

Pacific Northwest English: Historical Overview and Current Directions

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Abstract: Relative to many varieties of English spoken in North America, there is little research on Pacific Northwest English (PNWE). Early work largely documents the lexicon of various groups within the region, or the region as a whole. In the mid-twentieth century when the Linguistic Atlas Projects dominated American dialectology, the *Linguistic Atlas of the Pacific Northwest* contributed to documenting the language in the area, with an emphasis on pronunciation for the first time. Only in the past two decades has a large body of research been done, specifically focusing on the Pacific Northwest (PNW). A variety of features have been studied, particularly those relating to vowels. Though Washington and surrounding states share features with the West in general such as the *cot-caught* merger and /u/-fronting, prevelar raising has received the most attention by linguists. This paper summarizes past and recent scholarship on the area to show that the high variation in PNWE from a century ago has not diminished in the speech of the region today.

0. Introduction

Pacific Northwest English (PNWE), a variety spoken in the states of Washington, Oregon, and parts of other surrounding states, is relatively understudied, especially compared to other dialect regions in the United States. In this paper I summarize much of the work that has been done on this variety as a means of setting the stage for additional work in the region. I also show that while many features have disappeared from the region, others have emerged in the last century, supporting the “low homogeneity” and “low consistency” that has been attributed to the dialect area (Labov, Ash, & Boberg 2006:277).

The first task, though, is to establish the geographic regions in which PNWE is spoken. As it turns out, that question is not as easy to answer as one may expect and may depend on where a person is from. There is a general consensus that Washington and Oregon belong in this dialect region, though other places such as Idaho, Montana, Northern California and, to a lesser extent, Wyoming and Nevada are also included (Lance 1999). The *Linguistic Atlas of the Pacific Northwest* includes Idaho, but Oregonians consider Idaho to be linguistically separate (Hartley 1999), and there is evidence to suggest Northern California should be included as well (Becker et al. 2013).

This paper is part of a larger project involving English spoken in the area surrounding Longview, Washington, which is about 50 miles north of Portland, Oregon. Since all of these definitions of the Pacific Northwest (PNW) include Longview, I will assume the variety of English spoken there is PNWE without strictly defining the variety’s exact boundaries. I start with the earliest work on the West and proceed chronologically, which correlates with specificity in research focus. Some preliminary findings from recent fieldwork in Longview are mentioned throughout. I conclude with a summary and possibilities for future work in PNWE.

1. Early Research on Western English

As late as the year 1800, most of what is now the western United States was unknown to those of European descent. The Pacific coast had been relatively recently explored by the Spanish, and

only in the 1790s did British navigator George Vancouver surveyed the area around the Columbia River, passing by modern-day Longview (Gilbert 1933). However, prior to the 1840s, the West was sparsely populated with English speakers. This changed with the Oregon Trail, the Latter-day Saint pioneers, and the California Gold Rush, each bringing significant groups of immigrants to the area (Billington & Ridge 2001). Later, as the transcontinental railway was completed and transportation to the West became less arduous, more immigrants came to the area, primarily from the Midlands and the East (Reed 1952). Thus, much of the heterogeneity in Western English can be attributed to the many dialects spoken among these groups and the subsequent waves of immigrants that followed, coupled with the relatively recent settlement of the area.

Much of early dialectology was focused on the words and expressions that were unique to certain geographic areas (Chambers & Trudgill 1998). The West was no exception to this, albeit with fewer early publications than other dialect regions. Some described in detail just a couple of expressions (Pound 1929; Pearce 1958) while others are dictionary-sized lists, describing the West as a whole or specific groups within it (Adams 1944; Woodbridge 1958; McCulloch 1958).

Some took a narrower approach and described only certain states. Mullen (1925), for example, chose a few words from several western states, and used them to paint a picture of the entire area. At that time, California was receiving the most attention by linguists and lexicographers (Lehman 1921; Hamilton 1932; Grant 1942; Shulman 1949; Watkins & Mulhall 1951; Carranco & Simmons 1964), though some focused on other states such as Colorado (Hankey 1960, 1961), Idaho (Jensen 1931), Nevada (Bright 1971), Oregon (Mills 1950), Utah (Pardoe 1935), Washington (Reed 1956), and Wyoming (Clough 1936, 1954).

