THE IMPORTANCE OF ROOTEDNESS IN THE STUDY OF APPALACHIAN ENGLISH: CASE STUDY EVIDENCE FOR A PROPOSED ROOTEDNESS METRIC

PAUL E. REED
University of Alabama

ABSTRACT: The relationship of a speaker's language to their sense of place has been a focus of much of the sociolinguistic literature and dialect studies. However, the use of differing methodologies and measures makes comparison and contrast of the importance of place across different communities and social contexts problematic and drawing overarching conclusions challenging. To resolve this, the current article presents a way to quantitatively measure place-attachment using a Rootedness Metric that is both adaptable and comparable, permitting more nuanced understandings of place and language. Through three case studies, the author presents evidence that demonstrates the effectiveness of the Rootedness Metric to better understand how attachment to place impacts the phonetic variation in Appalachia. Inclusion of rootedness helps to explain why demographically similar speakers have divergent production, while the production of dissimilar speakers patterns alike.

KEYWORDS: rootedness, place, place attachment, region, sociophonetics

You know you're from around here when you start talking like us. Outsiders belong when they start using mountainisms.

—Juanita,[1] Hancock Country, Tennessee

In REED (2016), a study of the speech of Appalachian English speakers from Hancock County in northeast Tennessee, many of the respondents saw language as one of the defining characteristics of the county, if not the defining characteristic of the local community. The quotation in the article's epigraph, from one of the participants, referring to in-migration and acceptance, is a perfect example. Tyler, another participant, said that the local language could be described as a principal aspect of local culture. These descriptions demonstrate that the populace is keenly aware that their speech is central to what it means to belong or to be considered local in Hancock County. Practically every speaker was readily aware of how promi-

American Speech, Vol. 95, No. 2, May 2020 DOI 10.1215/00031283-7706532

nently speech featured into localness. To sound local is to belong, and such belonging is of prime importance to residents.

In an overview of sociological approaches to place, Gieryn (2000, 464–65) notes that place has to have three components: geographic location, material form, and investment with meaning and value. Without these, place is merely "space" and not meaningful. He writes,

> A spot in the universe, with a gathering of physical stuff there, becomes a place only when it ensconces history or utopia, danger or security, identity or memory. In spite of its relatively enduring and imposing materiality, the meaning or value of the same place is labile—flexible in the hands of different people or cultures, malleable over time, and inevitably contested. [Gieryn 2000, 465]

A place is thus geographic space imbued with meaning and value for particular people.

The effect of a speaker's relationship to place and language variation has been a focus of much of the sociolinguistic literature and dialect studies (e.g., Wenker 1877; Kurath 1949; among many others). Labov (1963), in his well-known study of Martha's Vineyard, observed that a speaker's view of the island, whether positive or negative, affected the production of centralized vowel tokens: those speakers who had positive regard for the island used the centralized variant, while those who had a more negative view used a variant that was less centralized. Thus, language variation reflected a speaker's view of place and, in particular, the speaker's relationship to place. Other scholars have continued this vein of investigation between place and language, often focusing on areas with strong regional or local identities (e.g., Bailey et al. 1993; Johnstone, Andrus, and Danielson 2006; Dodsworth 2008; Johnstone and Kiesling 2008; Hall-Lew 2009; Haddican et al. 2013; Schoux Casey 2013; Carmichael 2014). However, the use of differing methodologies and measures makes comparison and contrast of the importance of place across different communities and social contexts problematic and drawing overarching conclusions challenging. To resolve this, I present here a way to quantitatively measure place-attachment using a Rootedness Metric that is both adaptable and comparable, permitting more nuanced understandings of place and language. Through three case studies, I present evidence that demonstrates the effectiveness of the Rootedness Metric to better understand how attachment to place impacts the phonetic variation in Appalachia.

In Reed (2016), place-based identity, framed as rootedness, emerged as a significant factor for an Appalachian cohort from Hancock County, Tennessee. This county sits on the border of the Southern and Central Appalachian regions in Upper East Tennessee (Appalachian Regional Commission 2002). Figure 1 shows the county's location. Reed (2016) focuses on two features of Appalachian English: the monophthongization of /aɪ/

FIGURE 1
Location of Hancock County, Tennessee

and rising pitch accents. Monophthongization of /aɪ/ is a well-known feature of Appalachian English (Hall 1942; Wolfram and Christian 1976; Thomas 2001; Greene 2010), whereas rising pitch accents appear to be a noticed (C. Williams 1992) but underresearched feature (with the exception of Greene 2006 and my work). Rootedness was central to helping explain the degree of monophthongization of /aɪ/ and both the relative frequency and phonetic realization of rising pitch accents. Since these findings demonstrate that place-attachment affects the accents of speakers in a small rural Appalachian community, analysis is of how these participants negotiate the various meanings of place in Appalachia, more generally, and East Tennessee and Hancock County, more specifically. How these negotiations create and delineate social differentiation is critical to understanding the phonetic variation observed and its broader social implications. In the present work, I discuss the importance of rootedness and how I was able to quantify this place-attachment within this Appalachian community, reflecting specifically on its role in the variation of two linguistic variables with different degrees of salience among the Hancock County residents who participated in this study.

The results of Reed (2016) showed that some Hancock County participants indeed have a strong sense of localness, and this sense has an observable linguistic impact. However, this community is not monolithic; some participants are quite attached to place (i.e., they are more rooted), while others are less attached to place (i.e., they are less rooted), so the place has somewhat disparate meanings, depending upon the individual (see Gieryn 2000). This conflicting perspective coincides with how many have viewed Appalachia throughout history. Thus, to truly understand the complex nature of place and place-attachment in Hancock County, we should consider the

individual participants themselves and contextualize their responses within the broader conception of place in Appalachia through the lens of Hancock County, while also attempting to quantify the differing conceptions and importance of place. The present article delves into how place as a concept features so prominently in this community, focusing on three individuals as case studies. I explore how these speakers discuss place and what place means to them, and principally, why place is important, why they feel attached to this place, and how language contributes to this sense of attachment. In order to investigate and quantify this attachment, I asked each participant about their feelings toward Hancock County, and their responses help illuminate the conflicting view of Appalachia as one's home to cherish or as an object of disparagement. These differing views were captured by the Rootedness Metric, which allowed them to be quantified. Additionally, participants expressed their awareness that sounding a particular way indexed Hancock County and, as a result, contributed to this contested meaning of place. Observing individual responses as expressing contested and sometimes contradictory sentiments permits us to frame why linguistic features play a prominent role in the discussion of place and why rootedness is crucial to some residents in this community.

METHODOLOGY

The following section outlines both the rootedness methodology and the acoustic analysis methodology. The data collection involved two steps—sociolinguistic/oral history interviews and distribution of the Rootedness Metric. Each interview was conducted in a quiet area of the participant's home or workplace. Because I am a member of this community and maintain longstanding personal relationships with many of the participants, I tailored the first interview questions after those used in *Roswell Voices*, a project focused on life, culture, and personal histories of longtime residents and their descendants in Roswell, Georgia (Kretzschmar et al. 2004, 2006). The interviews were more akin to oral history projects than traditional sociolinguistic interviews, but retained elements of Labovian-style interviews, such as reading tasks and word lists.

