LABELS SPEAK VOLUMES: OUTGROUP LABELS AND ACCENT STRENGTH PERCEPTION

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ABSTRACT

Extralinguistic factors have been shown to affect the perceived strength of foreign accents. The current research investigates whether labelling speakers along a group membership continuum (*Canadian, new Canadian, immigrant,* and control/no label) will affect accent strength ratings. In a within-subjects design, 82 L1 speakers of Canadian English rated 32 recordings of accented speakers from four broad language backgrounds (Canadian-English, Middle-Eastern, European and Asian) across the four label conditions. It was found that speakers were rated as having stronger accents when introduced with an outgroup label *(new Canadian/immigrant*) compared to ratings of the speakers introduced with no label. Importantly, ratings of speakers labelled as *Canadians* did not significantly alter perceptions, suggesting that the term *Canadian* is perceived to be inclusive to both L1 and L2-accented speakers. Studying factors that increase perceived foreign accent strength is critical to identifying and reducing sources of prejudice within an increasingly globalised world.

Keywords: accented speech perception, immigration, intergroup membership

1. INTRODUCTION

Perception of L1 and L2 accented speech is influenced by extralinguistic factors. Visual information [1, 2] and other information about the speaker including their length of residency in the country [3] have been found to bias perceptions of accents to match our expectations about the speaker. With respect to visual information, [2] found that participants perceived the same L1 speaker as more strongly accented when they saw the image of an ethnic minority than when they saw the image of a white individual. Similarly, [1] played audio of L1 speakers of Canadian English with images of either ethnically Chinese or white individuals, discovering that participants perceived speakers as less accented when paired with an ethnically white face and more accented when presented with an image of an ethnically Chinese face in comparison to the audio only trials. Extralinguistic information also aids language processing. Providing information about the source of a speaker's accent can improve the intelligibility of the speaker [4], whereas visual primes that confirm our expectations improve both the intelligibility [1, 5] and grammatical processing of foreign accented speech [6].

Consistent with *reverse linguistic stereotyping* [7] which states that evaluations of others are informed by general attributes of the speaker's group membership, we predicted that providing extralinguistic information regarding the speaker's group membership would modulate accent strength ratings to be more consistent with a given group membership label. Specifically, we predicted that ingroup labels would decrease and outgroup labels would increase the perceived foreignness of accents.

2. BACKGROUND

2.1. Language attitudes

Language attitudes are related to and partially driven by accent strength, informing expectations and perceptions of others. Generally, there is a bias to prefer native accented speech over foreign accented speech [8], with negative language attitudes increasing in accordance with accent strength [9]. One theory to account for this preference is the *fluency principle* [10] which states that foreign accented speech evokes negative attitudes because it is harder to process. Difficulty in processing foreign accented speech may additionally impede the ability to predict the upcoming speech signal [11] and influence the believability of statements made by foreign accented speakers [12]. However, experience with a particular accent can mitigate discrimination [13] and improve predictive processing [11].

2.2. Immigrant labels

Negatively labelling noncitizens has been found to increase prejudice and support for harsher immigration policies [14]. However, experience or familiarity with a specific immigrant community can

reduce prejudice and elicit more positive attitudes towards immigrants more generally.

2.3. Disgust and political ideology

Disgust sensitivity and political ideology have been shown to correlate with the strength of outgroup prejudice; high levels of disgust sensitivity [15] and conservatism [16] have been linked to anti-immigration sentiments. Additionally, both constructs have been shown to affect language processing and comprehension [17, 18].

2.4 Present study

We studied the effect of group membership labels on accent strength perception. Specifically, we were interested in whether labelling a speaker as either a *Canadian* (ingroup member), *immigrant* (outgroup member) or as a *new Canadian* (partial in-/outgroup member) to native listeners of Canadian English would modulate the degree of perceived accent strength for native and non-native accented speakers. We predicted that the *Canadian* label would encourage ingroup associations and therefore decrease the perceived accent strength compared to audio-only ratings. Furthermore, we predicted that the two outgroup labels (*new Canadian* and *immigrant*) would encourage outgroup association and subsequently increase the perceived foreign accent strength of the speaker. We expected this relationship to be stronger for the *immigrant* label due to the nature of the *new Canadian* label having both ingroup and outgroup connotations. We were further interested in whether the participants' political ideology and disgust sensitivity scores predicted accent ratings.

3. METHOD

3.1. Auditory stimuli selection

A pretest was conducted to select stimuli for the main experiment. Auditory stimuli were sourced from the *Speech Accent Archive* [19] which contains recordings of native and non-native speakers from various linguistic backgrounds reading the same short passage in English. Recordings of 33 speakers were selected for the pretest. They were divided into two parts (passage A and B) to be around 12 seconds in length. The intensity was scaled to 70 dB. A group of 15 native speakers of Canadian English rated each recording for accent strength, likeability and intelligibility on a 7-point scale. While keeping likeability and intelligibility ratings relatively constant, native speaker stimuli were selected to be of roughly equivalent accent strength. Similarly, the non-native speaker stimuli were selected to form two categories of equivalent foreign accents (strong, weak).

