University of Pennsylvania Working Papers in Linguistics

Volume 24
Issue 2 *Selected Papers from New Ways of Analyzing Variation (NWAV 46)*
Article 17

10-15-2018

Dialect Identification Across a Nation-State Border: Perception of Dialectal Variants in Seattle, WA and Vancouver, BC

Julia Thomas Swan
San José State University

Molly Babel
San José State University

Dialect Identification Across a Nation-State Border: Perception of Dialectal Variants in Seattle, WA and Vancouver, BC

Abstract
The Atlas of North America English distinguishes "the West" from "Western Canada" on the basis of /æ/ retraction and Canadian Raising (Labov, Ash, and Boberg 2006). Since the Atlas, scholars have provided a more detailed understanding of /æg/ raising, /æ/retraction, and Canadian Raising throughout the Western United States and Western Canada (Boberg 2008, Fridland et al. 2016, Presnyakova, Umbal, and Pappas 2017, Roeder, Onosson, and D'Arcy 2018). In a production study, Swan (2016) found that Seattle and Vancouver, BC are differentiated primarily by Canadian Raising and pre-nasal raising of /æ/ and show minimal difference with respect to /æg/ raising and /æ/ retraction. Seattle and Vancouver speakers also shared different ideologies about their speech: Seattle respondents felt more confident that they could identify a Vancouver talker based on speech than vice versa. The current study builds from these observations to ask how natives of Seattle and Vancouver perceive the similarities and distinctions documented in the production literature. Can listeners differentiate a talker as being from Seattle or Vancouver? What cues are listeners relying on to judge a talker as being from Seattle or Vancouver? Do these perceptual cues align with the production differences between the cities? What does this imply for a dialectology of the West? These questions are addressed using a forced-choice dialect identification task using the variables represented by FAN, PATH, TAG, and DEVOUT. Our analysis considers signal detection theoretic measures to elucidate sensitivity and bias (Macmillan and Creelman 2005). The results suggest that differentiating Seattle and Vancouver talkers is a challenging task for listeners native to these cities. Neither Seattle nor Vancouver listeners show very accurate performance for any of the single-word stimuli or short phrase blocks of the task and are generally not able classify a talker's city of origin based on their speech. The most accurate performance emerges for Seattle listeners classifying talkers saying DEVOUT, which aligns with the production differences between the cities and is likely driven by stereotypes about Canadian English. Listeners from both cities show more own city bias for the phonetic features that are shown to be more similar across the cities (PATH and TAG) than for those shown to be more different in production (FAN and DEVOUT). A closer look at bias reveals that while Seattle listeners perform with slightly more accuracy, they also show more own-city bias. We discussion possible reasons for this pattern and implications for dialectology of the West and Western Canada.

Dialect Identification Across a Nation-State Border: Perception of Dialectal Variants in Seattle, WA and Vancouver, BC

Julia Thomas Swan and Molly Babel*

1 Introduction

In their seminal dialectology, the Atlas of North America English, Labov, Ash, and Boberg (2006) draw an isogloss distinguishing "the West" from "Western Canada." This isogloss runs parallel to the US-Canadian national border from the Upper Midwest Westward to the Pacific Ocean. They motivate the distinction of these two dialect regions by the presence of the Canadian Vowel Shift and Canadian Raising of /ɑʊT/ and /ɑɪT/ in Western Canada and the lack of these processes in the Western U.S. The authors note, however, that the two dialect regions have similar phonological systems and seem to be participating in the same sound changes albeit to different degrees (Labov, Ash, and Boberg 2006). The Atlas dialect differentiation hinges on the extent of /æ/ retraction, which is more systematic in Canada and occurs only sporadically in the West, and /ɑʊT/ raising. The current study builds from these observations and analyses of production data subsequent to the Atlas to ask how natives of Seattle and Vancouver perceive the similarities and distinctions documented in the production literature. Do listeners perceive the dialectal differences cited for urban centers Seattle and Vancouver within the dialect regions labeled the West and Canada respectively? Are they able to distinguish talkers as being from one city or the other?

2 Background

2.1 Comparison of Production in Seattle and Vancouver

Since publication of the Atlas, scholars on both sides of the border have continued to document what they consider to be hallmark features of their dialect region. This has added to the body of knowledge on /æg/ raising, /æ/ retraction, and Canadian Raising throughout the Western United States and Western Canada (Boberg 2008, Fridland et al. 2016, Swan 2016, Presnyakova, Umbal, and Pappas 2017, Roeder, Onosson, and D'Arcy 2018). Few studies have directly compared the phonetics of Canadians and Americans, and none have examined the West Coast (but see Hagiwara 2006 for a comparison of Southern California and Winnipeg, plus Dollinger 2012 for self-reported lexical differences between BC and Washington State talkers). Swan (2016) addressed phonetic variables empirically through a direct comparison of 19 Vancouver, BC talkers and 20 Seattle, WA talkers. This work included a detailed acoustic analysis and comparison of five diagnostic features using word-list data. The analysis found that, overall, the features that distinguish Seattle English and Vancouver English are /aʊT/ and /æn/ raising. While both cities participate in each of these processes, Vancouver talkers showed much greater phonologization of /aʊT/ raising and Seattle participants showed stronger /æn/ raising. The cities show minimal difference with respect to processes of /æg/ raising and /æ/ retraction in non-pre-velar and non-pre-nasal environments.