The case study speakers were taken from a larger study of speakers selected using judgment sampling; that is, I, as the researcher, solicited individuals to participate who seemed to be characteristic of the community (see Milroy 1987). My goal was to recruit a gender-balanced pool of participants that represented a wide age range and that included persons with college degrees and without.

ROOTEDNESS MEASURE. To arrive at a measure of local identity (i.e., rootedness), I used a two-stage technique. For the first stage, during the oral history/sociolinguistic interview, as part of the identity module (see Reed 2016 for a list of the interview modules and questions), I posed three questions designed to capture how each participant felt about the local county, roughly following the methodology employed by Haddican et al. (2013) in Northern England:

1. Would you say you identify with Hancock County? Sneedville? Why?
2. Is there another place that you identify with? Why?
3. What makes it so special?

For these questions, a positive response was scored +1, a neutral response was scored zero, and an overtly negative response was –1. Thus, from the identity module of the interview, scores could range from –3 to +3. These scores were combined with the results of the Rootedness Metric survey, described below.

The second stage involved participants responding to a Rootedness Metric survey that I designed to measure local place-based attachment, that is, the participants' affinity toward the local community and the strength of their ties within the local community. Quantifying rootedness allowed for a measurable view of how localized the attachment was (i.e., local community, county, East Tennessee, Appalachia as a whole) and, crucially, how one speaker's rootedness compared to another's.

I adapted the Rootedness Metric survey by expanding place and community attachment measures from D. Williams and Vaske (2003) and D. Williams (2004). Many of the questions in D. William's survey were related to how a person felt about a local park or wilderness area. Through quantifying how place featured in the lives of people, these researchers were able to understand land use and connection to land. I adapted these surveys to focus on the connection to place. Using terminology that is meaningful within Hancock County, I adapted the questions below to address participants' feelings about the local area. The survey asked 11 questions from seven categories:

1. WILLINGNESS TO RELOCATE: "Are there any circumstances in which you might see yourself moving away from Hancock County?"
   a. Yes [0]
   b. No [+2][2]
2. TRAVEL HABITS: "How often do you visit nearby towns (Morristown, Rogersville, Tazewell, etc.)?"
   a. Frequent [0]
   b. Rare [+1]

3. SELF-IDENTIFICATION
   a. Locally: "When you go to Morristown or Rogersville or other nearby places, where do you say you're from?"
      i. "Overhome" [+3]
      ii. Local area with Hancock County [+2]
      iii. Hancock County [+1]
      iv. Other response [0]
   b. Distally: "If you traveled far away to some other place in the U.S. and met someone who asked where you were from, what would you tell them?"
      i. Local area within Hancock County [+4]
      ii. Hancock County [+3]
      iii. Upper/Northeast Tennessee [+2]
      iv. East Tennessee [+1]
      v. Other [0]
4. FAMILIAL CONNECTION
   a. "How many family members do you have living in Hancock County?"
      i. 5 or more members [+2]
      ii. 2–4 members [+1]
      iii. Less than 2 members [0]
   b. "How many generations of your family have lived in Hancock County?"
      i. 5 or more [+2]
      ii. 2–4 [+1]
      iii. Less than 2 [0]
5. AREAL IDENTIFICATION RANKING: "Rank the following (1–7) in the order that you most identify with:" [the top three ranked choices were tallied][3]
   a. My local community [+5]
   b. Hancock County [+4]
   c. Upper/Northeast Tennessee [+3]
   d. East Tennessee [+2]
   e. Tennessee [+1]
   f. The South [+1]
   e. The Mountains [+1]
6. LOCAL INTEGRATION: "Do you participate in local events, like the Fall Festival?"
   a. Yes [+1]
   b. No [0]
7. CENTRALITY OF PLACE IDENTITY: "Please indicate on the following scale to what degree you would say your identity is tied to Hancock County."
   a. 5. Closely tied [+3]
   b. 4. [+2]
   c. 3. Somewhat tied [+1]
   d. 2. [+0.5]
   e. 1. Not tied [0]

Other questions were explored (i.e., "Are you a University of Tennessee fan?"; "Do you follow country music?"), but they did not prove to be of any significant value in characterizing speakers, as all speakers followed the teams and the musical preferences were quite varied. Each category was quantified using the scoring system shown, for a final possible score of 35. When combined with the interview responses, the total possible Rootedness Metric was 38.

As shown above, the Rootedness Metric favored locally relevant terminology and other responses that reflected a local, place-based orientation. For example, in response to question 3a (self-identification locally), participants who produced the term "Overhome" to describe where they were from when traveling to nearby cities and towns received a higher score than those who referred to their local community, to Hancock County, or to some broader classification. "Overhome" is usually a term of strong endearment[4] and is widely understood to refer to traveling to Hancock County or communities within the county, as to get there from any direction requires traversing a mountain, that is, you must go over to get home. Further, in question 5 (areal identification ranking), I distinguished between Northeast Tennessee[5] and East Tennessee as labels, given the tendency for some residents to associate themselves with the upper region of East Tennessee and to disassociate themselves from lower or southern East Tennessee.

Some might question why something that a speaker does not have control over, such as family and family generations, is included. Within the region, family and the importance of kin is routinely highlighted (e.g., Jones, 1994). Additionally, some have highlighted how family, generations, and family connections in Appalachia operate akin to how social class operates in other areas (Hurst 1992). Further, there is a saying known in the region, "You can't say you're from a place unless you've buried kin there,"[6] which highlights that family and how long one's family has been in the region is important. Thus, to truly capture how connected someone is to the region, including family ancestry is necessary, and thus questions 4a (current familial connection) and 4b (historical familial connection) are included.

In a subsequent session, a few weeks to a few months after the initial interview, I revisited each participant in order to administer the Rootedness Metric survey. The interval permitted an independence of the two sessions, helping to limit any influence from one session on the other. I had printed copies for each participant, and I also asked each question aloud. I recorded these subsequent sessions to ensure that any oral responses were captured in addition to their written choices or responses to the rootedness survey.

We can see some trends based on the distribution of rootedness scores across all participants. The highest actual score was 31 (of a possible 38), from three participants. The lowest actual score was 18, from Haley. The

average rootedness score was 25.95; the median score was 28. Thus, in the aggregate, participants seemed to be fairly rooted to Hancock County. The average rootedness score for female speakers was 26.15 and the median was 29, whereas the average score for males was 25.74 and the median was 26, thus indicating that females were slightly more rooted than males. The range of scores was 13 (18–31) for females and 12 (19–31) for males. Age and rootedness have a moderately strong positive correlation ($r = .62$), meaning that older speakers tend to have higher rootedness scores. This correlation is understandable, as older participants have chosen to stay in the county, which could be attributed to a somewhat stronger local attachment.

