Attitudes Toward Korean-Accented and Korean American English

Rachel Schirra

A thesis
submitted in partial fulfillment of the
requirements for the degree of

Master of Arts

University of Washington

2012

Committee:
Alicia Beckford Wassink
Betsy Evans

Program Authorized to Offer Degree:
Linguistics

Table of Contents

List of Figures

List of Tables

Acknowledgements

I am extremely grateful to my advisors, Dr. Alicia Beckford Wassink and Dr. Betsy Evans, for their time, support, and their valuable input throughout this process (and also for catching those embarrassing typos – any that remain are my fault). I am also grateful to Mike Furr, fabulous administrator, and Joyce Parvi, office manager extraordinaire, whose hard work means I never have to worry about the administrative end of things.

Thanks to my fellow linguistics graduate students, and especially the members of the Sociolinguistics Brownbag, for being both an invaluable resource and an incredible support group. I would especially like to thank Russ Hugo, Meghan Oxley, John Riebold, Rob Sykes, and Lisa Tittle for their advice and support, and for admiring all my graphs.

This thesis would not have been possible without the generous assistance of the five people who contributed their time and their voices to this study.

To my parents: Thank you for your love, patience, and support. I couldn't have done it without you.

And finally, to Keith Mahoney: Thank you for sticking with me through the entire thing, for being a sounding board even when you didn't understand what I was shouting about, and supporting me through the high points and the low ones.

1. Introduction

1.1 Overview

Since Lambert et al.'s pioneering study of language attitudes in 1960, researchers have studied listeners' subjective reactions to a vast assortment of language varieties. Despite the wealth of attitudes research, however, little has been conducted on listeners' attitudes toward the speech of Asian Americans or Asian immigrants to the United States (Reyes & Lo, 2009). Further, there is very little descriptive research in the field of Linguistics on the speech of Asian Americans or on Asian speakers of English as a second language. This study attempts to develop both a description of Korean-accented and Korean American English, and an overview of listeners' attitudes toward Korean-accented and Korean American English. It includes an experimental study investigating phonetic similarities and differences between American-born bilingual speakers with native proficiency in both Korean and English, and those of Korean-born native speakers who learned English as teens or adults. It is a step toward filling the gap in the sociolinguistic literature in general and the language attitudes literature specifically around Asian-accented and Asian American speech.

Although previous studies have examined the phonetic correlates of, identifiability of, and attitudes toward Asian American and Asian-accented English, they have not considered the connections between them; we know what phonetic variables distinguish Asian-accented English (e.g. Yeni-Komshian, Flege, & Liu, 2000; Tsukada et al., 2005), and what attitudes listeners hold toward Asian-accented speech (e.g. Cargile, 1997; Lindemann, 2003), but not how specific phonetic variables contribute to attitudes. Similarly, while linguists have studied the identifiability of Asian American English (e.g. Hanna, 1997), only one study has attempted to identify the specific phonetic factors distinguishing it from other varieties of English (Newman & Wu, 2011).

The study of attitudes toward minority varieties of English is particularly important given the potential negative effects of dialect-based discrimination and

linguistic profiling. Speakers of non-standard dialects of English and non-native speakers of English face potential discrimination in housing, education, and in the workplace (Lippi-Green, 2012). It is even possible for this discrimination to occur when a speaker does not have an accent; listeners will sometimes assume a speaker is accented based on their appearance (Rubin, 1992). There is a strong backlash against Asian-accented English in higher education settings especially, focused particularly on instructors with "incomprehensible" accents (Lippi-Green, 2012).

However, there is some indication that biases against non-standard dialects and foreign accents can be overcome via education – by educating people about accents, it is possible that they might better understand accented speakers, or at the very least be more willing to shoulder their share of the conversational burden when they encounter someone who speaks with an accent (Lippi-Green, 2012). I hope that by endeavoring to describe Korean-accented and Korean American English I can contribute to an increased understanding and acceptance of those varieties.

1.2 Goals

This study seeks to determine what attitudes native English speaking listeners hold about Korean American English and Korean-accented English. In the context of this study, Korean American English is defined as the English spoken by American-born individuals of Korean descent who are bilingual in English and Korean, while Korean-accented English refers to the English spoken by native speakers of Korean who learned English after the critical period (the age after which speakers are no longer able to attain native proficiency in a language (Johnson & Newport, 1989)).

The existence of a distinct form of Asian American English as an ethnolect, a language variety associated with a particular ethnic group, remains in question (Hanna, 1997; Lindemann, 2003; Reyes & Lo, 2009). While it seems that speakers are able to distinguish the speech of Asian Americans from the speech of Caucasian Americans with greater-than-chance accuracy, in many cases they are only slightly more accurate than chance (see section 2.3.1). Previous research on the identifiability and the phonetic features of Asian American English has not distinguished between the speech of Korean Americans and the speech of other Asian Americans, most often pooling them with Chinese-, Vietnamese-, and Thai-

Americans (see Hanna, 1997; Newman & Wu, 2011). However, the label “Asian American” refers to a very diverse group originating in different countries where many different languages are spoken. It includes not only bilingual speakers of English and some heritage language, but also monolingual speakers of English. The very idea of a homogenous “Asian American” ethnic group is not unproblematic (see section 2.3.1 for further discussion).

Because it is not clear, given previous research, whether the speech of Korean Americans might distinguish them from Caucasian Americans, they are treated separately here; one of the goals of this research is to determine whether listeners’ attitudinal responses to the speech of Korean Americans differs from their responses to a Caucasian monolingual English speaker.

In this thesis I attempt to answer the following research questions:

1. Do listeners report that Korean American English speakers are more accented than Anglo speakers of English?
2. Do listeners report that Korean-Accented English speakers are more accented than Anglo or Korean American speakers of English?
3. Do listeners report that Korean American English speakers are more difficult to understand than Anglo speakers of English?
4. Do listeners report that Korean-Accented English speakers are more difficult to understand than Anglo or Korean American speakers of English?
5. Do specific phonological or phonetic markers contribute to an attitudinal bias against Korean-accented or Korean American English speakers?

I will also briefly consider whether the perception of a speaker as accented has any effect on the perception of that speaker as difficult to understand.

1.3 Organization

Section 2 lays out the background literature relevant to this study. It begins with an overview of the first studies in language attitudes from the field of social psychology, and the development of survey methods for studying language attitudes (section 2.1). It then turns to discussions of language attitudes in sociolinguistics,

including studies focused on specific social information and stereotypes that influence listener attitudes (section 2.2). Because this thesis focuses specifically on attitudes toward Korean American and Korean-accented English, a description of the phonetic features of these varieties is also necessary to determine which phonetic cues may help identify these varieties to listeners. Listeners may use phonetic cues to ethnic identity in formulating their attitudinal responses to speakers. Section 2.3 therefore describes the phonetics of Korean American and Korean-accented English, as well as existing studies of attitudes toward those varieties. As an understanding of ideologies is necessary to understand potential sources and effects of attitudes toward Korean American and Korean-accented English, section 2.4 discusses language ideologies and ideologies in general, and the way they interact with language attitudes. Section 2.5 describes research on linguistic stereotyping, and how stereotypes and attitudes can influence listener comprehension. In section 2.6 I present evidence for the effects of language attitudes and ideologies in the areas of employment, academia, education, and housing. And finally, section 2.7 discusses the relevance of this background research to my own study, and the importance of studying Korean American and Korean-accented English.

Section 3 describes the methods used in this study. The recruitment of speaker subjects and the procedures used to produce the speech stimuli are described in section 3.1. This section also outlines the criteria used to categorize speaker subjects. Section 3.2 describes the recruitment of the listener subjects and the collection of attitudes data. Section 3.3 discusses the methods used to analyze both phonetic data from the speaker subjects (3.3.1-2) and attitudes data from listener subjects (3.3.3). The methods used to correlate speaker data with attitudinal responses are also discussed (3.3.4).

Section 4 describes the results of the study, and section 5 provides a discussion of the results and the conclusions drawn from them.

2. Background

This section reviews literature regarding the major topics that underlie this study. Section 2.1 discusses the history of language attitudes research as it originated in the study of social psychology, and the development of a Speech Evaluation Instrument to collect data on language attitudes. In section 2.2 I describe research on additional factors that influence language attitudes, including social information about speakers, and listeners' stereotypes about speakers. Section 2.3 discusses Korean American and Korean-accented English, and is divided into three subsections: Section 2.3.1 discusses what little is known about the phonetics of Korean American English; Section 2.3.2 describes the phonetics of Korean and Korean-accented English; and section 2.3.3 presents existing research on attitudes toward Korean American and Korean-accented English as well as on other varieties of Asian American and Asian-accented English. In order to understand attitudes toward Korean American and Korean-accented English it is necessary to develop an understanding of the ideologies of language, accent, and race that contribute to these attitudes, and to the consequences of these attitudes, which include linguistic profiling and discrimination based on language and race. Section 2.4 discusses ideologies that potentially influence attitudes toward Korean American and Korean-accented English, and the importance of ideologies to language attitudes. In section 2.5 I discuss linguistic stereotyping and its opposite, reverse linguistic stereotyping, and the ways they can influence listeners' comprehension of a speaker. Section 2.6 presents examples of the consequences of language attitudes and ideologies, including linguistic discrimination in employment, housing, academia, and education. Finally, in section 2.7 I describe how previous research has influenced this study, and the importance of researching Korean American and Korean-accented English.

2.1 Language Attitudes

Language attitudes research investigates people's subjective responses to their own language and the language of others. These can include affective

responses about the likeability and friendliness of a speaker, and opinions about the speaker's intelligence and competence. Language attitudes research originated not in the field of linguistics but in social psychology, with social psychologists applying their field's techniques to the study of language. In one of the pioneering language attitudes studies, Lambert et al. (1960) suggested that "any listener's attitude toward members of a particular group should generalize to the language they use" (p. 44).

Lambert et al. (1960) pioneered a technique known as the "matched guise" technique, in which the same speaker produces the same linguistic stimulus in two or more different forms. In the case of Lambert et al. the two guises are two different languages, English and French, but the use of matched guise is not restricted to different languages; it has also been used to compare dialects of the same language (e.g. Purnell, Idsardi, & Baugh, 1999) and levels along a creole continuum (e.g. Rickford, 1985). By using auditory stimuli produced by the same speaker, Lambert et al. were able to hold variables like voice quality constant, and compare listeners' responses to just the language used.

Lambert et al. recorded four Canadians who were bilingual in French and English reading a passage in both languages. The passages were presented to 64 French-speaking and 66 English-speaking university students, and each passage was presented as being created by a different speaker. While Lambert et al. hypothesized that French-speaking listeners would respond more positively to the French guises and English-speaking listeners would respond more positively to the English guises, this was not found to be the case; both French- and English-speaking listeners rated the English guise more positively on most traits, and the French-speaking listeners' positive response was even stronger than that of the English-speaking listeners. This, the authors contend, was reflective of the listeners' evaluations not only of the speech in the recordings, but also their social evaluations of French versus English speakers.

Lambert et al. (1960) gathered data on listeners' attitudes toward what they heard using a questionnaire that asked the listeners to rate speakers on a 6-point scale for a variety of attributes such as confidence and intelligence. This type of scale, in which respondents are asked to respond in terms of their own agreement or disagreement with a series of statements using a numeric scale, is typically referred

to as a Likert scale (Likert, 1932). Each question asks the respondent to circle a number indicating whether a speaker exhibits a little or a lot of a certain trait. While this became a common method of measuring language attitudes, Zahn and Hopper (1985) found that little attention had been paid to measurement instruments, and that studies in the growing body of research on language attitudes were therefore difficult to compare. Zahn and Hopper therefore constructed a speech evaluation instrument that could be used by language attitudes researchers that might allow results from different studies to be compared.

The speech evaluation instrument was constructed by pooling measurements from instruments used by other researchers, resulting in a pool of 152 semantic differential questions – questions that ask the respondent to rate what they hear on a numerical scale between two opposite terms, such as "intelligent – unintelligent." Items not directly related to speech evaluation or difficult to cast in semantic differential form (e.g. occupation) were discarded, as were redundant measures. Zahn and Hopper then conducted a large study in which over 600 subjects used the resulting 56 questions to evaluate speakers of various dialects. Their aim was not to study the students' evaluations of the speakers they heard, but to evaluate the effectiveness of each semantic differential question in indicating the listener's attitudes, and how those questions might be grouped.

Analysis of the results indicated that the questions could be divided into three groups: Superiority, which included semantic differentials such as "educated—uneducated" and "experienced—inexperienced"; social attractiveness, which includes items such as "kind—unkind" and "honest—dishonest"; and dynamism, which includes items like "confident—unsure" and "active—passive." From the 56 questions they retained only the 30 that contributed most strongly to these three categories.

These studies in social psychology paved the way for further examination of language attitudes in the field of linguistics. Language attitudes research by linguists, including that described below in section 2.2, have continued to use methods like the ones described above to study listeners' reactions to various languages and language varieties. It is to these studies that I turn below.

2.2 Factors Contributing to Language Attitudes

This section describes studies of language attitudes in the field of linguistics, with a focus on those studies that examine the effect of non-speech factors on language attitudes. The sociolinguistics literature, drawing on the social psychology literature, suggests that beliefs and stereotypes about the varieties spoken, as well as social attributes of the listener and the speaker, influence attitudinal responses.

In his 1985 study of Guyanese Creole speakers, Rickford found that listeners of different social classes agreed in their evaluations of speakers on status-based criteria, but disagreed in their evaluations of how likely they were to be friends with the speaker; each class chose as the friendliest the speakers who sounded most like themselves. Rickford performed a matched guise study, in which a single speaker performed three guises: A basilectal guise, in which the deepest Guyanese Creole was used; a mesolectal guise, which used a variety of Guyanese creole that is intermediate between basilectal Guyanese Creole and Guyanese English, and an acrolectal guise which used only Guyanese English. These three guises were presented as different speakers to 24 subjects. The subjects were members of two classes: the estate class (EC), who worked as manual laborers and were more likely to use basilectal forms; and the non-estate class (NEC), who worked as clerks or bookkeepers and were more likely to use acrolectal forms.

Rickford asked his subjects to rate each of the three guises on their probable job and also on how well they would fit into the subject's own circle of friends. While both EC and NEC respondents generally agreed on the probable jobs for each guise, they disagreed as to how each guise would fit into their own social circle. Upon examining the subjects' own use of basilectal and acrolectal forms, Rickford found that the subjects chose as the most likely friend the guise most similar to themselves. The subjects were, according to Rickford, "essentially warming to the Matched Guise 'speaker' who sounds most like themselves" (p. 10).

Listeners' beliefs or stereotypes about someone's speech can even influence what they hear. Niedzielski (1999) studied language attitudes in Detroit, Michigan. Although Detroit residents generally believe that they speak "unaccented," standard English, they use several nonstandard features. These features include Canadian raising, a vowel shift stereotypically associated with Canada in which the /aʊ/

diphthong, as in *house* and *about*, is raised. Niedzielski performed a modified version of the matched guise study: her 41 subjects, all Detroit-area residents, all heard recordings of a single speaker from Detroit. However, only half of the subjects were told the speaker was from Detroit, while the other half were told he was from Ontario, Canada. The subjects were played a series of about 50 sentences and asked to focus on the vowel /a/ in a certain word in each, and then to select one of six synthesized vowels that most closely matched what they heard.

Niedzielski's subjects chose only three of the synthesized tokens. Of the subjects who were told the speaker was Canadian, the majority (60 percent) chose the actual vowel produced by the speaker, which was subject to Canadian raising. Twenty percent chose the token that corresponded to standard American English /a/, and 15 percent chose a hyperstandard token even lower than standard American English /a/. However, the subjects who believed the speaker was from Detroit performed very differently. Fifty percent of those subjects chose the standard American English /a/, and 38 percent chose the hyperstandard, ultra-low /a/. Only 11 percent chose the Canadian-raised token of /a/, which was what the speaker actually produced.

Niedzielski's findings suggest that speakers' beliefs about a language variety can influence, and even override, what they hear. The subjects, all Detroit residents, believe that standard American English is spoken in Detroit, and therefore when they hear someone they believe to be from Detroit they hear standard American English – even if that is not what the speaker has produced. Their stereotype of Canadians includes Canadian raising, so they hear Canadian raising in the speech of someone they believe to be Canadian.

Cargile (2002) was also interested in the way listeners' stereotypes might affect their language attitudes, and in how automatic versus controlled cognitive processing might affect their responses on attitude measures. Attitudes, Cargile argued, are "cognitive, affective, and behavioral in nature," and therefore include not only emotional responses but also stereotypes (p. 179). Cargile distinguishes between automatic processing, which "involve[s] the unintentional or spontaneous activation of some well-learned set of associations," and controlled processing, which is intentional and requires "the active attention of the individual" (p. 180). Controlled processing may obscure the attitudes evoked by speech, or any other

stimulus, as the listener considers their response and potentially realizes the undesirability of responding in that way (for instance, if their automatic response is the result of a negative stereotype).

To test the effects of automatic versus controlled processing on language attitudes, Cargile asked 49 respondents to rate 4 speakers, two African American (one male and one female) and two Caucasian (also one male and one female), on 8 questions taken from the speech evaluation instrument (see section 2.1). The subjects were divided into two groups. In the time-availability group, subjects heard a passage in its entirety and had as much time as they wanted to respond to it, resulting in controlled processing. In the time-constraint group, subjects heard a 1-2 second segment of the passage and then had 1.1 seconds to answer a single attitudes question, resulting in automatic processing.

Cargile found that the female African American speaker was judged more socially attractive under the time-availability condition, in which controlled processing was possible, than under the time-constraint condition, in which responses were the result of automatic processing. The results for the male African American speaker were not statistically significant. The result suggests that controlled versus automatic processing can have an effect on listener evaluations of a speaker, at least under some circumstances. If a respondent is aware that their response is the result of prejudice or a negative stereotype they might, under controlled processing, modify their responses to be more socially acceptable.

Language attitudes are a reflection of listeners' attitudes and beliefs about the social groups to which a speaker belongs (Lambert et al., 1960). The sociolinguistic literature has identified several specific social factors that influence language attitudes. Rickford (1985) determined that a listener's attitudes may vary depending on their own speech. Niedzielski (1999) found that a listener's stereotypes about a person can even influence their perceptions of that person's speech. It is therefore necessary in studies of language attitudes to attend not only to the speech used as stimuli or to the social attributes of the speakers, but to listeners' beliefs and stereotypes about those speakers. Factors such as response time can also affect the results of language attitudes studies; in a study where respondents have enough time to engage in controlled processing, which is the case in the majority of language attitudes studies, respondents may temper responses they see as the result

of socially disfavored stereotypes (Cargile, 2002). It is important that these factors be considered in attitudes studies such as this one that involve groups that are potentially subject to negative stereotypes.

2.3 Korean American and Korean-Accented and English

Little sociolinguistic research has been conducted on either Asian American or Asian-accented English, and studies of Korean American and Korean-accented English are but a subset of that small body of research. Much of the sociolinguistic work on Asian Americans and on Asian-accented English has been anchored not in sociophonetics or language attitudes, but in discourse analysis. Several studies have discussed the use of language in constructing Asian American identity in qualitative terms (Bucholtz, 2004; Chun, 2004; Kang M. A., 2004; Reyes, 2005; Reyes & Lo, 2008; Shankar, 2008; Chun, 2009). However, there is very little quantitative research on attitudes toward or phonetic correlates of Asian American or Asian-accented English, and it is to these few studies that I turn below.

The limited amount of research on Asian American and Asian-accented English, an even smaller subset of which focuses specifically on Korean American and Korean-accented English, makes it difficult to determine with any certainty what the phonetic or phonological correlates of those varieties might be, or what attitudes one might expect in response to either variety. In this section I review the existing research on the phonetics of Asian American and Korean American English (section 2.3.1), and also the phonetics of Korean as they might apply to Korean-accented English (section 2.3.2). I also discuss previous studies of attitudes toward Korean-accented English and other varieties of Asian-accented English (section 2.3.3).

2.3.1 The Phonetics of Korean American English

There has been fairly little research in the field of linguistics on the phonetic properties of Korean American English. Perhaps because the status of Asian American or Korean American English as a distinct ethnolect, like Chicano English or African American English, remains in question, few researchers have attempted a phonetic description. The majority of studies of Asian Americans' speech have been dedicated to determining whether listeners can reliably distinguish the speech of

Asian Americans from that of Caucasian Americans, and of these studies, not all reference specific phonetic features.

In one of the earliest studies of Asian American speech, Mendoza-Denton and Iwai (1993) determined that while second-generation Japanese Americans, or Nisei, retained some features from Japanese, these features were lost by the fourth generation; fourth-generation Japanese Americans' dialects had merged with the local dialect, suggesting that it might be possible for listeners to identify the speech of second-generation immigrants as distinct, but not that of fourth-generation immigrants. Mendoza-Denton and Iwai compared the speech of two second-generation Japanese Americans, aged late 50s and 60s, and two fourth-generation Japanese Americans, aged 16 to 17, to Caucasian Americans of similar ages on two variables: /t/ and /d/ deletion at the end of consonant clusters, and production of /oʊ/ and /eɪ/ as monophthongs. The second-generation Japanese Americans were more likely than Caucasian Americans to delete /t/ or /d/ in a consonant cluster and to produce /oʊ/ and /eɪ/ as monophthongs. However, the fourth-generation Japanese Americans' productions were not significantly different from Caucasian Americans in the same age group.

Hanna (1997) was specifically interested in the ability of Asian American and Caucasian listeners to differentiate between the speech of Asian Americans and Caucasians. Hanna collected speech samples of 12 Asian Americans (5 Chinese American, 3 Korean American, 2 Filipino American, 1 Taiwanese American, and 1 person of Thai and Filipino ancestry) and 8 Caucasian Americans. These speech samples were presented to 60 judges (30 Asian American and 30 Caucasian), who were asked to identify the speaker as "white" or "Asian." Both the Asian American judges and the Caucasian judges performed better than chance at differentiating between the Asian American and Caucasian speakers; the Asian American judges distinguished correctly between the two groups 67 percent of the time, and the Caucasian judges distinguished them correctly 63 percent of the time. The differences in accuracy between the Asian American and Caucasian judges were not statistically significant. Hanna also found that certain speakers were more easily identifiable as Asian American; three of the Asian American speakers were judged correctly by over 85 percent of judges. This suggests that while it is sometimes (but not always) possible to differentiate between Caucasian and Asian American

speakers based on voice alone, certain speakers are easier to differentiate than others. Hanna did not, however, attempt to identify which phonetic variables listeners used to distinguish Asian American from Caucasian voices.

Newman and Wu (2011) conducted a two-part study examining both the ability of listeners to distinguish Asian American speakers from speakers of other ethnicities and also examining the phonetic differences between Asian American and Caucasian American speech. In the identification study, 16 speakers were recorded: 4 Chinese American, 4 Korean American, 4 Caucasian American, 2 African American, and 2 Latino. All 16 speakers were native speakers of English. Each was recorded reading the same 60-word passage, and 227 judges were asked to indicate whether the speaker was black, white, Hispanic, or Asian. Judges were not asked to distinguish between Chinese-Americans and Korean Americans. Judges were also asked to give their own ethnicity.

The Asian American speakers' identifiability was variable. Two of the Korean Americans were correctly identified by over 2/3 of the judges, and one of the Chinese Americans was correctly identified by over half of the judges. The other Chinese and Korean American speakers were less accurately identified.