The final materials included 16 speakers and 32 recordings in total:12 non-native speakers of English (24 recordings in total) and four native speakers of English (eight recordings in total). Four accent background groups were created, with four speakers in each group: Canadian, Asian, European, and Middle Eastern. Each group consisted of two male and two female speakers. In the foreign accented language groups, weak and strong foreign accented speakers were divided equally by speaker gender to have one weak and one strong foreign accented speaker of each gender. The European language group consisted of L1 speakers of Swedish, French, Polish and Greek; the Middle Eastern group consisted of L1 speakers of Farsi and Arabic; and the Asian language group consisted of L1 speakers of Mandarin and Cantonese. Four counterbalanced lists of stimuli were created to ensure an equal number of recordings from each accent background and gender across conditions, as well as to ensure that participants would rate the same speaker twice (passage A and B) in two separate conditions.

3.2. Main experiment

3.2.1. Participants

In total, 82 native speakers of Canadian English were recruited from Prolific.co [20] with ages ranging from 18-49 years old (M = 24.5; SD = 6.3). Participants self-reported their gender, with 50 identifying as women, 30 as men, and 2 individuals preferring not to disclose. All participants reported that Canadian English was their native language and that they had begun acquiring it from early childhood (before age four). Participants also reported their multilingual status, with 25% identifying as multilingual and 75% as monolingual.

3.2.2. Procedure

The main experiment utilised a within-subjects design, presenting all four label conditions to each participant in blocks and randomly assigning them to one of the four counterbalanced lists of stimuli. The experiment always began by presenting the control condition (no label) before presenting the conditions of interest to prevent any crossover effects. In the control condition, recordings of the speakers were presented without any additional information about the speaker and then rated on a 7-point scale according to how native-like a speaker's accent was perceived to be (1-not at all foreign, 7-very foreign). After the control condition was completed, a

counterbalanced order of the conditions of interest was presented to participants using the same carrier sentence to describe the speaker with different labels ("This speaker is a *Canadian/new Canadian/immigrant*") and rated for accent strength.

3.2.3. Exit questionnaire

After the main experiment, participants completed an exit questionnaire assessing their demographic information and language background as well as their political ideology and disgust sensitivity. Participants were asked to indicate whether they identified as Canadian (*yes*, *no*, *partially*), and indicate how often they spent time with both L1 and L2-accented speakers of English (1-very frequently, 5-very infrequently). The political ideology questionnaire [21] consisted of 27 questions, with higher scores indicating increasing degrees of conservatism. The disgust sensitivity questionnaire consisted of 28 questions measuring participants' self-reported level of disgust to hypothetical situations, with higher scores indicating greater sensitivity [22].

3.3. Statistical analyses

One participant was removed from analysis due to failing the attention check in the exit questionnaire, resulting in data from 81 participants in the final analysis. A two-stage modelling process was performed using R (4.1.1) [23] and generalised additive mixed modelling for ordinal data [24] from the *mgcv()* package [25]. The first stage investigated the effect of label condition on accent ratings and the second stage explored the effect of individual difference measures. Models were forward fit to the data using a hierarchical approach, beginning with label condition and then adding fixed and random effects to the model based on theoretical relevance. Models were then compared using the *compareML()* function from the package *itsadug* [26] to test whether adding a new predictor explained significant variability. If the new model did not significantly reduce the model's REML score, it was removed from subsequent analysis. The final model included the main manipulation of label condition on ratings of accent strength, speaker background (Canadian, European, Asian and Middle Eastern), accent strength (strong, weak, native) with random effects for participants and stimuli as well as by-trial smooths for participants.

In the second stage model fitting, the two individual difference measures of political ideology and disgust sensitivity were centred to the mean and standardised before being added to the final model from stage one as smooth predictors. Interpretation of the individual difference measures was done by visualising the smooth terms using the functions *plotsmooth()* and *plotdiff()* from the package *itsadug* [26]. An additional grouping factor was created to explore how the two individual difference measures interact with label condition and speaker background; however, it did not result in any interpretable differences across levels. Running the previous model from stage one with the smooth predictors as a function of speaker accent strength produced a better fitting model and was kept as the final model for the second stage, containing smooths for both political ideology and disgust sensitivity.

4. RESULTS

4.1. Accent strength ratings

The final model revealed that speakers were perceived as significantly more accented when presented with the *new Canadian* label (β = .34, p = .008) and the *immigrant* label (β = .53, p < .001) compared to the control condition, with the largest effect for the *immigrant* label followed by the *new Canadian* as visualised in Figure 1. However, releveling the model to compare the *new Canadian* and *immigrant* labels did not show a significant difference between the two labels (p = *.12*).