ACOUSTIC MEASURES. I used Euclidean distance to quantify monophthongization (Thomas 2011, 313). This technique measures the distance between two points in space. It can be applied to speech to reflects the relative closeness in F1/F2 space of two vowels or the closeness of the nucleus and glide for an individual vowel token for a speaker. For this study, I calculated the Euclidean distance between the onset (20% of the vowel's duration) and glide (80% of the vowel's duration) of /aɪ/ tokens:

$$\text{Euclidean distance}_{\text{onset-glide}} = \sqrt{(\text{F1}_{\text{onset}} - \text{F1}_{\text{glide}})^2 + (\text{F2}_{\text{onset}} - \text{F2}_{\text{glide}})^2}$$

A small Euclidean distance means that the two vowel qualities are located close together in the vowel space; thus, the onset and glide have a similar vowel quality and would be considered more monophthongal, as monophthongs maintain a more constant vowel quality (the relationship between F1 and F2) throughout the articulation. A large Euclidean distance would indicate that there is a greater difference in the vowel qualities of the two points. The two values would reflect two different vowel targets, and thus the token would be considered more diphthongal, as diphthongs are complex vowel sounds with a change in the relationship of F1 and F2 during the vowel's articulation.

To measure the Euclidean distance, I first extracted all possible tokens of /aɪ/. Then, using the LPC function in Praat (Boersma and Weenink 2018) and between 6 and 12 LPC coefficients as appropriate for each individual token, I measured the first and second formants at 20% and 80% of the duration of the vowel. This method helped to reduce any coarticulatory interference from surrounding segments, which could affect measurement values. These formant values were normalized using Lobanov's methods (formants for the other vowels had been extracted using a custom Praat script). The normalization was conducted in the vowels package for R (Kendall and Thomas 2018). Using these measurement values, I determined the Euclidean distance between the onset (the first measurement at 20% of the duration) and the glide (the last measurement at 80% of the duration).

To study intonation, a combination of methods is required. To count the frequency of pitch accents, Tones and Break Indices (ToBI), an intonational transcription method described in Beckman and Elam (1997) and elaborated in Beckman, Hirschberg, and Shattuck-Hufnagel (2005), was used. This method requires several stages. First, a researcher must label and transcribe speech following certain conventions. In a ToBI transcript, there are several transcription tiers. The first tier, the tonal tier, marks all pitch accents and boundary tones where they occur in the speech signal. The next tier is the break index tier, denoting the level of juncture in each utterance of the speech stream. The orthographic tier is a typical orthographic transcription of the utterances of the speech signal. The final tier, which is optional but often very useful, is a notes/miscellaneous tier. This is where the transcriber can note disfluencies or nonlinguistic sounds (e.g., laughing). To determine the frequency of pitch accents, a researcher totals the occurrence of each type of pitch accent from the first tonal tier. Greene (2006), Arvaniti and Garding (2007), Ladd et al. (2009), and Clopper and Smiljanic (2011) used variations of this ToBI methodology to analyze regional variation in intonation, thus demonstrating that this method is flexible and useful.

To investigate the phonetic realization of pitch accents, a researcher must determine where the pitch accent is anchored in the syllable. To do this, one must first locate the pitch accent under question and then measure the highest pitch point in the stressed syllable (as measured from the onset of the stressed vowel). This measure demonstrates where the pitch accent is anchored in the syllable, which can be called peak delay, peak alignment, or pitch accent onset. If the anchoring is early in the vowel, the pitch accent onset is smaller; later in the vowel means a larger pitch accent onset.

In the present study, I used the autocorrelation tracker in Praat (Boersma and Weenink 2018) to track the changes in pitch for each pitch accent token. I varied the maximum and minimum pitch values as appropriate for each speaker. If a token was unable to be adequately tracked (e.g., because of creakiness), I did not include it in analysis. I first labeled approximately 5 minutes of speech from the middle portion from each interview following ToBI conventions. Subsequently, I redid the labeling a second time. This repetition allowed me to provide a reliability check of my transcriptions. I then counted the frequency of each pitch accents' occurrence. For L+H* pitch accents, I also measured the pitch accent onset, following the methodology described above.

INDIVIDUAL CASE STUDIES

To demonstrate the utility of the Rootedness Metric in quantifying rootedness, I focus on three speakers—Haley, Misty, and Hugh—considering how rootedness at the level of individual impacts both monophthongization of /aɪ/ and rising pitch accents.

First, I compare Haley and Misty—two female speakers with master's degrees who work in the public educational system. Haley is 27 years of age; Misty is 37. Based on these a priori categories, the two form a relatively coherent and homogenous pair. Furthermore, their sociodemographic backgrounds, from a traditional sociolinguistic perspective, would predict relatively "standard" language behavior. However, their rootedness scores differ greatly, from the lowest (RM = 18) for Haley to one tied for the highest for Misty (RM = 31). And, their linguistic behavior seems to reflect this difference in rootedness.

Figure 2 shows the Euclidean distance for Haley and Misty. In this figure, the average Euclidean distance for Haley was much higher than that for Misty, 318 Hz to 174 Hz; thus on average she used more diphthongal productions whereas Misty used on average more monophthongal productions.

When we include the influence of interview task, we see that Haley has a higher Euclidean distance during all tasks, as shown in figure 3. Here, we see that the mean Euclidean distance for Haley during the conversation is 269 Hz, whereas the conversational average for Misty is 220 Hz. During the reading task, the two speakers are more similar, but Haley still has a slightly

FIGURE 2
Euclidean Distances between Onset and Glide of /aɪ/ for Haley and Misty

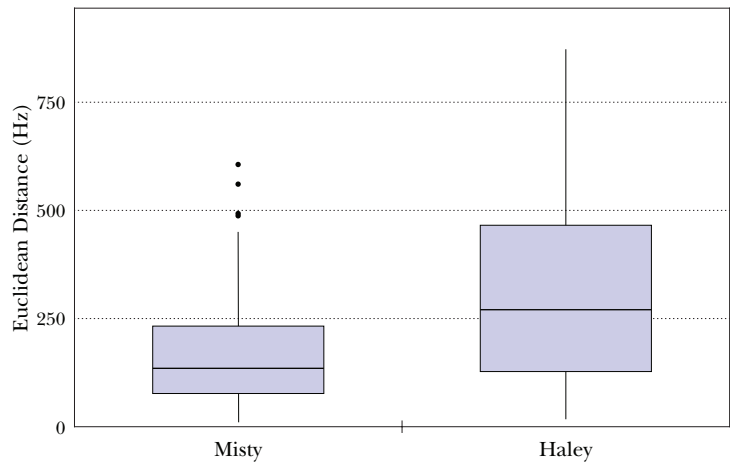
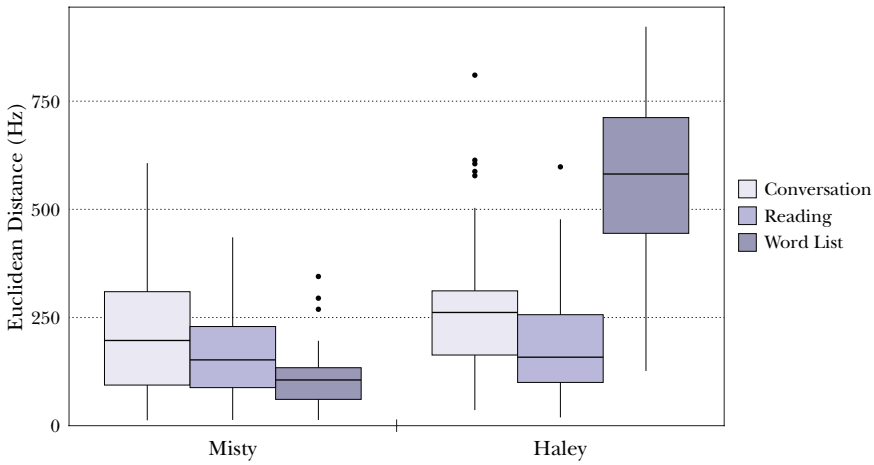