Newman and Wu also conducted a sociophonetic study of their speakers. They found that breathier voice, as determined by increased spectral tilt, was the most significant differentiating feature for Asian American speakers in their sample. Asian American speakers also exhibited longer Voice Onset Time (VOT), the period between the release of a consonant closure and the onset of voicing (Ladefoged, 2006), for /p/, /t/, and /k/, as well as lowered /ɛ/ and /r/. However, Newman and Wu suspected that these additional variables were not salient to listeners, as they were at the border of the range produced by non-Asian American speakers in the study.

Notably, none of the above studies focus specifically on the speech of Korean Americans. Furthermore, two of the studies do not make differentiations beyond Asian American versus Caucasian. Both Hanna (1997) and Newman and Wu (2011) treat Asian Americans as a single speech community despite the fact that the Asian American label contains a wide variety of countries of origin in which an even wider variety of languages are spoken. This lack of distinction is potentially troublesome, but not without some justification: although Asian American identities

are highly diverse, Hall-Lew and Starr (2010) note that "people born in the U.S. with parents and grandparents who immigrated from China, Japan, or Korea, united around their shared experience as being second- or third generation," resulting in a "pan-ethnic Asian American identity" (p. 18). Additionally, while listeners seem able to differentiate Asian American from Caucasian American speech, there is no evidence that they are able to differentiate, for instance, Korean American from Chinese American speech. Indeed, listeners are generally unable to identify Korean-accented speech specifically other than as "Asian-accented" (see Lindemann, 2003; section 2.4.2).

The idea of a monolithic Asian American community is rightly controversial. The editors of *Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America* problematize the title of the volume in their introduction:

> *While we certainly recognize the absurdity of grouping the huge diversity of individuals that are classified under the [Asian Pacific American (APA)] umbrella together, the fact remains that APAs are often seen as a single group according to widely circulating American ideologies of race (see, e.g., the U.S. Census).* *(Reyes & Lo, Introduction: On Yellow English and Other Perilous Terms, 2009, p. 4)*

Although Asian Americans are widely perceived by those *outside* of the Asian American community to be a homogenous group, this perception does not in itself justify treating Asian Americans as a single group in linguistic studies. While there is some qualitative evidence that Asian Americans are seen by outsiders as a single group, and that they tend to share certain experiences, there is no evidence that Asian Americans share specific linguistic practices or would speak the same dialect. In fact, the difficulty of identifying specific phonetic factors characteristic of Asian American English seems to suggest that this is not the case. I have therefore chosen to study only Korean Americans here.

2.3.2 The Phonetics of Korean-Accented English

Much of what is perceived as a foreign accent is the result of differences between speakers' native language's phonetics and phonology and the phonetics and phonology of the second language. In order to discuss the characteristics of

Korean-accented English, it is first necessary to give a brief overview of the phonetics of Korean.

Modern Seoul Korean (the dialect spoken by the Korean-speaking subjects in this study) has a seven-vowel system:

Table 2.1: Korean Vowels (adapted from Curtis, 2000)

	Front	Mid	Back
High	i	ɨ	u
Central	ɛ	ɤ	o
Low		a	

The Korean /a/ is a mid-vowel, and is actually closer to /ɐ/, but is nonetheless written as /a/ in most grammars of Korean.

Table 2.2: Korean Consonants (adapted from Curtis, 2000)

	Labial	Alveolar	Post-Alveolar	Velar	Glottal
stops	p P p^h	t T t^h		k K k^h	
affricates			tʃ Tʃ $tʃ^h$		
fricatives		s S			h
nasals	m *mm*	n *nn*		ŋ	
liquids		l *ll*			
glides	(w)		(j)		

Korean does not distinguish between voiced and voiceless obstruents (stops, affricates, and fricatives), but does make a three-way distinction between fortis (represented here with lowercase characters), lenis (represented by capitals), and aspirated for stops and affricates, and a two-way distinction between fortis and lenis for fricatives. Lenis consonants are marked by less articulatory energy (Ladefoged & Maddieson, The Sounds of the World's Languages, 1996), while fortis consonants are marked by laryngeal tension, lengthened closure time, short voice onset time (VOT), and raised pitch on the following vowel (Curtis, 2000). Korean aspirated word-initial stops have longer VOT than their English equivalents (see table 2.3 below).

Table 2.3: Korean and English Stop VOT in milliseconds (adapted from Cho and Ladefoged, 1997)

	Korean		English
	unaspirated	aspirated	aspirated
p	18	91	58
t	25	94	70
k	47	126	80

While the only liquid phonemically present in Korean is /l/, it occurs as the alveolar flap [ɾ] in syllable-final position (Sohn, 1999).

Many studies of Korean-accented English are focused not on specific phonetic correlates of Korean accent, but on speaker's level of proficiency in English as determined by listeners' perception of accentedness. Yeni-Komshian, Flege, and Liu (2000) studied the proficiency of Korean native speakers in both English and Korean. 240 English-Korean bilinguals who moved to the United States between ages 1-24, 24 Korean monolinguals, and 24 English monolinguals were recorded repeating pre-recorded sentences. The Korean-English bilinguals repeated sentences in both English and Korean, and the monolinguals repeated sentences only in their native language. 10 monolingual speakers of Korean listened to and rated the Korean sentences, and 10 monolingual speakers of English listened to and rated the Korean sentences. Each sentence was rated on a 9-point scale, with 1 corresponding to "very heavy accent" and 9 corresponding to "no accent." As I am interested primarily in Korean-accented English, I will discuss only the results for the English sentences here.

Yeni-Komshian, Flege, and Liu (2000) found that age of arrival in the United States accounted for 75 percent of the variation in listener ratings: the older the speaker was when they arrived in the United States, the more accent the listener judges heard. They found smaller effects for the extent to which speakers reported using English and Korean, and for level of education; speakers who used English more often were heard as less accented, as were speakers with more years of education. This result is unsurprising, given that research has repeatedly indicated that when learning a second language, "earlier is usually better" (Flege et al., 2006) – speakers who are younger when they acquire a second language are generally more proficient and less accented than those who acquire a second language when

they are older. However, they did not focus on any specific phonetic features that led to perception of accent, or discuss which phonetic features transferred from Korean were lost with increased experience with English.

Only a few studies of Korean-accented English have described the phonetic correlates of Korean accent, with the majority focusing not on specific phonetic features but on listeners' subjective ratings of speakers' level of accent (e.g. Yeni-Komshian, Flege, & Liu, 2000; Flege et al., 2006). Tsukada et al. (2005) studied native Korean-speaking children and adults' ability to both produce and hear distinctions between English vowels /i/, /ɪ/, /e/, /ɛ/, /æ/, /ɑ/, and /ʌ/. For the perception experiment, 72 native Korean speakers were recruited as subjects. They were divided by age, length of residence in the United States, and age of arrival in the United States. Participants were presented with trios of recordings of English vowels in "bVb" context in which two were the same but one was different (e.g. [bib], [bɪb], [bib]) and asked to identify the different vowel.

Tsukada et al. found that Korean native speakers learning English had trouble distinguishing /i/ versus /ɪ/, /ɛ/ versus /æ/, and /ɑ/ versus /ə/, all distinctions not made in Korean. Children were better at distinguishing the vowels than adults, and there were also effects for age of arrival in the United States – longer residence in the United States increased the Korean native speakers' ability to distinguish between the sets of vowels. The same group of subjects also performed a production task, in which they were prompted to produce the same English vowels using a picture-naming task. Acoustic analysis indicated that the subjects were also unable to reliably produce distinctions between /i/ and /ɪ/, /ɛ/ and /æ/, or /ɑ/ and /ə/.

Lindemann's (2003) study of listener perceptions of Korean-accented English also provides the only phonetic description of the components of Korean accent in the sociolinguistics literature. Lindemann recorded four native English speakers and four native speakers of Korean reading a short passage and gave a brief auditory description of the Korean-native speakers' differences from the native English speakers. She reports that "the most common identifiably non-native features" are /r/-omission, ambiguous pronunciation of /l/ and /r/, /l/ and /r/ reversal, and production of /ð/ as a stop. She also notes difficulties producing distinctions between /i/ versus /ɪ/ and /ɑ/ versus /ə/. Finally, she also notes that all speakers

had “some difficulties with the alveolar fricative /z/,” but does not elaborate on the nature of these difficulties (p. 352). Unfortunately, Lindemann did not conduct any phonetic analysis of these variables, or correlate listeners’ attitudinal responses with specific phonetic features (the results of Lindemann’s attitudes study are discussed in section 2.4.3 below).

2.3.3 Attitudes Toward Asian American and Asian-Accented Speech

As is the case with phonetic research, fairly little sociolinguistic research has been done on attitudes toward Asian American English or on Asian-accented English. The majority of research on language and ethnicity has focused, since the 1970s, on African Americans and, more recently, on Latinos (Reyes & Lo, Introduction: On Yellow English and Other Perilous Terms, 2009). This is perhaps in part because attempts to delineate Asian Americans as a single, unified speech community have been largely unsuccessful; Lo and Reyes contend that “the forms of English spoken by [Asian Pacific Americans] are often not recognizable as indexing a particular ethnic or racial group across a speech community” (p. 5). This may be the result of attempts to consider Asian Americans as a monolithic group, as opposed to constructing studies in a way that reflects the diversity of the groups subsumed by the “Asian American” label. However, Asian Americans are frequently treated and stereotyped as a single, homogenous group. Popular stylizations of Asian American speech in the form of “Mock Asian” portray it as a form of non-native accented speech (Chun, Ideologies of Legitimate Mockery: Margaret Cho's Revoicings of Mock Asian, 2009), contributing to the view of Asian Americans as either “forever foreigners” or “honorary whites” (Reyes & Lo, Introduction: On Yellow English and Other Perilous Terms, 2009).

Research on attitudes toward Asian-accented English is similarly sparse, with only a handful of linguistic studies published in English. Asian accents are of interest in the attitudes literature particularly since they are one of a few out-group accents, along with British English, that Americans rate favorably for status-related traits (Cargile, 1997). Asian Americans are considered a “model minority,” and stereotypes of Asian Americans portray them as economically self-sufficient and well educated (Shankar, 2008). Given that attitudes toward a speech variety or accent reflect attitudes toward the corresponding speech community, it is therefore

expected that Asian-accented speech would be rated highly on status-related traits such as employability, intelligence, and economic status.

Cargile (1997) found just this pattern. Using the matched guise technique, Cargile compared reactions to a single speaker speaking in standard English and in Mandarin Chinese-accented English, and found that the Chinese-accented guise was rated as of similar status and attractiveness to the standard English guise, and the two guises were also rated as equally suitable for jobs as a courier, a human resources associate, an information systems trainee, or a brand manager. However, when the study was repeated with subjects told that the speaker was an English professor, listeners rated the Chinese-accented guise as significantly less attractive. This is consistent with other studies of Asian accents in a classroom context (see section 2.3).

A listener does not even have to be able to identify a speaker's accent correctly to access attitudes and ideologies about that variety; Lindemann (2003) notes that "language ideologies may function without correct identification of the actual variety" (p. 355). Lindemann studied Midwestern native English speakers' attitudinal reactions to Korean-accented English with varying levels of accentedness, as compared with reactions to native English speakers. She also examined the listeners' ability to identify the speaker's country of origin, and found that the listeners were frequently unsuccessful, often identifying the Korean-accented speakers as generic "Asian," Chinese, Japanese, Indian, or Latino. In this study, a higher level of accentedness was rated more poorly on both status and language related traits, and that any level of accentedness was rated more poorly than native English speech. This contrasts with Cargile's (1997) finding that Chinese-accented speech was rated similarly to native English speech for status. Lindemann suggests that this is a result both of attitudes toward language that obviously belongs to an out-group and to the listeners' frequent misattribution of the speakers' accents; the listeners' evaluations index both their attitudes toward the specific accent and their attitudes about the group to which they believe the speaker to belong, "a non-native stigmatized group" (p. 358). This is consistent with previous findings indicating that listeners are quite capable of making attitudinal judgments about speakers even if they cannot identify their region of origin (Niedzielski & Preston, 2003).

This brings forward two important points. First, as has been found previously in studies of regional varieties, it is not necessary for listeners to be able to accurately identify an accent in order to have an attitudinal response to the accent. And second, it indicates that for listeners, there is some validity to the "Asian" label. Although Asian Americans and Asian speakers of English as a second language are a diverse group, listeners who hear their speech rarely categorize them simply as "Asian" and, when they attempt to make more fine-grained distinctions, are often incorrect (Lindemann, 2003).

The above studies have described attitudes toward Asian American and Asian-accented speech. In the following section, I turn to the ideologies of language and of standard English in the United States that play into these attitudes, and which ultimately contribute to linguistic profiling (section 2.5) and language-based discrimination (section 2.6).

2.4 Attitudes and Ideologies

Language ideology and language attitudes have traditionally been treated by linguists as distinct areas of study with different aims; Language attitudes research is concerned with subjective evaluations of language, while language ideology is said to concern the perceived boundaries of language – what is and is not language, or acceptable language. This, however, is a fairly restrictive definition of language ideology. More broadly defined, we may say that language ideology consists of the ideologies people and societies hold with regard to language.

This puts us in the somewhat difficult position of needing to define ideology. Unfortunately definitions of ideology are many and conflicting (Eagleton, 2007). It is, however, possible to produce a rough outline of the features of an ideology:

1. Ideologies are unifying, even when they consist of heterogeneous formations.
2. Ideologies call one to action; they provide motivations and imperatives.
3. Ideologies are rationalizing; they attempt to justify social behavior.
4. Ideologies are legitimizing; they help establish a person or group's position as acceptable, and serve as a means for ruling powers to obtain consent from their subjects.

5. Ideologies are universalizing; they position their values as applying to all people at all times.
6. Ideologies are naturalizing; they make their values seem common-sensical and self-evident.

(Eagleton, 2007)

Ideologies of language include what language is appropriate and inappropriate, but also the ways in which language is valued (or not), and the idea of language as synonymous with culture. Wolfram (1998) defines language ideology as "an underlying, consensual belief system about the way language is and is supposed to be," something that is taken so for granted that it is presumed to be common sense (pp. 109-110). We must also understand that in the United States, as in many other countries, there is a standard language ideology that dictates that ideally, "every sound should be pronounced in the same way by every speaker, and that all speakers should use the same grammatical forms and vocabulary items in exactly the same way. (It also implies that language should not undergo change)" (Milroy, 2007, p. 133).

With this definition of ideology, it becomes increasingly difficult to make a clear division between language ideologies and language attitudes. Attitudes are, in many cases, an individual's expression of an ideology. If an individual displays negative attitudes toward foreign-accented speech, for example, rating a speaker with a foreign accent as less intelligent, competent, or affluent, it is likely that these attitudes are at least in some part the result of an ideology about foreign accents, such as the idea that a foreign accent is the result of lack of intelligence, education, or effort.

In order to understand ideologies Americans hold about speakers of languages other than English, it is necessary to understand American ideologies about English, and about its role in the United States. Although the United States as of this writing has no official language, there is an ongoing movement, known as the English-only or Official English movement, to pass a constitutional amendment declaring English the official language of the United States. An organization known as U.S. English describes itself as "founded to defend the public interest in the growing debate on bilingualism and biculturalism" (U.S. English, 1992, p. 143). In a text promoting the organization, they describe English as "a common language that

has united a diverse nation and fostered harmony among its people" (p. 143). It refers to the "erosion of English and the rise of other languages in public life," and describes English as "under attack" by "institutionalized language segregation" (p. 144). This positions all languages other than English not only as other but as potentially dangerous; the presence of bilingual or multilingual speakers in the United States is framed as threatening the very foundation on which the country is constructed. It is possible that the prevalence of this ideology plays a role in the social meanings associated with accented speech, and even in the lack of ethnic differentiation among Asian speakers.

Writing in a journal on teaching of English as a second language, Wiley and Lukes (1996) refer to this perspective as an "ideology of English monolingualism, which frames policy issues in an immigrant paradigm in order to portray language diversity as an alien or divisive force" (p. 511). According to Wiley and Lukes, not only is monolingualism considered normal in the United States – it is also the ideal. A standard, "literate," unaccented variety of English is held up as the ideal toward which all citizens or residents of the United States should strive, regardless of their native language.

In addition, then, to this ideology of English as a binding national tie under threat from multilingualism, there is a standard language ideology that proposes that an ideal nation-state has a single perfect, homogenous language (Lippi-Green, 2012). Therefore not only multilingualism but also any deviation from the "unaccented" ideal is considered threatening to the well-being of the nation. This idea of an unaccented standard English is in itself an ideology; society holds up as an ideal a specific variety of English associated with education and the white middle class. An editorial preface to Merriam-Webster's dictionary claims, "there can be no objective standard for correct pronunciation other than the usage of thoughtful and, in particular, educated speakers of English" (Merriam-Webster, 2009, quoted in Lippi-Green, 2012).

Even non-native English speakers are not immune to the ideal of unaccented, native-like English. Talmy (2009) examined the discourses present in a high school English as a Second Language (ESL) classroom and found that neither the students nor the teacher were immune to standard English ideologies. Students routinely mocked another student who was less proficient in English, thereby both

positioning the other student as a foreigner and positioning themselves as less foreign. The teacher similarly positioned the students as foreign in an assignment; she asked that students report on a holiday "from their own country or culture." When a student asked if they could report on Christmas, the teacher emphasized, "but the requirement is it's from *your* country" (p. 352), indicating that it was not acceptable for the United States to be considered the student's country of origin.

Similarly, in study of non-native English speakers' views on their own English production, Gluszek and Dovidio (2010) found that non-native English speakers felt that their accents lead to problems in communication, and made them feel like they did not belong in the United States. The authors collected data from 203 subjects via an online survey. The survey asked whether subjects had a native or non-native accent, how strong they would rate their accent on a scale of 1-7, and how much bias they felt they experienced in daily life. They found that the stronger non-native English speakers rated their accents, the more stigmatization they felt as a result of their accent. This study indicates that it is not only the people who *hear* non-native accents who have ideologies about foreign-sounding speech; the speakers themselves have internalized these ideologies.

More of the potential consequences of these ideologies can be seen in the following two sections. In section 2.5 I discuss the effects of accent, and the perception of accentedness, on listener comprehension. Section 2.6 describes the consequences of language attitudes in employment, housing, and education.

2.5 Attitudes, Linguistic Stereotyping, and Comprehensibility

> *When speakers are confronted with an accent which is foreign to them, the first decision they make is whether or not they are going to accept their responsibility in the act of communication. What we will see again and again in the case studies which follow is that members of the dominant language group feel perfectly empowered to reject their role, and to demand that a person with an accent carry the majority of responsibility in the communicative act.*
> *(Lippi-Green, 1997, p. 70)*

Linguistic stereotyping occurs when listeners access stereotypes regarding a particular group when hearing a speech variety associated with that group. Based

on the language produced by the speaker, listeners make assumptions about the group to which the speaker belongs, and treat them accordingly. It is not even necessary that a listener hear a long passage of speech to identify the speaker's presumed social or ethnic group. Research by Purnell, Idsardi, and Baugh (1999) indicated just how little speech was necessary for identification of a speaker's dialect; they used a matched-guise study to show that a speaker's dialect could be identified even if the listener only heard the word "hello." One of the researchers, John Baugh, was able to record a message in three dialects: Standard American English (SAE), African American Vernacular English (AAVE), and Chicano English (ChE). Listeners were able to correctly identify the dialect used in each guise over 80 percent of the time when hearing a short passage, and over 70 percent of the time based only on the word "hello." It is clear, then, that listeners can identify a speaker's dialect from phonetic and phonological information contained in a very small segment of speech (see section 2.3.6 for more on Purnell, Idsardi, and Baugh).

In her 1999 study of Detroit residents' perceptions of (and failure to perceive) Canadian raising, Niedzielski (1999) found that social information, even incorrect social information, about speakers can influence what listeners report they hear: Given social information about a speaker, listeners are prone to hear what their stereotypes about that speaker, or the group of which that speaker is a member, lead them to expect. As Niedzielski found, this can occur even if the speaker does not exhibit the expected features, but is merely told the speaker is a member of some group.

Rubin (1992) found that visual information can also influence what listeners perceive. He presented college students with recordings of a native speaker of English giving a brief lecture, varying only the image presented to the students: One set of subjects saw an image of an Anglo American woman, and the other saw an image of a Chinese woman. The subjects who heard the passages in association with the image of the Chinese woman responded as if they were hearing non-native accented speech. Additionally, these subjects performed more poorly when tested on their comprehension of what they had heard. American undergraduate students, it seems, can perceive an instructor as accented based on appearance alone, even if that instructor is a native speaker of English.

Kang and Rubin (2009) conducted further research to determine what contributes to a listener's likelihood to perceive a native English speaker as having a foreign accent based on appearance. They found that linguistic expertise, foreign language study, and experience teaching or tutoring English made listeners less likely to hear a non-native accent where there was none. They also divided this effect into two types: one based on the "superiority" category defined by the Speech Evaluation Instrument (see section 2.1), in which listeners heard a native speaker of English who appeared to be of East Asian descent as more accented; and another based on the Speech Evaluation Instrument's "social attractiveness" category, in which listeners considered assumed non-native speakers "unfriendly, cold, hostile, dishonest," and suffered from decreased comprehension of their speech (p. 452).

These negative evaluations of speakers who are presumed to be accented, as well as listeners' perception of accent where there is none based only on appearance, can be argued to be the result of language ideologies and of widely circulating stereotypes.

2.6 Consequences of Language Attitudes and Ideologies

Language attitudes and ideologies are not merely of academic interest – they can exert a powerful influence on the lives of the people subjected to them. Language attitudes and language ideologies have been shown to have effects on housing, employment, and education.

Sociolinguistic studies of the negative effects of language attitudes and ideologies have focused primarily on African Americans. Perhaps the most well-known incident exemplifying the real-world consequences of language ideologies is the Oakland Ebonics controversy: the Oakland school district introduced a resolution recognizing Ebonics (African American English) as the primary language of its African American students, and proposing the use of this language to instruct them in standard English (Smitherman, 1998). This resolution provoked powerful reactions, with many objecting to the idea that

Language-based discrimination by employers is a severe and ongoing problem in the United States. A statistical study by the General Accounting Office of the United States Government found that 10 percent of their sample – a total of

461,000 companies – openly admitted to "discriminating on the basis of a person's foreign appearance or accent" (Lippi-Green, 2012, p. 153).

Lippi-Green (2012) describes a number of court cases regarding language discrimination. In one, James Kahakua, a native bilingual speaker of English and Hawaiian Creole, was denied a promotion to a position reading pre-prepared weather reports on the radio because his employer felt his Hawai'ian accent unsuitable for the position. Kahakua sued his employer under Title VII of the Civil Rights Act, which "makes it illegal to deny a person employment, promotion, or workplace advantages" on the basis of certain protected categories: race, color, national origin, sex, and religion (Lippi-Green, 2012, p. 155). However, Kahakua lost the case; the judge declared that it was reasonable to require radio announcers to speak "Standard American English," which he did not explicitly define, and claimed that "there is no race or physiological reason why Kahakua could not have used Standard American English pronunciations" (p. 157). A speech therapist hired by Kahakua's employer further recommended that Kahakua "seek professional help in striving to lessen this handicap… Pidgin can be controlled."

