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Abstract

The acoustic properties that listeners may rely on in both the production and perception of ethnolinguistic variation are an important yet poorly understood topic in modern sociolinguistics. Though several studies (Purnell, Idsardi and Baugh 1999, Tarone 1973, Walton and Orlikoff 1994) have found that individuals generally make accurate and reliable judgments of speaker ethnicity, scholars have had difficulty identifying the specific features that listeners react to in making judgments (Thomas 2015). There is also little research about the production side of these types of ethnic identification tasks and these studies have also often overlooked the potential role of intra-speaker variation in use of suprasegmental features. This study addresses this gap in the literature by focusing on two aspects of production that have been observed to differ between Mainstream U.S. English (MUSE) and African American Language (AAL): the use of the H* versus L+H* contours and length of peak delay interval. This analysis is based on a sample of eight male speakers with one black parent and one white parent and it specifically explores how these intonational features may be useful in the construction and performance of complex racial identities. Results of regression models indicate that these speakers do not employ pitch accent type in intraspeaker variation, but that they do differ in their use of peak delay, employing longer delay intervals in conversations with black interlocutors than in conversations with white interlocutors. Understanding how speakers employ these and other intonational variables in both intra- and interspeaker variation is an important step in further describing ethnolinguistic varieties as well as addressing the phonetic features that may contribute to linguistic racial profiling.

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1 Introduction

The acoustic properties that listeners may rely on in both the production and perception of ethnolinguistic variation are an important yet poorly understood topic in modern sociolinguistics. Though several studies have found that individuals generally make accurate and reliable judgments of speaker ethnicity (Purnell, Idsardi and Baugh 1999, Tarone 1973, Walton and Orlikoff 1994), scholars have had difficulty identifying the specific features that listeners react to in making judgments (Thomas 2015). There is also little research about the production side of these types of ethnic identification tasks and studies have often overlooked the potential role of intra-speaker variation in use of suprasegmental features. The current study seeks to address this gap in the literature by focusing on two aspects of production that have been observed to differ between Mainstream U.S. English (MUSE) and African American Language (AAL). The first is the relative quantity of different pitch accent types in a speaker's performance, especially the use of the H* versus L+H* contours. The second is peak delay, or the length of the interval between vowel onset and highest F_0 of a stressed syllable. This paper examines these variables in a sample of eight male speakers with one black parent and one white parent (BWIs) and explores how these intonational features may be useful in the construction and performance of racial identities. BWIs have yet to be studied in sociolinguistic work, but understanding how they navigate complex racial identities in different interlocutor situations may add to our understanding of the interaction of identity and linguistic style. Additionally, examining how speakers employ these and other intonational variables in both intra- and interspeaker variation is an important step in further describing ethnolinguistic varieties as well as in addressing the phonetic features that may contribute to linguistic racial profiling.

2 Background

2.1 Suprasegmental Features and Ethnolectal Variation

Though they are sometimes overlooked in studies of ethnolinguistic varieties of English, suprasegmental features, including intonation and prosody, are crucial for our wider understanding of linguistic variation. These features are especially important because they are highly salient for listeners and particularly important for perceptually distinguishing ethnolinguistic varieties (cf. Thomas 2015). Furthermore, both linguists and lay people have observed that intonational features associated with ethnolinguistic varieties, in particular, may affect social judgments without necessarily being the subject of overt commentary. Indeed as Rosina Lippi-Green notes in her 1997 book, English With An Accent, intonation is especially crucial because non-black Mainstream U.S. English speakers "have a lower tolerance for non-grammatical features of AAVE than some seem to realize" (1997:200). This indicates that though listeners may not comment on suprasegmental features, they may still be negatively evaluated for using them. Despite this observation, to date, there has been relatively little research that focuses on production differences between African American Language (AAL) and Mainstream U.S. English (MUSE) with regard to suprasegmental features (Thomas and Reaser 2004). This paper aims to add to the body of research examining what suprasegmental properties are observed to differ between MUSE and AAL varieties as well as exploring how certain features may be subject to intraspeaker variation.