FIGURE 3
Euclidean Distances between Onset and Glide of /aɪ/ by Task for Haley and Misty



higher Euclidean distance; the reading average for Haley is 184 Hz, while for Misty it is 176 Hz. However, the difference between these two speakers is most striking during the word list task. Here, the average for Haley is 579 Hz, while for Misty it is 110 Hz. In fact, the maximum Euclidean distance word list value for Misty, 344 Hz, does not even reach the first quartile Euclidean distance values for Haley, 445 Hz.

These results suggest that the difference between these two speakers is driven primarily by the word list task and secondarily by the conversation task. When the setting might be considered most informal, during conversational speech, Haley and Misty are different, with Misty producing more monophthongal /aɪ/ tokens. However, the disparity in Euclidean distance grows to a five-fold difference when the perceived formality increases, when reading a word list. Here, Haley's productions of /aɪ/ are completely distinct from those of Misty. Thus, for Haley, a more monophthongal /aɪ/ is to be avoided in more formal registers. In contrast, for Misty, a more monophthongal /aɪ/ is favored as more attention is paid to speech.

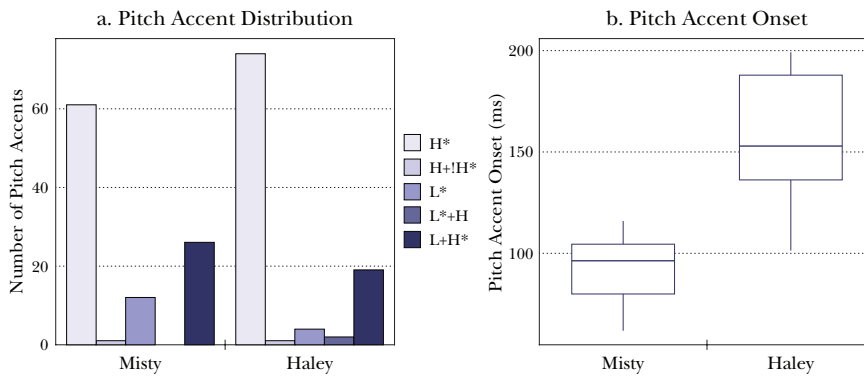
Since some studies report that monophthongal /aɪ/ is stigmatized (e.g., Bernstein 2006), we might presume then that a speaker might want to avoid stigmatized features, especially in more formal registers such as reading and word lists, as Haley does with /aɪ/. However, Misty does the exact opposite. As the task is more formal, she uses the most monophthongal productions of /aɪ/. Such linguistic behavior might indicate that for Misty, a more monophthongal realization may actually be preferred. As more attention is placed

on speech, perhaps she is using these more monophthongal productions to express her positive view of the local area.[7]

Turning to the relative frequency of pitch accents and the average length of onset of the L+H* pitch accent (i.e., a rising contour with a leading low tone followed by a high tone on a stressed syllable), we see a similar linguistic behavior, displayed in figure 4. In the left pane of the figure, the frequency of the L+H* pitch accent is displayed. Misty produces more L+H* pitch accents than Haley, 26 versus 19 during the 5 minutes of speech analyzed, as shown by the right-most bars. In the right pane, a boxplot of the average pitch accent onset of the L+H* pitch accent is shown for each speaker. Misty's pitch accent onset is much shorter than that of Haley. For each feature, Misty produces the more Appalachian feature (Reed 2016).

What these figures and results show is that even for speakers that we might expect to adhere to supralocal norms—two females working in the educational field with postgraduate degrees—a priori groups or social factors do not necessarily tell the whole story. The differences between these two speakers with respect to /aɪ/ and rising pitch accents seem to stem from a difference in attachment to place. Also, we see the interaction of formality/interview task and the salience of each feature. As the task increases in perceived formality, Haley avoided the use of the salient feature, whereas Misty used it more. For the less salient feature, their productions are much more similar, yet still remained distinct. However, the difference between Haley's and Misty's intonation was not as great as the difference between their monophthongization. I believe this can be explained via the relative salience of each feature. Monophthongization is well-known and commented on. Thus, a change in monophthongization will have a greater impact because

FIGURE 4
Distribution of Pitch Accent and Pitch Accent Onset for Haley and Misty



it is more salient to the listener and speaker. In contrast, intonation does not receive nearly the amount of attention or commentary. A change in intonation or the phonetic realization of pitch may be noticed, but such a change may not have the same impact. There is a more explicit connection between monophthongization and localness, and thus a more rooted speaker is more distinct from a less rooted speaker with respect to monophthongization rather than intonation (although their intonation is also distinct).

While we have seen that their rootedness scores are quite different, how is this difference borne out qualitatively? In the questions about Hancock County, Misty spoke of how much the county meant to her. She described it as her home, as part of her, and something to cherish. She spoke of how deeply she reacted when someone denigrated Hancock County, particularly if that person was a local. In fact, she told an anecdote of confronting a mutual friend about his online aspersions of the county: "I told him to stop throwing off[8] on the county. This is home, and I won't stand for it." She was not unaware of the issues facing the county, such as poverty, drug addiction, and a dearth of local jobs. However, she felt that the people of the county could find solutions to the problems.

With respect to language, Misty spoke of her concerns about pursuing a graduate degree: "I was scared about going on for my master's, because of the way I talk." She was equating sounding local as incommensurate with a graduate school education. She felt that sounding a certain way would hinder her or somehow block her ability to continue her education. She had concerns about how other students and professors might treat her. She wondered if she would be taken seriously in a graduate program sounding like she was from Hancock County. However, she did say that she decided that ridicule or laughter would not stop her from achieving this personal goal: "I'm proud of where I'm from." She did finish her degree, and she said that getting the degree did not change her speech, which she noted was a source of pride. She appreciated sounding like someone from Hancock County. Additionally, she firmly stated that "Hancock is home and I sound like where I'm from. I'm proud of that fact." She stated that if someone had a problem with her speech, that choice did not reflect on her, rather it reflected poorly on the other person.