In another case, an engineer named George Akouri was turned down for promotions three times by the Florida Department of Transportation. When he asked why he had not been promoted, Akouri was told by a supervisor that if promoted he would be supervising a crew of Anglo men, who would not take orders from him because he was a foreigner and had an accent. After filing a charge of discrimination on the basis of national origin with the Equal Opportunity Employment Commission, he was fired. While the court upheld his claim of discrimination under Title VII, on appeal they decreased an award of $700,000 in damages and back pay to nominal damages, determining that while there was sufficient evidence to prove discrimination, there was not sufficient evidence to warrant awarding back-pay.

Academia is not immune from discrimination on the basis of accent, and both students and administrators often discuss the problem of non-native English-speaking graduate teaching assistants. In addition to Rubin's (1992) study of students' perceptions of accent (see section 2.5), Lippi-Green (2012) offers several anecdotal cases of student complaints about graduate teaching assistants' English skills at the University of Michigan:

> *A more recent experience concerns my daughter, a recent graduate of the engineering college. Most of her undergraduate experience was with TAs, many of whom were ill equipped to communicate the language let alone ideas. For $10,000 a year in out-of-state tuition we expected more.*
> *(From a letter to the "Alumni Voices" section of the University of Michigan LSA magazine, quoted in Lippi-Green, 2012)*

> *Of course it's hard to understand [non-native English speaking graduate TAs], and of course I resent it. Why can't I get what I pay for, which is a teacher like me who talks to me in my own language that I can understand?*
> *(From a questionnaire distributed annually to incoming students in a linguistics course, quoted in Lippi-Green, 2012)*

The University of Michigan administration responded to these complaints by requiring international TAs to complete a three-week intensive English workshop and pass an oral proficiency screening before being allowed to teach, and requiring those who could not pass the screening to take additional English classes until their English was deemed "acceptable." However, no steps were taken by the university to educate undergraduates about accent or potential bias (Lippi-Green, 2012).

Lippi-Green managed to combat this to some degree in her own classroom. While teaching an introductory linguistics course with several non-native English speaking teaching assistants, she received multiple student complaints about the teaching assistants' accents after the first discussion section. The next time she taught the course, she spent part of the first lecture discussing accents in general, foreign accents specifically, and methods to resolve difficulty understanding someone with an accent. She also promoted open-mindedness toward and empathy for teaching assistants who were not native English speakers. Only two students complained about their teaching assistants' accent in that course, and both had missed the lecture on accents (Lippi-Green, 2012). While this was certainly not a controlled experiment, it does provide evidence that it is possible to combat listener biases against accented speakers. Unfortunately, universities do not generally implement such practices.

Students also encounter biases against both accent and non-standard dialects of English. Although educational associations including the National Council of Teachers of English and the Conference on College Composition and Communication claim to acknowledge the value of students' own language varieties and their right to those varieties, there is a pervasive belief that those same varieties are in some way not appropriate in a school setting. They position Standard English as "preferred, obligatory, appropriate, widely used," and all other varieties as "narrow, inappropriate, and something to be tolerated rather than accepted" (Lippi-Green, 2012, p. 82). Lippi-Green quotes one teacher as saying her Puerto Rican students come to school "all mixed up and don't know any language well. As a result they can't even think clearly." She further claims, "since their parents don't really know any language either, why should we waste time on Spanish? It is 'good' English which has to be the focus" (p. 83). Although there is ostensibly a valuing of students' own language varieties, some teachers portray their students' speech instead as non-language, or somehow deficient language, and feel that their students must replace their deficient varieties with Standard English.

Finally, there is also evidence of language-based discrimination in housing. Purnell, Idsardi, and Baugh (1999) studied discrimination in renting practices on the basis of accent. Baugh, a tri-dialectal California native, called landlords advertising properties for rent in the San Francisco area using three dialect guises: African American English (AAE), Chicano English (ChE), and Standard American English (SAE). The researchers targeted five regions around San Francisco with varying ethnic makeups: East Palo Alto, Oakland, San Francisco, Palo Alto, and Woodside. They found that while the SAE guise was equally successful in obtaining an appointment to view a property regardless of the ethnic makeup of the area where it was located, the AAE and ChE guises had more difficulty. Bias against the AAE and ChE guises was strongest in Palo Alto and Woodside, both areas where the majority of the population was white. The success of the AAE and ChE guises in obtaining an appointment was correlated with the ethnic makeup of the area in which the apartment was located; the greater the African American population of an area, for instance, the more likely the AAE guise was to obtain an appointment to view the property. The ChE guise had the least success overall in obtaining

appointments. Purnell, Idsardi, and Baugh showed that language-based discrimination occurs in housing, and can even occur without face-to-face contact.

These examples emphasize the importance of studying language attitudes and language ideologies, particularly regarding potentially stigmatized varieties. The effects of language attitudes reach far beyond individual interactions; they can lead to institutional practices that harm speakers of stigmatized varieties, difficulties in obtaining employment or being promoted, and difficulties obtaining housing.

2.7 Conclusions

Several factors in the previous research described above serve as direct guides to my own research. In nearly all previous studies of the phonetic correlates and identifiability of Asian American speech, Asian Americans have been considered as a monolithic group. Although there is some evidence that non-Asian Americans tend to perceive all Americans of Asian descent as an undifferentiated group (e.g. Lindemann, 2003), the term "Asian American" refers to a highly diverse group, and it is difficult to justify the assumption that they form a single, monolithic speech community. I have therefore chosen to focus on Korean Americans specifically. In doing so I avoid the problematic generalization of Asian Americans as a homogenous group, and also expand the research on an understudied population.

It is not entirely clear, given previous research, that it will be possible for listeners to differentiate between the speech of Korean Americans and the speech of Caucasian Americans. I have therefore included as objects of study individuals of Korean American descent as well as a "control" speaker who is a Caucasian monolingual English speaker. Based on Mendoza-Denton and Iwai's (1993) study of second- versus fourth-generation Japanese Americans, it is reasonable to conclude that second-generation Korean Americans would be most likely to have some distinguishing feature in their speech. I therefore chose to recruit second-generation Korean Americans fluent in both English and Korean for the Korean American sample.

I have based my attitudes elicitation methods on the design laid out by Zahn and Hopper (1985) in the Speech Evaluation Instrument. However, due to the specific goals of my research, I found it inadvisable to use the Speech Evaluation

Instrument without modification. I have added specific questions addressing accentedness and clarity. I have also attempted to operationalize Rickford's (1985) finding that listeners have positive affective reactions to those speakers who sound most similar to them by asking listeners to rate the speaker's similarity to their own speech.

It is also important to note, when considering the results of this study, that participants were given unlimited time to complete the attitudes task. It is therefore possible that, as Cargile (2002) found, the attitudes results may be skewed toward

I undertake this study of attitudes toward Korean American and Korean-accented English not only out of academic and intellectual interest, but out of concern for the real-world consequences of these attitudes. Section 2.3.6 above discusses accent- and dialect-based discrimination in employment, housing, and academia. Language attitudes do not exist in a vacuum; they can influence, sometimes dramatically, how people are treated. Linguistic stereotyping means that by *sounding* Korean American or speaking English with a Korean accent, speakers are likely to elicit in those who hear them stereotypes about Korean Americans or Korean immigrants. Further, reverse linguistic stereotyping can result in a speaker being reacted to as if they had a Korean accent simply because they look like someone the listener assumes would have that accent. By understanding the attitudes people hold toward Korean American and Korean-accented English, we can better understand these issues. It is my hope that by making people aware of attitudes and stereotypes of Korean American and Korean-accented English, it may be possible to combat negative attitudes and stereotypes.

3. Method

This study involved two participant groups. A speaker group made up of 2 native Korean, L2 English speakers, 2 balanced bilingual English and Korean speakers, and 1 monolingual English speaker were recorded reading short passages. A group of 20 listeners, 10 monolingual and 10 with significant experience with a language other than English, heard the recorded passages and provided attitudinal responses via a survey. The two groups were recruited and examined separately, and so are described separately below.

3.1 Speakers

3.1.1 Recruitment

The speaker group consisted of five speaker subjects divided into three categories based on their language use. The first category, referred to as K, consisted of two native speakers of Korean who acquired English after the critical period. They were born in Korea and did not spend any significant period of time in the United States until adulthood. These speakers began acquiring English in their mid to late teens, after the critical period;

The second category, B, consisted of two speakers of Korean ancestry who were born and raised in the United States. These speakers acquired both English and Korean during the critical period and have native proficiency in both languages. Both of the speakers in category B spoke Korean exclusively until they began school at age 5. After age 5 they primarily spoke Korean at home and with their families, and English at school. The speakers in category B are second-generation immigrants, born in the United States to parents who emigrated from Korea as adults. I chose to focus on second-generation speakers because they seemed most likely to exhibit features in their speech distinguishing them from monolingual Caucasian Americans, based on Mendoza-Denton and Iwai's (1993) finding that second-generation Japanese Americans had distinctive, Japanese-influenced features in their speech, but fourth-generation Japanese Americans did not. Given the apparent difficulty of distinguishing the speech of Korean Americans from that of Caucasian Americans,

The final category, C, consisted of a single English-monolingual control speaker. The control speaker was born in the United States and has not spent any significant length of time outside the United States.

All five speakers were female in order to control for gender effects, and had no known speech or hearing difficulties. Due to the specific requirements for these subjects, speakers were recruited via personal contacts and word of mouth.

3.1.2 Recording

Once recruited, each speaker completed a survey detailing their language use (see appendix A). The survey elicited information about where and with whom each speaker used English and Korean, as well as general demographic information. The speakers were then recorded reading two of six passages taken from Aesop's Fables. The passages were matched for reading level, each with a Flesch-Kincaid reading level of approximately 8, and for the presence of variables of interest. Passages were also matched for length to the extent possible. Each passage was about 180 words, but due to the speakers' differing reading speeds, it was not possible to match the lengths of the recordings. Speakers were prompted to practice reading the passages as many times as they liked before recording began, and instructed to ask the researcher about any unfamiliar words. Two repetitions were recorded for each reading passage, and one of the repetitions was chosen to present to listeners.

Recording for all speakers except K1 was conducted in the University of Washington Sociolinguistics Laboratory. Speaker K1 was recorded in the sound booth at the University of Washington Language Learning Center. Recordings were made using an M-Audio Microtrack 24/96 and a stereo condenser microphone. They were recorded at a sampling rate of 44.1 kHz and saved in WAV format. Recordings were edited in Praat and Audacity to match volume and to delete speech errors such as repeated words to control for effects of reading disfluency. The volume of each sound file was adjusted to 30dB using Praat, and a tone was added after the end of each audio file to indicate to the listener that the passage was over.

3.2 Listeners

3.2.1 Recruitment

Listener subjects were recruited via flyers posted on the University of Washington campus and around the city of Seattle, as well as via word of mouth. Any native speaker of English who did not have significant exposure to Korean and did not have any known hearing defects was eligible to participate. Significant exposure of Korean was determined based on responses to screening questions about what languages the subject spoke or had studied, what languages their family spoke, and what language their friends spoke (see appendix C). Any subject who reported having studied Korean or having close friends or family who spoke Korean were disqualified from the study.

The listener subjects were divided into two groups: a monolingual/monocultural group and a multilingual/multicultural group, each consisting of 10 subjects. The monolingual/monocultural group was made up of speakers who had limited or no experience with languages other than English. The multilingual/multicultural group consisted of speakers who had extensive experience with languages other than English, and significant exposure to non-English-speaking groups. Exposure to languages other than English was determined based on screening questions regarding what languages they spoke or had studied, and what languages their family and close friends spoke, as well as what countries subjects had lived in (see appendix C). Subjects were classified as multilingual/multicultural if they had studied a language for more than 4 years, reported speaking a language other than English with friends or family, or had lived in a non-English-speaking country.

Recruitment continued until the desired number of subjects for both groups had been found.

3.2.2 Attitudes Elicitation

Listeners completed a screening survey about their own language use (see appendix C), and placed into one of the two groups on the basis of their responses. While it is possible that the survey primed subjects on the topic of language and accent, it was considered important to screen speakers for experience with Korean

specifically before they completed the study. By surveying speakers about their language use, it was possible to determine whether they had experience with Korean that might disqualify them without revealing the fact that the study was concerned with reactions to Korean accent. Listeners were then presented with five audio recordings, one recording of each speaker, in one of four orderings (see appendix D), and were given an attitudes questionnaire (see appendix E) for each stimulus recording. Listeners were instructed to pause the recording when they heard the tone at the end of each stimulus and complete the attitudes questionnaire. They were also instructed not to pause or rewind the recording at any time.

Stimulus recordings were presented in uncompressed WAV format on an iPod with Shure SRH440 headphones.

The attitudes questionnaire completed by listener subjects included 14 Likert scale questions, which asked subjects to rate the speaker on a scale of 1-5 for a variety of attributes:

This speaker…						
has no accent	*1*	*2*	*3*	*4*	*5*	*has a very strong accent*

Attitudes questions were divided into five categories for analysis: Accentedness, clarity, affective, competence, and similarity. Accentedness questions were designed to determine how accented the listener perceived the speaker to be. Clarity questions asked how clear the listener found the speaker. The other attitudes measures were based on Zahn and Hopper's (1985) Speech Evaluation Instrument. In order to control the length of the survey, it was not possible to use the entire speech evaluation instrument; instead, questions were selected to target particular areas of interest, including listeners' affective response to the speakers and their view of the speaker's level of competence. These categories are referred to here as "affective" and "competence," as they are not strictly analogous to Zahn and Hopper's "social attractiveness" and "superiority" categories, instead targeting only a subset of the information included in those categories. Affective questions were taken from the "social attractiveness" category, and were intended to measure the listener's affective response to the speaker. Competence questions were taken from the "superiority" category of the Speech Evaluation Instrument, and measured the listener's opinion of the speaker's intelligence and general competence. The

similarity rating was based on a single question asking speakers how similar the speaker sounded to them. While this question was initially a part of the affective category, responses to the similarity question patterned very differently from other affective questions. In order to avoid distorting results in the affective category, it was decided to consider this question separately. Subjects were also asked also asked where they believed the speaker was from, and the questionnaire included two open-ended questions about how the speaker's speech was perceived. Finally, the questionnaire included three questions to check the subject's recall of the content of the passage they heard. Participation took approximately 45 minutes.

3.3 Data Analysis

Two sets of data were analyzed in this study. The productions of the speaker subjects underwent acoustic phonetic analysis for several variables, and the listener attitudes responses were analyzed. These two data sources were then examined for correlations between speakers' phonetic productions and listener attitudes.

3.3.1 Phonetic Variables

Because this research is interested in whether listeners can discern Korean American identity from speech alone, phonetic variables believed to index Korean American identity or to be indicative of a Korean accent were selected based on existing literature (Lindemann, 2003). The following phonetic variables were considered:

- Monophthongization of /o/
- Monophthongization of /u/
- Fronting of /a/
- Lack of differentiation of /i/ versus /ɪ/
- Pronunciation of /ð/ as a stop
- Lengthened VOT in /p/, /t/, and /k/ word-initially
- Difficulties with /l/ and /r/ including:
    - /l/ and /r/ reversal
    - Producing /l/ or /r/ as /ɾ/

monophthongization of /o/

The vowel /o/, as in GOAT and GOAL is described by Labov, Ash, and Boberg (2006) as a member of the long-*o* class. It is produced variably in the West as either the diphthong [oʊ] or as monophthongal [oː], with the diphthongal realization more common in longer vowels (Gordon, 2005). It is expected that native speakers of Korean will have a more monophthongal production of /o/ than is typical in most varieties of English, as Korean phonology does not include productions of /o/ with an analogous offglide (Martin, 1992).

monophthongization of /u/

/u/ is referred to by Labov, Ash, and Boberg (2006) as the long-*u* class, and is found in words such as GOOSE. It is produced in the West variably as the diphthong [uʊ] or as monophthongal [uː], and like /o/, the diphthongal realization is more common in vowels of longer duration. Unlike /o/, however, significant fronting of /u/ is found in the West, resulting in a realization more like [ʉ] for some speakers. A more monophthongal realization of /u/ is also expected as, again, Korean does not have a diphthongal realization of /u/ (Martin, 1992).

fronting of /a/

Because all of the speakers in this study produce the COT and CAUGHT vowels, called short-*o* and long open-*o* (Labov, Ash, & Boberg, 2006), as merged, I have considered them as a single variable. This is produced in the West as the low unrounded vowel [ɑ]. Korean lacks a low back vowel (Martin, 1992); the most similar vowel in Korean phonology is a low central unrounded vowel. We might therefore expect native speakers of Korean to produce a more fronted realization of /a/.

lack of differentiation between /i/ and /ɪ/

While the high front tense and lax vowels /i/ and /ɪ/, as in PIT and PEAT, are contrastive and form separate vowel classes in English, there is no contrast between the two in Korean, which has only a high front tense vowel /i/ phonemically (Martin, 1992). Tsukada et al. (2005) found that native Korean speaking adult English learners had difficulties perceiving and producing the distinction between /i/ and /ɪ/.

production of /ð/ as a stop

The voiced dental fricative /ð/ is fairly rare in the world's languages and does not exist in Korean (Martin, 1992). It is therefore expected that native speakers of Korean would have some difficulty with this sound, and might produce it instead as a stop. Native English speakers are not expected to have difficulty with this sound.

lengthened VOT in word-initial /p/, /t/, and /k/

The voiceless consonants /p/, /t/, and /k/ have shorter VOT in English than they do in Korean, and aspirated /p/, /t/, and /k/ are phonemically distinct from the unaspirated variants in Korean. I therefore expect that Korean speakers would show a longer VOT for these three sounds word-initially than would English monolinguals.

difficulties with /l/ and /r/

While English has two phonemic liquids, /l/ and /r/, Korean has only one liquid phoneme, which is variably realized as [l] or [ɾ] depending on its position in the syllable: The alveolar flap [ɾ] occurs syllable-initially, while [l] occurs syllable-finally except in fairly recent loan words (Martin, 1992). It is therefore expected that Korean native speakers would have difficulty with the English /l/ and /r/ phonemes, and might potentially reverse them or produce them as the alveolar flap [ɾ]. Since /l/ and /r/ are distinct phonemes in English, English native speakers are not expected to show any difficulty with this distinction.

3.3.2 Acoustic Analysis

Measurements were performed using Praat (Boersma & Weenink, 2011). Because the speakers' F0 and the resultant size of their vowel spaces varied considerably, vowel data was normalized using NORM (Thomas & Kendall, 2007) with the speaker-intrinsic Nearey method. A speaker-intrinsic method allows individual speakers to be compared to each other, rather than allowing only comparisons between groups. Because the speaker groups consisted of only one or two speakers, and because the speakers within each group showed a good deal of variation from each other, it was important to be able to compare individual speakers.

monophthongization of /o/ and /u/

The extent to which /o/ and /u/ moved over the course of the vowel was calculated using Euclidian distance. This method determines the movement of the vowel over its duration by calculating the distance between F1 and F2 at the beginning of the vowel and F1 and F2 at the end of the vowel (Di Paolo, Yaeger-Dror, & Wassink, 2011). F1 and F2 at the 20 percent point of each vowel were compared to F1 and F2 at the 80 percent point. This value was then divided by 60 percent of the duration of the vowel to determine change per second. In order to allow these measurements to be compared between speakers, normalized values were used for all calculations.

fronting of /a/

The extent of /a/ fronting was measured relative to the center of the speaker's vowel system. The central point of the speaker's vowel space was calculated based on the midpoint between the average normalized F2 values for the most front vowel, /i/, and the most back vowel, /o/. The measurement of F2 taken at the midpoint of the vowel was subtracted from this value to determine its distance from the midpoint of the speaker's vowel system, with a higher value indicating a greater degree of backing. Normalized values were used In order to allow the results to be compared across speakers.

lack of differentiation between /i/ and /ɪ/

Measurements of F1 and F2 at the 50 percent point were analyzed to determine to what degree each speaker's production of /i/ and /ɪ/ overlapped. Overlap was analyzed using VOIS3D (Wassink, 2006) to generate overlap fractions for each speaker's distributions of /i/ and /ɪ/. Overlap fractions were calculated both including duration (3D overlap) and excluding duration (2D overlap). Because the comparisons of the distributions of these vowels were made only within the individual speakers and not between speakers, non-normalized data was used.

production of /ð/ as a stop

Two factors were analyzed for fricative /ð/. First, the total duration of /ð/ was measured, beginning at the onset of frication or the beginning of the release burst (where applicable), and ending at the cessation of frication. The spectrogram

and waveform were also examined visually for the presence or absence of a release burst, which would indicate that a full closure had occurred.

lengthened VOT for word-initial /p/, /t/, and /k/

The VOT of word-initial /p/, /t/, and /k/ was measured from the beginning of the release burst to the onset of voicing for the following sound. The mean VOT for /p/, /t/, and /k/ was calculated for each speaker. Because the VOT varied considerably between the three voiceless stops considered, an overall average VOT was not taken.

difficulties with /l/ and /r/

Spectrograms for expected instances of /l/ and /r/ were visually examined to determine whether this sound was realized as /l/, /r/, or /ɾ/. Auditory impressions for each expected instance of /r/ or /l/ were also recorded. Errors were categorized by whether /l/ or /ɾ/ occurred when /r/ was expected ("/r/ errors"), or when /r/ or /ɾ/ occurred when /l/ was expected ("/l/ errors"). Because /ɾ/ is not an allophone of /r/ or /l/ in English, any occurrence of /ɾ/ was considered an error.

3.3.3 Attitudes Data

The 14 Likert scale questions from the attitudes questionnaire were divided into five categories based on the research questions given in the introduction. These categories were *accentedness*, *clarity*, *competence*, *likeability*, and *similarity to listener*. Most questions were presented with 1 corresponding to the most unaccented, clear, or positive evaluation and 5 corresponding to the most accented, unclear, or negative evaluation. However, the polarity of some questions was reversed in order to discourage subjects from uncritically giving the same answer for a series of questions. In order to make the scores for all questions comparable for analysis, where necessary subjects' response values were inverted so that the most unaccented, clear, or positive evaluations corresponded to 1 and the most accented, unclear, or negative evaluations corresponded to 5 for all questions. Responses to each question were averaged, and average responses for each of the five categories were also generated.

3.3.4 Correlating Phonetic Variables and Attitudes

While the data has primarily been examined in terms of aggregated speaker groups thus far, in order to examine the correlations between phonetic variables and attitudinal responses it is necessary to consider the data not only in terms of individual speakers, but in terms of the individual recorded passages produced by each speaker. I will refer here to a speaker's recording of a reading passage as a "passage" – for instance, speaker K1's recorded reading of reading passage A would be referred to as passage K1A.

While each passage resulted in a multitude of phonetic measurements for each of the seven phonetic variables I considered, attitudes scores were collected not based on individual phonetic variables, but on a listener's response to a passage in its entirety. In order to correlate phonetic variables with attitudes responses, it is therefore necessary to generate an average score for each phonetic variable that would represent the speaker's productions over the entire passage. For vowel backing or monophthongization this was the average Euclidian distance for that vowel. For /i/ and /ɪ/ overlap, it was the overlap percentage for the speaker's production of that passage. When duration was measured, as for the VOT measures and for /ð/ duration of frication, the average duration for the speaker's production of the passage was used. For binary measures, such as /r/ and /l/ confusion and presence of a release burst in /ð/, occurrence of the variable (a reversal of /r/ and /l/ or a release burst in /ð/) was marked as a 1 and nonoccurrence was marked as a 0, and an average taken.