2.2 Ideologies

Swan (2016) also found contrasting ideologies among Seattle and Vancouver respondents regarding speech in their respective cities and its similarity to the other. In particular, participants showed an

*Many thanks to Alicia Beckford Wassink for allowing access to the Sociolinguistics Laboratory at the University of Washington for the purpose of this study. Thanks to Brianne Senior for assistance in preparing the stimuli and collecting data in Vancouver. We are also grateful to the many subjects of this study and the previous production study from which these stimuli were created. Finally, we appreciate the audience members who contributed valuable comments on this project including Gillian Sankoff, Charles Boberg, Betsy E. Evans, and Erica Benson.

asymmetry in which Vancouver respondents felt that Vancouver English was similar to (or not notably different from) Seattle English. Seattle respondents generally did not share the same ideology toward Vancouver English. When asked whether they thought that they would be able to identify someone as being from Seattle based only on their speech, four out of 19 Vancouver respondents said yes while nine of 20 Seattle respondents felt they could identify a Vancouverite based on their speech. Seven of 19 Vancouver participants said they noticed differences in Seattle speech as compared to 16 of 20 Seattleites observing speech differences in Vancouver. The current study builds on production studies of Seattle and Vancouver English and explores these asymmetrical ideologies about the similarity of the two cities through a perceptual dialect identification study.

2.3 Metalinguistic Commentary

Understanding the metalinguistic awareness listeners bring with them to the task may help refine our predictions about which cues listeners may exploit in a forced choice identification task. Swan (2016) asked talkers from Seattle and Vancouver to provide their impressions of speech from their city and the other city. Unsurprisingly, the most commonly mentioned feature by Seattle respondents was the /ɑʊT/ raising stereotypically characteristic of Canadian talkers. While this was explicitly mentioned by many Seattle respondents, it was generally not explicitly mentioned by Vancouver talkers. That is, they did not describe such raising as a feature of their own speech, nor did they point out any lack of /ɑʊT/ raising among American talkers. Notably, the analysis also found that among Vancouver talkers, higher ratings of national pride significantly predict more raising. The other phonetic process respondents commented on was /æg/ raising. The feature was mentioned by 6 out of 20 Seattle respondents and 3 out of 19 VAN as a feature of *their own city*. Respondents did not generally display any awareness of this feature in the other city, despite their similar patterning. The majority of respondents in Seattle and Vancouver did not mention /æn/ raising. One Vancouver respondent described a "nasal quality" in American English, which might be taken to refer to prenasal raising. Finally, /æ/ retraction characteristic of the Third Dialect or Elsewhere Shift was not explicitly mentioned by speakers of either city (Clarke, Elms, and Youssef 1995).

2.4 Research Questions

Given the complex relationship Seattle and Vancouver have with respect to shared and differentiating dialect features as well as metalinguistic awareness, the current study takes a perceptual approach. The research questions for this study are as follows:

1. Can listeners differentiate a talker as being from Seattle or Vancouver?
2. What cues are listeners relying on to judge a talker as being from Seattle or Vancouver?
3. Do these perceptual cues align with the production differences between the cities?
4. What does this imply for a dialectology of the West?
5. Are Seattle respondents actually better at identifying Vancouver talkers than vice versa, as reflected by their ideologies of difference?

3 Methods

3.1 Materials

The stimuli were drawn from the 20 Seattle and 19 Vancouver young adult speakers (age range 18-36) and were collected in Fall of 2014 as part of Swan (2016), which presents an extensive acoustic analysis of the items. Single word items and spontaneously produced sentences containing the variables /æg/, /æ/, /æn/ or /aʊT/ were used as stimuli. Four lexical items–DEVOUT, FAN, PATH, and TAG–were selected from word-list readings from each of the 39 speakers. All lexical items were originally read in the carrier phrase *Say X again* and were excised from this context for the purposes of this experiment. Instances of the four phonological variables lexical items in the context of a phrase or short sentence were extracted from spontaneous speech from sociocultural interviews from the same set of 39 talkers. These utterances contained only a single instance of the target phonological variables. Due to production gaps (/æg/ occurred rarely in the interviews), the final set of stimuli

was unbalanced containing only 144 phrases (short from the 156 (39 talkers x 4 variables) total possible stimuli). The orthographic forms of these utterances were screened by three college-aged assistants (1 from the US, 2 from Canada) for lexical items that were associated with either side of the international border. Any item identified from its orthographic form as using language associated with Canada or the US was replaced by a different item from the same speaker.