A closer look at her responses to the Rootedness Metric survey illustrates her positive feelings toward Hancock County. When asked about her willingness to relocate, Misty answered that she saw no circumstances where she would move away from Hancock County. She said that she found bigger cities too busy, too crowded, and overwhelming. She did travel to nearby towns weekly, but she said she did it out of necessity when asked about her travel habits. She emphasized that she tried to shop locally when possible, but

admitted that it was difficult given the lack of options in the county. Regarding self-identification, Misty responded that when she traveled nearby, she would tell people that she was from "Overhome"; when she traveled further away, she would say she was from "Upper East Tennessee." Her family history is quite deep in the county: Misty's family has been in the county for more than four generations, and she had more than 10 family members living within the county. In her areal identification ranking, her top two areas she identified with were Hancock County and her local community. With respect to local integration, she did attend and participate in local events. She said she often volunteered at local events, wanting them to be as successful as possible. Overall, she felt her identity was closely tied with Hancock County when discussing the centrality of her place identity.

Haley, on the other hand, differed somewhat from Misty. She liked living in Hancock County, but she chafed at the lack of opportunity. She noted how few jobs were available and that career advancement was practically nonexistent. Further, she reflected on the changes that were happening. She stated that the county had changed greatly since her childhood. She pointed out many problems: poverty, lack of opportunity, and drug abuse. She thought those problems might be too much to solve without a drastic change. She did speak highly of the people of the county, but she also admitted that even she felt that some people were changing for the worse. She mentioned that her current neighbors were not like her neighbors growing up; in the past, neighbors were friends. Currently, she barely knows her neighbor, and developing a relationship is proving difficult. She spoke of how that lack of relationship paralleled changes happening across the county.

With respect to language, Haley related a very poignant story. She had attended a nearby college (approximately 50 miles from Hancock County). For one class, she had to record a voice-over for a PowerPoint presentation. She recalled thinking "oh no" and was very hesitant about the project. Her fears were realized when other students began to laugh and giggle as her voice described the animations and presentation slides. One student in particular said out loud, "You sound so funny!" Realizing that such a statement might be hurtful, this other student quickly attempted to mitigate her laughter, stating, "I don't mean to offend," yet reiterated that Haley's manner of speaking was humorous. Naturally, such commentary and laughter were incredibly painful. Haley defended her speech and said to me "I'm not embarrassed by it, but I know that it will always be an issue." Such ridicule, and lasting impact from it, occurs over and over again with respect to Appalachian speakers.[9] Haley felt that she might need to accommodate her speech to "something more standard" to avoid further ridicule. She got quite animated when telling of the embarrassment she felt (see Dunstan 2013 for similar anecdotes

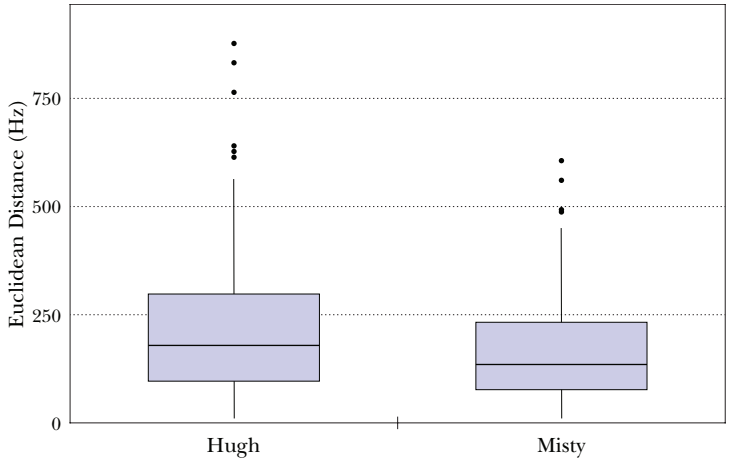
in other higher educational settings). She spoke of the anger that burned, particularly since one of the persons ridiculing her speech spoke English as a second language. She knew that her accent was somewhat different, and she professed to be concerned about how people would perceive her due to her speech.

Haley's slightly lesser attachment to place was captured by her responses to questions from the Rootedness Metric survey. She was open to relocating, particularly for career advancement or career opportunities. Responding to the question about travel habits, Haley noted that she visited nearby towns quite often and remarked about the necessity to drive for just about everything. With respect to how she answered where she says she is from, Haley said that when traveling close to Hancock County, she would tell people that she was from Sneedville and then perhaps Hancock County. When traveling further away, she would say she was from Tennessee. She had deep family roots in Hancock County, with at least 5 generations in Hancock County and more than 20 family members living in the county. When asked about her participation in local events, she did attend local events and volunteered also. However, she did not follow this up with any anecdotes, in contrast to Misty (and Hugh below). For areal identification, Haley's top two areas that she identified with were Hancock County and Tennessee. Overall, she felt her identity was only somewhat tied to Hancock County.

Consideration of an individual's relationship to place, that is, their degree of rootedness, permits a deeper understanding of linguistic behavior. Misty is more rooted to Hancock County than is Haley, and she uses more local features in her speech than Haley. Without consideration of Misty's attachment to place, this differing behavior would remain unexplained and somewhat anomalous. However, through considering her relationship and orientation to place, her linguistic behavior can be better described.

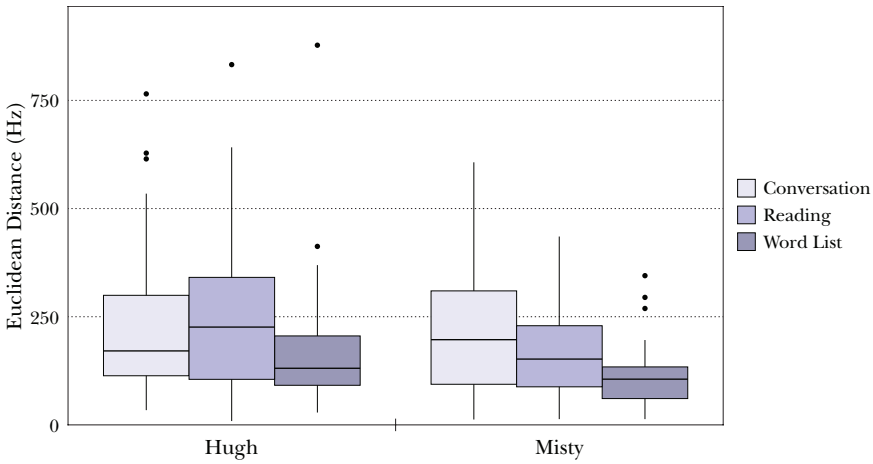
A second comparison, between Misty and Hugh, further illuminates the importance of rootedness. Hugh is an 84-year-old retiree with a high school education. Misty and Hugh, from a conventional viewpoint, would be considered quite different—different genders, different generations, different levels of education, different career paths. Misty works in public education, whereas Hugh retired from a farming supply business that mainly served local people in Hancock County. We would probably expect their linguistic behavior to be somewhat distinct. Yet, their rootedness scores are close, 29 for Hugh and 31 for Misty. With respect to the two linguistic features analyzed, the linguistic behavior of these two individuals is remarkably similar. Figure 5 shows the average Euclidean distances of both Misty and Hugh. The two average Euclidean distances are quite similar and show much overlap. The average Euclidean distance for Misty is 174 Hz and for Hugh it is 220 Hz.