Average attitudes scores were also taken for each of the five categories (accentedness, clarity, affective response, competence, and similarity) for each individual attitudes survey completed by a listener subject in response to a specific passage. This made it possible to use a Spearman's correlation to determine the extent to which a listener's attitudinal responses correlated with the phonetic productions in the passage they heard.

4. Results

Because I examined both phonetic and attitudinal data as well as measured correlations between phonetic and attitudinal data, my results are divided into three sections. Section 4.1 discusses the results of the phonetic analysis of the recorded passages, and compares productions of the targeted phonetic variables by group K (Korean dominant, L2 English speakers), group B (balanced Korean and English bilinguals) and C (English-monolingual control speaker). Section 4.2 describes the listener subjects' attitudinal responses to the three groups on five criteria: Accentedness, clarity, affective response, competence, and similarity to the listener. Section 4.3 describes the results of the correlations between phonetic variables and the accentedness and clarity attitude scores.

4.1 Phonetic Analysis Results

4.1.1 /a/ Backing

Because Korean exhibits a fronted /a/ compared to what is found in English (Sohn, 1999), it is expected that native speakers of Korean will also produce an /a/ more fronted than the canonical English /a/. Degree of /a/ fronting was calculated by determining the center of the speaker's vowel space relative to F2 and measuring the distance between the F2 for each token of /a/ and that center point. Measures were made using within-speaker normalized F2 values, as the size of the vowel space varied between speakers.

Table 4.1: Fronted /a/ F2 Distance from Midpoint (Normalized)

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
B	.0882	52	.2453	-.4057	.6623	1.0680
C	.0213	23	.3262	-.4672	.6418	1.1090
K	.5248	41	.34564	-.2015	.9225	1.1240

Table 4.2: Tukey's Pairwise HSD - /a/ Fronting

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-.5035*	.0782	.000
	B	-.0669	.0752	.648
K	C	.5035*	.0782	.000
	B	.4366*	.0627	.000
B	C	.0669	.0751	.648
	K	-.4366*	.0627	.000

*. The mean difference is significant at the 0.05 level.

Table 4.1 gives the mean normalized distance between /a/ and the midpoint of the speaker's vowel space. Contrary to the expected pattern, group K (0.5248, $F(2,113) = 31.119$, $p < 0.001$) shows more backing of /a/ than groups B or C. A one-way analysis of variance was conducted to determine whether the differences the speaker groups' degree of /a/ fronting was statistically significant. The difference in /a/ fronting was significant for group K compared to both group B and group C (B = 0.882, C = 0.213, $F(2, 113) = 31.12$, $p < 0.001$), but there was no significant difference between groups B and C's degree of /a/ fronting. The fact that K produced a more backed realization of /a/ than groups B or C is surprising given that Korean has a more central /a/ than does English; we would therefore expect group K to produce /a/ as fronted compared to group C.

4.1.2 /u/ Monophthongization

The degree to which /u/ was monophthongized was measured by calculating the distance between both F1 and F2 at 20 percent and 80 percent of the vowel's duration. A shorter distance would indicate a more monophthongal /u/. Measures were made using normalized values, and indicate movement per second; a lower value indicates a more monophthongal realization of /u/. I would predict that group K would monophthongize /u/ more than groups B or C.

Table 4.3: Average /u/ Euclidian Distance (Normalized)

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	4.3972	18	7.3912	.4255	32.8170	32.3915
K	4.7137	41	4.6112	.2143	22.1781	21.9639
B	5.9116	42	5.6430	.2841	27.7054	27.4214

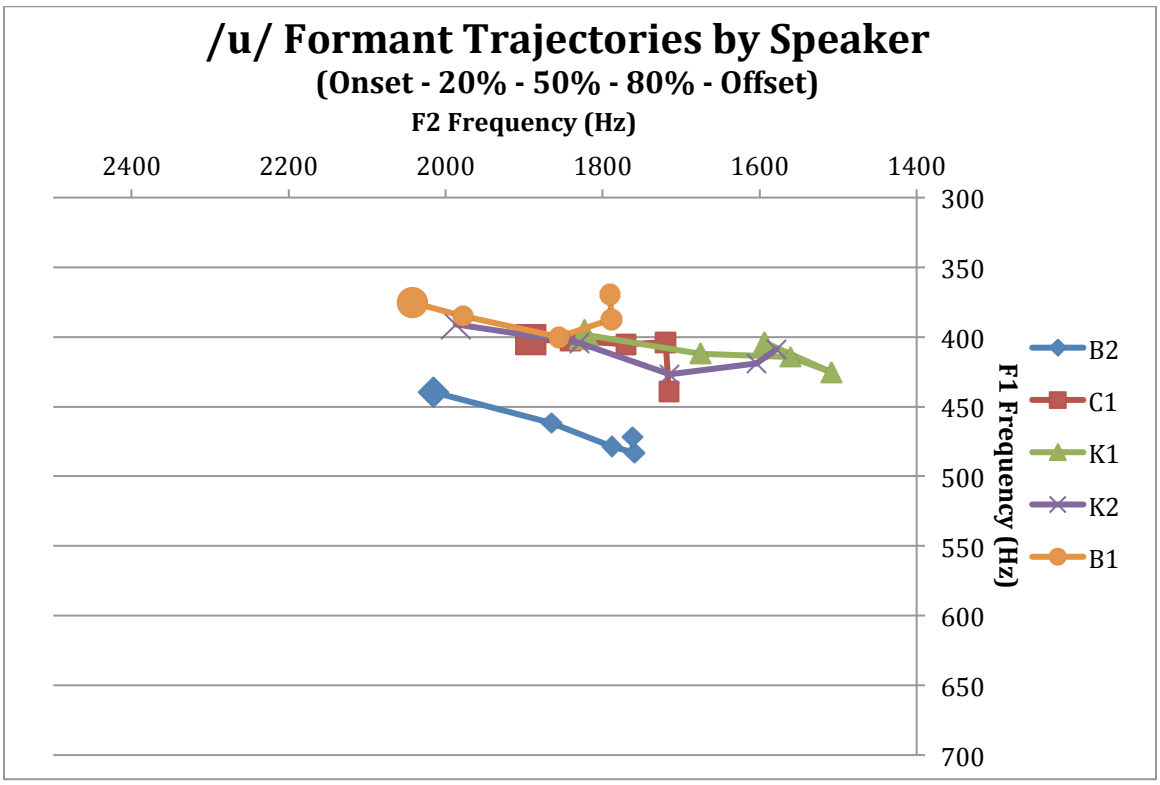


Figure 4.1: /u/ Formant Trajectories by Speaker

Table 4.3 shows mean movement of /u/ per second using normalized values for F1 and F2. Contrary to my prediction, group C (mean 4.3972) shows the most monophthongal value for /u/, followed closely by group K (mean 4.7137). However, a one-way analysis of variance indicated no statistically significant difference in degree of /u/ monophthongization between any of the three groups.

4.1.3 /o/ Monophthongization

The literature also predicts monophthongization of /o/ by native speakers of Korean. Like /u/, Euclidian distances for /o/ were measured by determining the difference between both F1 and F2 at the 20 percent and 80 percent points of the vowel. Table 4.4 gives mean change per second for the vowel /o/. As with /u/, a lower value indicates a more monophthongal realization of the vowel.

Table 4.4: Average /o/ Euclidian Distance (Normalized)

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	1.3666	21	1.3263	.1394	4.8968	4.7574
K	2.4267	53	2.5623	.1215	16.5533	16.4319
B	4.1493	48	4.8189	.4729	30.7309	30.2580

Table 4.5: Tukey's Pairwise HSD - /o/ Euclidian Distance

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-1.0601	.9057	.473
	B	-2.7826*	.9189	.008
K	C	1.0601	.9057	.473
	B	-1.7226*	.6998	.040
B	C	2.7826*	.9189	.008
	K	1.7226*	.6998	.040

*. The mean difference is significant at the 0.05 level.

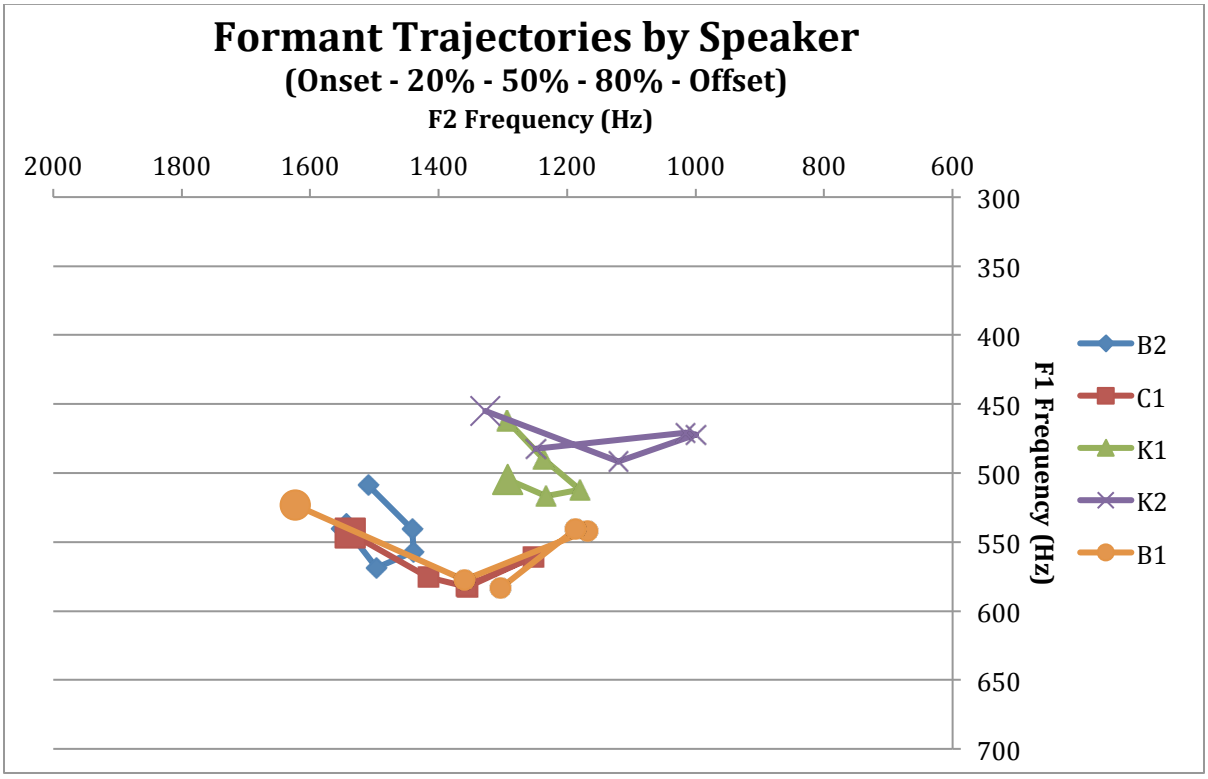


Figure 4.2: /o/ Formant Trajectories by Speaker

Again, the results for this variable ran counter to predictions; group B (mean 4.1493) showed significantly less monophthongization of /o/ than either group C (mean 1.3666) or group K (mean 2.4267) ($F(2, 119) = 5.52$, $p < 0.05$). While group

C again had on average a more monophthongal /o/, the difference between group C and group K was not statistically significant. (Negative mean difference values indicate that, for instance, group C produced /o/ with less formant change over the duration of the vowel than did groups K or B.) Figure 4.1 above shows the

4.1.4 /r/ versus /l/ Confusion

Confusion regarding /r/ and /l/ is one of the stereotypical features of "Asian"-accented English. Whether an /r/ or /l/ occurred where one was expected was determined by a combination of auditory impression and visual examination of the spectrogram to determine whether formant movement was characteristic of /r/ or /l/. /r/ and /l/ errors are defined here as producing /r/ where /l/ was expected, /l/ where /r/ was expected, /ɾ/ where either /r/ or /l/ was expected, or deleting /r/ or /l/ entirely.

Table 4.6: /l/ versus /r/ Error Rates

Speaker/Group	Correct	Incorrect	Total Tokens	Error %
K1	87	24	111	21.6%
K2	114	4	118	3.4%
Group K	201	28	229	12.2%
B1	97	1	98	1%
B2	120	0	120	0%
Group B	217	1	218	0.5%
C1	101	0	101	0%
Group C	101	0	101	0%

Table 4.7: Tukey's Pairwise HSD - /l/ versus /r/ Errors

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-.122*	.026	.000
	B	-.005	.026	.983
K	C	.122*	.026	.000
	B	.118*	.020	.000
B	C	.005	.026	.983
	K	-.118*	.020	.000

*. The mean difference is significant at the 0.05 level.

It was expected that group K would exhibit some /r/ versus /l/ errors, but that groups C and B would not exhibit any. This was for the most part correct; group C exhibited no errors in differentiating /l/ and /r/. Group B had only one

error, produced when speaker B1 unexpectedly deleted a token of /r/. Group K confused /l/ and /r/ for 28 of 229 tokens, or 12.2 percent of all tokens of /l/ and /r/. Further, speaker K1 exhibited far more /l/ versus /r/ errors than did K2; K1 produced an /r/ or /l/ error in 24 out of 111 tokens, or 21.6 percent of the time, while K2 only had 4 erroneous productions in 118 total tokens, for an error rate of only 3.4 percent.

The difference in error rates between groups C and B was not statistically significant. However, as predicted, there was a significant difference in the number of errors between group K and groups B and C ($F(2, 545) = 20.178$, $p < 0.001$).

4.1.5 /p/, /t/, and /k/ VOT

Mean voice onset time for word-initial /p/, /t/, and /k/ were calculated by measuring from the release burst of the stop to the onset of voicing. Because there was considerable variation in VOT among the different consonants, each is considered separately here. We would predict longer VOT for /p/, /t/, and /k/ for group K than for groups B or C. All measurements are given in seconds.

Table 4.8: Average /p/ VOT in milliseconds

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	32.475	4	15.2683	17.3	51.3	34.0
K	71.406	17	29.4936	28.5	124.2	95.7
B	47.421	14	14.1052	19.1	73.6	54.5

Table 4.9: Tukey's Pairwise HSD - /p/ VOT

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-38.9309*	12.8852	.013
	B	-14.9464	13.1455	.499
K	C	38.9309*	12.8852	.013
	B	23.9845*	8.3681	.019
B	C	14.9464	13.1455	.499
	K	-23.9845*	8.3681	.019

*. The mean difference is significant at the 0.05 level.

As predicted, while there is no significant difference in VOT between groups C (mean length 32.475ms) and B (mean length 47.421ms), group K (mean length

71.406ms) exhibits significantly longer /p/ VOT than group B or C ($F(2, 32) = 6.71$, $p < 0.05$).

Table 4.10: Average /t/ VOT in milliseconds

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	53.220	20	25.1561	10.5	98.8	88.3
K	65.646	37	28.5103	6.8	128.5	121.7
B	61.802	42	17.3987	24.7	92.1	67.4

Table 4.11: Tukey's Pairwise HSD - /t/ VOT

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-12.4259	6.5639	.146
	B	-8.5824	6.4253	.379
K	C	12.4259	6.5639	.146
	B	3.8436	5.3325	.752
B	C	8.5824	6.4253	.379
	K	-3.8436	5.3325	.752

/t/ VOT, however, does not show the predicted result; counter to our hypothesis, there is no significant difference between any of the three groups with regard to /t/ VOT. While group C (53.22ms) exhibits on average slightly shorter /t/ VOT than groups B (61.802ms) or K (65.646ms), this difference is not statistically significant.

Table 4.12: Average /k/ VOT in milliseconds

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	48.981	16	21.0505	19.2	79.1	59.9
K	81.400	28	19.6704	34.1	117.3	83.2
B	52.700	21	20.2720	28.5	86.8	58.3

Table 4.13: Tukey's Pairwise HSD - /k/ VOT

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-32.4187*	6.3323	.000
	B	-3.7188	6.7051	.844
K	C	32.4187*	6.3323	.000
	B	28.7000*	5.8329	.000
B	C	3.7188	6.7051	.844
	K	-28.7000*	5.8329	.000

*. The mean difference is significant at the 0.05 level.

The results for /k/ VOT are consistent with predictions. Average /k/ VOT is not significantly different between groups B (52.7ms) and C (48.981ms), but there is a significant difference between those groups and group K (81.4ms) ($F(2, 62) = 18.08$, $p < 0.01$), with group K showing by far the longest /k/ VOT.

4.1.6 /ð/ Stopping

Because Korean phonology lacks an interdental fricative, I expect group K to exhibit more stopping of /ð/ than groups B or C. Three measures were used to determine whether /ð/ was stopped: auditory impression, duration of frication, and presence or absence of release burst. Table 4.13 shows counts and percentages for /ð/ being perceived as a stop as opposed to a fricative.

Table 4.14: Auditory Impression of Stopped /ð/

Group	Stopped /ð/	Fricative /ð/	n	% Stopped /ð/
C	1	30	31	3.2%
K	60	19	79	75.9%
B	1	70	71	1.4%

Table 4.15: Presence of Full Closure in /ð/

Group	Full Closure	No Full Closure	n	% Full Closure
C	6	25	31	19.4%
K	63	16	79	79.7%
B	26	45	71	36.6%

The auditory impression of stopped /ð/ is consistent with expectations; groups B and C each had only one instance of /ð/ sounding stopped, while group K had 60, 75.9 percent of total tokens of /ð/. However, auditory impression is potentially an inaccurate measure, and I therefore used two other means to

determine whether /ð/ was realized as a stop. The first of these was spectrographic evidence of full closure.

When the presence of a full closure in the spectrogram is considered, all groups exhibit considerably more stopping of /ð/. Group B's percentage of stopped /ð/ increases dramatically, from 1.4 percent to 36.6 percent. While groups K and C's performance is as predicted, B's increased instance of full closure compared to group C is unexpected.

Table 4.16: Average /ð/ Duration of Frication in milliseconds

Group	Mean	N	Std. Deviation	Minimum	Maximum	Range
C	29.261	31	15.5503	11.0	68.6	57.6
K	18.546	79	7.1615	8.6	49.2	40.6
B	26.720	71	11.5054	7.9	62.2	54.3

Table 4.17: Tukey's Pairwise HSD - /ð/ Duration of Frication

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	10.7157*	2.2756	.000
	B	2.5416	2.3114	.516
K	C	-10.7157*	2.2756	.000
	B	-8.1741*	1.7559	.000
B	C	-2.5416	2.3114	.516
	K	8.1741*	1.7559	.000

*. The mean difference is significant at the 0.05 level.

Duration of frication – the duration from the onset of frication to the onset of voicing of the following sound – exhibits the expected pattern. Groups B (26.72ms) and C (29.261ms) are not significantly different in duration of frication, while group K's duration of frication (18.546ms) is significantly shorter than groups B or C ($F(2, 178) = 132.43$, $p < 0.001$).

4.1.7 Overlap of /i/ and /ɪ/

The degree to which the vowels /i/ and /ɪ/ overlap was measured using VOIS3D. F1 and F2 were measured at the 50 percent point of each token of F1 and F2. Because degree of overlap is calculated within each speaker, unnormalized data was used. Overlap was measured in two ways. 2D overlap measures overlap of F1 and F2. 3D overlap measures overlap of F1, F2, and duration, and therefore takes into account whether duration is being used to differentiate the two vowels.

Table 4.18: /i/ and /ɪ/ Overlap Percentage

Speaker	3D Overlap %	2D Overlap %	Difference
B1	70.48	73.61	3.13
B2	67.59	79.57	11.98
Group B	69.04	76.59	7.55
K1	87.97	100.00	12.03
K2	70.91	88.46	17.55
Group K	79.44	94.23	14.79
C1	80.05	83.24	3.19
Group C	80.05	83.24	3.19

The patterning of the groups with regard to /i/ versus /ɪ/ overlap runs somewhat counter to my hypotheses. Group B shows the least overlap in both 2D (76.59 percent) and 3D (69.04) measures. Group C has 83.24 percent 2D overlap, and only a slightly smaller 3D overlap at 80.05 percent. Group K has the greatest level of 2D overlap, at 94.23 percent, and it is notable that speaker K1 has 100 percent overlap of /i/ and /ɪ/ when only vowel quality is taken into consideration. However, group K's 3D overlap is dramatically less, at only 79.44 percent, making their 3D overlap percentage very slightly less than group C's.

The difference in change in overlap percentage between the 2D and 3D overlap is also instructive. These changes indicate to what degree speakers are using duration to differentiate /i/ from /ɪ/. Group C undergoes very little change in overlap (3.19 percent). Group B's overlap changes somewhat more (7.55 percent), but group K changes dramatically (14.79 percent). Group K, more than groups B or C, appears to be using duration to differentiate /i/ and /ɪ/.

Graphs of both 2D and 3D overlap are presented below. 2D overlap graphs show the distribution of the speaker's productions of /i/ and /ɪ/, with each /i/ represented by a red x and each /ɪ/ represented by a blue circle. The 3D overlap graphs add a duration dimension, showing realizations of /i/ and /ɪ/ in a 3D plane defined by F1, F2, and the duration of the vowel. This is useful to determine whether speakers are using duration, as opposed to vowel quality as indicated by F1 and F2, to distinguish the pair of vowels.