3.2 Procedure

The task was a two-alternative forced choice dialect identification task. Listeners were presented with a short sample of speech and asked to identify whether the speaker was from Seattle or Vancouver. The single word items and the utterances were presented as separate blocks, which were separated by a short self-timed break. The items in each block were fully randomized for each participant. The orthographic form of the items and utterances was displayed on the screen with a visual onset that was synchronous with the auditory presentation of the items.

3.3 Listener Sample

The sample consisted of 23 Vancouver listeners and 22 Seattle listeners. These listeners were from the immediate Seattle and Vancouver urban areas and completed the task in person at the University of British Columbia's Speech in Context lab or the University of Washington Sociolinguistics lab. The mean age for Seattle participants was 37 years and 21 years for Vancouver. The majority of participants in both cities were female (14 in Seattle and 20 in Vancouver). All participants wore headphones while completing the task. All Seattle listeners reported English as their native language. All Vancouver listeners reported English as one of their native languages, with eight speaking a language other than English with their parents.

4 Results

We analyze responses from the single word block and the short phrase block separately. We first present summary statistics for proportion correct responses, which are visually presented in Figure 1 with separate panels for Seattle and Vancouver listeners' responses to sentences and words. Listener accuracy is unimpressive, but these data suggest that Seattle listeners are more accurate at categorizing talkers by city than Vancouver listeners. This increased accuracy could, however, be an artefact of response bias, so, to analyze the data, we employ signal detection theoretic measures (Macmillan and Creelman 2005). Using this method, a sensitivity index (*d'*) is calculated and represents how difficult it is for listeners to detect a target stimulus. A *d'* value of less than one suggests that listeners are not sensitive to the contrast between different auditory objects. This approach also elucidates listener bias (*c*), which is the extent to which a listener over-applies a response option. An analysis using Signal Detection Theory gives the benefit of knowing not only how often listeners are accurate or inaccurate, but also reveals more about ***why/how*** they are accurate or inaccurate. Table 1 summarizes the classification of different listener responses to an auditory object.

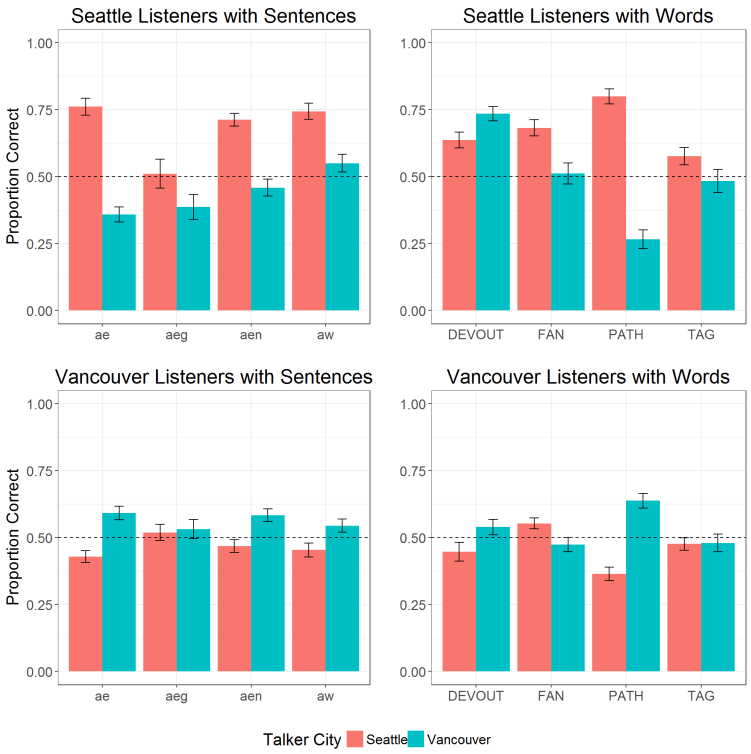

Figure 1: Proportion correct rates (accuracy) for Seattle and Vancouver listeners by variable in sentences and words.

		Auditory Object	
		Vancouverite	Seattleite
Listener Response	From Vancouver	**Hit** (correctly calling a Vancouverite from Vancouver)	**False Alarm** (incorrectly applying the From Vancouver label to someone not from Vancouver)
	From Seattle	**Miss** (incorrectly calling a Vancouverite someone from Seattle)	**Correct Rejection** (correctly identifying someone not from Vancouver as not from Vancouver)

Table 1: Signal Detection Theory classification of responses to auditory stimuli.

