21.1	0.421	0.447
Status	Professional	21.8	22.1	0.280	0.423
	Leader	20.1	20.9	0.006	0.008
	Educated	22.1	22.3	0.597	0.866
Understandability	Easy to understand	22.0	22.0	0.847	0.888
	Good French Teacher	19.7	19.8	0.765	0.702

TABLE 5. Mean Scores and Results of Two-sample Tests on Speaker Rates

2.2.1. ***Interaction Effect of Speaker Accent and Speaker Race.*** To simultaneously quantify the effect of two within-subject factors: the speaker's race and accent, we performed two-way ANOVA, with the results summarized in Table 6. The results reveal that both different varieties of French and the race of speakers are associated with statistically significant differences in language attitudes respectively. In the meantime, the p-value of the interaction term indicates that there is some significant interaction effect between the French varieties and speaker race, which means that the effect of French varieties on participants' language attitudes depends on speakers' race, and vice visa.

Effect	F Statistic	P-value
Accent	170.003	1.23e-39
Race	152.268	2.20e-20
Accent, race	173.157	2.69e-26

TABLE 6. Results of two-way repeated measures ANOVA on race and accent

Figure 1 depicts the side-by-side distribution of evaluation scores, Asian speakers receive significantly higher evaluation scores than White speakers when both speak L2 French or European French, while the difference in the group of L2 is much more obvious. Otherwise, no significant difference between the two races was detected in other French varieties.