The variables of interest in the current study are pitch accent type and duration of peak delay interval, following earlier work suggesting that these variables may be subject to ethnolinguistic variation (Thomas 2015). According to Gordon (2014:85), pitch accents can be thought of as "the tonal prominence distinct from tones associated with the boundaries of intonational constituents…[that] characteristically impart semantic information such as focus or other pragmatic content that the speaker wishes to convey." In English, only stressed syllables have pitch accents and they are perceptually salient for listeners (Thomas 2011). This study focuses on two types of pitch accents that appear in American English, the H* and L+H* contours, due to earlier research indicating that they may be a site of ethnolinguistic variation. McLarty (2011) found significant differences between African American speakers and European American speakers in Raleigh, NC, such that the African American speakers were more likely to employ the L+H* contour in places where the European Americans might employ the H* contour. While both groups used more H* contours than L+H* contours overall, the African American speakers used a greater quantity of the L+H* than the European Americans.

The other variable of interest in this study is the duration of the peak delay interval, which is defined as the time between vowel onset and max F_0 in a syllable carrying a rising pitch accent. Thomas (2015) notes that tonal peaks tend to occur later in AAE than in MUSE, but few studies have examined this difference quantitatively, and sociolinguists have not yet examined the role of peak delay in style-shifting or ethnolinguistic variation between these two varieties. Also of note is the fact that there is a natural relationship between pitch accent type and length of peak delay interval. As L+H* is a contour characterized by movement, its peak has a tendency to occur later in the syllable than peaks in H* contours. For this reason, it is necessary to control for pitch accent type when examining peak delay interval duration. In order to provide a clearer illustration of the phenomena of interest, Figures 1a and 1b provide examples from this data set from one speaker, Jason. In both figures, the first tier is the Intonational Phrase boundary, the second tier is the orthographic transcription, the third tier shows the pitch accents and boundary tones, and the fourth tier shows the peak delay intervals. In 1a, we can clearly see two H* pitch accents and their respective peak delay intervals. In figure 1b, we can observe two L+H* pitch accents and their respective peak delay intervals.
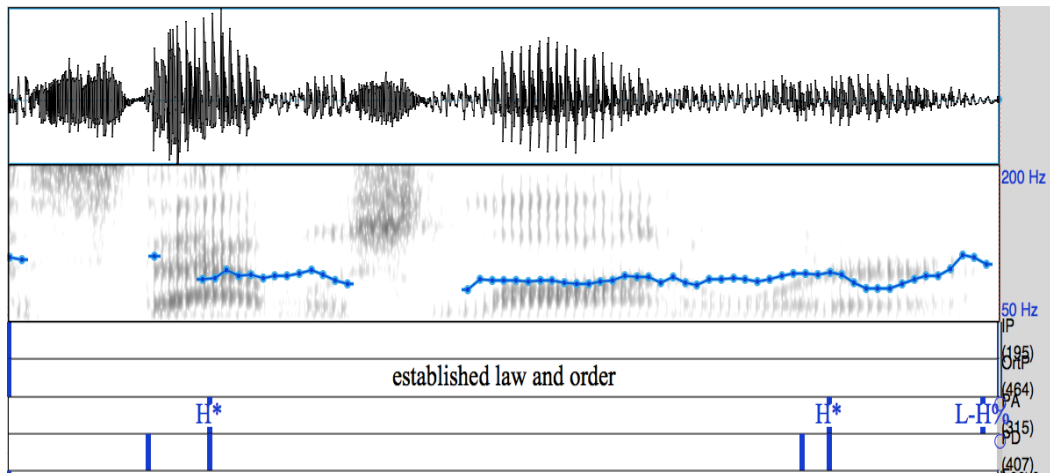