4.1 Single Word Items

To analyze sensitivity, we conducted an analysis of variance with *d'* as the dependent measure and Listener City (Seattle, Vancouver), Feature (DEVOUT, FAN, PATH, TAG), Talker Age (younger, older), and Talker Gender (female, male) as independent measures. There were main effects of Listener [$F(1, 43) = 38$, $p < 0.001$], Feature [$F(3, 129) = 8.4$, $p < 0.001$], and Gender [$F(1, 43) = 6.4$, $p = 0.015$]. There were two-way interactions between Listener and Feature [$F(3, 129) = 5.8$, $p < 0.001$], Listener and Gender [$F(1, 43) = 4.36$, $p = 0.04$], Feature and Age [$F(3, 129) = 3.88$, $p = 0.01$], and Feature and Gender [$F(3, 129) = 3.88$, $p = 0.01$]. There were three-way interactions between Listener, Feature, and Age [$F(3, 129) = 3.98$, $p = 0.009$] and Listener, Age, and Gender [$F(1, 43) = 9.06$, $p = 0.004$]. There was also a four-way interaction between Listener, Feature, Age, and Gender [$F(3, 129) = 6.61$, $p < 0.001$].

The analysis of listener bias proceeded similarly with *c* as the dependent measure and Listener City, Feature, Talker Age, and Talker Gender as independent measures. There were main effects of Listener [$F(1, 43) = 26.79$, $p < 0.001$] and Feature [$F(3, 129) = 5.88$, $p < 0.001$], along with two-way interactions between Listener and Feature [$F(3, 129) = 22.44$, $p < 0.001$], Listener and Age [$F(1, 43) = 8.25$, $p = 0.006$], and Listener and Gender [$F(3, 129) = 12.05$, $p < 0.001$]. There were

also three-way interactions between Listener, Feature, and Age [F(3, 129) = 3.25, p = 0.02], Listener, Feature, and Gender [F(3, 129) = 4.78, p = 0.003], and Listener, Age, and Gender [F(3, 129) = 4.10, p = 0.008]. There was also a four-way interaction between Listener, Feature, Age, and Gender [F(3, 129) = 4.14, p = 0.007].

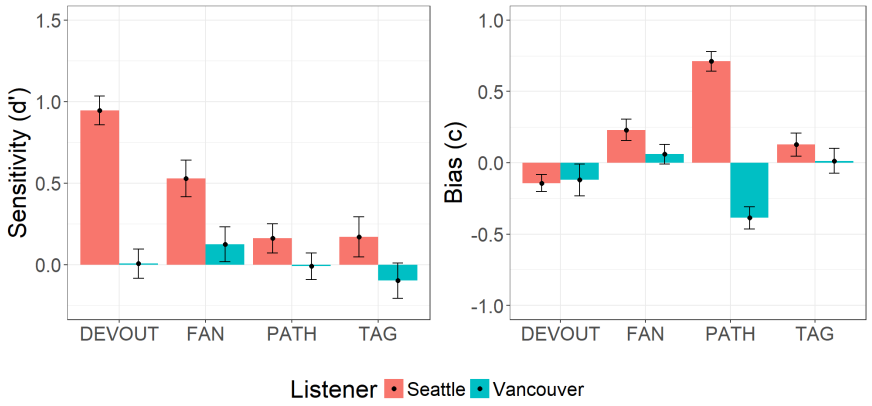

Figure 2: The left panel shows sensitivity (*d'*) for Seattle and Vancouver listeners by variable, and the right panel shows the same listener by feature interaction with the bias values.

In the interest of space, we focus on the two-way interactions between Listener and Feature for both the sensitivity and bias analyses, which are presented in left and right panels of Figure 2, respectively. Measures of *d'* below one indicate that listeners are not very sensitive to the contrast between auditory stimuli. The *d'* measures do not reach one for either listener population for any of the phonetic features explored, although they nearly do for Seattle listeners' sensitivity to DEVOUT. Overall sensitivity for both sets of listeners is poor, but Vancouver listeners show even less sensitivity to the dialect differences than Seattle listeners.

The right panel summarizes listener bias with the measure *c*, which quantifies the extent to which a listener over-applies a certain response option. This is a useful measure for understanding whether a bias for one's own city drives performance in this task. Based on how bias was calculated, a negative value indicates a bias towards Vancouver and a positive value indicates a bias towards responding Seattle. In interpreting listeners' biases, it is important to keep in mind the differentiating factors of the two cities in production (namely, more strongly phonologized /ɑʊT/ raising in Vancouver and more strongly phonologized /æn/ raising in Seattle). The two cities are very similar in production with respect /æ/ retraction and /æg/ raising. Overall, listeners from both cities are more biased when responding to the PATH variable than any other. Listeners from both cities are biased to respond with their own city, and this is even more the case for Seattle listeners. For DEVOUT, listeners from both cities are biased to respond with Vancouver. For FAN, both sets of listeners are biased to respond with Seattle. While the sensitivity indices shown in the previous graph were not high for any of the variables, the biases suggest that listeners may have some knowledge of the phonologized processes that act as indicators of each city (namely, DEVOUT raising in Vancouver and FAN raising in Seattle).