As was typical of the early twentieth century, many publications were simply short lists of vocabulary items used in particular occupations or by certain groups of people. One of the first of these was a compiled list of terms used by glass blowers and by those in the shingle industry in New Jersey (Lee 1892), which was inspired by the creation of the American Dialect Society (Sheldon 1892:11). Specifically in the West, there are reports of the language of gold miners in California (Moore 1926) and Colorado (Davidson 1929), the oil industry in California (Pond 1932), pioneers (Van Den Bark 1931), Mormons (Jensen 1931; Lindsay 1933), carnival workers (Alderson 1953), truck drivers (Frazier 1955), white water rafters (Akin & Goltry 1969), and fire fighters (Yelsma 1969). The language of loggers and lumberjacks has been particularly well studied (Davis 1942; Carranco 1956; McCulloch 1958) as well as that of railroader workers (Batie 1934; Schultz 1937; Snapp & Logan 1938; Cottrell & Montgomery 1943; Welsh 1968).

Some of these early researchers even took an interest in lexical items used by groups in the PNW. The loggers received special attention (Harvey 1914a; 1914b; Stevens 1925; Davis 1950; McCulloch 1958), but some work was done on other groups in this part of the country, such as the ship builders in Portland (Babbitt 1944), ranchers in Eastern Washington (Adams 1958), painters in Yakima and Vancouver (Hines 1969), and truck drivers specifically from the PNW (Hanley 1961). While this early research provides a wealth of knowledge about the range of vocabulary and slang of that time and place, there was little focus on the pronunciation of the area at that time.

2. The Linguistic Atlas Projects (LAP)

Initiated by Hans Kurath in 1930, the Linguistic Atlas Project started a new era of dialectology in the United States. The goal of this project was to give a detailed account of the pronunciation, morphology, syntax, lexicon, and idioms in the entire country. Though the speech in parts of Europe had been documented already, similar studies on the English of North America were

lacking (Kurath 1934). With the publication of the *Linguistic Atlas of New England* (LANE, Kurath 1939), subsequent Atlas Projects in different regions began. Some of this research never made it to full publication in the way that LANE had, especially in an approachable way for a general audience. However, these data have contributed to numerous publications over the past eight decades and continues even today as original field notes are continually being transcribed and digitized at The University of Georgia under the direction of William Kretzschmar (cf. Antieau 2006; Renwick & Olsen 2015).

Prior to the Atlas Projects, there was very little written on the pronunciation in the West. If it was mentioned at all in articles, it was left at the end as only a cursory mention of some impressionistic tendencies. For example, Stevens (1925) described the speech of the loggers of the PNW as “a chesty one,” comparing it to sailors and cowboys, though without the twang of the latter. They “smother[ed]” [m] and [s], drop[ped] word-initial [h], and often “refuse[d]” [aɪ]. However, due to the subjective nature of this description, it is difficult to compare it to today’s research.

On the Pacific Coast, there were two primary Linguistic Atlas Projects. The *Linguistic Atlas of the Western States* (LAWS) gathered data from speakers in California and, to a lesser extent, Nevada during the 1950s, as directed by David Reed with assistance from Allen Metcalf. Unfortunately, little of this work ever saw the light of day with the exception of that reported in Bright (1971). Washington, Idaho, and Oregon were covered in the *Linguistic Atlas of the Pacific Northwest* (LAPNW), primarily by Carroll Reed with some help from David DeCamp (cf. Allen 1977). It too was never published in a single volume, though its results are seen in Reed’s publications (Reed 1952, 1956, 1957, 1961a, 1961b, 1967).