Figure 1a: Spectrogram illustrating H* pitch accents and peak delay intervals.
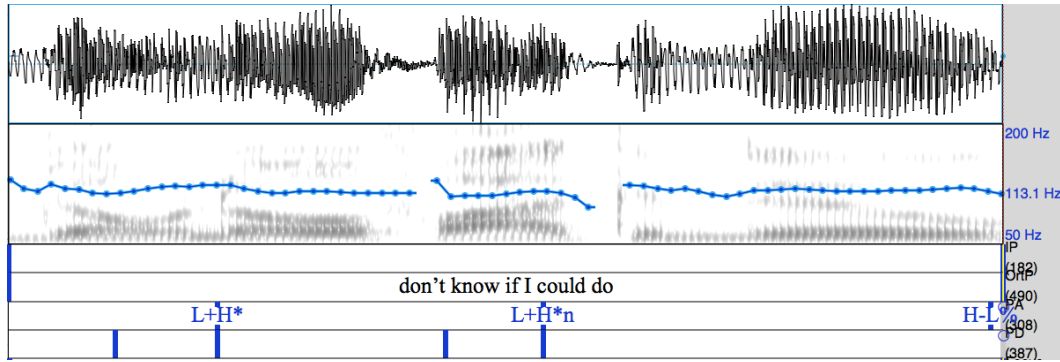
Figure 1b: Spectrogram illustrating L+H* pitch accents and peak delay intervals.

This study examines these pitch accent types and the length of peak delay intervals in the speech of eight speakers, in conversations with white and black interlocutors in order to examine interlocutor-based intraspeaker variation.

2.2 BWIs: Black/White Individuals[1]

In addition to exploring understudied variables, this paper also pushes the boundaries of traditional ideas about how we conceptualize of race in sociolinguistic variation. As scholars such as Wolfram (2007) and Blake (2014) have pointed out, sociolinguistics has traditionally had a problematic and incomplete conceptualization of blackness, too often overlooking speakers with multifaceted black identities and/or assuming that black communities are socially and linguistically monolithic. This has unfortunately often led to the omission of speakers and communities that do not fit a narrow definition of what it means to be black, especially those with multiple and/or complex ethnic or racial backgrounds. This study explores a previously understudied group of speakers, namely individuals with one black parent and one white parent (BWIs), in order to expand sociolinguistic ideas about who is black and who is a speaker of AAL, while also exploring variation in use of intonational phenomena.

In addition to addressing the aforementioned gaps in the literature, exploring the linguistic behaviors of BWIs may be of particular interest to sociolinguists who are interested in how speakers may use style to reflect and perform different aspects of their identities. Recent sociological work has observed that individuals with multiple racial identities may alter aspects of social practice such as personal adornment and cultural tastes as reflections of their chosen racial identity in a particular context (Khanna 2011, Rockquemore and Brunsma 2008). In particular, Rockquemore and Brunsma (2008) observe that some individuals have fluid or hybrid racial identities, and that individuals may change and combine social practices associated with whiteness and blackness in a variety of ways in order to perform a social identity authentic to their own self-perceptions. Though these sociological studies have not specifically examined linguistic practices, participants in both Rockquemore and Brunsma 2008 and Khanna 2011 discuss language as an aspect of their social performance that changes based on their individual self-perceptions and social situation. As Fix (2011) notes in her study of white women who employ features of AAL, use of an ethnolinguistic variety can be an important tool of social practice and self-expression, especially because language can "signal racial alignment and social belonging" (2011:154). Participants in the current study all have one black parent and one white parent, as well as reporting variable exposure to MUSE and AAL, which are each varieties that have indexical relationships with whiteness and blackness, respectively (Chun 2001).

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[1]Black/White Individuals: Participants in this study self-identify with a variety of racial categories, but it is important to note that the speakers in this sample initially only responded affirmatively to the question "do you have one black parent and one white parent?" in the recruitment phase. For this reason, I have chosen to discuss them only by their response indicating their parentage, which allows us to discuss their external societal classifications and ancestries without ignoring their individual nuanced self-descriptions as "multiracial," "biracial," "black," "white," "other" or any combination thereof.