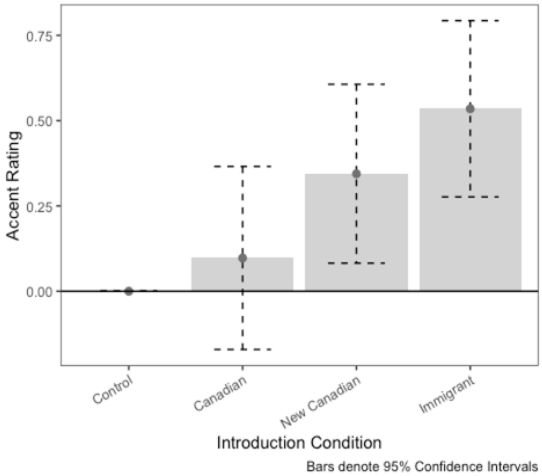

Figure 1: The effect of introduction label on accent strength ratings for all speakers.

Ratings of speakers presented with the Canadian label did not significantly differ from the control condition. Factors pertaining to the participants (age, gender, Canadian identity), their language background (multilingual status) and social networks (frequency of interaction with non-native speakers of English), did not have a significant effect on accent ratings.

4.1.1. Individual difference factors

Scores for political ideology ranged from 55-109 (M = 77.7, SD = 6.4) and disgust scores ranged from 62-

94 (M = 85.1, SD = 13.6). Participants' scores for political ideology and disgust sensitivity were not correlated and were therefore added concurrently to the model as smooth predictors. The smooth terms for disgust did not reveal any significant effects across the accent strength levels. Smooths for political ideology by each accent type (weak, strong and native accented) yielded a significant effect for ratings of native speakers ($p < .05$). Smooths for the strong and weak foreign accented speakers were nonsignificant. The difference in smooths for native and weak foreign accented speakers was significant, suggesting that more conservative participants perceived less of a difference between the weak foreign accents and native accents overall than more liberal participants. This result is consistent with previous literature [17-18, 27], and suggests that sensitivity to voice-based, socially relevant information such as foreign accents may increase as a function of relative liberalism.

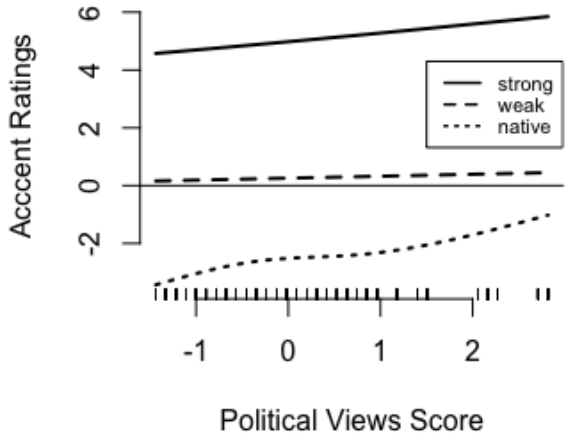

Figure 2: Ratings of accent strength by speaker accent type and political ideology scores.

5. DISCUSSION

Our hypothesis was partially confirmed. Accent strength perception was found to be malleable to outgroup labels which increased the perceived strength of accents. As hypothesised, the *immigrant* label resulted in the largest increase in perceived accent strength, followed by the *new Canadian* label. This indicates that the *new Canadian* label did not evoke as strong of an outgroup response. However, there was no significant difference between the *immigrant* and *new Canadian* labels. Contrary to our initial prediction, labelling speakers as *Canadian* did not result in more native-like perception, potentially signalling that the *Canadian* label is a neutral and inclusive term to both L1 and L2-accented speakers. This is complementary to previous research on audio-visual accented speech perception within Canada, which failed to find an increase in accent strength upon changing the speaker's race [28]. Due to Canada's global reputation and positive stance on immigration, studying the effects of labelling foreign accented populations is critical to reducing negative language attitudes and bias towards foreign accented speakers by promoting inclusive and non-prejudicial labels.

How we choose to label individuals may have real world consequences because language attitudes increase as a function of accent strength [10]. Even though the two outgroup labels used in this study are considered neutrally charged, they resulted in increasing perceived accent strength. Further research on extralinguistic factors affecting accent perception may investigate the effects of labels with stronger negative connotations such as *illegal alien* which have proven to increase prejudice relative to neutral labels [14]. Other extralinguistic factors to be investigated may include manipulating other identity markers such as the profession/status or the first/last name of the speaker.

With respect to individual differences, it was found that participants with different political leanings varied in their perception of foreign accent strength. More liberal participants reported a larger difference in accent strength ratings between the native accented speakers and the weak foreign accented speakers, which may be in part due to their increased sensitivity to socially relevant information [30, 31]. No conclusive evidence was found for disgust sensitivity as a moderator of accent strength ratings.

Voice based inferences are rapid [29] and automatic [32], providing social and group membership information [8]. Evaluations of speakers are made using both acoustic and overarching group membership information [7], leading our perception of accents and evaluations of speakers to be biased to match our expectations.

6. CONCLUSION

The results of the current study suggest that group membership labels can inform our perception of accent strength. Outgroup labels were found to increase the perceived foreignness of accents, which may in turn compound prejudice towards minority groups. In contrast, labelling with ingroup framing (*Canadian*) did not alter perceptions of accent strength. This result may potentially shed light on the broader cultural experience within Canada, indicating that Canadians perceive the *Canadian* label to be inclusive of both native and foreign-accented speakers of English. More generally, ratings of accent strength were found to be further modulated by individual differences in political ideology.

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