Detailed accounts of pronunciation became the norm as data from the various atlas projects across the country were being published. For example, DeCamp (1959) focused specifically on the English spoken in San Francisco, and Moncur (1956) compared high back vowels in San Francisco to those in Los Angeles. As Reed states, “[I]t seems reasonable to expect that the proportions of regional representation already observed in connection with vocabulary will also hold good for pronunciation” (1961a:559). In other words, researchers were discovering that the amount of variation in pronunciation was just as regional as the lexicon was. Even at this early stage, some of the features characteristic of the West today were already being noticed, such as the *cot-caught* merger in Wyoming (Clough 1954). Reed published detailed accounts of the PNW (Reed 1961a) and Washington specifically (Reed 1952), going into unusual detail for the West in that time period and giving a valuable look at the speech patterns in the area from over half a century ago.

In the following years, broad overviews were published in order to describe the entire country as a whole and to synthesize what had been done in the Linguistic Atlas Projects. Moore’s bibliography divided sections into regional, social, and African American varieties (Moore 1969). Some of Carroll Reed’s findings in the PNW were given in Allen (1977), though Pederson (1977) limited his description of the Pacific Coast to just one brief summary. In his *American Regional Dialects*, Carver (1987) described isoglosses within the West and even the PNW, primarily based on the lexicon and migration patterns. And more recently, in Grieve’s national map of dialect regions based on data from the Linguistic Atlas Projects, the West does not constitute its own variety, and the PNW is grouped together with the North (Grieve 2015:4). In summary, though detailed fieldwork in the PNW had been completed in the latter half of the twentieth century, the literature on the West was still relatively sparse.

The fieldwork for the Linguistic Atlas Projects along the Pacific Coast was collected in the 1950s, and the majority of the research that came out of those projects was published over the next couple of decades. Kretzschmar (2003) explained though that the original field notes at that time were inaccessible to all but a few people and were spread out over half a dozen sites. Despite the efforts of digitizing the data, which began in the 1980s, interest in the *LAPW* and *LAPNW* data dwindled, and few publications reported on the language of that area. However, Kretzschmar is hopeful as he describes the project's resurgence as well as an increased interest in the Western states.

3. Recent Scholarship on Western English

Around the time publications on data collected from the Linguistic Atlas Projects diminished, the fields of sociolinguistics and dialectology were changing. Pursuing one of the many new paths that were emerging in the field, Dennis Preston took ideas that had been implemented in other countries and applied them to American regional varieties of English (Preston 1981, 1986). This new field of "perceptual dialectology" or "folk linguistics" takes into account a person's perception of other ways of speaking, providing sociolinguists with new questions to answer regarding social meaning and identity.

This has led researchers to conduct their own fieldwork in order to specifically address these types of questions, which is sometimes compared to LAP data as a glimpse into change across time. Early work in California, for example, described an emerging variety based primarily on the social meaning of variation in speech (Hinton et al. 1987; Moonwomon 1991). The increased availability of computers made acoustic and statistical analyses easier and increasingly popular when studying varieties of English, particularly among research in variationist sociolinguistics (Tagliamonte 2016).

Especially since the 2000s, the amount of research on the PNW has picked up. At the very least, the West is now seen as a major dialect area just like those east of the Mississippi River, though with few distinct features of its own. Clooper, Pisoni, & Jong (2005) compared six major dialect areas of the United States and reported that there was higher variability in the vowel space in the West, and that the *cot-caught* merger was complete or nearly complete in all speakers, which is similar to the reports in *LAPNW* from nearly half a century before (Reed 1952, 1961a).

In the *Atlas of North American English (ANAE)*, the West is the largest dialect area, extending from the Pacific Ocean to as far east as Kansas. However, apart from a few unique features like the *cot-caught* merger, it is defined by the absence of features characteristic of its neighboring dialect areas. But the boundary separating Canada is problematic because of similarities between much of Canada and the West, and the boundary between the West and the Midwest is also fuzzy at best. Overall, the result is a large, inconsistent dialect area with some features taken from the Northern, Midland, and Southern varieties, as well as some influence from Canada (Labov, Ash & Boberg 2006:277).

Some recent work, though, has suggested that the high variability in the West is finally settling down. For example, the PNW has been described as "form[ing] a relatively coherent dialect area [that] is centered on the Portland district" (Wolfrum & Schilling-Estes 2008:123). Similarly, the younger generation in the Portland area was reported to be developing a single, unified variety (Conn 2006). However, the renewed sociolinguistic interest in the area over the past decade has shown that this high variability is very much present in the area.