While space constraints do not allow a full unpacking of the significant four-way interactions of Listener, Feature, Gender, and Age in the sensitivity and bias analyses, we present these data in Figure 3. This visualization illustrates that sensitivity and bias varies considerably by the Age and Gender of the talkers for both listener populations for the four variables.

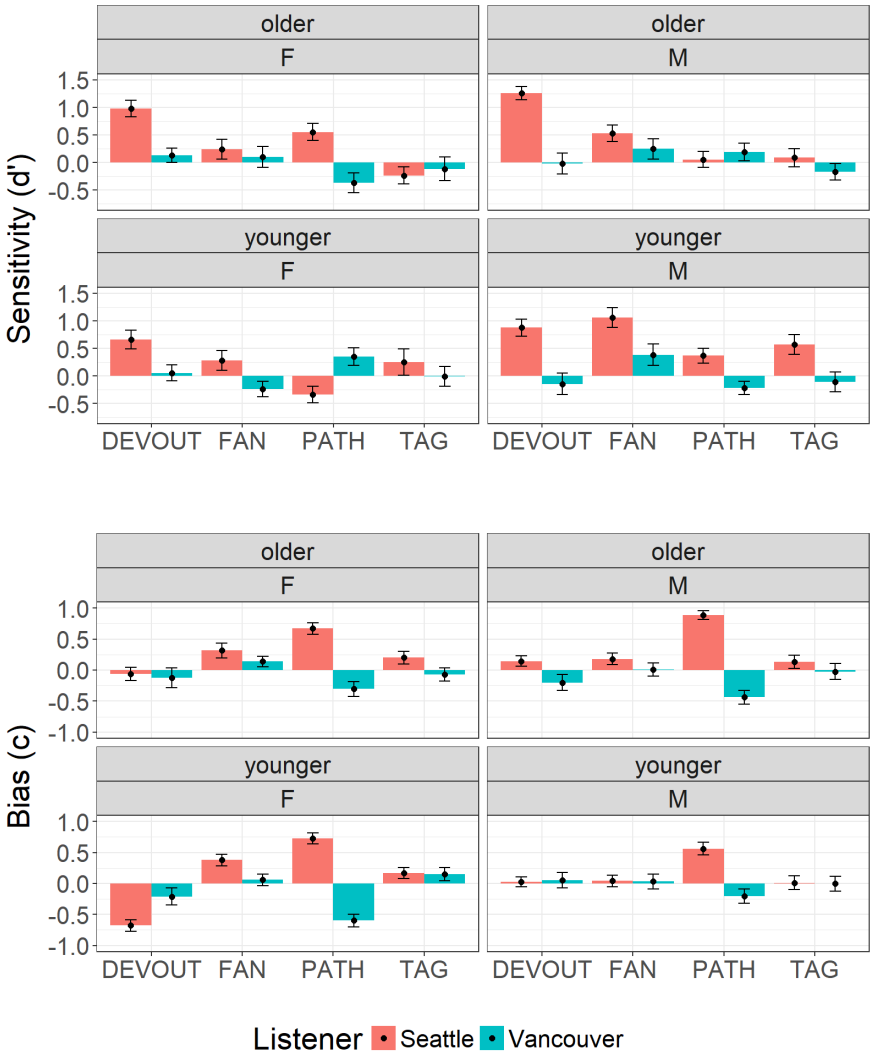

Figure 3: The four-way interaction between Listener, Feature, Gender, and Age Group for both the sensitivity analysis (top panels) and the bias analysis (bottom panels).

4.2 Short Phrases

The second block of the task assessed listener accuracy in dialect identification when listeners were exposed to slightly longer stretches of speech. Because not all variables were represented across all talkers, the analysis collapsed across the features. Thus, for the sensitivity analysis, *d'* was the dependent variable and Listener, Age, and Gender were the independent variables in the ANOVA. There was a single main effect of Listener [$F(1, 43) = 15.82$, $p < 0.001$].