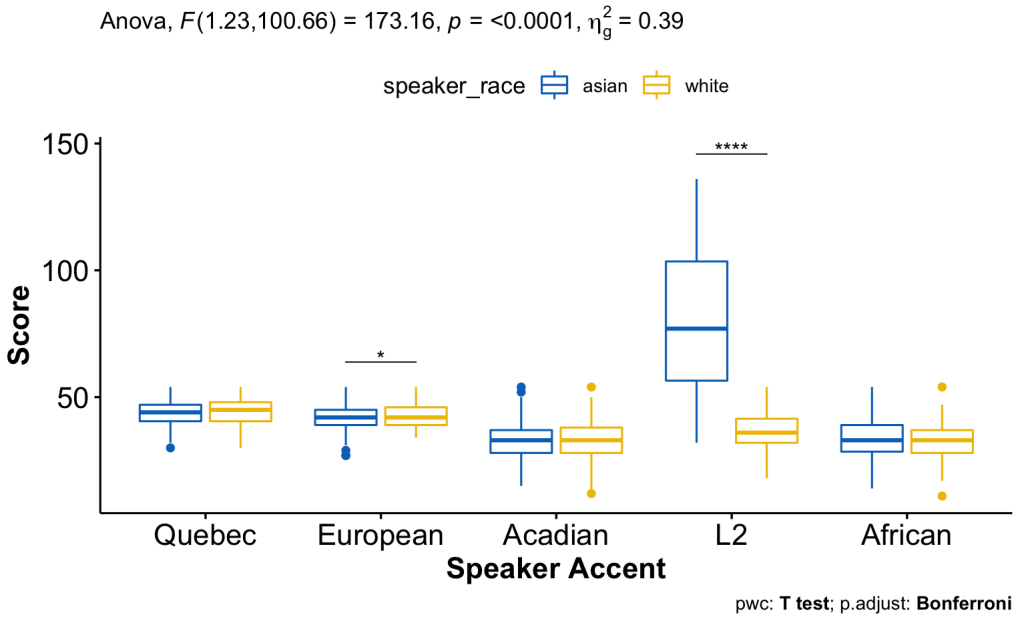

FIGURE 1. Repeat Measures ANOVA on Race and Accent

Appendix A. Figures

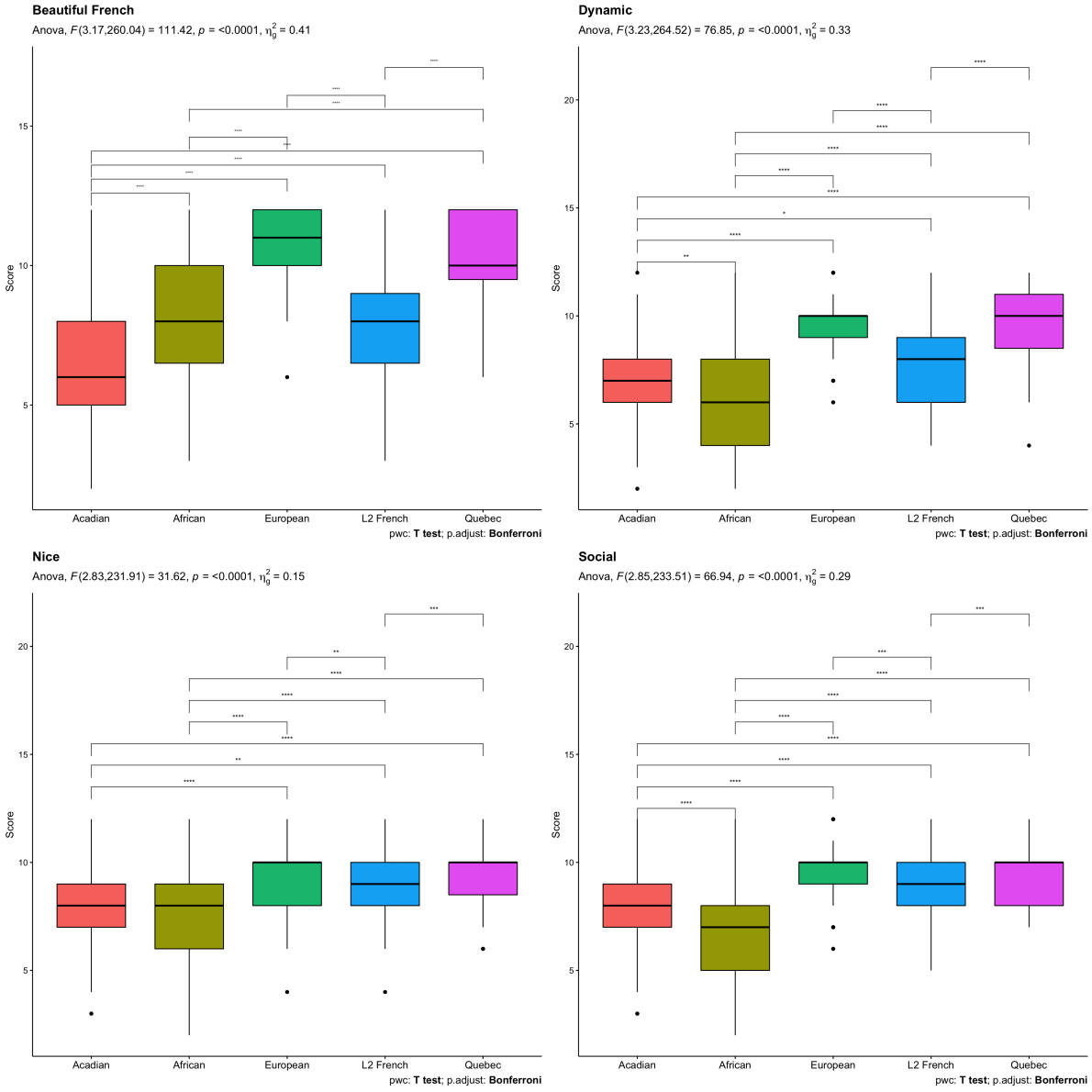

Figure A.2. Repeat Measures ANOVA for General Perspective and Solidarity Dimension by Speaker Accent