This focus on the PNW has resulted in data collection projects that are specifically aimed at understanding more about speech in the area. One of the first since *LAPNW* was the *Portland*

Dialect Study at Portland State University. Audio data collected from 60 speakers has led to publications on intonation (Wolff 2000) and vowel production (Conn 2000; Ward 2003).

A major project, entitled *Vowels in America*, is spearheaded by Valerie Fridland of the University of Nevada and Tyler Kendall of the University of Oregon. Although it includes data from areas across the country, among its major sites are Reno and Eugene. This project is currently very active and has been producing a vast amount of research in the area of perception of vowel changes, among other topics (cf. Kendall, Fridland & Farrington 2013; Fridland, Kendall & Farrington 2014; Kendall 2016).

Finally, Alicia Wassink of the University of Washington is conducting the ongoing *Pacific Northwest English Project*. It initially analyzed the speech of both African American and European American residents of Seattle (cf. Wassink et al. 2009; Scanlon & Wassink 2010; Freeman 2014a, 2014b, 2015b; Wassink 2011, 2015a), but has recently expanded to include the speech of inhabitants of Asian and Native American descent in other parts of the region and is now focusing on dialect and language contact (cf. Riebold 2015; Wassink 2015b).

So, after a century of research on American English, with only the *LAPNW* providing a substantial amount of data during this time, the work in PNW is finally picking up some momentum. Though certainly not as linguistically diverse as the Eastern United States, researchers are discovering the value in studying this part of the country.

4. Perceptual Dialectology

Following the example of Preston and other researchers, linguists have been effectively conducting perceptual dialectology across the PNW. In one of the first studies of this type devoted to a single state, California natives indicated regional, social, and subcultural dialects as well as other language boundaries in their states (Bucholtz et al. 2007). In Oregon, several trends emerged, such as the ideology of not having an accent, negatively viewed “country” accents in the East, and positively viewed accents labeled “California,” “laid back,” or “relaxed” in the South, with some phonetic correlates to speakers and their views (Becker et al. In Press).

The perceptual-dialectology-based project, the *Seattle to Spokane Project*, is headed by Betsy Evans at the University of Washington and is the most extensive perceptual-dialectology project in the PNW. A total of 229 Washingtonians filled out maps of their own state, which were then aggregated quantitatively. The results reveal a clear perception of a “country” accent in the East (Evans 2010, 2011, 2012a), similar to that reported in Oregon. Additionally, many participants reported that there is no accent in the state or that all of Washington sounds the same. While usually thrown out or considered outliers in other studies, these results have actually provided valuable information on language ideologies and the methodology of perceptual dialectology itself (Evans 2012b, 2013).

5. Features of Pacific Northwest English

Though the West had previously been seen as not having many distinctive features or as simply a mix of other dialect areas, recent work has shown that there are some traits that are unique to the speech in the PNW. Becker et al. (In Press) actually identify three categories of features: General West Coast, California, and Washington. In Washington, Oregon, and California, the *cot-caught* merger and the fronting of /u/ are widespread, hence their grouping together as General West Coast features (cf. Labov, Ash & Boberg 2006). The California Vowel Shift has been documented in all parts of the state, while the raising of /ɛg/ and /æg/ are distinctive of Washington (particularly in the Seattle area) as well as strong fronting of /ʊ/ (Riebold 2015). A reanalysis of the acoustic data from the *ANAE* shows additional characteristics of the West,

including fronting of /u/ and /ju/, raising of /ɛ/, and lowering of /aɪ/ before voiceless sounds (Grieve, Speelman & Geeraerts 2013).

Originally, Oregon was seen as having no distinct accent (Mills 1950), and today the state does not appear to have unique features that are not found in other surrounding states. But Oregon is influenced by its neighbors and has developed a unique variety that is described as a mix between that of Washington and California (Becker et al. 2013; Becker et al. In Press).

