LAVENDER LESSONS LEARNED; OR, WHAT SEXUALITY CAN TEACH US ABOUT PHONETIC VARIATION

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ABSTRACT: This article examines four topics to consider in future research on sexuality and phonetic variation. First, it argues that new paradigms are needed for the measurement of the distinctive meanings associated with different phonetic variants associated with sexuality. Second, it advocates for new research designs and analysis regimens in studies of the perception of sexuality. Third, it advocates that studies should document and account for systematic differences among individuals in their perception and production of phonetic variation that conveys sexuality. Finally, it argues that research should focus on documenting how these forms are acquired.

A PERSON BORN in 1937—a year chosen only because it was the year my late father was born—could hardly imagine the changes that would happen in his or her lifetime in attitudes toward people who are sexually attracted to members of the same sex. In the 73 years that have elapsed between 1937 and the writing of this article, attitudes toward these people have gone from viewing them as suffering from a psychopathology due to deficient parenting to seeing them as members of a distinct cultural group worthy of equal treatment under the law. Nonetheless, there is still enormous diversity in attitudes toward, beliefs about, and research on same-sex attraction.

If someone were to sit down and read the entire literature on sexuality and linguistic variation, that person would come away certainly enlightened, but also struck, and maybe even confused, by the diversity of questions and methods that have motivated these investigations. This confusion would be grounded in part by the changing climate in which research has taken place. Social and cultural norms have changed and so have the many different academic disciplines that study language. Consider the two disciplines arguably at the forefront of studying variation in spoken language, experimental phonetics and sociolinguistics. Since their inception, these fields have documented meticulously the many ways in which spoken language is variable. Sociolinguists have shown that variation can be found at nearly every level of linguistic structure. They have shown that variation is the result of a complex set of factors, including differences in linguistic variants among people in

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groups defined by members' race, age, gender, and geographic origin, as well as differences as a function of speakers' attitudes and stances and their perceived relationship to their interlocutors (Bell 1984; Labov 1994, 2001; Eckert 2001). Experimental phoneticians have examined variation in the spoken form of language in great detail. They have shown that variation in the acoustic form of words, sounds, and connected speech is pervasive. More importantly, they have developed models that allow us to estimate which of many of these types of phonetic variation can be accounted for by variation in the anatomy and physiology of the speech-production mechanism, and which cannot. The consensus in much of this work is that, while speaker differences in laryngeal and vocal-tract anatomy and physiology do indeed contribute substantially to the acoustic characteristics of sounds, many aspects of phonetic structure cannot be accounted for by differences in speakers' "hardware." They must then reflect learned behaviors (Johnson 2006).

The fields of experimental phonetics and sociolinguistics have in a sense converged recently, in that they both have begun to focus on the CONSEQUENCES of variation for the cognitive representations of language. For instance, sociolinguistics has increasingly emphasized the study of the meaning of linguistically variable forms. These are the so-called "third wave" variation studies (Eckert 2010). Experimental phonetics has emphasized the development of models that quantify the extent of phonetic variation in linguistic representations in long-term memory. Many of these investigations have been done by people affiliated with the Association of Laboratory Phonology (Pierrehumbert and Clopper 2010).

Sociolinguistics and experimental phonetics have converged during a time of increased emphasis on interdisciplinarity in academia (Klein 2004; Robinson 2008; Sá 2008). While sociolinguists and experimental phoneticians have always used techniques from other disciplines (i.e., ethnographic methods from anthropology, aerodynamic and physical models from acoustics), the toolkit has expanded greatly in recent years, including priming methods borrowed from cognitive psychology and implicit-attitude measures from personality psychology, among others. This is the intellectual and social environment in which studies of sexuality and variation reside: one that is not bound to a particular set of tools or to a particular theoretical orientation, and one whose social context is constantly changing. This article considers four topics critical to understanding not only sexuality, but variation more generally. In both title and concept, it is a sequel to Arnold Zwicky's (1997) influential article "Two Lavender Issues for Linguists." In that article, Zwicky called for research on sexuality that focused on nomenclature (i.e., how people of diverse sexualities refer to themselves and to others and how this shapes our understanding of the category space associated with sexuality)

and the power of linguistic variation to reliably cue a person's sexuality without an overt disclosure. These calls were couched in terms of a thoughtful discussion of what studies of sexuality could gain for people interested in issues related to variation more broadly. Indeed, much of the work in this special issue answers Zwicky's second call.

The calls I put forth in this article are essentially detailed follow-ups of Zwicky's original recommendations, with one change: I limit this discussion to the study of variation in the sound structure of language. This is not to suggest that variation in other linguistic structures is less important than speech-sound variation; it is because much of my and others' work on speech-sound variation is particularly well-suited to studying sociolinguistic variation (i.e., Pierrehumbert 2003; Munson, Edwards, and Beckman 2005, forthcoming; Beckman, Munson, and Edwards 2007; Edwards, Munson, and Beckman forthcoming).

WAYS OF SOUNDING GAY

Zwicky's call to study differences between gay- and heterosexual-identified people has clearly been met. Many studies have examined the unique phonetic "signatures" that distinguish gay talkers from heterosexual ones and those that predict listeners' judgments of gay-soundingness in voices. We refer to these activities as the PHONETIC PARAMETERIZATION of sexuality. For a review of these studies, please see Munson and Babel (2007). For illustration, consider two recent studies: Podesva (2004) showed that one gay man used exaggerated stop consonant releases in social contexts in which he was effecting a "diva" persona; Munson et al. (2006) showed that self-identified gay men in Minnesota produce an /s/ with a significantly more-compact spectrum than do self-identified heterosexual men. Both of these studies characterized the measure of interest (strongly released final stops, compact-frequency /s/) as indexing talkers' sexuality.