FIGURE 5
Euclidean Distances between Onset and Glide of /aɪ/ for Misty and Hugh



When we include the influence of the interview task, we see that the speakers show further similarity, as shown in figure 6. Here, we see that the mean Euclidean distance for Misty during the conversation is 220 Hz, and the conversational average for Hugh is 234 Hz—quite similar values. During the reading task, the two speakers are slightly different, with Hugh having a slightly higher Euclidean distance and a more diphthongal production;

FIGURE 6
Euclidean Distances between Onset and Glide of /aɪ/ by Task for Misty and Hugh



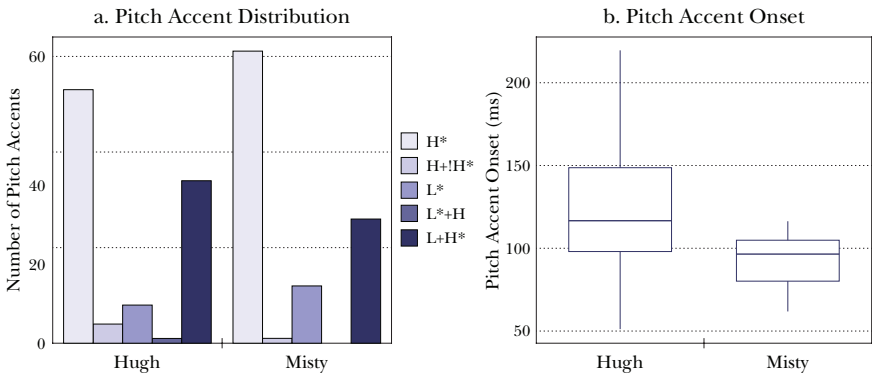
the reading average for Hugh is 243, while for Misty it is 176. Hugh does sound somewhat different from Misty while reading. However, Hugh is known for doing recitations and readings around the local area for many groups. Note that Hugh's reading is not that different from his conversation, which might indicate his familiarity with reading in front of others. During the word list task, the values for both decrease, but Hugh still has a slightly higher Euclidean distance. Here, the average for Hugh is 180 Hz, while for Misty it is 110 Hz. For all tasks, the values of Euclidean distance substantially overlap and are similar.

These findings reveal an overall similarity with respect to /aɪ/ realizations. Both of these speakers produce more monophthongal productions (a more Appalachian realization), and their average Euclidean distance values are similar. Notably, the word list task reveals the shortest Euclidean distances of any task, that is, the most monophthongal productions, for both of these speakers. When their presumed attention is most drawn to speech, they each produce the most monophthongal /aɪ/ of the three interview tasks.

Similarity between these two speakers also exists for both the relative frequency of pitch accents, the left pane of figure 7, and the pitch accent onset, the right pane of the figure. Hugh has a few more L+H* pitch accents than Misty, but her pitch accent onset is slightly shorter. Thus, they both exhibit local features with respect to pitch accent.

The similarities between Hugh and Misty go beyond their linguistic realizations of /aɪ/ and rising pitch accent. The ways in which they describe Hancock County are also analogous, and their qualitative discussions of place exhibit many similarities. Thus, even though the individuals appear quite

FIGURE 7
Distribution of Pitch Accent and Pitch Accent Onset for Misty and Hugh



different in their demographics, their perspectives about Hancock County and the language varieties there resemble one another very closely.

When asked about Hancock County, Hugh, who served in the military as a younger man, spoke of how Hancock County was home. He said, speaking of Hancock County, "I was in Europe, and I saw lots of beautiful things. But, none as pretty as home." He spoke poignantly of wanting to see the hills of home again. He recounted an anecdote of hitchhiking from New Jersey and arriving at Hancock County near sunup. He said seeing the sun's rays hit the mountains reminded him that he was home. After serving, he returned and had no plans of leaving. He, like Misty, recognized that the county suffered from various issues, but, again like Misty, he felt that things were improving and had faith that they would continue to do so.

Regarding language, Hugh spoke of how he knew that Hancock County speech might be seen as different from that of other areas and that the differences might be shared perhaps with nearby rural areas. But, he also reiterated that he was from Hancock County, so there was no reason to change. He said that he felt that just about everyone he knew from the county sounded somewhat similar to him, so he felt comfortable speaking the way that he does. Notice how similar this sentiment is to what Misty expressed above.

Hugh's responses to the Rootedness Metric survey captured his positive view and attachment to Hancock County. Regarding his willingness to relocate, Hugh saw no circumstances where he would move away from Hancock County. He knew that other places might have their good points, but he prefers home. He was "completely at home in Hancock." When asked about his travel habits, he relayed that he did travel fairly often to nearby cities, but he did so mainly to access medical treatment. For how he would respond to questions about where he's from, Hugh said that when traveling nearby, he would tell people that he was from Sneedville. When traveling further away, he would still tell people that he was from Sneedville, Tennessee. He knew he might have to explain Sneedville's exact location, but he was fine with that possibility. Like many participants, Hugh's family had a long history in the county: his ancestors had been in the county for at least 6 generations, and he had 6 family members still living in the area. With respect to his areal identification, Hugh most closely identified with his local community and Hancock County. Speaking of his local integration, he does attend and participate in local events, volunteering when possible. He said that he loved local events, and seeing people of the county together was always a positive thing. He lamented that as he aged he was not as able to attend all the events that he used to in the past. Overall, he felt his identity was closely tied to Hancock County.

What the results and qualitative explanations above show is that even for speakers who might be considered socially distinct, a priori social factors again may not capture the entire story. Without considering the similarity in rootedness, the fact that Hugh and Misty behaved very similarly would prove difficult to explain. Their similarity in linguistic patterning crosses gender, generations, levels of education, and lines of occupation. We might expect some degree of resemblance since they are from the same area, but given their social differences, we would anticipate many linguistic distinctions as well. However, by considering their rootedness, one can provide an account for why these speakers pattern alike. They both have a strong connection to Hancock County, a strong rootedness, and they both express this attachment linguistically.

DISCUSSION

This article has outlined how a three Appalachian speakers discuss place, how language has a critical role in place identity, and how rootedness features prominently in conceptions of place and identity. I have presented three individuals as case studies to demonstrate how place features in linguistic behavior and how the Rootedness Metric can capture and quantify differences in attachment to place. I see several implications for why place and language matter so greatly to this community.

First, Hancock County speakers may feel somewhat different from speakers in other areas of Tennessee or even from those in other parts of East Tennessee. This sense of difference is attached to place and grounded in a history of both pride and stigma. This sense of difference is also reflected in the language of the area, which many speakers see as an integral part of the local culture. And because the county appears to be in flux now means that localness has come to the fore.