What follows in this section is an outline of many of the features that have been described in the PNW, with a particular emphasis on vowels (reflecting the amount of work done in this area). As will be seen, besides some of the older features from *LAPNW*, there is still significant heterogeneity in PNWE.

5.1. Relic Features

Early results from *LAPNW* revealed some variation at the time. However, it is likely that some of these features are relics of the varieties of English the original settlers brought to the area and have generally leveled out. But they provide insight into some of the features that had potential to spread, but for one reason or another did not.

For example, educated speakers from a couple of generations ago are reported to say the /æ/ in *ask* and *aunt* occasionally as [ɑ] (Reed 1961a), and some on the east side of Puget Sound have the palatal glide in *stew*, *Tuesday*, *student*, *new*, and *dew* (Reed 1952). However, both of these features were never present in a significant way in most of the state and had already been lost in the younger generation at that time (Thomas 1958; Foster & Hoffman 1966).

Another change in progress at the time was the *r*-coloring in *wash* and *Washington*. This feature was characteristic of the largest cities and the surrounding counties in Seattle, Spokane, and Vancouver, and was the prestigious variant at that time. There was an implicational hierarchy in this feature, too, in that an *r*-colored pronunciation of *wash* implied coloring in *Washington* for that speaker, but not vice-versa. Two of the oldest participants in recent Longview fieldwork had this feature, and they also had it (perhaps by analogy) in the word *watch*. Reed predicted that if there is linguistic spread from urban to rural communities, this feature would have spread, saying that it “may prove more virile in the long run” (1952:187). Though the feature is no longer a part of urban varieties today in Washington, some Oregonians and Washingtonians in perceptual dialectology tasks indicate that *r*-coloring is still heard and often associate it with “country” accents (Evans 2010; Becker et al. In Press). Thus, since *LAPNW*, it appears that *r*-coloring did spread from urban to rural areas, but the prestige has now been attached to the *r*-less pronunciation of those words.

Reed (1952:187–8) mentioned that spelling pronunciations are common in the present day and also had high prestige half a century ago. For example, the [l] is pronounced in words such as *calm* and *palm*. Though, as Coye (1994:269) pointed out, this pronunciation has become more and more common in the Upper Midwest (Allen 1976:355–56). It has also become more common in the educated speakers of St. Louis (Murray 1986:18) and appears to have spread to most American varieties of English. Additionally, in 1950s Washington, the phoneme /w/ appears to be purposely used by adults. Some speakers pronounce common words (*what*, *which*) without it, but make it a point, often leading to self-correction, to say other words such as *wharf* and *whipping* with the voiceless variant (Reed 1952). Regarding these features, though, it seems that PNWE has largely participated in the same changes that occurred in the majority of North American varieties of English.

Impressionistically, it seems that the *hoarse-horse* merger developed in the early part of the twentieth century in Washington as it did in Utah (Bowie 2008; Stanley & Renwick 2016). This merger collapses the distinction between the two historically distinct phonemes /o/ and /ɔ/ before /r/ (Labov, Ash & Boberg 2006:49–51). Older Washingtonians likely made the distinction in pronunciation (Thomas 1958), but the younger generation in the 1960s had the merger (Foster & Hoffman 1966). In the *LAPNW* data, Reed reports that some Washingtonians claimed to hear a difference between *hoarse* and *horse* or *mourning* and *morning* because they're spelled differently, though they themselves do not differentiate them in pronunciation (Reed 1952). Today, there is no indication that this merger does not exist in PNWE, so it is likely that the distinction between these two classes has been completely lost in the region.

Finally, early records in PNWE generally described the *Mary-merry-marry* merger, wherein /e/, /ɛ/, and /æ/ are all merged before intervocalic /r/. Though in some varieties of North American English, the three are either left distinct or have collapsed down to two, the merger is complete for the majority of speakers today (Labov, Ash & Boberg 2006:54–56). However, some early Washingtonians had the three-way distinction (Thomas 1958), especially in the older generation (Reed 1961a). But a merger of all three is reported to be complete in the younger speakers of the time (Foster & Hoffman 1966).