This paper explores the ways in which a subset of BWIs who self-identify as black may variably employ intonational practices associated with MUSE and AAL in the performance and construction of their racial alignments and identities. The data was taken from a larger sample of male speakers with one black parent and one white parent, but this subset specifically considers a subset of BWI individuals but who also align themselves with blackness. These speakers are also of special interest due to the fact that they report sustained contact with speakers of AAL as well as a personal motivation to espouse and perform a black identity, both of which are factors that may encourage them to make greater use of potential intonational differences between AAL in MUSE in different stylistic contexts.

3 Methodology

This study employs a combination of both quantitative methodologies for examining intonational variation, as well as qualitative methods for discussing identity in the speaker sample. Data for this analysis was collected in the spring of 2015 in Washington D.C. and Eastern Virginia. Participants were recruited via a friend of a friend approach as well as through word-of-mouth marketing. The sample consists of eight men, aged 18–32, who responded yes to the question "do you have one black parent and one white parent and were you exposed to only English in your childhood home". Additionally, the subsample of participants discussed in this paper either self-identified as only black and/or reported that they had a primarily black social network at the time of the interview. This is important when considering the identities of BWI individuals because research has shown that participants with sustained contact with African American communities may be more likely to engage in ethnically-linked social practices associated with blackness, potentially including the use of features of AAL (Khanna 2011, Khanna and Johnson 2010).

Participants were recorded in two different types of conditions on two different days: one was an icebreaker game condition with a friend, and the other was a sociolinguistic/identity interview with the researcher. In the icebreaker game condition, participants took turns answering "icebreaker" questions that were designed to elicit casual speech that was somewhat constrained by topic. On the first day, speakers brought a male friend (either black or white) of their choosing to participate with them in the icebreaker game. On the second day, participants brought another friend who was a different race (either black or white) from the friend they had brought on the first day, and again participated in an icebreaker game. Following the icebreaker game on the second day, participants completed a sociolinguistic/identity interview with the researcher. The sociolinguistic/identity interview consisted of 22 questions about the participant's family, social network, self-conceptualization, and ideologies about race in order to help the researcher understand how the participant self-identified.

3.1 Quantitative Analysis of Pitch Accent Type and Peak Delay

Only the data from the icebreaker games was considered for intonational analysis. The data was transcribed orthographically in ELAN, and the labeling of Intonational Phrases (IPs) was conducted in Praat, using the ToBI conventions for Standard American English from Beckman and Ayers 2007. Each IP was labeled for edge tones, pitch accents, and duration of peak delay interval. For each participant, the first 100 intonational phrases following the first five minutes of recording were analyzed in each friend condition (N = per participant per interlocutor).[2] For the eight participants discussed in this subsample, a total of 1600 IPs were analyzed.

Following the transcription, quantitative analysis was undertaken to compare each speaker in each interlocutor condition for the variables of pitch accent type and peak delay interval duration. Pitch Accent type (H* versus L+H*) was examined using logistic regression models in R for accent type by interlocutor condition, with a separate model being constructed for each participant order to examine each one with respect to his own variation. Additionally, nuclear versus non-nuclear accent type was considered as an independent variable in the model due to the potential for

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[2]Phrases shorter than two words or those that had inconsistent pitch tracking due to overlapping speech, laughter, or other noises were excluded in order to maintain consistency across IPs.

tonal crowding, as well as because of Jun and Foreman's (1996) finding that AAL speakers may have post-nuclear pitch accents not easily accounted for using the ToBI conventions.

Length of peak delay interval was examined using linear regression models in R for log delay with accent type as a fixed effect, with models constructed to examine speakers with respect to their own variation between interlocutor conditions. Additionally, these models also contain nuclear versus non-nuclear accent type as a main effect, in order to account for potential difference due to this variable. As peak delay will likely systematically differ between different pitch accent types (longer intervals with L+H* pitch accents due to contour movement), the two types are considered separately. However, it is important to keep in mind that there is a relationship between pitch accent type and length of peak delay interval such that although they are related, measuring the length of delay interval allows for more fine-grained quantitative analysis of contour shape and length than examining pitch accent type alone.