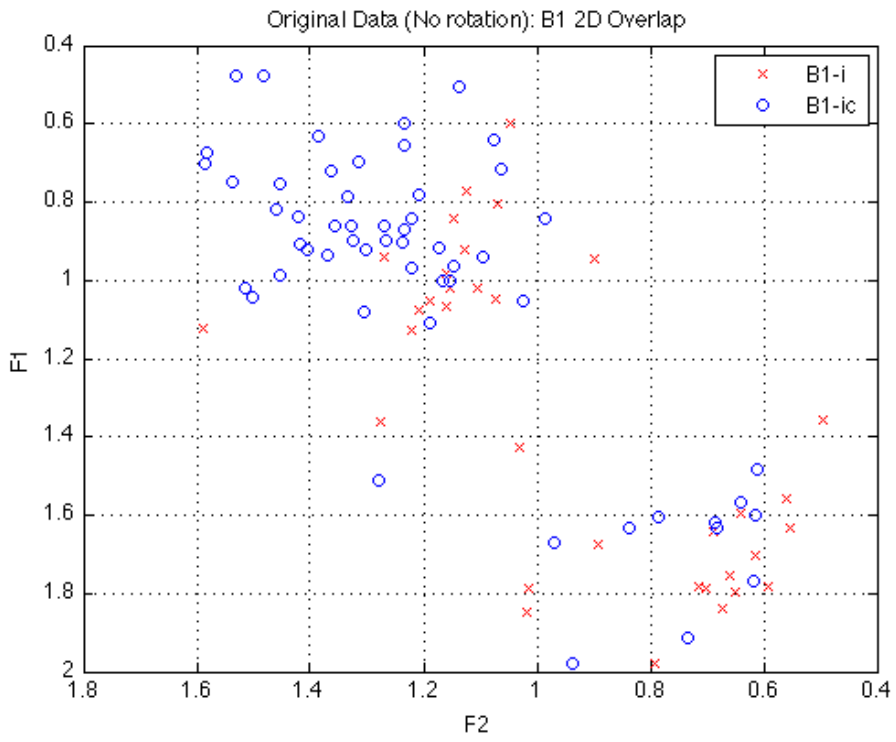


Figure 4.3: B1 2D Overlap

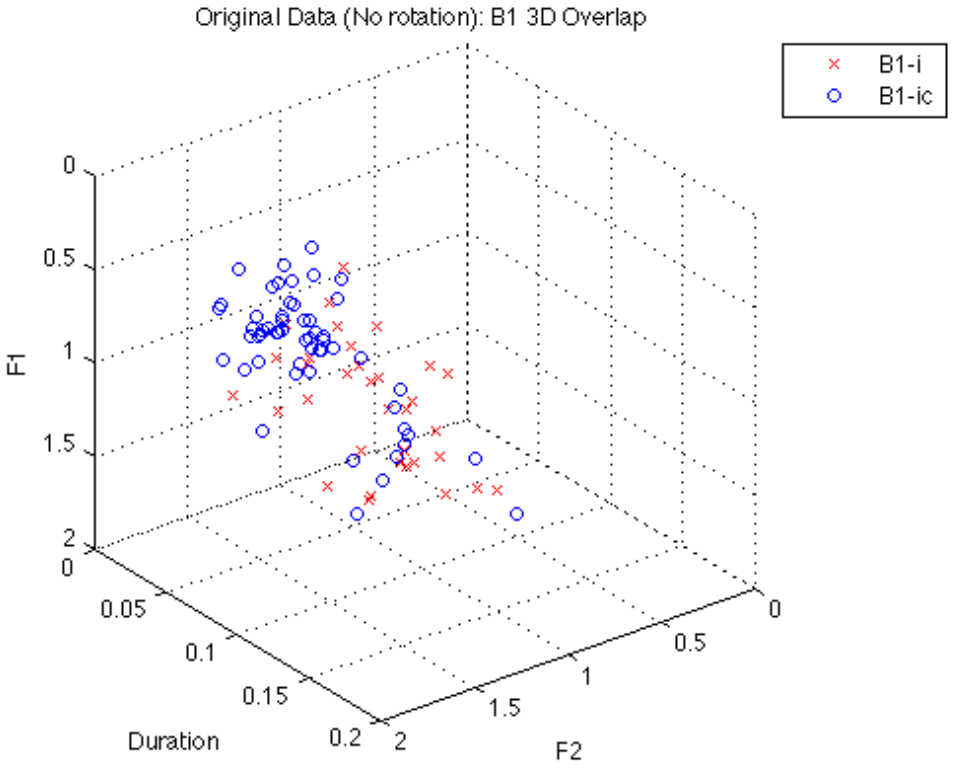


Figure 4.4: B1 3D Overlap

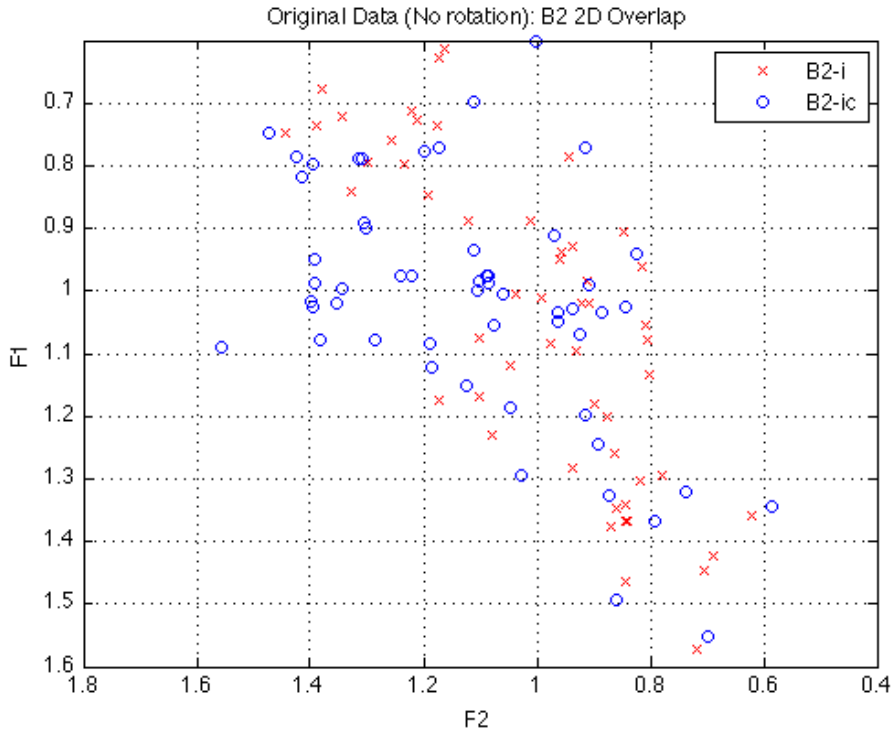


Figure 4.5: B2 2D Overlap

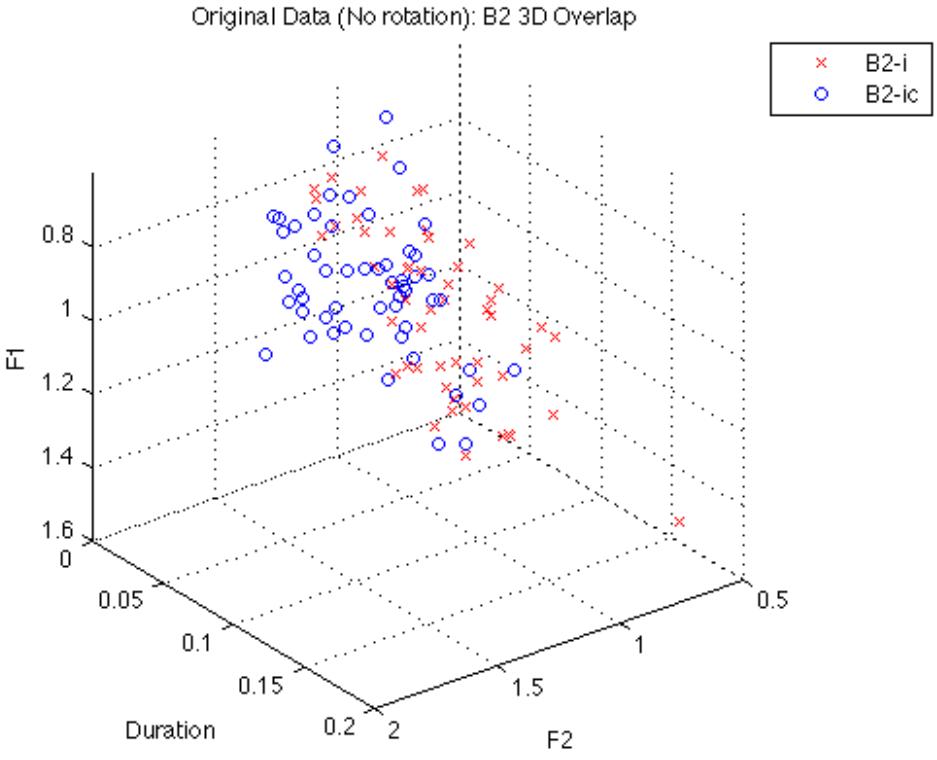


Figure 4.6: B2 3D Overlap

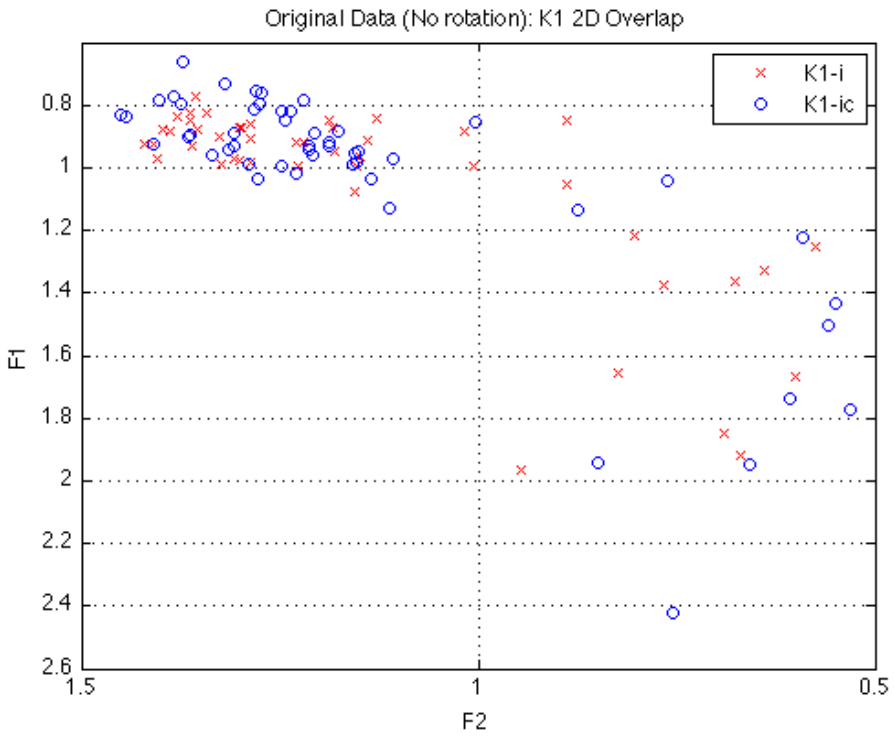


Figure 4.7: K1 2D Overlap

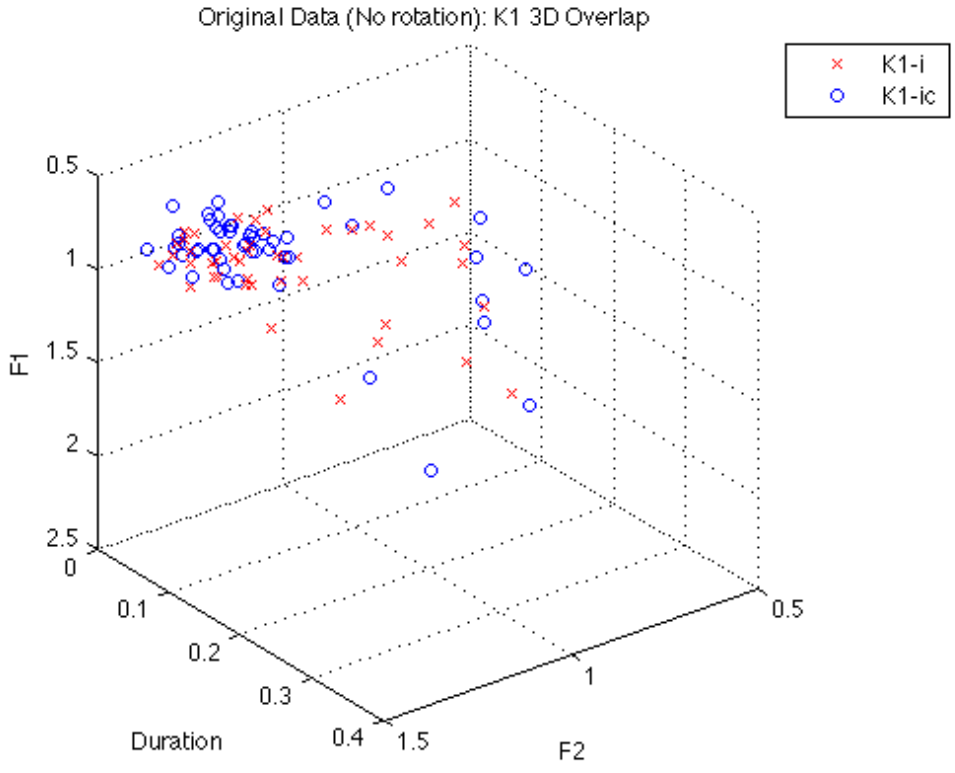


Figure 4.8: K1 3D Overlap

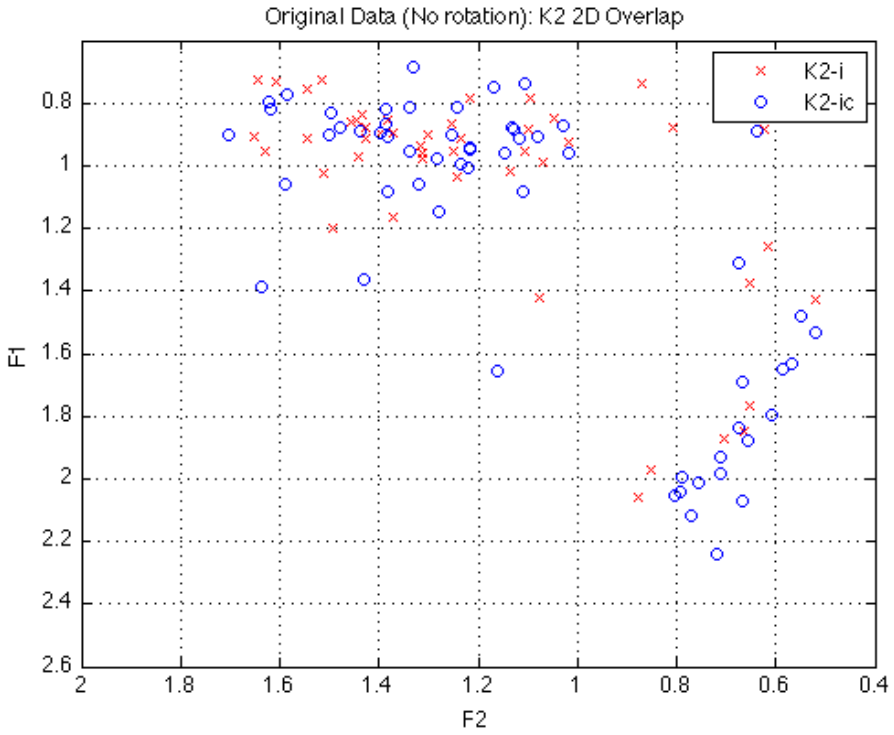


Figure 4.9: K2 2D Overlap

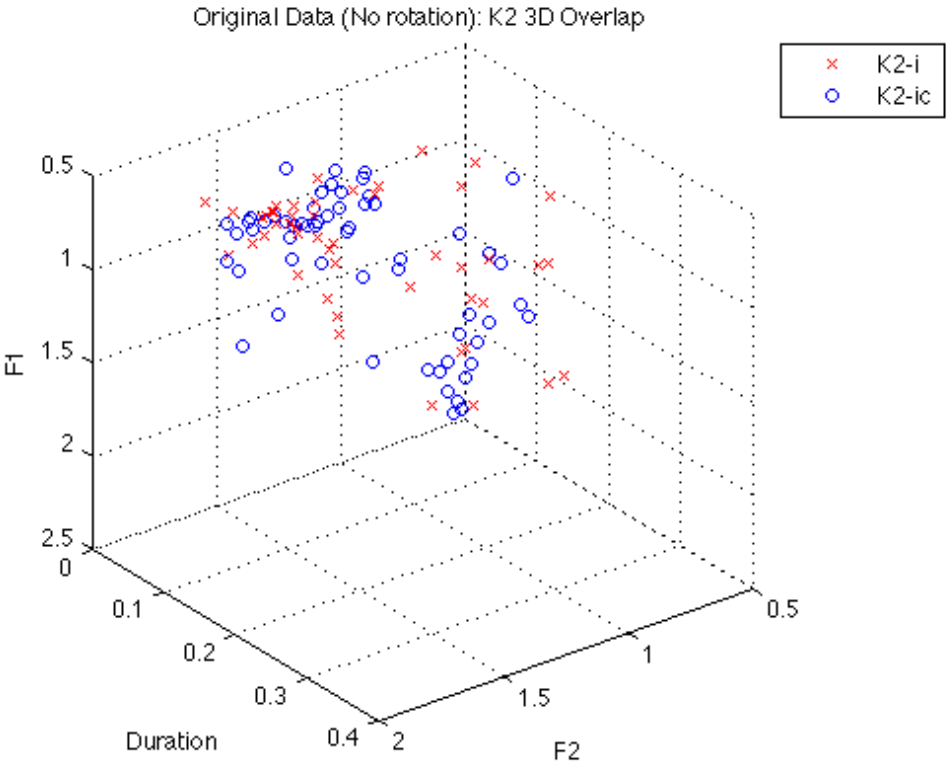


Figure 4.10: K2 3D Overlap

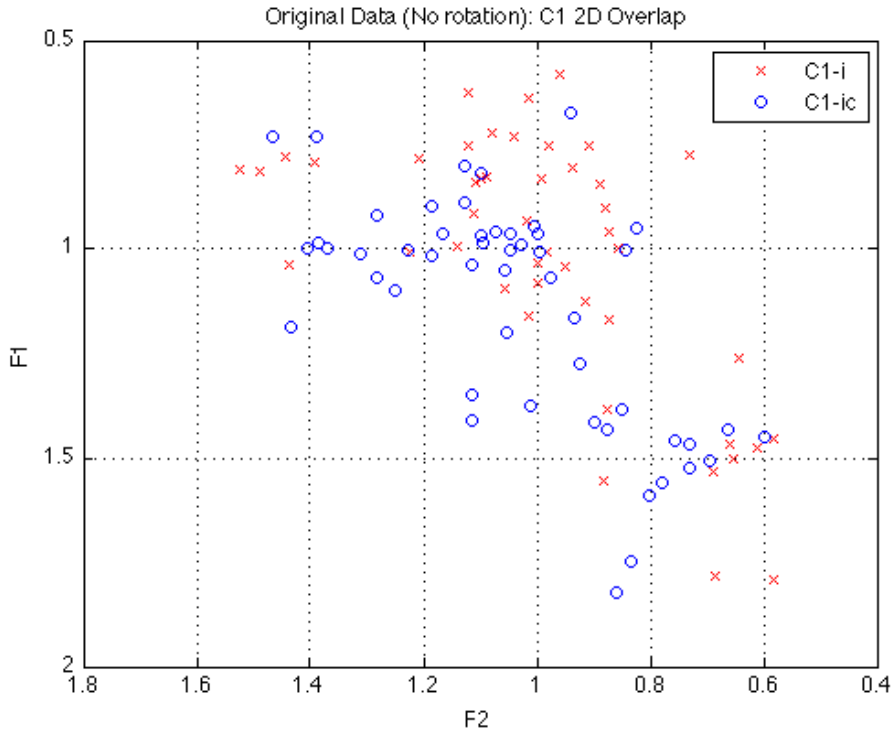


Figure 4.11: C1 2D Overlap

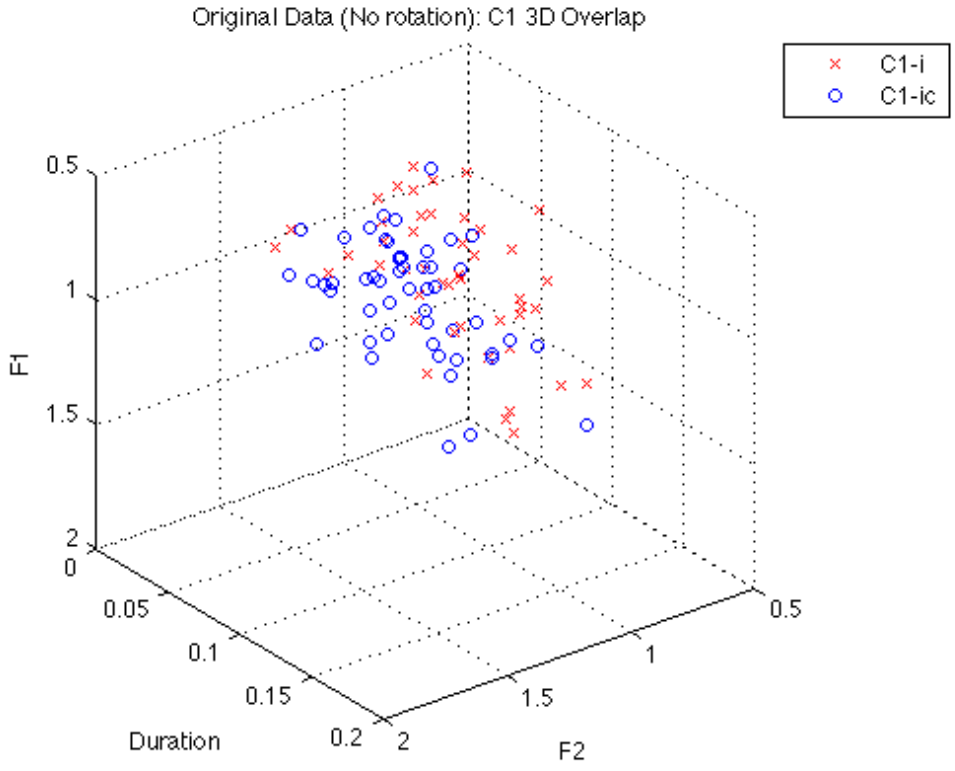


Figure 4.12: C1 3D Overlap

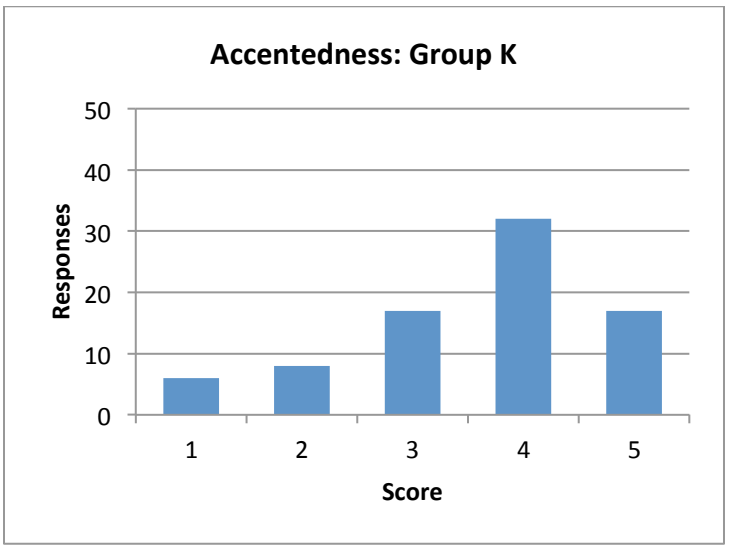
4.2 Attitude Results

4.2.1 Accentedness

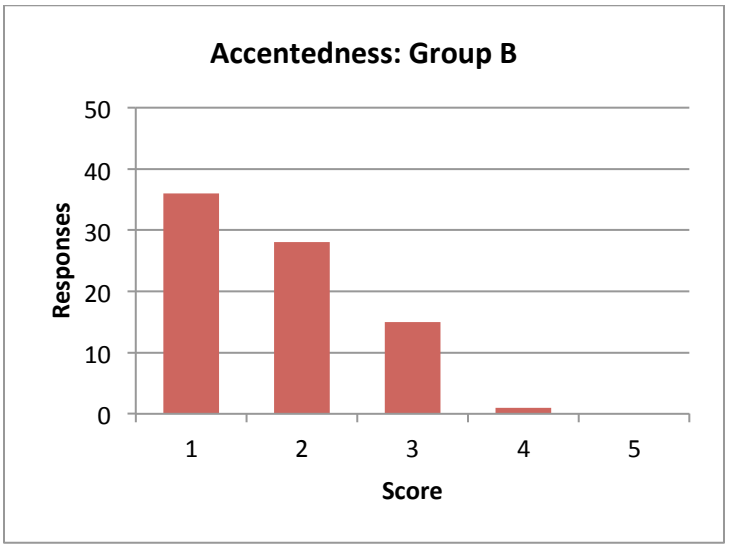
Accentedness scores are based on two Likert scale questions answered by listener subjects:

This speaker…		
has no accent	*1 … 5*	*has a very strong accent*
speaks good English	*1 … 5*	*speaks poor English*

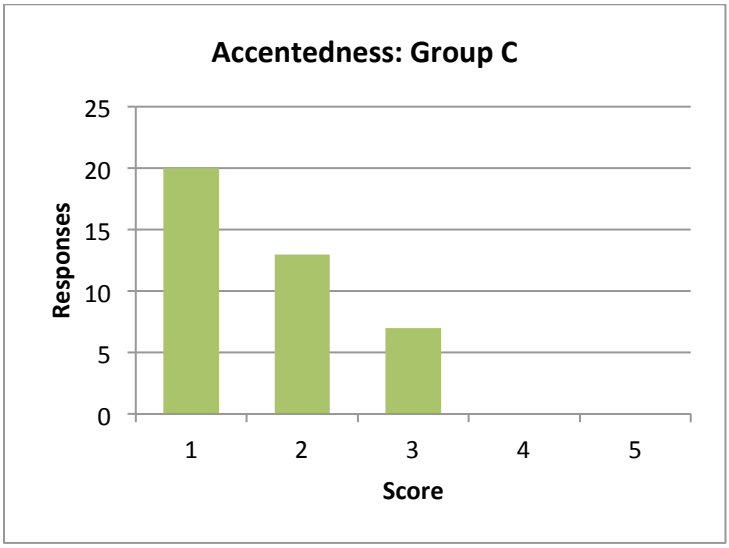
A minimum score of 1 indicates unaccented speech, while a maximum score of 5 indicates the most accented speech. It is hypothesized that groups C and B would be considered minimally accented, while group K would be rated as significantly more accented.