The fieldwork in the Longview area includes word lists that target each of these relic features (cf Stanley 2017). Preliminary results show that many of them are no longer present in the speech in the area. In particular, there is no evidence of palatal glides in *dew* and *Tuesday*, and all speakers have both the *hoarse-horse* merger and the *Mary-merry-marry* merger. Only the most elderly participants had *r*-coloring in *wash* and had the voiceless /w/.

Thus it appears at first that today's PNWE is at least a little less variable than it was when the *LAPNW* data were collected. Some relics of other English varieties have been lost, including some phonological distinctions. Given that these changes occurred in other varieties, the West can be said to have participated in some of the general changes in American English. However, there are other linguistic variables that have emerged since the *LAPNW* data were collected.

5.2. The *cot-caught* merger

One of the defining characteristics of Western English is the *cot-caught* merger. Essentially, speakers in this area merge /ɑ/ and /ɔ/ into a single phoneme /ɒ/, such that words like *cot* and *Don* have the same vowel as, and are thus homophonous with, *caught* and *dawn* (Labov 1991; Clopper, Pisoni & Jong 2005).

In the 1950s and 1960s, the *cot-caught* merger was in transition for many of the older speakers in Washington, with wide idiosyncratic variation in the extent of merging the two sounds. For some speakers, [ɔ] was a phonetically conditioned allophone of /ɑ/, being present only before /l/, /s/, /f/, /g/, sometimes /k/, and in the syllable /wɔʃ/. Or rather, the words *all*, *loss*, *dog*, *chocolate*, and *washing* were often pronounced with [ɔ], though this list varied from person to person (Reed 1952; 1961a; Thomas 1958). For other speakers, the two were in free variation and were used interchangeably (Reed 1952; Foster & Hoffman 1966). In the most extreme case, the merger was complete, especially in the western part of the state, in both production and perception (Reed 1952).

However, despite early variability, the merger was already approaching completion at that time. Reed reported that in all communities where the merger was not complete in adults, it was complete in the speech of preteens (1952:186–7). The younger generation had also lost the variation, and Foster & Hoffman reported that they just had a single /ɒ/ phoneme (1966). With

these reports, we see that this was a change in progress in the early to mid-twentieth century in Washington, but that it has been complete and widespread for over fifty years. Other than studying the overall historical process of this merger (Fridland & Kendall 2014; Kendall, McLarty & Farrington 2016), linguists have not focused their research on this feature in PNWE recently, further strengthening the idea of its completed, widespread, and stable status.

5.3. /u, ʊ, o/ fronting

There have been several studies focusing on fronting of the back vowels /u, ʊ, o/ in the PNW, largely due to influence from the California Vowel Shift (Eckert 2008). The feature itself is likely new to the region, since the only mention of it in *LAPNW* is that a few speakers pronounce /o/ as a front vowel (1961a). This is confirmed in a more recent study: a comparison of today's younger speakers to archival data from speakers born in late nineteenth century Oregon suggests that /o/ fronting is a recent phenomenon, which is being led by those who have the most fronted /u/ vowel (McLarty & Kendall 2014).

There is a general consensus that speakers in Washington and Oregon are indeed fronting /u/, but the degree to which they front /o/ and /ʊ/ is inconsistent across speakers and across studies. For example, the Western dialect region is defined in *ANAE* by the absence of /o/ fronting (Labov, Ash & Boberg 2006), and in Oregon specifically, Nelson (2011) found /u/ fronting but could not conclude that /o/ was being fronted as well. Meanwhile, Clopper et al. (2005) described a fronted /o/ in the West, and, focusing just on Portland, Ward (2003) and Becker et al. (2013) described all three back vowels as being fronted, particularly in the speech of the working class and of women. Thus there is some variation in the West and even within Oregon.

In Washington, the conclusions are less clear-cut, and the researchers reported more gradience. For example, in Seattle (Ingle, Wright & Wassink 2005) and in other parts of the PNW (Wright & Souza 2012), /u/ and /ʊ/ do appear to be fronted, though not as much as they are in California. Riebold (2015) made the same comparison to California English, with the added finding that /ʊ/ seems especially fronted by Washingtonians.