3.2 Sociolinguistic/Identity Interview

The sociolinguistic/identity interview was designed to capture information about how each participant thought about himself and how he conceptualized of his own racial identity. Rockquemore and Brunsma (2008) and Khanna (2011) posit a variety of identity types available to individuals with one black parent and one white parent (BWIs) and also propose that which identity type an individual chooses is a result of their experiences but also is reflected in various types of social decisions and practices of the individual. The sociolinguistic/identity interview was designed to facilitate comparisons between the different participants in the larger sample by classifying them into different identity types based on how they self-report their identity as well as their social experiences. The current study focuses only on BWI individuals who report that they consider themselves to be black and/or biracial, as well as claiming close ties with black communities when asked during the sociolinguistic/identity interview. Though these individuals may differ from one another in some of their experiences, they have in common the fact that they experience themselves as black Americans and engage in social practices such as ethnic-affinity group membership, personal stylization, and cultural consumption patterns that may index a black American identity.

In the past, sociolinguistic studies on AAL have had a tendency to focus primarily on young, working-class, urban, non-BWI men because they were considered to be maximally authentic speakers of the variety (Morgan 1994, Wolfram 2007). The participants in this study are important for expanding our knowledge of what is possible in AAL because they represent individuals who experience themselves as black, but who have largely been overlooked in earlier sociolinguistic work.

4 Results

4.1 Pitch Accent Type

A logistic regression model conduced in R revealed no significant differences for any participant between interlocutor conditions with respect to the use of the proportion of H* versus L+H* pitch accent types ($p > .05$). Figure 2 shows pitch accent type by interlocutor condition for each of the eight speakers.
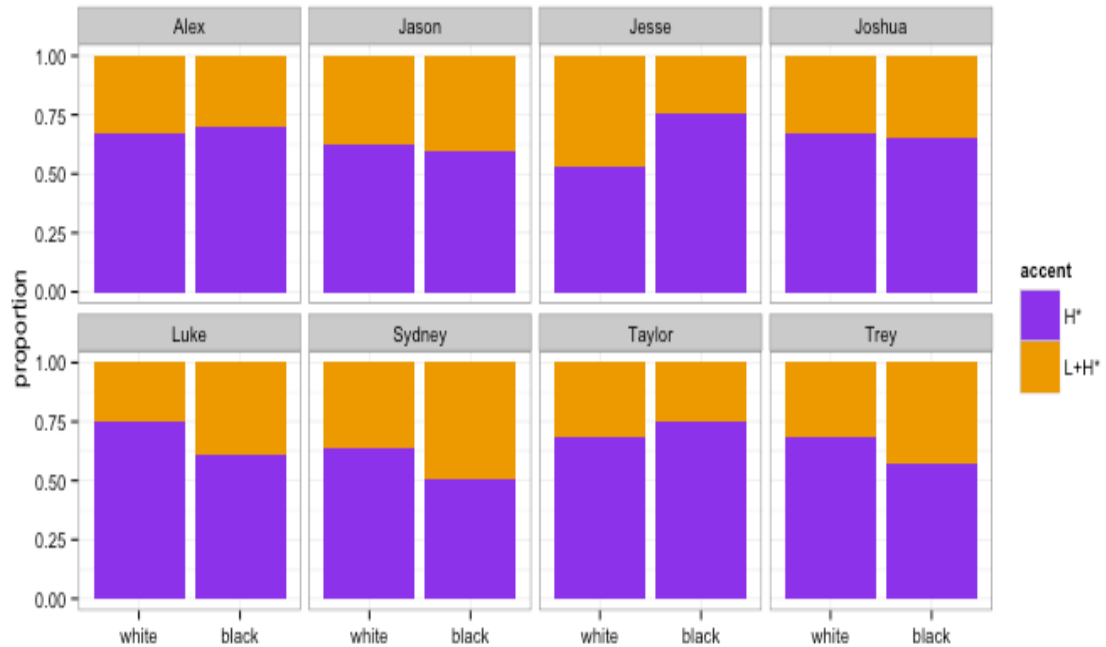
Figure 2: Pitch accent type proportions by speaker/interlocutor combination.