Mean = 3.575
Std. Dev. = 0.799
N = 80



Mean = 1.76
Std. Dev. = 1.156
N = 80



Mean = 1.68
Std. Dev. = 0.764
N = 40

Figure 4.13: Accentedness Scores by Group

Table 4.19: Average Accentedness Scores

Group	Mean	N	Std. Deviation	Minimum	Maximum
C	1.675	40	.7642	1.0	3.0
K	3.575	80	1.1559	1.0	5.0
B	1.762	80	.7994	1.0	4.0

Table 4.20: Tukey's Pairwise HSD - Average Accentedness Scores

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-1.9000*	.1845	.000
	B	-.0875	.1845	.883
K	C	1.9000*	.1845	.000
	B	1.8125*	.1506	.000
B	C	.0875	.1845	.883
	K	-1.8125*	.1506	.000

*. The mean difference is significant at the 0.05 level.

One-way ANOVA results indicate that this prediction is correct; groups B and C are not significantly different, with means of 1.762 and 1.675 respectively, but group K, with a mean accentedness score of 3.575, is rated as significantly more accented than groups B or C ($F(2, 197) = 89.79$, $p < 0.001$).

The distribution of the attitudes scores sheds more light on the ratings. The majority of listeners rated the speakers in group K as a 4 on accentedness questions, one below the maximum score for accentedness. Far fewer listeners rated group K as 3 or 5, and fewer still gave these speakers a score of 1 or 2, the least accented. In contrast, the vast majority of listeners rated the speakers in both groups B and C as a 1 or 2, scores reflecting the lowest degree of accentedness. Group C received no scores higher than a 3, and group B received only one score of 4.

4.2.2 Clarity

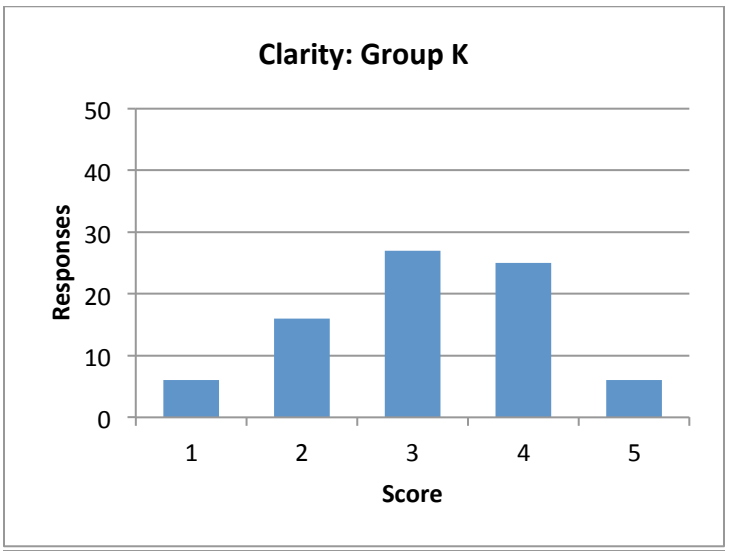
Clarity scores are based on listeners' responses to two Likert scale questions:

This speaker…

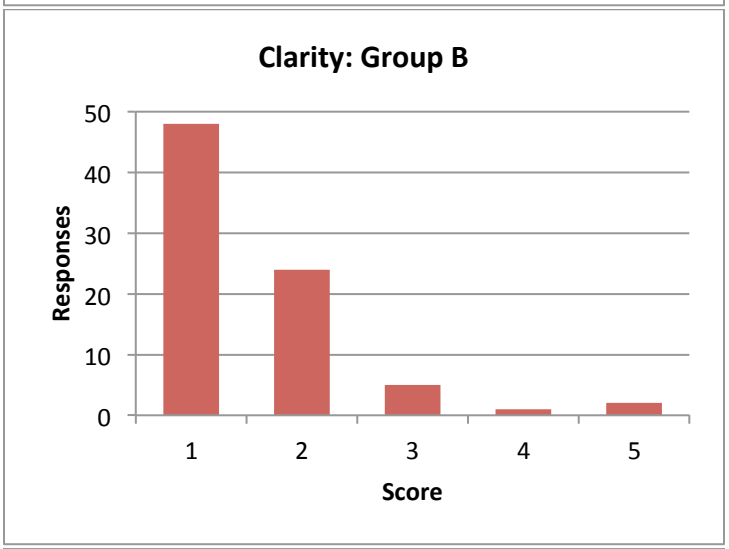
is easy to understand	*1 … 5*	*is hard to understand*
is clear	*1 … 5*	*is unclear*

A score of 1 indicates that the listener found the speaker very clear and easy to understand, while a score of 5 indicates that they were very unclear and difficult

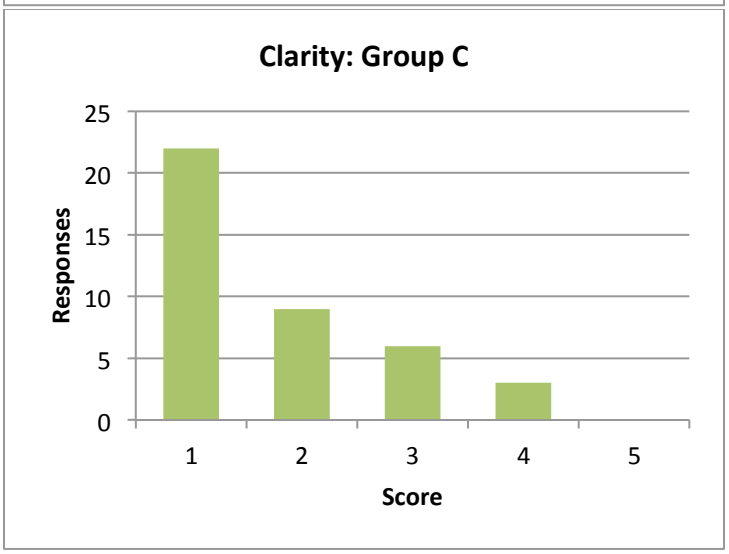
to understand. We predicted that groups B and C would be rated as clearer than group K. We also expected clarity scores to correlate with accentedness scores.



Mean = 3.11
Std. Dev. = 1.055
N = 80



Mean = 1.53
Std. Dev. = 0.76
N = 80



Mean = 1.75
Std. Dev. = 0.981
N = 40

Figure 4.14: Clarity Scores by Group

Table 4.21: Average Clarity Scores

Group	Mean	N	Std. Deviation	Minimum	Maximum
C	1.750	40	.9806	1.0	4.0
K	3.113	80	1.0554	1.0	5.0
B	1.531	80	.7603	1.0	4.0

Table 4.22: Tukey's Pairwise HSD - Average Clarity Scores

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-1.3625*	.1805	.000
	B	.2188	.1805	.448
K	C	1.3625*	.1805	.000
	B	1.5812*	.1474	.000
B	C	-.2188	.1805	.448
	K	-1.5812*	.1474	.000

*. The mean difference is significant at the 0.05 level.

Table 4.23: Spearman's Correlation - Accentedness and Clarity

		Accentedness	Clarity
Accentedness	Pearson Correlation	1	.151
	Sig. (2-tailed)		.133
	N	100	100
Clarity	Pearson Correlation	.151	1
	Sig. (2-tailed)	.133	
	N	100	100

As expected group K, with a mean clarity score of 3.113, was rated as significantly less clear than groups B (mean 1.531) or C (mean 1.750) ($F(2, 197) = 63.60$, $p < 0.001$). There was no significant difference between groups B and C's scores. Group K's scores on clarity questions were fairly regularly distributed, with the majority of listeners rating speakers in group K 3 or 4 on clarity measures. The vast majority of listeners rated the group B and C speakers as a 1 on clarity questions, and the frequency of responses decreased steadily for higher scores indicating they were less clear.

However, the expected correlation between accentedness and clarity scores did not emerge. A Spearman's correlation found no significant correlation between the two ($r_s(98) = 0.151$, $p = 0.133$). Listeners' accentedness responses are not predictable based on their clarity responses, or vice versa. This suggests that a variable can contribute to perception of accent without decreasing clarity, and also

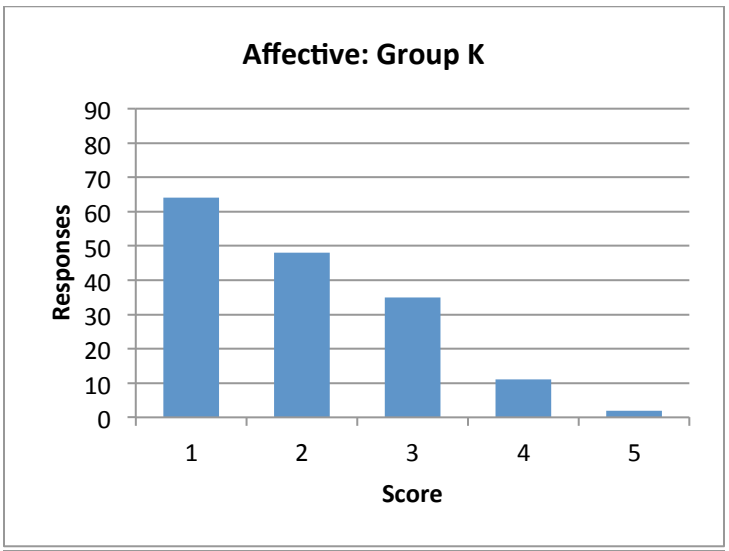
that accent does not necessarily make a speaker's speech unclear. This finding will be discussed further in section 5.

4.2.3 Affective

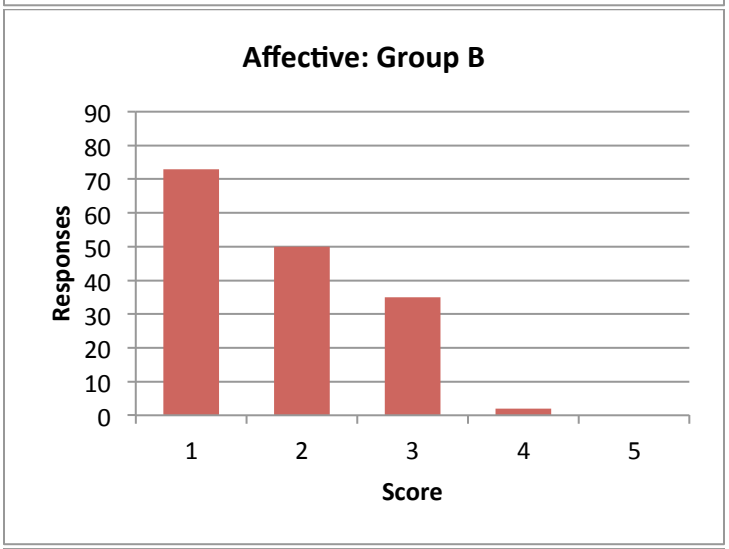
Affective responses were based on listeners' responses to four Likert scale questions aimed at eliciting listeners' opinions of the likeability of the speaker:

This speaker…		
is pleasant to listen to	*1 … 5*	*is unpleasant to listen to*
doesn't sound mean	*1 … 5*	*sounds mean*
sounds friendly	*1 … 5*	*sounds unfriendly*
sounds likeable	*1 … 5*	*sounds unlikeable*

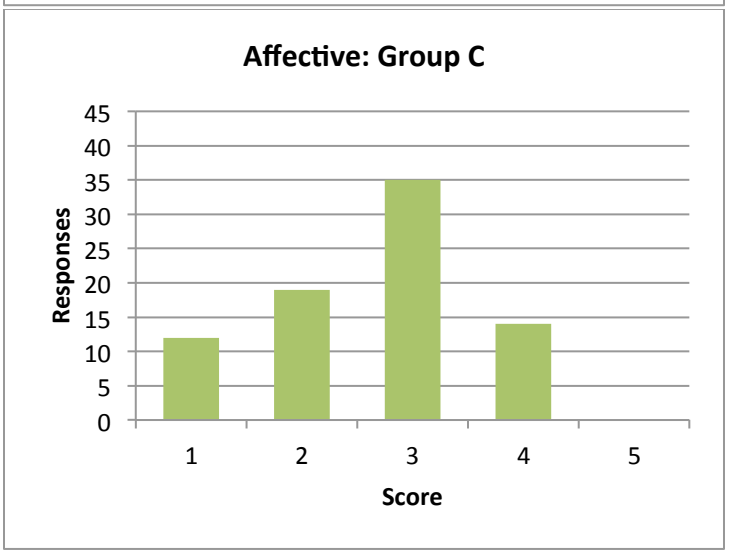
A score of 1 indicates the strongest possible positive affective response, while a maximum score of 5 indicates the strongest possible negative affective response. It has been suggested that accented speech can lead to negative perceptions of the speaker (Kang & Rubin, 2009), and so I predicted that group K would have more negative affect responses than groups B or C.



Mean = 1.994
Std. Dev. = 1.006
N = 160



Mean = 1.788
Std. Dev. = 0.827
N = 160



Mean = 2.637
Std. Dev. = 0.945
N = 80

Figure 4.15: Affective Scores by Group

Table 4.24: Average Affective Scores

Speaker Group	Mean	N	Std. Deviation	Minimum	Maximum
C	2.637	80	.9446	1.0	4.0
K	1.994	160	1.0063	1.0	5.0
B	1.788	160	.8271	1.0	4.0

Table 4.25: Tukey's Pairwise HSD - Average Affective Scores

(I) Speaker Group	(J) Speaker Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	.6438*	.1268	.000
	B	.8500*	.1268	.000
K	C	-.6438*	.1268	.000
	B	.2062	.1035	.115
B	C	-.8500*	.1268	.000
	K	-.2062	.1035	.115

*. The mean difference is significant at the 0.05 level.

Surprisingly, while respondents had strong positive affective responses toward group K (1.994) and group B (1.788), they found group C to be significantly less likeable (2.637) than the other two groups ($F(2, 397) = 22.81$, $p < 0.001$).

The mean scores alone, however, do not tell the whole story. Group K and B both received mostly 1s on affective measures, with frequencies decreasing steadily as scores rise. However, group C's distribution of scores looks quite different: this speaker received mostly 3s on affective scores. It is also notable that group K was the only one to receive any ratings of 5, the least positive affective score. While respondents appear to have reacted to groups K and B fairly similarly, they appear to have found the single speaker in group C significantly less attractive. Since there is only one speaker in this group, it is difficult to speculate as to why this might be; it is entirely possible that the listeners responded negatively to some aspect of the speaker's voice quality or speech that I have not examined here.

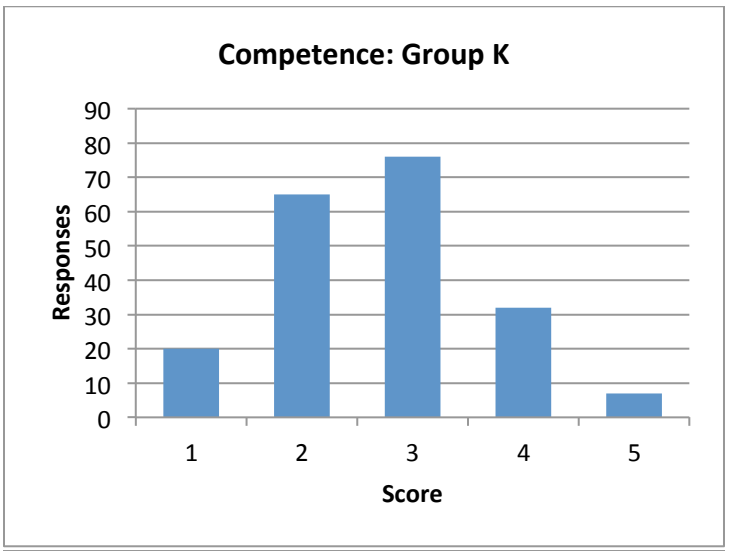
4.2.4 Competence

Competence attitudes scores are based on five Likert scale questions targeting listeners' opinions of the speaker's level of qualification as an employee or an instructor, presumably at the college level:

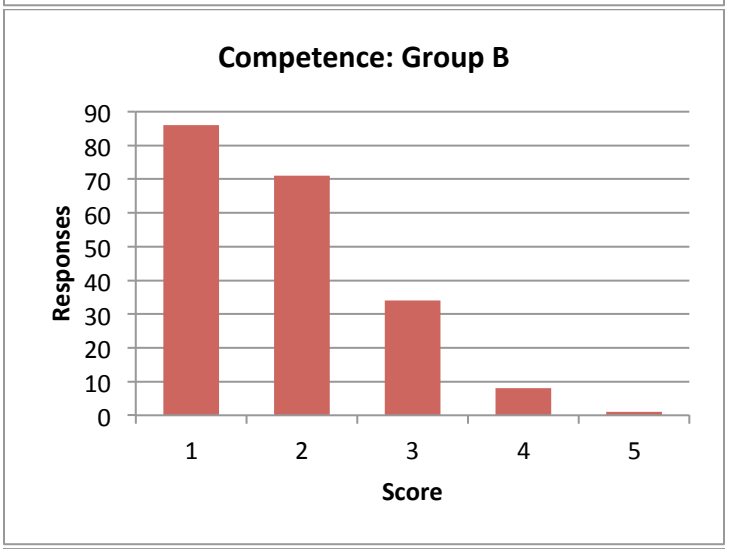
This speaker…		
sounds educated	*1 … 5*	*sounds uneducated*
sounds qualified to teach	*1 … 5*	*sounds unqualified to teach*[1]
sounds professional	*1 … 5*	*sounds unprofessional*
sounds confident	*1 … 5*	*sounds unsure*
sounds intelligent	*1 … 5*	*sounds unintelligent*

Because the listener sample was drawn primarily from the college student population, the issue of speakers' competence as an instructor was believed to be highly relevant (Kang & Rubin, 2009). It was hypothesized that group K would be seen as less competent than groups B or C. A score of 1 indicates that the speaker is seen as highly competent, while a score of 5 indicates that the speaker is seen as not competent.

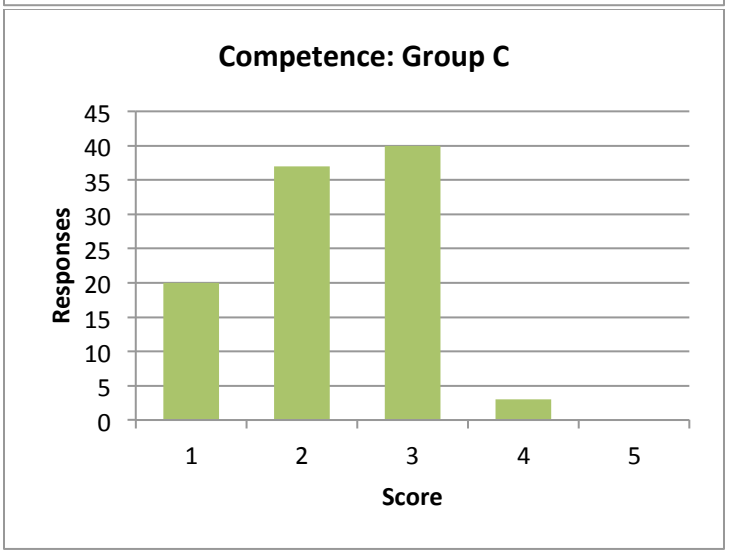
[1] This question proved somewhat problematic, perhaps because the attitudes survey was originally written for college students, who frequently encounter professors and teaching assistants with non-native accents, but ultimately used in a wider community. Several of the non-student listeners asked for clarification, and were told that the question was asking whether the speaker sounded qualified to be a teacher.



Mean = 2.705
Std. Dev. = 0.971
N = 200



Mean = 1.835
Std. Dev. = 0.884
N = 200



Mean = 2.260
Std. Dev. = 0.812
N = 100

Figure 4.16: Competence Scores by Group

Table 4.26: Average Competence Scores

Speaker Group	Mean	N	Std. Deviation	Minimum	Maximum
C	2.260	100	.8118	1.0	4.0
K	2.705	200	.9709	1.0	5.0
B	1.835	200	.8841	1.0	5.0

Table 4.27: Tukey's Pairwise HSD - Average Competence Scores

(I) Speaker Group	(J) Speaker Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-.4450*	.1110	.000
	B	.4250*	.1110	.000
K	C	.4450*	.1110	.000
	B	.8700*	.0906	.000
B	C	-.4250*	.1110	.000
	K	-.8700*	.0906	.000

*. The mean difference is significant at the 0.05 level.

The competence results agreed only partially with my hypothesis. Group B was seen as the most competent (mean score 1.835), followed by group C (2.26), and group K was viewed as the least competent (2.705). The differences between all three groups were significant ($F(2, 497) = 46.06$, $p < 0.001$). While the view of groups B and C as more competent than group K is consistent with my hypothesis, the rating of group C as significantly less competent than group B was unexpected.

The frequency of scores on competence questions follows the pattern seen above. Group B received mostly scores of 1 and 2 on competence questions, while groups K and C received mostly 2s and 3s, indicating that they seemed less competent to listeners.