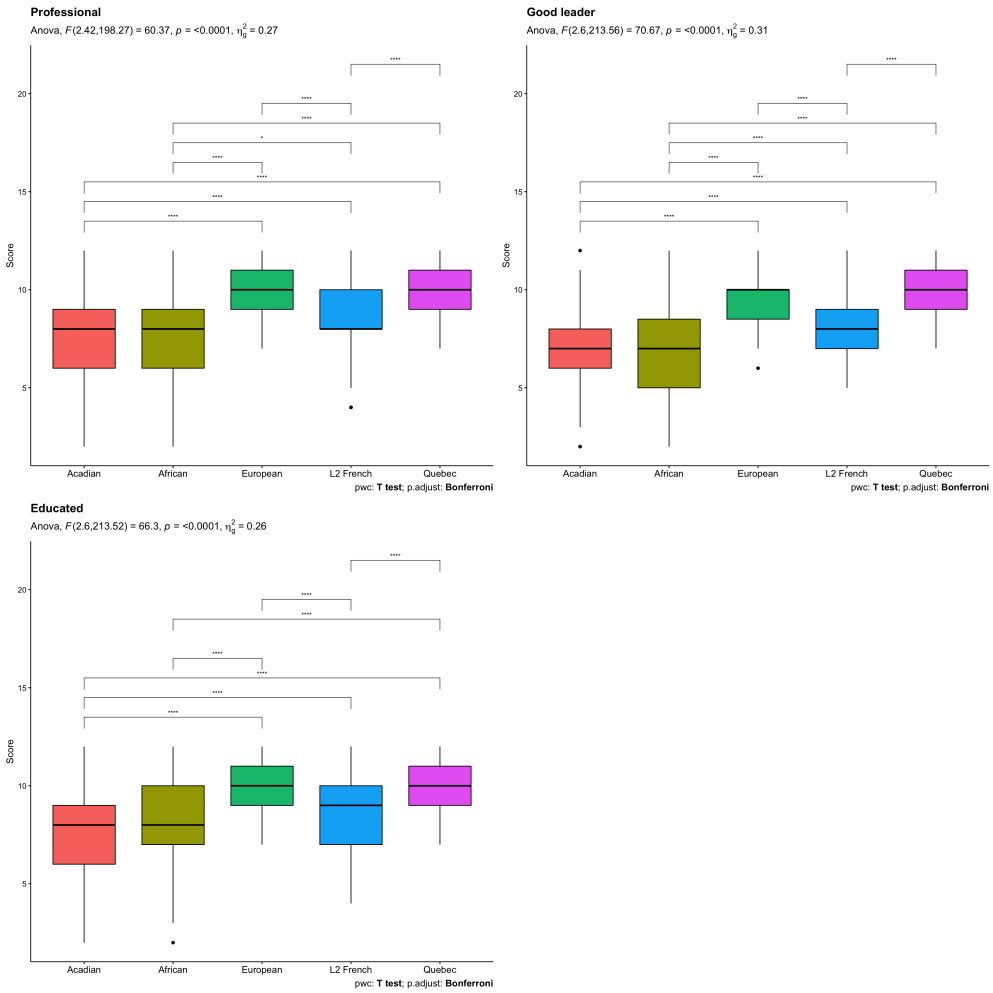

FIGURE A.3. Repeat Measures ANOVA for Status Dimension by Speaker Accent

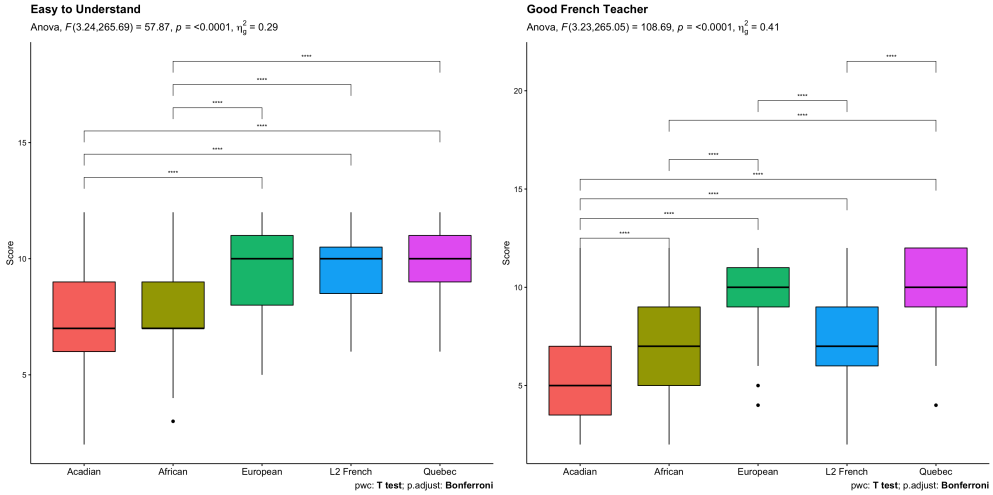

FIGURE A.4. Repeat Measures ANOVA for Understandability by Speaker Accent

Appendix B. Tables

Age	From	17
	To	46
	Mean	20.6
Gender	Female	77.1%
	Male	18.1%
	Non-binary	1.2%
	Prefer not to answer	3.6%
Birthplace	Canada	70%
	Elsewhere	30%
First language	English	81.9%
	Mandarin	7.2%
	Spanish	3.6%
	Other language	7.2%
Languages spoken	1 language	8.4%
	2 languages	49.4%
	3 languages	20.5%
	4 languages	14.5%
	No answer	7.2%
Years of studying french	1-5 years	30.1%
	6-10 years	24.1%
	11-15 years	31.3%
	16 years and more	4.8%
	No answer	9.6%
Preferred variety of French	From France	57.8%
	From Quebec	13.3%
	Other varieties	2.4%
	No preference	25.3%
	No answer	1.2%
Origin of French teachers	From France	39.8%
	From Quebec	42.2%
	From elsewhere	18.1%

Table B.7. Profile of Survey Participants