The bias analysis on the same data set revealed a main effects of Listener [$F(1, 43) = 4.83$ $p < 0.001$] and Gender [$F(1, 43) = 6.93$, $p = 0.01$], in addition to two-way interactions between Listener and Gender [$F(1, 43) = 9.12$, $p = 0.004$] and Age and Gender [$F(1, 43) = 4.73$, $p = 0.03$]. There was also a three-way interaction between Listener, Age, and Gender [$F(1, 43) = 23.85$, $p < 0.001$]. Figure 4 presents the sensitivity and bias data for the main effect of Listener for the two analyses. Again, with *d'* values below one, it is most appropriate to say that all listeners performed poorly on the task, although Seattle listeners performed somewhat less poorly. This less poor performance was accompanied by a strong bias to respond Seattle by the Seattle listeners.

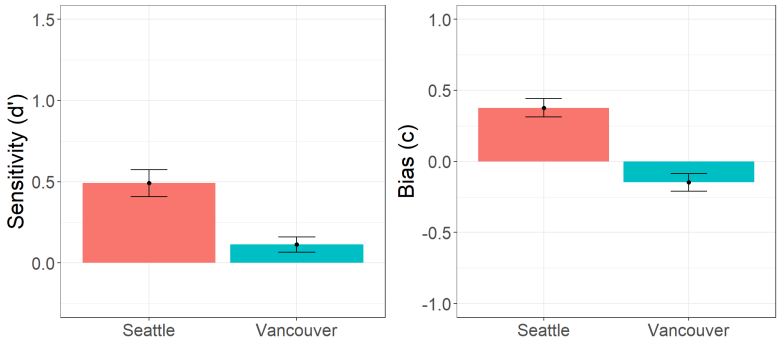

Figure 4: Sensitivity (left panel) and bias (right panel) indices for Seattle and Vancouver listeners in the sentence block.

While space does not allow a full discussion of the three-way interaction of Listener, Gender, and Age in the sentence bias analysis, Figure 5 presents these data. These results indicate that Seattle listeners exhibited stronger in-group bias for all groups except the younger male speakers.

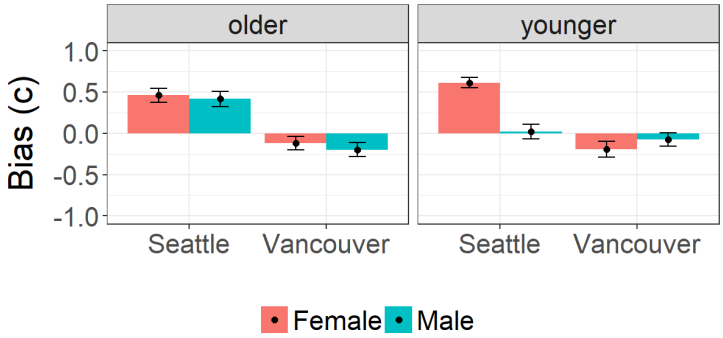

Figure 5: Bias for the Listener, Gender, and Age interaction for the sentence block.

5 Discussion

We revisit each of our research questions below providing a response based on our findings.

5.1 Can Listeners Differentiate a Talker as being from Seattle or Vancouver?

With the short excerpts of speech presented in these tasks, Seattle and Vancouver listeners are generally not able to differentiate a talker as being from Seattle or Vancouver. Listener performance in both the single word and sentence blocks is poor, indicating that this was a challenging task. Listeners are not very accurate, which suggests that the Pacific Northwest largely shares a dialect, at least in its urban areas.

5.2 What are Listeners Relying on to Judge a Talker as being from Seattle or Vancouver?

While performance is poor on the whole, the mild sensitivity Seattle listeners show to the variables is consistent with the production difference between the cities. Seattle listeners are somewhat sensitive to DEVOUT and to a lesser extent FAN, and these are the variables on which the cities differ most in production. DEVOUT is characterized by highest sensitivity and lowest bias of any features. PATH and TAG are particularly poor cues as they are characterized by less sensitivity and more own-city bias. Vancouver listeners show very little sensitivity to any of the features, but FAN (not DEVOUT) is the one to which they show mild sensitivity. It is somewhat surprising that they do not

show more sensitivity to DEVOUT, and this raises questions about whether Vancouver listeners have experiences of both raised and non-raised DEVOUT among Canadian English speakers.

5.3 Do these Perceptual Cues Align with the Production Differences between the Cities?

The fact that listeners show mild sensitivity to DEVOUT and FAN and much less to TAG and PATH aligns with the most sizeable production differences. TAG and PATH are likely poor cues characterized by more own-city bias because they are genuinely similar in production among talkers from both cities.

5.4 What does this Imply for a Dialectology of the "West" and "Western Canada"?

Differentiating Seattle and Vancouver talkers is a very difficult task for natives of these cities. Moreover, performance on the tasks does not substantially improve when exposed to longer, spontaneously produced stimuli. Each city shows own-city bias for backed PATH, confirming production studies suggesting that the Third Dialect Shift is advancing in both cities (Fridland et al. 2016, Boberg 2018, Swan 2018). Perceptually, TAG-raising doesn't seem to indicate Seattle or Vancouver origin over the other for these listeners. On the basis of these particular phonological or phonetic features, a dialect distinction is difficult to uphold.