4.2.5 Similarity

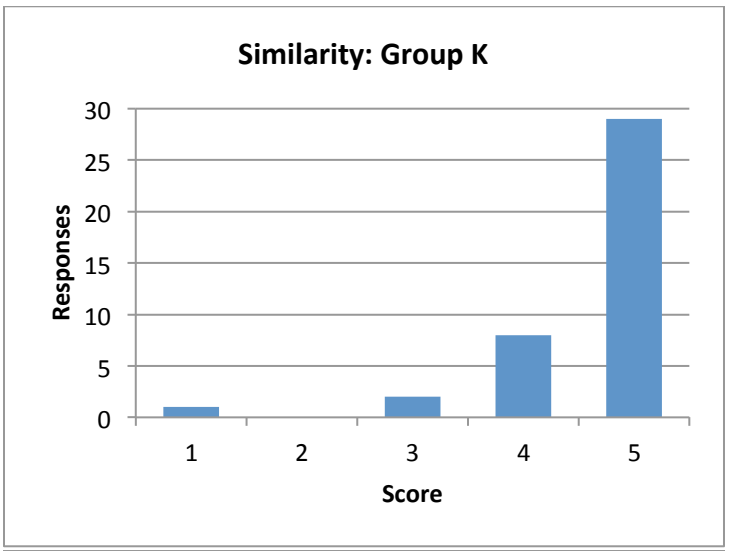
Similarity scores are based on a single Likert scale question asking how similar the speaker sounded to the listener:

This speaker…
sounds similar to me *1 … 5* *doesn't sound like me*

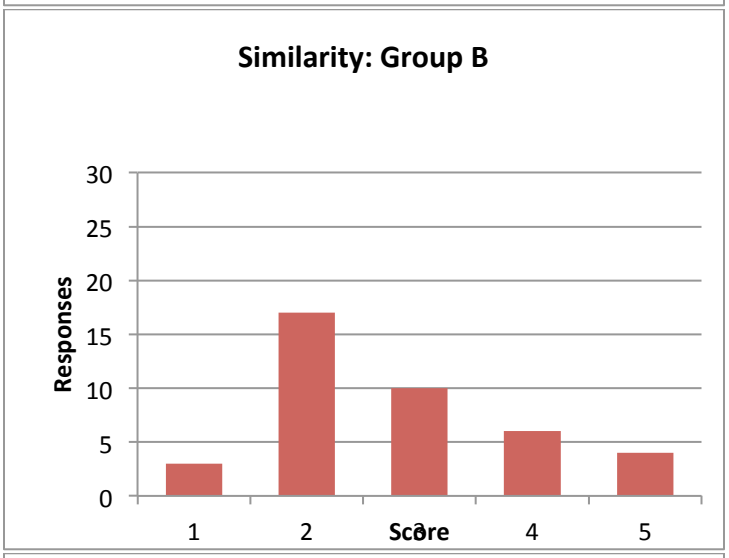
A score of 1 indicated that they were very similar, and a score of 5 indicated that they were not similar at all. I predicted that groups B and C would be seen as more similar to the listeners than group K.

The perception of a speaker as similar or different from oneself can have a powerful effect on affective responses to speakers, and on how likely they feel they would be to be friends with the speaker. Rickford (1985) found a correlation between listeners' ratings of how likely a speaker was to be in their circle of friends and how closely that speaker's use of Guyanese Creole matched the speaker's own; listeners rated speakers who sounded the most like themselves the most favorably on friendship measures, creating a more complex pattern than would be predicted by the concepts of overt and covert prestige.

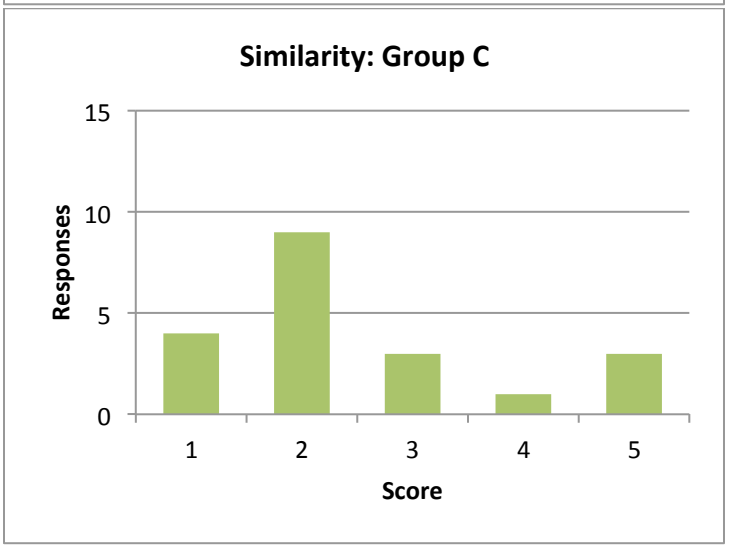
While this question was originally included in the affective category, it patterned very differently from the other affective questions, particularly for group K. It was therefore decided to consider it separately. Although it is difficult to generalize results based on a single question, the similarity scores are nonetheless interesting, and seem best considered separately from the affective category in this case.



Mean = 4.600
Std. Dev. = 0.810
N = 40



Mean = 2.775
Std. Dev. = 1.121
N = 40



Mean = 2.500
Std. Dev. = 1.318
N = 20

Figure 4.17: Similarity Scores by Group

Table 4.28: Average Similarity Scores

Speaker Group	Mean	N	Std. Deviation	Minimum	Maximum
C	2.500	20	1.3179	1.0	5.0
K	4.600	40	.8102	1.0	5.0
B	2.775	40	1.1206	1.0	5.0

Table 4.29: Tukey's Pairwise HSD - Average Similarity Scores

(I) Speaker Group	(J) Speaker Group	Mean Difference (I-J)	Std. Error	Sig.
C	K	-2.1000*	.2884	.000
	B	-.2750	.2884	.608
K	C	2.1000*	.2884	.000
	B	1.8250*	.2355	.000
B	C	.2750	.2884	.608
	K	-1.8250*	.2355	.000

*. The mean difference is significant at the 0.05 level.

The results confirmed my hypothesis; group K was seen as least similar to listeners, with the very high average score of 4.6. Group B was more similar than group K, but only slightly less similar than group C, with an average of 2.775. Group C was seen as most similar to listeners, with an average score of 2.5. While the difference between group K and groups B and C was significant ($F(2, 97) = 40.20$, $p < 0.01$), the difference between groups B and C was not.

Group K received almost entirely scores of 5 on similarity measures, with only a few lower scores. Groups B and C received mostly 2s, although group C received more 1s, indicating the highest level of similarity, than did group B. Notably, speakers were fairly savvy with regard to similarity scores. One listener who mentioned that she was raised in Texas gave her highest similarity rating by far to a speaker in group B who was also raised in Texas, although when questioned after completing the survey she was unable to specify an area of origin for the speaker more specifically than somewhere within the United States.

As predicted by Rickford's (1985) description of the effect of similarity on affective measures, there is a strong correlation between affective responses and similarity responses; a listener who rated a speaker highly on affective measures was also more likely to rate them highly on similarity. This is clearly not the whole picture for affective responses, however, given that group K was consistently rated

highly on affective measures but also as very dissimilar from listeners. While similarity plays some role in affective response, it does not seem to be a primary role.

Table 4.30: Spearman's Correlation - Affective and Similarity Scores

			Affective	Similarity
Spearman's rho	Affective	Correlation Coefficient	1.000	.591**
		Sig. (2-tailed)	.	.000
		N	100	100
	Similarity	Correlation Coefficient	.591**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

4.3 Correlations Between Attitudes and Phonetic Measurements

In order to determine which phonetic variables have an effect on perceptions of accentedness and clarity, it is necessary to examine the correlations between attitudes scores and phonetic measurements. In this section, I examine the correlations between the phonetic variables examined above and the attitudes scores related to accentedness and clarity. Scores for accentedness were calculated based on listener responses to questions about whether the speaker had an accent and whether the speaker spoke "good English." Clarity was calculated based on responses to questions about whether the speaker was clear and easy to understand. Because I am primarily interested in which phonetic variables contribute to a perception of accentedness or a perception of clarity, I do not address correlations between phonetic variables and other attitudes scores here.

For each passage produced by a speaker, an average score was produced for each phonetic variable. These scores were compared with listeners' average responses by category for the particular passage and speaker. Because the scores being compared were not normally distributed, Spearman's correlations were used to calculate how strongly each phonetic variable was correlated with the attitudes scores. (A more detailed description of the methods used here is given in section 3.3.3.) Using these correlations, it is possible to determine how strongly a particular phonetic variable contributed to listeners' attitudinal perceptions in different categories. For instance, a strong correlation between accentedness and a particular

phonetic variable suggests that variable plays an important role in making a speaker sound “accented” to listeners.

It is likely and expected that many phonetic variables will contribute to attitudinal perceptions. It is possible that interactions between several variables are what produces a perception of accentedness or clarity, although those interactions are not examined here.

4.3.1 Attitudes and /a/ Fronting

There is a strong correlation between level of /a/ fronting and perception of accentedness, and this correlation is highly significant ($r_s(98) = 0.708$, $p < 0.001$). Thus we can conclude that degree of /a/ fronting has an important role in the perception of a speaker as accented.

Table 4.31: Correlation - Accentedness and /a/ Fronting

			Accentedness	/a/ backing Euclidian distance
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.708**
		Sig. (2-tailed)	.	.000
		N	100	100
	/a/ backing Euclidian distance	Correlation Coefficient	.708**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.32: Correlation - Clarity and /a/ Fronting

			Clarity	/a/ backing Euclidian distance
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.103
		Sig. (2-tailed)	.	.308
		N	100	100
	/a/ backing Euclidian distance	Correlation Coefficient	-.103	1.000
		Sig. (2-tailed)	.308	.
		N	100	100

However, the same is not true of perception of clarity. No significant correlation was found between /a/ fronting and perception of clarity. This is not

surprising given that no correlation was found between accentedness scores and clarity scores (section 4.2.2).

4.3.2 Attitudes and /u/ Monophthongization

Level of /u/ monophthongization does not seem to contribute to perception of accentedness or perception of clarity. There was no significant correlation between level of /u/ monophthongization and either attitudes measure. This is consistent with the finding that levels of /u/ monophthongization were not significantly different between the three groups (section 4.1.2).

Table 4.33: Correlation - Accentedness and /u/ Monophthongization

			Accentedness	/u/ Euclidian Distance
Spearman's rho	Accentedness	Correlation Coefficient	1.000	-.096
		Sig. (2-tailed)	.	.343
		N	100	100
	/u/ Euclidian Distance	Correlation Coefficient	-.096	1.000
		Sig. (2-tailed)	.343	.
		N	100	100

Table 4.34: Correlation - Clarity and /u/ Monophthongization

			Clarity	/u/ Euclidian Distance
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.095
		Sig. (2-tailed)	.	.345
		N	100	100
	/u/ Euclidian Distance	Correlation Coefficient	-.095	1.000
		Sig. (2-tailed)	.345	.
		N	100	100

4.3.3 Attitudes and /o/ Monophthongization

Unlike /u/ monophthongization, there was a significant difference for monophthongization of /o/ between groups. However, this difference did not conform to the expected pattern; group B had significantly more diphthongal

productions of /o/ than did groups K or C (section 4.1.3). Given that group K and group C patterned together for this variable, it is not surprising, that monophthongization of /o/ did not correlate with perception of accentedness ($r_s(98) = -0.12$, $p = .235$).

Table 4.35: Correlation - Accentedness and /o/ Monophthongization

			Accentedness	/o/ Euclidian Distance
Spearman's rho	Accentedness	Correlation Coefficient	1.000	-.120
		Sig. (2-tailed)	.	.235
		N	100	100
	/o/ Euclidian Distance	Correlation Coefficient	-.120	1.000
		Sig. (2-tailed)	.235	.
		N	100	100

Table 4.36: Correlation - Clarity and /o/ Monophthongization

			Clarity	/o/ Euclidian Distance
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.264**
		Sig. (2-tailed)	.	.008
		N	100	100
	/o/ Euclidian Distance	Correlation Coefficient	-.264**	1.000
		Sig. (2-tailed)	.008	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

There was, however, a small negative effect for /o/ monophthongization on clarity attitudes scores ($r_s(98) = -0.264$, $p < 0.01$). A more monophthongal /o/ correlates slightly with an increased perception of speaker clarity.

4.3.4 Attitudes and /r/ versus /l/ Confusion

Confusion of /l/ and /r/ is a stereotypical feature of Asian accented English, and as such it would be expected to have a dramatic effect on perception of accentedness. This is indeed the case; correlations between accentedness and /r/ versus /l/ errors showed a strong effect ($r_s(98) = 0.696$, $p < 0.001$).

Table 4.37: Correlation - Accentedness and /r/ versus /l/ Errors

			Accentedness	/r/ vs /l/ Errors
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.696**
		Sig. (2-tailed)	.	.000
		N	100	100
	/r/ vs /l/ Errors	Correlation Coefficient	.696**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.38: Correlation - Clarity and /r/ versus /l/ Errors

			Clarity	/r/ vs /l/ Errors
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.070
		Sig. (2-tailed)	.	.490
		N	100	100
	/r/ vs /l/ Errors	Correlation Coefficient	-.070	1.000
		Sig. (2-tailed)	.490	.
		N	100	100

Somewhat surprisingly, this effect was not duplicated for the clarity attitude scores, and correlations between clarity and /r/ versus /l/ errors were not significant ($r_s(98) = -0.07$, $p > 0.05$).

4.3.5 Attitudes and VOT

Because the phonetic measurements for VOT of /p/, /t/, and /k/ varied considerably, I will consider each consonant separately here.

Table 4.39: Correlation - Accentedness and /p/ VOT

			Accentedness	/p/ VOT
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.385**
		Sig. (2-tailed)	.	.000
		N	100	100
	/p/ VOT	Correlation Coefficient	.385**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.40: Correlation - Clarity and /p/ VOT

			Clarity	/p/ VOT
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.225*
		Sig. (2-tailed)	.	.024
		N	100	100
	/p/ VOT	Correlation Coefficient	-.225*	1.000
		Sig. (2-tailed)	.024	.
		N	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

There is a moderate positive correlation between /p/ VOT and accentedness ($r_s(98) = 0.385$, $p < 0.001$), indicating that lengthened /p/ VOT makes a moderate contribution to perception of accentedness. There is a weaker negative correlation between /p/ VOT and clarity ($r_s(98) = -0.225$, $p < 0.05$), indicating that /p/ VOT also decreases perception of clarity.

Table 4.41: Correlation - Accentedness and /t/ VOT

			Accentedness	/t/ VOT
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.369**
		Sig. (2-tailed)	.	.000
		N	100	100
	/t/ VOT	Correlation Coefficient	.369**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.42: Correlation - Clarity and /t/ VOT

			Clarity	/t/ VOT
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.209*
		Sig. (2-tailed)	.	.037
		N	100	100
	/t/ VOT	Correlation Coefficient	-.209*	1.000
		Sig. (2-tailed)	.037	.
		N	100	100

*. Correlation is significant at the 0.05 level (2-tailed).

/t/ VOT shows an almost identical effect. Longer /t/ VOT is moderately correlated with increased perception of accentedness ($r_s(98) = 0.369$, $p < 0.001$), and there is a weaker but still statistically significant negative correlation between length of /t/ VOT and decreased perception of clarity ($r_s(98) = -0.209$, $p < 0.05$).

Table 4.43: Correlation - Accentedness and /k/ VOT

			Accentedness	/k/ VOT
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.694**
		Sig. (2-tailed)	.	.000
		N	100	100
	/k/ VOT	Correlation Coefficient	.694**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.44: Correlation - Clarity and /k/ VOT

			Clarity	/k/ VOT
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.010
		Sig. (2-tailed)	.	.924
		N	100	100
	/k/ VOT	Correlation Coefficient	-.010	1.000
		Sig. (2-tailed)	.924	.
		N	100	100

The correlation is much stronger, however, for /k/ VOT and accentedness ($r_s(98) = 0.694$, $p < 0.001$), while there is no correlation at all between /k/ VOT and clarity ($r_s(98) = -0.01$, $p > 0.05$). Long /k/ VOT, then, contributes a great deal to perception of accentedness, but seems to have no effect on perception of clarity.

4.3.6 Attitudes and /ð/ Stopping

Two quantitative measures were used to determine whether /ð/ was produced as a stop: duration of frication and presence of release burst. A shorter period of frication would indicate a more stop-like production of /ð/, as would the presence of a release burst after /ð/.

Table 4.45: Correlation - Accentedness and /ð/ Duration of Frication

			Accentedness	/ð/ Duration of Frication
Spearman's rho	Accentedness	Correlation Coefficient	1.000	-.722**
		Sig. (2-tailed)	.	.000
		N	100	100
	/ð/ Duration of Frication	Correlation Coefficient	-.722**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.46: Correlation - Accentedness and /ð/ Presence of Release Burst

			Accentedness	/ð/ Presence Release Burst
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.762**
		Sig. (2-tailed)	.	.000
		N	100	100
	/ð/ Presence Release Burst	Correlation Coefficient	.762**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

There is a strong correlation between perception of accent and both duration of frication ($r_s(98) = -0.722$, $p < 0.001$) and presence of release burst ($r_s(98) = 0.762$, $p < 0.001$) for /ð/. Shortened duration of frication and presence of release burst contribute strongly to the perception of a speaker as accented.

Table 4.47: Correlation - Clarity and /ð/ Duration of Frication

			Clarity	/ð/ Duration of Frication
Spearman's rho	Clarity	Correlation Coefficient	1.000	.124
		Sig. (2-tailed)	.	.219
		N	100	100
	/ð/ Duration of Frication	Correlation Coefficient	.124	1.000
		Sig. (2-tailed)	.219	.
		N	100	100

Table 4.48: Correlation - Clarity and /ð/ Presence of Release Burst

			Clarity	/ð/ Presence Release Burst
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.120
		Sig. (2-tailed)	.	.234
		N	100	100
	/ð/ Presence Release Burst	Correlation Coefficient	-.120	1.000
		Sig. (2-tailed)	.234	.
		N	100	100

The same is not true of clarity, however. There is no significant correlation between clarity and either duration of frication ($r_s(98) = 0.124$, $p > 0.05$) or presence of release burst ($r_s(98) = -0.012$, $p > 0.05$).

4.3.7 Attitudes and Overlap of /i/ and /ɪ/

Overlap of /i/ and /ɪ/ was measured in two ways. 3D overlap indicates overlap of the vowels in three dimensions: F1, F2, and duration. 2D overlap indicates only the degree to which the vowels overlap in F1 and F2, without regard for duration.

Table 4.49: Correlation – Accentedness and 3D /i/ vs. /ɪ/ Overlap

			/i/-/ɪ/ Overlap 3D	Accentedness
Spearman's rho	/i/-/ɪ/ Overlap 3D	Correlation Coefficient	1.000	-.122
		Sig. (2-tailed)	.	.225
		N	100	100
	Accentedness	Correlation Coefficient	-.122	1.000
		Sig. (2-tailed)	.225	.
		N	100	100

Table 4.50: Correlation - Accentedness and 2D /i/ vs. /ɪ/ Overlap

			Accentedness	/i/-/ɪ/ Overlap 2D
Spearman's rho	Accentedness	Correlation Coefficient	1.000	.616**
		Sig. (2-tailed)	.	.000
		N	100	100
	/i/-/ɪ/ Overlap 2D	Correlation Coefficient	.616**	1.000
		Sig. (2-tailed)	.000	.
		N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

There is no correlation between 3D /i/ versus /ɪ/ overlap and accentedness ($r_s(98) = -0.122$, $p > 0.05$). However, there is a strong correlation between 2D /i/ versus /ɪ/ overlap and accentedness ($r_s(98) = 0.616$, $p < 0.001$). This suggests that listeners are using the vowel quality of /i/ and /ɪ/, not the duration, in their evaluations of accentedness.

Table 4.51: Correlation - Clarity and 3D /i/ vs. /ɪ/ Overlap

			Clarity	/i/-/ɪ/ Overlap 3D
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.089
		Sig. (2-tailed)	.	.379
		N	100	100
	/i/-/ɪ/ Overlap 3D	Correlation Coefficient	-.089	1.000
		Sig. (2-tailed)	.379	.
		N	100	100

Table 4.52: Correlation - Clarity and 2D /i/ vs. /ɪ/ Overlap

			Clarity	/i/-/ɪ/ Overlap 2D
Spearman's rho	Clarity	Correlation Coefficient	1.000	-.179
		Sig. (2-tailed)	.	.074
		N	100	100
	/i/-/ɪ/ Overlap 2D	Correlation Coefficient	-.179	1.000
		Sig. (2-tailed)	.074	.
		N	100	100

However, there is no correlation between clarity and either 3D ($r_s(98) = -0.089$, $p > 0.05$) or 2D ($r_s(98) = -0.179$, $p > 0.05$) /i/ versus /ɪ/ overlap.

5. Discussion

5.1 Summary of Findings

This study attempts to determine what phonetic or phonological markers characterize Korean-Accented English and Korean American English, and how those markers interact with listeners' attitudinal evaluations of speakers. It also questions whether Korean Americans would pattern, in terms of phonetics and listeners' attitude reactions, with native Korean speakers, monolingual English speakers, or as a separate group entirely. While it was successful at determining some phonetic features that contribute to the perception of a Korean accent, none of the features examined here could be said definitively to contribute to a specifically Korean American pattern of speech. Rather, Korean Americans seemed to be grouped with monolingual Caucasian speakers of American English on most phonetic and attitudinal measures.

On the majority of phonetic variables, groups B and C patterned together, with group K exhibiting significantly different productions. The exceptions are /u/ monophthongization, for which no group was significantly different from any other, /o/ monophthongization, in which B produced more diphthongal realizations than groups C or K, who patterned together, and overlap of /i/ and /ɪ/, where B exhibited the least overlap.

Groups B and C were also evaluated similarly by listeners in attitudes responses. Attitudes scores for groups B and C were not significantly different in the accentedness, clarity, and similarity categories. Listeners rated all three groups differently for competence, viewing group B as the most competent, followed by C, and rating group K as least competent. Groups B and K patterned together only on affective scores, which measured the speaker's likeability. It is not clear why group C was seen as significantly less likeable than the other two groups; possibly it was due to voice quality or intonation. Listeners do not seem to have singled out group C in other categories, and there is no evidence that this low affective rating is due

to any of the phonetic variables under study, suggesting that listeners were instead responding to some quality of the group C speaker outside the scope of this study.

Somewhat surprisingly, there was no correlation between accentedness scores and clarity scores. This suggests that listeners are able to evaluate clarity separately from accentedness; a speaker with an accent may nonetheless be clear, and an unaccented speaker may be unclear. This is contrary to my expectation that accentedness would contribute to a perception of the speaker as less clear. This lack of correlation between the two categories is borne out in the correlations of phonetic and attitudes data: /a/ backing, /r/ versus /l/ confusion, /k/ VOT, stopped /ð/, and 2D /i/ and /ɪ/ overlap were all correlated with accentedness but not with clarity. /o/ monophthongization was correlated with clarity alone, and only /p/ and /t/ VOT correlated with both. In the cases of /p/ and /t/ VOT, the correlation with accentedness was much stronger than the correlation with clarity. If a particular set of phonetic features is contributing to listeners' sense of a speaker's clarity, they appear in large part not to be the same phonetic features that are contributing to a perception of accentedness.

Past research has shown that to some degree what listeners hear is not entirely dependent on auditory input alone, but also on what they *expect* to hear (McGurk & MacDonald, 1976; Rubin, 1992; Niedzielski, 1999; Hay, Warren, & Drager, 2006). The results from the auditory versus acoustic analyses of the /ð/ stopping variable indicate that this is potentially true of linguists as well. Using auditory methods I was able to successfully estimate the number of tokens produced by group K where /ð/ was expected but a stop was produced. However, my estimates for groups B and C fell far short of the actual frequency of stopped /ð/.

Table 5.1: Auditory vs. Acoustic Impression of Stopped /ð/

Group	Auditory Impression of Full Closure	Acoustic Evidence of Full Closure	Difference
C	3.2%	19.4%	16.2%
K	75.9%	79.7%	3.8%
B	1.4%	36.6%	35.2%

This discrepancy can be explained by my own expectations: because in my mind stopping of /ð/ is characteristic of non-native English speakers, I believed that native English speakers would not produce stopped /ð/. I therefore heard many (in

fact, a total of 30) tokens of /ð/ as fricative even though those same tokens displayed full closure and a release burst when waveforms and spectrograms were examined. This highlights the necessity of using acoustic methods to check the accuracy of auditory judgments. Had I not used both methods on this variable, I would have far underestimated the frequency with which native English speakers stop /ð/.