In summary, the fronting of back vowels is influenced by the California Vowel Shift, which is spreading northward along the Pacific Coast, though other aspects of the California Vowel Shift, like the lowering of front vowels, are not seen in the PNW (Riebold 2015). The only conclusion that can be made from these varied reports is that there is simply a high degree of variation in /u, ʊ, o/ fronting. Given the homogeneity of the degree of fronting and even which vowels are affected, this feature is likely in the midst of an ongoing change and will continue to be the topic of investigation for some time.

5.4. Prevelar raising in front vowels

By far the most studied feature of PNWE has been prevelar raising in front vowels /e, ε, æ/. This feature was mentioned early on in the *LAPNW* data when Reed listed the upglided variant [æ^ɪ] as being slightly more common than plain [æ] in words such as *bag*. Meanwhile, in words such as *egg* and *keg*, the lower variants [ε^ɪ] and [ε] were more common and the raised [e^ɪ] and [e] were infrequent (Reed 1961a). However, other than these brief mentions, as Freeman (2014a) pointed out, this feature would not be remarked upon in academic literature in relation to PNWE for nearly fifty years.

In Wassink et al. (2009) this prevelar raising and merger were brought to the attention of sociolinguists once more and was described in more detail. They found that /εg/ had merged

completely with /e:g/, especially in casual styles. Some men raised /æ:g/ as well so that there was significant overlap between all three classes. Essentially, the distinction between non-high vowels /e, ε, æ/ before voiced velars is becoming lost in PNWE.

This triggered numerous studies on the feature, analyzing it from many different angles. First off, it was pointed out that prevelar raising of some of these vowels (particularly /æ:g/) occurs in regions such as Wisconsin (Zeller 1997; Bauer & Parker 2008; Benson, Fox & Balkman 2011) and western Canada (Boberg 2008). In Northern California (Eckert 2008) and Oregon (Nelson 2011), plain /æ/ is being raised, but only before nasals, and is actually backing in other contexts as a part of the California Vowel Shift (see also Becker et al. 2013). As far north as Portland, Conn (2000), expecting to find /æ/ raising, instead found that it was fronting and lowering in working class speakers. Even in Seattle, /æ/ is backing before laterals (Riebold 2012b). However, in PNWE, the pattern is different than other regions because of the inclusion of all three vowels /e, ε, æ/ and the velar context as the trigger.

Phonetically, there is some motivation for the merger. An exaggerated velar pinch, which is the convergence of F2 and F3 at the end of the preceding vowel before velar sounds, may have been the cause of this raising (Baker et al. 2008; Wassink 2011). This also accounts for why some speakers actually lower /eg/ to meet /εg/ (Freeman 2015b). Voicing and vowel length must have an effect as well because, despite /k/ and /ŋ/ also causing the velar pinch, there is no raising before the voiceless sound, while the most raising is seen before the nasal. However, data from Seattle suggested that the raising behaves differently than would be expected if phonetics was the only motivation (Wassink & Riebold 2013), suggesting that there be some other factor.

There is phonological explanation for the change as well. Both Wassink & Riebold (2013) and Freeman (2014a) have pointed out that, structurally, the /eg/ class in English is quite small and includes probably no more than a dozen or so words (including proper nouns): *bagel*, *flagrant*, *pagan*, *plague*, *vagrant*, *vague*, *the Hague*, *Hegel*, and *Spague*. Consequently, there are reportedly no minimal pairs, and a merger with /εg/ would create zero homophones. While this low functional load does not necessarily trigger a merger, there is nothing impeding it from happening. However, there are plenty of minimal pairs between /eg/ and /æ:g/, resulting in a high functional load, which makes the involvement of /æ:g/ in this merger surprising.

I would add that there is one minimal pair that differentiates /eg/ and /εg/: *Prego* (/eg/, the brand of pasta sauce) ~ *preggo* (/εg/, a slang term for *pregnant*). This is not an ideal pair not only because *Prego* is a proper noun and a borrowed word but also because *preggo* is unfamiliar to many people and is likely variable in pronunciation. Nevertheless, some younger residents in Longview clearly distinguish the two words when presented with the minimal pair. But, the fact that such lengths need to be made to find a minimal pair is telling and supports the argument that the distinction is not important to the structure of English phonology.