This result seems to indicate that pitch accent type (H* versus L+H*) is not subject to inter-locutor-based intraspeaker variation in the current data set. However, Figure 2 also demonstrates some variation between the participants. For example, participant Sydney does appear to use slightly more L+H* pitch accents in conversation with his black friend than his white friend, but he also uses more L+H* in general that a speaker like Taylor, in either condition. This may seem to indicate that though this variable was not subject to variation by interlocutor, it may vary more substantially between participants overall. Additionally, there were three speakers with marginal effects in the direction of greater use of L+H* in the black friend condition (Luke, Sydney and Trey) which may motivate future study of this variable, especially in light of McLarty's (2011) finding that some black speakers may use more L+H* contours than white speakers in casual speech situations.

4.2 Peak Delay

Log regression models in R for each pitch accent type (H* and L+H*), with nuclear versus non-nuclear pitch accent type as a fixed effect, were created in order to compare length of peak delay interval between interlocutor conditions. The result for the H* contour model does not come out as significant, indicating no quantitative difference between length of delay intervals in H* pitch contours between interlocutor conditions (p > .05). The model for L+H* pitch contours, however, does demonstrate a significant result, with peak delay longer in black friend conditions than white friend conditions (p = .045). This indicates that in general, in this data set, speakers may be using a longer delay interval in the L+H* pitch accent type when speaking with black interlocutors. Figure 3 shows density plots for each participant in each interlocutor condition in terms of log delay interval, with H* pitch accents one the left and L+H* pitch accents on the right.
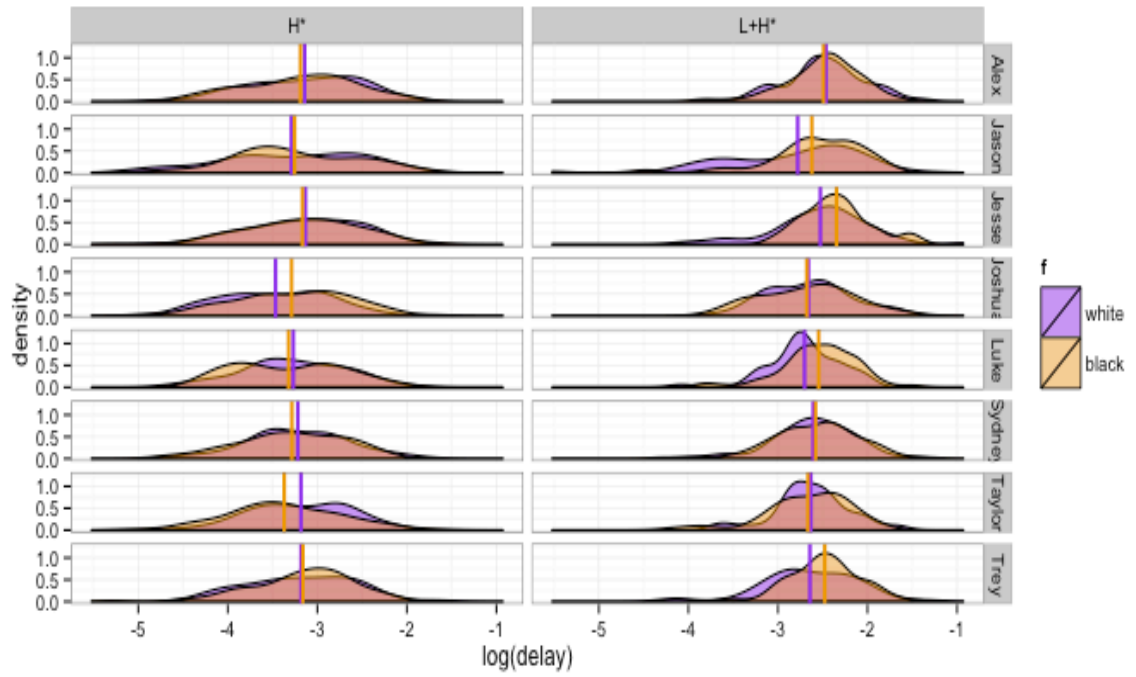
Figure 3: Density plots for log peak delay for H* and L+H* pitch accent types, by friend condition, for all speakers.
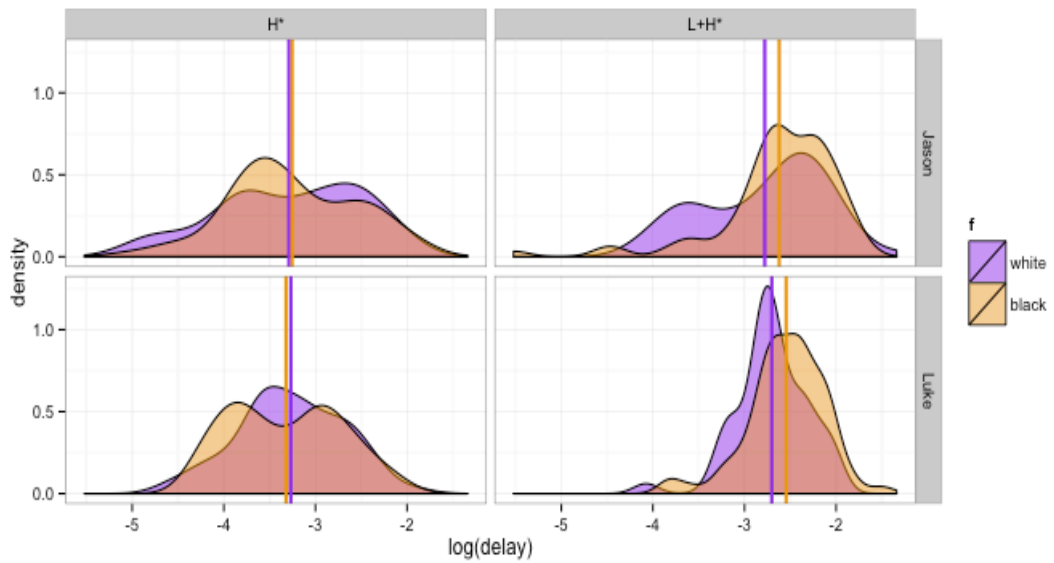