This would have been a particularly unfortunate fact to overlook. Although the Korean-dominant, L2 English speakers in group K produced /ð/ as a stop significantly more often than the native English speakers in groups B or C, groups B and C still produced /ð/ as a stop fairly often (36.6 percent and 19.4 percent of the time, respectively). Furthermore, stopped /ð/ correlated very strongly with perception of accentedness – the more stopped /ð/ a speaker produced, the more they were perceived by listeners as accented. However, groups B and C were both rated very low on accentedness questions, indicating that listeners did not perceive members of these groups as very accented at all. We must therefore conclude that there is a threshold for stopped /ð/ being perceived as accented. A speaker may produce a certain proportion of this phoneme as a stop and still sound native-like to listeners, but once that proportion is exceeded their speech begins to sound accented.

The issue of /i/ and /ɪ/ overlap is also complex. While all groups exhibited less overlap when duration was accounted for (3D overlap) than when it was not (2D overlap), group K exhibits the highest of 2D overlap (100 percent for speaker K1 and 88 percent for speaker K2). However, when duration is taken into consideration they exhibit approximately the same amount of overlap as the control speaker in group C. Additionally, the difference between 2D and 3D overlap scores is the greatest for group K. This suggests that group K is using duration rather than formant frequency to differentiate /i/ and /ɪ/ to a greater degree than it is used by native English speakers. This is unsurprising, given that Korean lacks a phonemic distinction between /i/ and /ɪ/.

However, I also found a strong correlation between 2D overlap and accentedness, but no significant correlation between 3D overlap and accentedness. This suggests that listeners used the frequencies of the first two formants rather than duration to determine what sounds accented or unaccented. While group K

uses duration to differentiate /i/ from /ɪ/, it does not appear that the native English speaking listeners used duration in this way.

5.2 Limitations of the Study

Because there is virtually no research on the phonetic characteristics of Korean American English, and because linguists remain conflicted as to whether such a variety even exists, selecting phonetic variables to examine was difficult. It was necessary to select variables characteristic of Korean-Accented English as a starting point, on the basis that there might be some transfer into Korean American English. Based on the results given here, this appears not to be the case; the Korean American speakers patterned with the monolingual English speaker on the majority of phonetic measures.

The choice to use only one speaker in group C, the monolingual English-speaking control group, proved unfortunate. Listeners responded negatively to the group C speaker on affective measures for reasons that appear to be outside the scope of this study, and it is difficult to say whether the responses to speaker C are unusual in any other ways, given the lack of another speaker in this group to compare to. Indeed, a larger number of speakers across all three categories would make the results of this study stronger and more generalizable. Additionally, the difficulty of recruiting speakers for groups K and B made it impossible to control for some social factors, such as region of origin, with the result that the two speakers in group B grew up in different dialect regions (though listeners' survey responses showed little awareness of this).

While I have examined correlations between specific phonetic variables and attitudes scores, I did not look into the ways in which phonetic variables interacted with each other to influence attitudes. It seems likely that it is not a single phonetic variable that contributes to a perception of a speaker as clear or unclear, accented or unaccented; rather, it seems more likely that a bundle of phonetic variables occurring together in a single speaker produces this impression. It is therefore probable that the interaction of groups of variables is important. If for instance a speaker never reverses /r/ and /l/ but frequently produces /ð/ as a stop, would they still be perceived as accented and non-native-like, or would this result in another perception? These questions lie outside the scope of this work.

5.3 For Future Research

There remain many avenues for further research on the topic of Korean American English. While studies have found that listeners are sometimes able to differentiate Asian American speakers of English from Caucasian ones (Newman & Wu, 2011; Hanna, 1997), there exists very little research regarding exactly which phonetic variables distinguish Asian American English. Newman and Wu describe some phonetic differences, but focus mainly on voice quality. If indeed there are other distinctive phonetic features of Asian American English, they remain to be identified.

The relationship between accentedness and comprehensibility also bears further examination. While I found no correlation between how listeners scored speakers on accentedness versus clarity, it seems likely that a sufficiently "heavy" accent would lessen clarity. It is possible that while the native speakers of Korean in this study were accented, they were not accented enough to make their speech unclear. More research is needed regarding which variables contribute to a perception of clarity, and what level of those variables is necessary to reduce a speaker's perceived clarity.

The correlation between stopped /ð/ and perception of accentedness would benefit from further scrutiny. While this variable was correlated strongly with perception of accentedness, groups B and C were perceived as largely unaccented despite producing a portion of their tokens of /ð/ as stops. In this study I did not control for the environment in which /ð/ occurred. It is possible that tokens of /ð/ may be stopped in some phonetic environments or syntactic categories without sounding non-native.

Bibliography

Boersma, P., & Weenink, D. (2011). *PRAAT: Doing Phonetics By Computer [Computer program]*. Retrieved March 9, 2009, from http://www.praat.org/

Bresnahan, M. J., Ohashi, R., Nebashi, R., Liu, W. Y., & Shearman, S. M. (2002). Attitudinal and Affective Response Toward Accented English. *Language and Communication, 22* (2), 171-185.

Bucholtz, M. (2004). Styles and Stereotypes: The Linguistic Negotiation of Identity Among Laotian American Youth. *Pragmatics, 14* (2/3), 127-147.

Cargile, A. C. (1997). Attitudes Toward Chinese-Accented Speech. *Journal of Language and Social Psychology*, 434-443.

Cargile, A. C. (2002). Speaker Evaluation Measures of Language Attitudes: Evidence of Information-Processing Effects. *Language Awareness, 11* (3), 178-191.

Cho, T., & Ladefoged, P. (1997). Variations and Universals in VOT: Evidence From 17 Endangered Languages. *UCLA Working Papers in Phonetics, 95*, 18-40.

Chun, E. (2009). Ideologies of Legitimate Mockery: Margaret Cho's Revoicings of Mock Asian. In A. Reyes, & A. Lo (Eds.), *Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America* (pp. 261-287). New York: Oxford University Press.

Chun, E. (2004). The Construction of White, Black, and Korean American Identities through African American Vernacular English. *Journal of Linguistic Anthropology, 11* (1), 52-64.

Curtis, E. K. (2000). *Closed Syllable Vowel-Shortening and Durational Correlates of the Mora in Korean*. Unpublished master's thesis, University of Washington, Seattle.

Di Paolo, M., Yaeger-Dror, M., & Wassink, A. B. (2011). Analyzing Vowels. In M. Di Paolo, & M. Yaeger-Dror (Eds.), *Sociophonetics* (pp. 87-106). New York: Routledge.

Eagleton, T. (2007). *Ideology: An Introduction.* London: Verso.

Flege, J. E., Birdsong, D., Bialystok, E., Mack, M., Sung, H., & Tsukada, K. (2006). Degree of Foreign Accent in English Sentences Produced by Korean Children and Adults. *Journal of Phonetics, 34*, 153-175.

Gill, M. M. (1994). Accent and Stereotypes: Their Effect on Perceptions of Teachers and Lecture Comprehension. *Journal of Applied Communication Research, 22*, 348-361.

Gluszek, A., & Dovidio, J. F. (2010). Speaking With a Nonnative Accent: Perceptions of Bias, Communication Difficulties, and Belonging in the United States. *Journal of Language and Social Psychology, 29* (2), 224-234.

Gordon, M. J. (2005). The West and Midwest: Phonology. In B. Kortmann, & E. W. Schneider (Eds.), *A Handbook of Varieties of English: A Multimedia Reference Tool* (pp. 338-350). New York: Mouton De Gruyter.

Hall-Lew, L., & Starr, R. L. (2010). Beyond the 2nd Generation: English Use Among Chinese Americans in the San Francisco Bay Area. *English Today, 26* (3), 12-19.

Hanna, D. (1997). Do I Sound "Asian" to You?: Linguistic Markers of Asian American Identity. *U. Penn Working Papers in Linguistics, 4* (2), 141-153.

Hay, J., Warren, P., & Drager, K. (2006). Factors Influencing Speech Perception in the Context of a Merger-in-Progress. *Journal of Phonetics, 34*, 458-484.

Jo, H.-Y. (2004). 'Heritage' Language Learning and Ethnic Identity: Korean Americans' Struggle with Language Authorities. *Language, Culture, and Curriculum, 14* (1), 26-41.

Johnson, J. S., & Newport, E. (1989). Critical Period Effects in Second Language Learning: The Influence of Maturational State on the Acquisition of English as a Second Language. *Cognitive Psychology, 21*, 60-99.

Kang, M. A. (2004). Constructing Ethnic Identity Through Discourse: Self-Categorization Among Korean American Camp Counselors. *Pragmatics, 14* (2), 217-232.

Kang, O., & Rubin, D. L. (2009). Reverse Linguistic Stereotyping: Measuring the Effect of Listener Expectations on Speech Evaluation. *Journal of Language and Social Psychology, 28* (4), 441-456.

Kim, S.-G. (2007). *Phonetics of Korean.* Korea: Hanulbooks.

Labov, W., Ash, S., & Boberg, C. (2006). *The Atlas of North American English: Phonetics, Phonology, and Sound Change.* New York: Mouton de Gruyter.

Ladefoged, P. (2006). *A Course in Phonetics* (5th ed.). Boston: Wadsworth.

Ladefoged, P., & Maddieson, I. (1996). *The Sounds of the World's Languages.* Malden: Blackwell.

Lambert, W. E., Hodgson, R. C., Gardner, R. C., & Fillenbaum, S. (1960). Evaluational Reactions to Spoken Languages. *Journal of Abnormal and Social Psychology, 60* (1), 44-51.

Likert, R. (1932). A Technique for the Measurement of Language Attitudes. *Archives of Psychology* (140), 5-60.

Lindemann, S. (2003). Koreans, Chinese or Indians? Attitudes and Ideologies About Non-Native English Speakers in the United States. *Journal of Sociolinguistics, 7* (3), 348-364.

Lippi-Green, R. (1997). *English With an Accent* (1st ed.). London: Routledge.

Lippi-Green, R. (2012). *English With an Accent* (2nd ed.). London: Routledge.

Martin, S. E. (1992). *A Reference Grammar of Korean.* Rutland, Vermont: Charles E. Tuttle Company.

McGurk, H., & MacDonald, J. (1976). Hearing Lips and Seeing Voices. *Nature, 264*, 746-748.

Mendoza-Denton, N., & Iwai, M. (1993). "They Speak More Caucasian": Generational Differences in the Speech Of Japanese-Americans. *Texas Linguistic Forum, 33*, 58-67.

Milroy, J. (2007). The Ideology of the Standard Language. In C. Llamas, L. Mullany, & P. Stockwell (Eds.), *The Routledge Companion to Sociolinguistics* (pp. 133-139). London: Routledge.

Newman, M., & Wu, A. (2011). "Do You Sound Asian When You Speak English?" Racial Identification and Voice in Chinese and Korean Americans' English. *American Speech, 86* (2), 152-178.

Niedzielski, N. A., & Preston, D. R. (2003). *Folk Linguistics.* New York: Mouton de Gruyter.

Niedzielski, N. (1999). The Effect of Social Information on the Perception of Sociolinguistic Variables. *Journal of Language and Social Psychology, 18* (1), 62-85.

Purnell, T., Idsardi, W., & Baugh, J. (1999). Perceptual and Phonetic Experiments on American English Dialect Identification. *Journal of Language and Social Psychology, 18* (1), 10-30.

Reyes, A. (2005). Appropriation of African American Slang by Asian American Youth. *Journal of Sociolinguistics, 9* (4), 509-532.

Reyes, A., & Lo, A. (Eds.). (2008). *Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America.* Oxford: Oxford University Press.

Reyes, A., & Lo, A. (2009). Introduction: On Yellow English and Other Perilous Terms. In A. Reyes, & A. Lo (Eds.), *Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America* (pp. 3-17). New York: Oxford University Press.

Rickford, J. R. (1985). Standard and Non-Standard Language Attitudes in a Creole Continuum. In N. Wolfson, & J. Manes (Eds.), *Language of Inequality* (pp. 145-160). New York: Mouton de Gruyter.

Rubin, D. L. (1992). Nonlanguage factors Affecting Undergraduate's Judgments of Nonnative English-Speaking Teaching Assistants. *Research in Higher Education, 33*, 511-531.

Shankar, S. (2008). Speaking like a Model Minority: "FOB" Styles, Gender, and Racial Meanings Among Desi Teens in Silicon Valley. *Journal of Linguistic Anthropology, 18* (2), 268-289.

Smitherman, G. (1998). Ebonics, King, and Oakland: Some Folks Don't Believe Fat Meat is Greasy. *Journal of English Linguistics, 26* (2), 97-107.

Sohn, H.-M. (1999). *The Korean Language.* Cambridge: Cambridge University Press.

Talmy, S. (2009). Forever FOB? Resisting and Reproducing the Other in High School ESL. In A. Reyes, & A. Lo (Eds.), *Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America* (Vol. 14, pp. 347-365). Oxford: Oxford University Press.

Thomas, E. R., & Kendall, T. (2007). *NORM: The Vowel Normalization and Plotting Suite.* Retrieved April 4, 2011, from http://ncslaap.lib.ncsu.edu/tools/norm/

Tsukada, K., Birdsong, D., Bialystok, E., Mack, M., Sung, H., & Flege, J. (2005). A Developmental Study of English Vowel Production and Perception by Native Korean Adults and Children. *Journal of Phonetics, 33*, 263–290.

U.S. English. (1992). In Defense of Our Common Language... In J. Crawford (Ed.), *Language Loyalties: A Source Book on the Official English Controversy* (pp. 143-149). Chicago: University of Chicago Press.

Wassink, A. B. (2006). A Geometric Representation of Spectral and Temporal Vowel Features: Quantification of Vowel Overlap in Three Varieties. *Journal of the Acoustical Society of America, 119* (4), 2334-2350.

Wiley, T. G., & Lukes, M. (1996). English-only and Standard English Ideologies in the US. *TESOL Quarterly , 30* (3), 511-535.

Wolfram, W. (1998). Language Ideology and Dialect: Understanding the Oakland Ebonics Controversy. *Journal of English Linguistics, 26* (2), 108-121.

Yeni-Komshian, G. H., Flege, J. E., & Liu, S. (2000). Pronunciation Proficiency in the First and Second Languages of Korean-English Bilinguals. *Bilingualism: Language and Cognition, 3* (2), 131-49.

Zahn, C. J., & Hopper, R. (1985). Measuring Language Attitudes: The Speech Evaluation Instrument. *Journal of Language and Social Psychology, 4* (2), 113-123.

Appendices

Appendix A: Speaker Survey

ID Code:

Gender:

Age:

Do you have any speech impediments that you know of? Yes No

Where were you born?

If you were born outside the United States, how long have you lived in the United States?

What language(s) do you speak natively?

How long have you been speaking English?

_ From birth

_ From age ___

Please circle one response for the questions below.

I usually talk to my parents in…

English Korean

My parents usually talk to me in…

English Korean

Most of my friends talk to me in…

English Korean

I talk to most of my friends in…

English Korean

My parents are…

English monolingual Korean monolingual English-Korean bilingual

Most of my friends are…

English monolingual Korean monolingual English-Korean bilingual

I feel more confident speaking…

English Korean Equally confident in both

In the following settings, I speak…

At home…

With my parents:

Mostly English Mostly Korean English and Korean equally

With my siblings, if applicable:

Mostly English Mostly Korean English and Korean equally

With friends:

Mostly English Mostly Korean English and Korean equally

At the supermarket…

With family:

Mostly English Mostly Korean English and Korean equally

With friends:

Mostly English Mostly Korean English and Korean equally

With employees or staff:

Mostly English Mostly Korean English and Korean equally

In restaurants…

With family:

Mostly English Mostly Korean English and Korean equally

With friends:

Mostly English Mostly Korean English and Korean equally

With employees or staff:

Mostly English Mostly Korean English and Korean equally

At school outside of class…

With friends:

Mostly English Mostly Korean English and Korean equally

With classmates:

Mostly English Mostly Korean English and Korean equally

With instructors:

Mostly English Mostly Korean English and Korean equally

Appendix B: Reading Passages

Instructions

To be delivered orally:

Please read at a normal pace. You may practice reading the passage as many times as you like. When you tell me you are ready, I will begin recording.

Passage A: The Dog and the Cook

A rich man gave a great feast, to which he invited many friends. His Dog availed himself of the occasion to invite his own guest, another Dog, saying, "My master gives a feast, and there is always much food remaining; come and sup with me tonight." The Dog thus invited went at the hour appointed, and seeing the preparations for so grand an entertainment, said, "I do not often get such a chance! I will take care and eat enough to last me both today and tomorrow." While he was wagging his tail to convey his pleasure to his friend, the Cook saw him moving about among his dishes and, seizing him by his fore and hind paws, bundled him without ceremony out of the window. He fell with force upon the ground and limped away, howling dreadfully. His yelling soon attracted other street dogs, who came up to him and inquired how he had enjoyed his supper. He replied, "Why, to be honest, I drank so much wine that I remember nothing, and do not know how I got out of the house."

Passage B: Belling the Cat

Long ago, the mice had a general council to consider what measures they could take to outwit their common enemy, the Cat. Some said this, and some said that; but at last a young mouse got up and said he had a proposal to make, which he thought would meet the case. "You will all agree," said he, "that our chief danger consists in the sly and treacherous manner in which the enemy approaches us. Now, if we could only receive some signal of her approach, we could easily escape from her. I venture, therefore, to propose that a small bell be procured, and attached by a

ribbon round the neck of the Cat. By this means we should always know when she was about, and could easily retire while she was in the neighborhood." This proposal met with general applause, until an old mouse got up and said: "That is all very well, but who is to bell the Cat?" The mice looked at one another and nobody spoke until finally, the old mouse said: "It is easy to propose impossible remedies."

Passage C: The Lion and the Bull

A Lion, greatly desiring to capture a Bull, and yet afraid to attack him on account of his great size, resorted to a trick to ensure his destruction. He approached the Bull and said, "I have slain a fine sheep, my friend; and if you will come home and partake of him with me, I shall be delighted to have your company." The Lion said this in the hope that, as the Bull was in the act of reclining to eat, he might attack him to advantage, and make his meal on him. The Bull, on approaching the Lion's den, saw the huge spits and giant caldrons, and no sign whatever of the sheep. So, without saying a word, he quietly took his departure. The Lion inquired why he went off so abruptly without a word of salutation to his host, who had not given him any cause for offense. "I have reasons enough," said the Bull. "I see no indication whatever of your having slaughtered a sheep, while I do see very plainly every preparation for your dining on a bull."

Passage D: The Fox and the Stork

At one time the Fox and the Stork were on visiting terms and seemed very good friends. So the Fox invited the Stork to dinner, and for a joke put nothing before her but some soup in a very shallow dish which the Fox could easily lap up, but the Stork could only wet the end of her long bill in it, and left the meal as hungry as when she began. The Fox said, "I regret that the soup is not to your liking."

"Pray do not apologize," said the Stork. "I hope you will return this visit, and come and dine with me soon." So a day was appointed when the Fox should return to visit the Stork. However, when they were seated at table all that was for their

dinner was contained in a very long-necked jar with a narrow mouth, in which the Fox could not insert his snout, so all he could manage to do was to lick the outside of the jar.

"I will not apologize for the dinner," said the Stork: "One bad turn deserves another."

Passage E: The Donkey and the Mule

A mule-driver set forth on a journey, driving before him a Donkey and a Mule, both well laden. The Donkey, as long as he traveled along the plain, carried his load with ease, but when he began to ascend the steep path of the mountain, felt his load to be more than he could bear. He entreated his companion to relieve him of a small portion, that he might carry home the rest; but the Mule paid no attention to the request. The Donkey shortly afterwards fell down dead under his burden. Not knowing what else to do in so wild a region, the mule-driver placed upon the Mule the load carried by the Donkey in addition to his own. At the top of it all he placed the hide of the Donkey, after he had skinned him. The Mule, groaning beneath his heavy burden, said to himself: "I am treated according to my deserts. If I had only been willing to assist the Donkey a little in his need, I should not now be bearing, together with his burden, himself as well."

Appendix C: Listener Survey

Instructions: Listening Task

1. Please complete the **screening questionnaire**.

   After completing the screening questionnaire, the experimenter may ask you to complete a **consent form**.

2. You will complete a brief **listening exercise**. You will listen to a voice and answer some questions about what you hear. This will take you about **15 minutes**.

3. You are done. Thank you for your participation.

Screening Questionnaire for Listeners

I. Personal Information

1. Age:

2. Do you have any hearing loss that you know of? Yes No

3. Gender:

4. What ethnicity do you identify as?

5. What language(s) do you speak natively?

6. Do you speak, or have you studied, any other languages? If so, which? For how long have you studied them?

7. Do you think you have an accent?

8. Does anyone else think you have anything unusual about your speech?

9. Have you lived in or spent an extended period of time in a country other than the United States? If so where, and for how long?

10. Do any members of your immediate family speak a language other than English natively? If so, in what language do they speak to you?

11. Do any of your close friends speak a language other than English natively? If so, in what language do they speak to you?

12. Have you ever studied linguistics at the University of Washington or elsewhere?

Appendix D: Audio Stimulus Orderings

Audio stimuli were presented to each listener in one of the four following orders. Stimuli are named in the format [speaker group][speaker number]-[passage]. For instance, B1-A refers to a stimulus read by speaker number 1 from group B, and is a reading of passage A.

1:	B1-A	K2-D	C1-B	B2-E	K1-C
2:	B2-C	K1-B	C1-A	B1-D	K2-E
3:	K1-C	B2-E	C1-B	K2-D	B1-A
4:	K2-E	B1-D	C1-A	K1-B	B2-C

Appendix E: Attitudes Questionnaire

For each question below, please rate the speaker 1-5. 1 is most like the option on the left, and 5 is most like the option on the right.

This speaker…

1. is easy to understand — is hard to understand

   1 2 3 4 5

2. has no accent — has a very strong accent

   1 2 3 4 5

3. is pleasant to listen to — is unpleasant to listen to

   1 2 3 4 5

4. speaks good English — speaks poor English

   1 2 3 4 5

5. sounds educated — sounds uneducated

   1 2 3 4 5

6. sounds qualified to teach — sounds unqualified to teach

   1 2 3 4 5

7. sounds professional — sounds unprofessional

   1 2 3 4 5

8. sounds confident — sounds unsure

   1 2 3 4 5

9. sounds mean — doesn't sound mean

   1 2 3 4 5

10. sounds intelligent sounds unintelligent

1 2 3 4 5

11. sounds friendly sounds unfriendly

1 2 3 4 5

12. sounds likeable sounds unlikeable

1 2 3 4 5

13. is clear is unclear

1 2 3 4 5

14. sounds similar to me doesn't sound like me

1 2 3 4 5

15. Where do you think this speaker is from?

16. If you think the speaker is difficult to understand, are there specific things about their speech that makes them difficult to understand, such as how they say certain words or sounds?

17. If you think the speaker has an accent, are there specific things about their speech that sound accented to you, such as the way they say certain words or sounds?

18. What was the moral of the story?

19. Who were the characters in this story?

20. Please summarize the plot of the story.