5.5 Are Seattle Respondents Actually Better at Identifying Vancouver Talkers than Vice Versa?

Seattle respondents do emerge as more accurate–though far from very accurate–in their classification of Vancouver talkers than vice versa, but at this point there are several possible interpretations. Age may be one factor. On average, Seattle listeners have almost twice as much life experience as Vancouver listeners. Previous studies have found that children perform less accurately than adults on cross-dialectal vowel categorization tasks, indicating that their ability to extract indexical information is still developing. Jacewicz and Fox (2014) found this to be the case when comparing child and adult listeners from Wisconsin and North Carolina in dialect identification tasks of talkers from the same two regions. Likewise, Williams, Garrett, and Coupland (1999) document that Welsh school children performed worse on a dialectal identification task than Welsh school teachers. It is possible that the slightly better performance on the part of Seattle listeners is due to more perceptual experience.

While Seattle listeners were more accurate, they also illustrated stronger own-city bias, which inflates their accuracy in a way that masks actual sensitivity to the task. One way to consider this is that Vancouver listeners were less biased than Seattle listeners because they have more exposure to American English than Seattle listeners have to Canadian English. Compared to the Vancouver listeners who can rely on veridical exposure and less on stereotypes, Seattle listeners may have been more reliant on stereotypes about Canadian English. Studies of own-bias consistently highlight the role of exposure (Clopper and Pisoni 2004, Sumner and Samuel 2009). Baker, Eddington, and Nay (2009) show that, for example, listeners who have more exposure to Utah speech rely on less stereotypical features to identify Utahns. Thus, not hearing tokens that matched stereotypical expectations of Canadian English, Seattle listeners may have been biased to categorize more items as being from fellow Seattleites.

5.6 Bias: The Role of Linguistic Diversity within the Auditory Stimuli

Finally, the effects observed among Seattle and Vancouver listeners might be affected by the degree of linguistic diversity within the city samples, which is not necessarily representative of broader BC or Washington. On one hand, it may be the case that more traditional and identifiable dialect differences exist in rural areas. On the other hand, reduced linguistic diversity within the Vancouver sample may not signal place authenticity for Vancouver listeners, who associate Vancouver with high levels of linguistic diversity. Hall-Lew (2014) finds that Chinese social and linguistic practices index place authenticity for long-term San Francisco residents. In her highly diverse setting, social and linguistic practices that once signaled *ethnicity* or *foreignness* have been reconstructed as signals of *local authenticity*. Would more ethnic and linguistic diversity within the stimuli set have been more

representative to Vancouver listeners of their home city? Vancouver respondents in Swan 2016 often referenced multilingualism and multi-culturalism in their city. In providing their impressions of speech in their home city and whether they could identify a Vancouver accent, respondents referenced the linguistic diversity in Vancouver suggesting that this diversity makes it difficult to identify any particular local accent:

"Um, yeah, I think as far as, if they don't have an accent from another language as well…"

"Cause I think we're very multi-cultural, so I feel like there are so many accents that someone could be from France or from here or you know like…"

In others words, for Vancouver listeners, linguistic diversity among talkers may be a better cue to being an authentic Vancouverite than an idealized or invariant Vancouver accent.

5.7 The Role of Stereotypes in Perception

Previous studies have demonstrated the impact of stereotypes about nationality on perception of phonetic variants. Niedzielski (1999) showed that social information about nationality influenced Michigan listeners' perception of DEVOUT raising. Seattle listeners are less biased when evaluating dialect variants that do legitimately differentiate the two cities (DEVOUT and FAN vs. PATH and TAG). The difference between FAN, which can be seen as a below consciousness variable, and DEVOUT, a very stereotypical variable, suggests that overt stereotypes play a role in dialect identification in the region. Stereotypes may activate awareness in a way that leads to better discrimination and performance on the task, like a type of confirmation bias.

6 Conclusions

While some variation exists in production (Swan 2016, Labov, Ash, and Boberg 2006), a dialect difference between Seattle and Vancouver is difficult to motivate given the magnitude of these production differences and the lack of robust perceptual findings described here. Production and perception results suggest that Seattle and Vancouver talkers may not vary more than Seattle varies from other urban centers in the U.S. West (Cardoso et al. 2016; Swan and Becker 2018).

Differences between Seattle and Vancouver listeners in this task may be due to different exposure, but language ideologies and attitudes could also play a role. Current work in progress extends this study to include more Seattle and Vancouver listeners with a more comparable age distribution. Since findings from the current study involve a "null result", it is important to rule other possible explanations for the lack of sensitivity evidenced by Seattle and Vancouver listeners. Future work will address the role of sub-group variation and the indexical value of multilingualism and multiculturalism in Vancouver place authenticity. Becker, Swan, and Semrau (2018) also seeks to understand how the socioindexical meanings of these linguistic variants differ across West Coast cities, which may shed more light on listeners' stereotypes and associations.