Hancock County lost roughly 40% of its population from 1940 to 1970, with smaller decreases in the decades since. Many people born and raised within the county have left. Locals have felt the effects of such population loss, economically and culturally. In the past, residents were made aware of how different local speech was primarily when traveling or going away to college. However, some newcomers now point out speech differences within the county itself. Locals note that not everyone within the county sounds the same, and some note that the speech of those who have left has changed and may have been different even before they left. Since speech is one way the local area is felt to be distinct, the perceived importance of speech as an expression of localness has grown.

In the same way the Martha's Vineyard residents observed by Labov (1963) wanted to distinguish themselves from seasonal tourists by demonstrating their localness linguistically, local Hancock Countians appear to be using speech to emphasize place and their rootedness to place in the face of in-migration. One might also describe this language use as being somewhat resistant to change, as Burkette (2001) notes.[10] More people moving in from outside the county might cause more change, or at least accelerate the rate of change. However, using more local features is not just a reaction to in-migration alone. In this regard, rootedness, and the covert prestige of the local language, overcomes the stigma imposed on local speech by the wider community. For many speakers, the desire to fit in locally overrides standard language ideologies and other circulating tropes about Appalachia, East Tennessee, and Hancock County itself. However, not everyone behaves the same way—individuals make their own linguistic choices. Speakers pull from available community linguistic resources to create individual identities, with their choices reflecting feelings and orientations toward place. As these linguistic choices become further imbued with locally relevant meaning, more individuals who want to express that same social meaning make similar choices. However, each individual is free to buck the trend and make a different choice, to reflect their own personal identity.

The case studies provided above demonstrate how difficult it would be to describe the linguistic behavior of this community without considering and quantifying their degree of rootedness. These findings challenge the assumptions of the impact of traditional sociolinguistic categorizations, as others have done (e.g., Giles 1973; Bell 1984, 2001; Schilling-Estes 1998; Burkette 2001). However, the incorporation of rootedness can provide a basis for the differences or similarities of speakers. In the case of Haley and Misty, we saw two speakers that one might assume would be very similar based on conventional social factors. However, the stark differences in rootedness allow for an explanation of why their realizations of the two features analyzed here contrast. Without including the importance of place attachment, this variation might prove harder to describe. The difference in rootedness helped explain why their behavior was starkly different. Rootedness underscored the differences in importance of place and sounding local, which led to very distinct linguistic behavior. Further, the fact that Misty and Hugh, two speakers quite different with respect to social profile, pattern similarly in their use of the two features analyzed further demonstrated the importance of rootedness. Absent the rootedness similarity, it would be more challenging to characterize why these two individuals pattern alike. Thus, differences in degree of rootedness can often reveal why presumably similar individuals do not pattern alike or why dissimilar individuals pattern in an equivalent manner.

NOTES

1. All names are pseudonyms.
2. This question counts more as it asks in a more direct manner the importance of place. If one is willing to relocate, the connection to place is, in theory, less strong.
3. "Appalachia" was not included as it is not the typical way of referring to the region. As Puckett (2003, 541) argues, "Appalachia is a non-indigenous lexeme."
4. The use of this term may also reflect the participants' level of comfort with me and/or the interview setting.
5. Some Hancock Countians use Upper East Tennessee for the same reason.
6. I thank Mary Kohn for reminding me of this saying and its importance here.
7. I thank one of the anonymous reviewers for this insight.
8. *To throw off on* means to insult, to denigrate, or to cast aspersions on. Typically, the term is used when someone openly defames something. For further elaboration of this term, see Montgomery and Hall (2004).
9. See, for example, Underhill (1975) for linguistic discrimination in the corporate world, Ayers (1996) for other anecdotes from academia, and Greene (2010), particularly the preface, for similar stories from other mountain speakers.
10. Alternatively, using monophthongal /aɪ/ and frequent rising pitches might be a type of community voice described in Burkette (2007).

REFERENCES

Appalachian Regional Commission. 2002. "Subregions in Appalachia." http://www.arc.gov/images/maps/22512_Subregions.pdf.

Arvaniti, Amalia, and Gina Garding. 2007. "Dialectal Variation in the Rising Accents of American English." In *Papers in Laboratory Phonology 9*, edited by Jennifer Cole and José Ignacio Hualde, 547–76. Berlin: Mouton de Gruyter.

Ayers, Edward L. 1996. "What We Talk about When We Talk about the South." In *All Over the Map: Rethinking American Regions*, by Edward L. Ayers, Patricia Nelson Limerick, Stephen Nissenbaum, and Peter S. Onuf, 62–82. Baltimore, Md.: Johns Hopkins University Press.

Bailey, Guy, Tom Wikle, Jan Tillery, and Lori Sand. 1993. "Some Patterns of Linguistic Diffusion." *Language Variation and Change* 5, no. 3 (Oct.): 359–90. https://doi.org/10.1017/S095439450000154X.

Beckman, Mary E., and Gayle Ayers Elam. 1997. "Guidelines for ToBI Labelling." Extract available at https://www.ling.ohio-state.edu/research/phonetics/E_ToBI/.

Beckman, Mary E., Julia Hirschberg, and Stefanie Shattuck-Hufnagel. 2005. "The Original ToBI System and the Evolution of the ToBI Framework." In *Prosodic Typology: The Phonology of Intonation and Phrasing*, edited by Sun-Ah Jun, 9–54. Oxford: Oxford University Press.

Bell, Allan. 1984. "Language Style as Audience Design." *Language in Society* 13, no. 2 (June): 145–204. https://doi.org/10.1017/S004740450001037X.

———. 2001. "Back in Style: Reworking Audience Design." In *Style and Sociolinguistic Variation*, edited by Penelope Eckert and John R. Rickford, 139–69. Cambridge: Cambridge University Press.

Bernstein, Cynthia. 2006. "Drawing Out the /ai/: Dialect Boundaries and /ai/ Variation." In *Language Variation and Change in the American Midland: A New Look at "Heartland" English*, edited by Thomas E. Murray and Beth Lee Simon, 209–32. Amsterdam: Benjamins.

Boersma, Paul, and David Weenink. 2018. Praat: Doing Phonetics by Computer. Version 6.0.40. http://www.praat.org.

Burkette, Allison. 2001. "An Examination of Language Variation in a Small Blue Ridge Community." Ph.D. diss., University of Georgia.

———. 2007. "Constructing Identity: Grammatical Variables and the Creation of a Community Voice." *Journal of Sociolinguistics* 11, no. 2 (Apr.): 286–96. https://doi.org/10.1111/j.1467-9841.2007.00321.x.

Carmichael, Katie. 2014. "'I Never Thought I Had an Accent until the Hurricane': Sociolinguistic Variation in Post-Katrina New Orleans." Ph.D. diss., Ohio State University.