Additional work has been done on the merger to describe it in more phonetic detail. For example, it has been shown that the merger of /eg/ and /εg/ is complete for the entire length of their trajectories (Freeman 2014a, 2014d). However, even for speakers with the merger, the vowel length of /εg/ is measurably shorter than /eg/ and /æ:g/, suggesting that the merger has yet to be complete (Freeman 2014a; Riebold 2015).

Other studies have focused on the differences between social groups and how this feature varies. Riebold (2015) found that all social groups have the merger, with some non-significant differences between genders and ethnicities. However, as was reported by Wassink et al. (2009), there are gender differences in this merger, and men raise /æ:g/ to overlap with /eg/ and /εg/ (see also Freeman 2014a). Though there seem to be few patterns correlated with speaker age

(Wassink & Riebold 2013), Riebold (2015) reported that the middle-aged group merged the most. Swan (2016) has recently shown that speakers in Vancouver use /æɡ/ raising to both unite and distinguish themselves from speakers in nearby Seattle. It seems clear, though, that there is high individual variability in this merger, both in production (Baker et al. 2008; Wassink & Riebold 2013) and perception (Freeman 2015c).

Because of this high variability, it has been difficult to classify which type of merger this is. Labov (1994) explained that a *merger by approximation* means the vowel space of the merged vowels is somewhere between the two old ones. In a *merger by expansion*, the new vowel space is the combined vowel space of the two old vowels. In a *merger by transfer*, one vowel simply moves to the other's space. Riebold (2012b) described the merger as one by expansion, with the potential of moving to a merger by transfer. However, Wassink (2011, 2014) described it as a merger by approximation and claimed that there was no evidence for a merger by transfer.

In summary, prevelar raising in front vowels is by far the most studied feature of the PNW, possibly because its speakers are not very aware of its existence (Swan 2015). However, many results are inconclusive and highly variable, so there will likely be more studies in the future regarding prevelar raising.

5.5. Non-vowel studies in the Pacific Northwest

As can be seen in the previous sections, the vast majority of work has been done regarding vowels. However, a handful of studies have analyzed other aspects of PNWE. For example, in Oregon, as mentioned previously, Wolff (2000) analyzed intonation and found a degree of up-talk in the speech of Portlanders. Creaky voice has been a topic of study in Oregon (Riebold 2009, 2010) and Seattle (Andrus 2011; Ingle, Wright & Wassink 2005), where it was found to be more common in women. Morphosyntactic features such as the habitual past have also been studied (Kendall, McLarty & Farrington 2013; McLarty, Farrington & Kendall 2014), and it was mentioned early on that the plural /s/ is always voiced (Foster & Hoffman 1966, footnote 8). Studies in consonants include some on glottalization (Freeman, Riebold & Skyes 2012) and spirantization (Riebold 2011, 2012a). Finally, numerous articles have been published within the past year or two on stance, including its phonetic correlates (Freeman 2014c, 2015a) and its interaction with other parts of the language (Freeman et al. 2015; Freeman, Wright & Levow 2015; Le Gréause 2016), with data drawn primarily from the PNW-based ATAROS corpus (Freeman et al. 2014).

6. Conclusion

Though PNWE is understudied compared to other dialect regions of North America, it is clear that there is a significant amount of research, primarily on vowels, in the past fifteen years or so. Early work in the area showed the range of lexical items used by specific communities, and the LAP data suggested high variation in pronunciation. However, despite some of the features being lost in younger speakers, it is clear from the scrutiny on back vowel fronting and on front vowel raising that the area is far from homogenous, and further research is required to fully understand these features. Additionally, compared to the work on vowels, there are few morphosyntactic, prosodic, and even non-vowel phonology studies specifically on this area. And there is even less work done on non-urban areas of the region, non-white ethnicities, and change through time. Indeed, there is much research yet to be done on PNWE, and much more is needed to fill this gap in American dialectology.

7. References

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