References

Baker, Wendy, David Eddington, and Lyndsey Nay. 2009. Dialect identification: The effects of region of origin and amount of experience. *American Speech* 84: 48–71.

Becker, Kara, Julia Thomas Swan, and Mica Semrau. 2018. The Social Meaning of BAG-raising in three West Coast cities. Presented at the Cascadia Workshop of Sociolinguistics, Portland.

Boberg, Charles. 2008. Regional phonetic differentiation in Standard Canadian English. *Journal of English Linguistics* 36:129–154.

Boberg, Charles. 2018. A closer look at the short, front vowel shift in Canada. Paper presented at the Annual Meeting of the American Dialect Society, Salt Lake City.

Cardoso, Amanada, Lauren Hall-Lew, Yova Kementchedjhieva, and Ruaridh Purse. 2016. Between California and the Pacific Northwest: The Front Lax Vowels in San Francisco English. In *Publications of the American Dialect Society* 101(1), ed. V. Fridland, T. Kendall, B. E. Evans, and A. B. Wassink, 33–54.

Clarke, Sandra, Ford Elms, and Amani Youssef. 1995. The third dialect of English: Some Canadian evidence. *Language Variation and Change* 7:209–228.
Clopper, Cynthia G., and David B. Pisoni. 2004. Homebodies and army brats: Some effects of early linguistic experience and residential history on dialect categorization. *Language Variation and Change,* 16:31–48.
Dollinger, Stefan. 2012. The western Canada-US border as a linguistic boundary: The roles of L1 and L2 speakers. *World Englishes* 31: 519–533.
Fridland, Valerie, Tyler Kendall, Betsy E. Evans, and Alicia B. Wassink. 2016. Speech in the Western States: The Coastal West. *Publication of the American Dialect Society* 101:159–165.
Hagiwara, Robert E. 2006. Vowel production in Winnipeg. *The Canadian Journal of Linguistics* 51:127–141.
Hall-Lew, Lauren. 2014. Chinese social practice and San Franciscan authenticity. In *Indexing Authenticity: Sociolinguistic Perspectives*, ed. V. Lacoste, J. Leimgruber, T. Breyer, 55–77, Berlin: de Gruyter.
Jacewicz, Eva and Robert A. Fox. 2014. The effects of indexical and phonetic variation on vowel perception in typically developing 9- to 12-year-old children. *Journal of Speech, Language, and Hearing Research* 57:389–405.
Labov, William, Sharon Ash, and Charles Boberg. 2006. The atlas of North American English: phonetics, phonology, and sound change: a multimedia reference tool. Berlin: Mouton de Gruyter.
Macmillan, Neil A. and C. Douglas Creelman. 2005. *Detection theory: A user's guide* (2nd ed.). Mahwah, N.J.: Mahwah, N.J.: Lawrence Erlbaum Associates.
Niedzielski, Nancy. 1999. The effect of social information on the perception of sociolinguistic variables. *Journal of Language and Social Psychology* 18:62–85.
Presnyakova, Irena, Pocholo Umbal, and Panayiotis Pappas. 2017. Who belongs to the speech community? Paper presented at NWAV46, University of Wisconsin.
Roeder, Rebecca, Sky Onosson, and Alexandra D'Arcy. 2018. Joining the Western Region: Sociophonetic Shift in Victoria. *Journal of English Linguistics* 46:87–112.
Sumner, Megan, and Arthur G Samuel. 2009. The effect of experience on the perception and representation of dialect variants. *Journal of Memory and Language* 60:487–501.
Swan, Julia T. 2016. Language ideologies, border effects, and dialectal variation: Evidence from /æ/, /aʊ/, and /aɪ/ in Seattle, WA and Vancouver, BC. Doctoral dissertation, University of Chicago.
Swan, Julia T. 2018. The third dialect shift: A change in progress in Vancouver, BC and Seattle, WA. Presented at the Annual Meeting of the LSA, Salt Lake City.
Swan, Julia T., and Kara Becker. 2018. Perception in West Coast English: BAG-raising in three West Coast cities. Presented at the Annual Meeting of the American Dialect Society, Salt Lake City.
William, Angie, Peter Garrett, and Nikolas Coupland. 1999. Dialect recognition. In *Handbook of Perceptual Dialectology, Vol. 1*, ed. D. Preston, 345–358.

Department of Linguistics and Language Development
San José State University
San José, CA 95192
Julia.Swan@sjsu.edu
Molly.Babel@ubc.ca