Clopper, Cynthia G., and Rajka Smiljanic. 2011. "Effects of Gender and Regional Dialect on Prosodic Patterns in American English." *Journal of Phonetics* 39, no. 2 (Apr.): 237–45. https://doi.org/10.1016/j.wocn.2011.02.006.

Dodsworth, Robin. 2008. "Sociological Consciousness as a Component of Linguistic Variation." *Journal of Sociolinguistics* 12, no. 1 (Feb.): 34–57. https://doi.org/10.1111/j.1467-9841.2008.00352.x.

Dunstan, Stephany Brett. 2013. "The Influence of Speaking a Dialect of Appalachian English on the College Experience." Ph.D. diss., North Carolina State University.

Gieryn, Thomas F. 2000. "A Space for Place in Sociology." *Annual Review of Sociology* 26: 463–95. https://doi.org/10.1146/annurev.soc.26.1.463.

Giles, Howard. 1973. "Accent Mobility: A Model and Some Data." *Anthropological Linguistics* 15, no. 2 (Feb.): 87–105. https://www.jstor.org/stable/30029508.

Greene, Rebecca. 2006. "Pitch Accents in Appalachian English." Qualifying paper, Stanford University.

———. 2010. "Language, Ideology, and Identity in Rural Eastern Kentucky." Ph.D. diss., Stanford University.

Haddican, Bill, Paul Foulkes, Vincent Hughes, and Hazel Richards. 2013. "Interaction of Social and Linguistic Constraints on Two Vowel Changes in Northern England." *Language Variation and Change* 25, no. 3 (Oct.): 371–403. https://doi.org/10.1017/S0954394513000197.

Hall, Joseph Sargent. 1942. "The Phonetics of Great Smoky Mountain Speech." *American Speech* 17, no. 2, part 2 (Apr.): 1–110. https://doi.org/10.2307/487132.

Hall-Lew, Lauren. 2009. "Ethnicity and Phonetic Variation in a San Francisco Neighborhood." Ph.D. diss., Stanford University.

Hurst, Charles E. 1992. *Social Inequality: Forms, Causes, and Consequences.* Boston: Allyn and Bacon.

Johnstone, Barbara, Jennifer Andrus, and Andrew E. Danielson. 2006. "Mobility, Indexicality, and the Enregisterment of 'Pittsburghese.'" *Journal of English Linguistics* 34, no. 2 (June): 77–104. https://doi.org/10.1177/0075424206290692.

Johnstone, Barbara, and Scott F. Kiesling. 2008. "Indexicality and Experience in Pittsburgh." *Journal of Sociolinguistics* 12, no. 1 (Feb.): 5–33. https://doi.org/10.1111/j.1467-9841.2008.00351.x.

Jones, Loyal. 1994. *Appalachian Values.* Ashland, Ky.: Jesse Stuart Foundation.

Kendall, Tyler, and Erik R. Thomas. 2018. Vowel Manipulation, Normalization, and Plotting. Version 1.2-2. R package. https://cran.r-project.org/web/packages/vowels/vowels.pdf.

Kretzschmar, William A., Jr., Clare Andres, Rachel Votta, and Sasha Johnson. 2006. *Roswell Voices: Phase 2* (booklet and CD). Roswell, Ga.: Roswell Folk and Heritage Bureau.

Kretzschmar, William A., Jr., Becky Childs, Bridget Anderson, and Sonja Lanehart. 2004. *Roswell Voices* (booklet and CD). Roswell, Ga.: Roswell Folk and Heritage Bureau.

Kurath, Hans. 1949. *A Word Geography of the Eastern United States.* Ann Arbor: University of Michigan Press.

Labov, William. 1963. "The Social Motivation for a Sound Change." *Word* 19, no. 3: 273–309. https://doi.org/10.1080/00437956.1963.11659799.

Ladd, D. R., Astrid Schepman, Laurence White, Louise May Quarmby, and Rebekah Stackhouse. 2009. "Structural and Dialectal Effects on Pitch Peak Alignment in Two Varieties of British English." *Journal of Phonetics* 37, no. 2 (Apr.): 145–61. https://doi.org/10.1016/j.wocn.2008.11.001.

Milroy, Lesley. 1987. *Observing and Analysing Natural Language: A Critical Account of Sociolinguistic Method.* Oxford: Blackwell.

Montgomery, Michael B., and Joseph S. Hall. 2004. *The Dictionary of Smoky Mountain English.* Knoxville: University of Tennessee Press.

Puckett, Anita. 2003. "The 'Value' of Dialect as Object: The Case of Appalachian English." *Pragmatics* 15, no. 4: 539–49. https://doi.org/10.1075/prag.13.4.05puc.

Reed, Paul E. 2016. "Sounding Appalachian: /aɪ/ Monophthongization, Rising Pitch Accents, and Rootedness." Ph.D. diss., University of South Carolina.

Schilling-Estes, Natalie. 1998. "Investigating 'Self-Conscious' Speech: The Performance Register in Ocracoke English." *Language in Society* 27, no. 1 (Mar.): 53–83. https://doi.org/10.1017/S0047404500019722.

Schoux Casey, Christina. 2013. "Postvocalic /r/ in New Orleans: Language, Place, and Commodification." Ph.D. diss., University of Pittsburgh.

Thomas, Erik R. 2001. *An Acoustic Analysis of Vowel Variation in New World English.* Publication of the American Dialect Society 85. Durham, N.C.: Duke University Press. https://read.dukeupress.edu/pads/issue/85/1.

———. 2011. *Sociophonetics: An Introduction.* Basingstoke, U.K.: Palgrave Macmillan.

Underhill, David. 1975. "Yukking It Up at CBS." *Southern Exposure* (Institute for Southern Studies) 2, no. 4 (Winter): 68–71.

Wenker, G[eorg]. 1877. *Das rheinische Platt: Den Lehrern des Rheinlandes gewidmet von Dr. G. Wenker.* Dusseldorf: self-published.

Williams, Cratis D. 1992. *Southern Mountain Speech.* Berea, Ky.: Berea College Press.

Williams, Daniel R. 2004. "Place Identity." In *Encyclopedia of Leisure and Outdoor Recreation,* ed. John M. Jenkins and John J. Pigram, 367–68. London: Routledge.

Williams, Daniel R., and Jerry J. Vaske. 2003. "The Measurement of Place Attachment: Validity and Generalizability of a Psychometric Approach." *Forest Science* 49, no. 6 (Dec.): 830–40. https://doi.org/10.1093/forestscience/49.6.830.

Wolfram, Walt, and Donna Christian. 1976. *Appalachian Speech.* Arlington, Va: Center for Applied Linguistics.

PAUL E. REED is assistant professor of phonetics-phonology in the Department of Communicative Disorders at the University of Alabama. His research interests primarily center on sociophonetics—specifically how the way we talk signals aspects of who we are—and phonetics more broadly, particularly the phonetics-phonology interface. Much of his sociophonetic work focuses on the English varieties in the American South, with a special focus on Appalachian English varieties and also on how a speaker's relationship to place affects linguistic production. Email: pereed1@ua.edu.