Figure 4: Density plots for log peak delay for H* and L+H* pitch accent types, by friend condition, for two speakers, Jason and Luke.

These plots show generally longer peak delay intervals in black friend conditions for the L+H* pitch accent type (right column), but they also demonstrate another potentially important pattern. Several of the participants appear to show a multimodal distribution, indicating that perhaps they have a pattern of use of delay interval that may not be adequately captured in a regression model alone. In order to see that pattern more clearly, Figure 4 shows the density plots for two speakers, Jason and Luke.

For both the H* and L+H* pitch accent types, it is evident that these two participants have non-normal distributions for log peak delay interval length. In the upper right quadrant, participant Jason demonstrates a potentially multimodal distribution in the white friend condition, with some intervals that appear to be quite short and others that are comparatively longer. We can observe a similar pattern in the lower left quadrant for Luke, in the H* pitch accent types when speaking with his black friend. In the lower right quadrant, Luke also shows a sharp concentration of delay intervals of a certain length in the white friend condition for L+H* pitch accents, while his intervals for the same accent type in the black friend condition are somewhat more widely distributed. These graphs demonstrate that further qualitative research on peak delay interval length may illuminate how delay interval length may be subject to both intraspeaker variation.

5 Discussion

5.1 Summary

In the analysis above, we observed that the black-identified BWI participants in this sample do not appear to employ pitch accent type in the type of interlocutor-based variation studied here. They do, however, appear to vary the length of peak delay intervals in L+H* pitch accents such that the intervals are longer in their conversations with black interlocutors than those in their conversations with white interlocutors. Additionally, the manner in which these speakers pattern with respect to use of both pitch accent type and length of peak delay interval has the potential to display non-normal distributions and should be further explored in both quantitative and qualitative analyses.

Several social and linguistic factors may be motivating these patterns. It is clear from the qualitative analysis that the participants are not a homogenous group, and that not all speakers experience the same motivations for varying their use of intonational features with different interlocutors. Additionally, even if participants are motivated to vary their use of these features with different interlocutors, they may not be doing so in the same neatly observable fashions. Little is understood about the mechanisms by which speakers may employ variation of intonational features, especially in stylistic performance (Thomas 2015). Furthermore, in the larger context, sociolinguistics is aware of the fact that individual speakers may combine features in unique ways to accomplish different styles via bricolage, or layering features in unique individualized fashions (Eckert 2012). It is therefore also possible that individual speakers combine different types of intonational phenomena in highly personalized ways, though much more work is needed to arrive at an understanding of the ways in which intonational variables may be combined in this way.

Finally, it is also important to consider the ways in which type of speech act and other situational variables may also be involved in conditioning the type of patterns observed here. Tarone (1973) observed that the black speakers in her sample only demonstrated differences in intonational patterns in what she termed "emphatic" speech acts. The data in this sample was restricted to a game condition with familiar interlocutors and therefore did not capture the full range of types of speech acts that might condition this type of variation. Additionally, Rickford and McNair-Knox (1994) observed that even in similar speech situations, the same speaker may alter her use of certain variables based on several social factors including the topic of conversation. Though the topics of conversation in the icebreaker game conditions were the same for all speakers, this set of themes may also not have conditioned maximally different types of speech styles.

5.2 Future Directions

Though this study has examined intraspeaker variation in the use of pitch accent type and peak delay interval length for a set of black-identified BWI speakers, much work remains to be done

before arriving at a more complete understanding of how speakers use these features in identity construction and performance. The data for this analysis came from a larger sample of 20 BWI participants, and ongoing research examines how identity self-conceptualization conditions the use of these and other intonational variables in both intra and interspeaker variation. This study represents one of the first works specifically examining the linguistic practices of individuals with one black parent and one white parent, but significantly more research is necessary to understand how these individuals employ a variety of features in ethnolinguistic variation both to do stylistic work, but also to perform their identities more broadly. As the population of individuals identifying themselves with more than one racial category increases, linguistics should also turn its attention what these demographic shifts, changing racial categories, and nuanced identities mean for our understanding of ethnolinguistic variation (Khanna 2011, Rockquemore and Brunsma 2008). In addition to challenging our ideas about variation and race, studying BWI individuals also provides sociolinguists with the opportunity to address Levon's (2015) call for greater incorporation of theories of intersectionality in sociolinguistic work. Addressing individuals outside of traditional ideas of racial boundaries also encourages scholarship that holistically considers speakers as individuals conditioned both by external social factors and by personal experiences and ideologies.

In addition to expanding our understanding of how we think about AAL, this work aims to act as a first step towards a better description of the role of intonation in sociolinguistic variation. The relative dearth of literature on how intonation may vary leaves many variables open for analysis by sociolinguists and intonational phonologists alike. One area of research in particular that would help contextualize the results obtained here would be more studies focusing on intonation in AAL more broadly, as well as specifically examining the variables studied here across different types of communities. Finally, examining the co-occurrence of intonational variables with more extensively documented variables at the phonological and morphosyntactic levels in both AAL and MUSE would help us arrive at a better understanding of how intonation may work independently of or alongside other levels of linguistic variation.

These findings also lead us in a promising direction that may help us understand more about production and perception of both MUSE and AAL and the resulting social effects. Future perception studies that test listener judgments about these features may add to our understanding about how use of these intonational variables may influence social evaluations. Purnell et al. 1999 and Holliday and Jaggers 2015 each demonstrated that listeners make judgments about speaker ethnicity based on very short speech samples, and that listeners therefore likely rely on intonational information to make these judgments. Furthermore, Baugh 2003 demonstrated that this type of judgment has real consequences for speakers: individuals can be denied housing, employment or other types of opportunities because of these split-second judgments. Ultimately, research on intonational variation in different varieties of English may help linguists, educators, and the public become more aware of the mechanisms involved in linguistic racial profiling.

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