Phonetic parameterization is not a trivial task. The most commonly used tool for assessing variation, phonetic transcription, is clearly suboptimal. As described by Munson et al. (2010) and Ladd (forthcoming), there is far more articulatory and acoustic variation in speech than could ever be captured by even the most detailed phonetic transcription. Moreover, there is far more phonetic diversity within talkers and speakers of different languages than can be found in even the most rigorous and comprehensive introductory phonetics textbooks. Meticulous and creative instrumental analyses are minimal requirements for adequate phonetic parameterization. Documenting even seemingly subtle phonetic variation is particularly crucial in light of recent

findings that listeners can perceive a great deal of fine phonetic variation when given a task that does not require a categorical response. Goldinger and Azuma (2004) showed that fine-grained acoustic detail in individuals' productions of words changes in response to simply hearing others' productions of those words. Clearly, these pronunciation changes could not have occurred unless individuals had perceived fine detail in others' productions. Schellinger, Edwards, and Munson (2010) presented listeners with a series of CV syllables beginning with /s/ and /θ/, produced by preschool children. Acoustic analysis showed that these stimuli ranged from a canonical /s/ to a canonical /θ/. Schellinger, Edwards, and Munson asked listeners to click on a line anchored by the text "the 's' sound" and "the 'th' sound." Click location correlated very strongly with the acoustic characteristics of the fricatives, showing the adults could perceive many of the fine-grained acoustic characteristics of these sounds.

Together, these two sets of findings suggest that the task of phonetically parameterizing a speaker attribute is dauntingly complex. Far more detail in the signal is present than is apparent, yet much of this detail can be perceived (and, at least in Goldinger and Azuma's [2004] study, emulated) by listeners. The task of phonetic parameterization of sexuality is far from complete, since studies of sexuality have been shackled to variables that are already well studied, such as vowel acoustics and the spectral characteristics of a subset of consonants, including /s/. That these studies have found differences among people with different sexuality is proof that sexuality is indeed expressed through variation in these sounds. It is not, however, proof that these sounds have a privileged role in conveying sexuality. The only thing that might be special about /s/ is that its acoustic characteristics are better understood than most other consonants', making it a relatively easy sound to examine. We are only beginning to understand the phonetics of other aspects of speech, like the majority of consonant features, voice quality, and discourse-level prosodic organization, among others. As phonetics research advances, we may find that a broad spectrum of features plays a strong role in conveying sexuality. Here, studies of sexuality may contribute to a more general theory of parametric phonetics, if analyses were to show that a particular phonetic parameter not yet found to operate in the phonologies of the worlds' languages nonetheless indexes sexuality.

It is likely that many phonetic parameters that code different attributes of sexuality will be uncovered only by detailed acoustic analysis. Smith, Hall, and Munson (2010) investigated the relationship between /æ/ variants and judgments of the sexuality of men's voices, motivated by the finding by Munson et al. (2006) of differences in the acoustic characteristics of /æ/ between gay men and heterosexual men. Gay men in that study produced a variant

of /æ/ whose first- and second-formant frequencies were impressionistically similar to the "retracted" /æ/ characteristic of the California Chain Shift, while heterosexual men produced an /æ/ that was more similar to the tense /æ/ of the Northern Cities Chain Shift.[1] Smith, Hall, and Munson found no relationship between tense and retracted /æ/ variants in sentences produced by trained speakers and judgments of men's sexuality. A further study by Smith, Munson, and Hall (2008) examined the judgments of talkers' sexual orientation based on /æ/ words excised from the sentences produced by trained speakers. Here, tense and retracted variants of /æ/ elicited different judgments of perceived sexual orientation, but these were the opposite of what was predicted by Munson et al. (2006). In Smith, Hall, and Munson (2010), tense variants were rated as gay sounding, and retracted variants were rated as heterosexual. Moreover, they replicated Munson et al.'s (2006) earlier finding by presenting the same stimuli to a new group of listeners. This finding refutes the potential explanation that apparent inconsistency between studies was a consequence of a change in listeners' associations between /æ/ quality and gay-soundingness in the years between Munson et al. (2006) and Smith, Hall, and Munson (2010). Munson, Hall, and Smith (2009) reconciled these apparent findings by examining a larger set of acoustic measures of the /æ/ tokens than did Munson et al. (2006). Munson, Hall, and Smith (2009) found that measures of the trajectories of F1 and F2 over the entire course of the vowel predicted equally well the judgments of sexual orientation from the earlier Munson et al. (2006) and the more recent Smith, Hall, and Munson (2010). Thus, we must acknowledge that the study of phonetic parameterization is active and ongoing. We cannot assume that the parametric phonetics used to convey sexuality will be a subset of the parametric phonetics that have already been described.

SOCIAL MEANING AND SEXUALITY

Zwicky's call to examine differences between gay and heterosexual talkers implied a further call to examine whether some aspects of linguistic variation are sufficient to cue sexuality to naive listeners in the absence of an overt declaration of sexuality. Indeed, many studies have shown that listeners are willing to judge a talker's sexual orientation from content-neutral samples (Gaudio 1994; Linville 1998; Smyth, Jacobs, and Rogers 2003; Munson et al. 2006; Rendall, Vasey, and McKenzie 2008). Such findings are complicated by the fact that these studies and many others have also found that listeners are willing to speculate on a VARIETY of attributes about talkers based on phonetic characteristics of speech alone and that judgments of sexual ori-

entation are often correlated with judgments of other attributes of the same talkers. Munson et al. (2006) reported high correlations among judgments of perceived sexual orientation, perceived speech clarity, and perceived height. Mack and Munson (2010) report high correlations between perceived sexual orientation and perceived age for the same stimuli. Gaudio (1994) reports correlations between ratings of how gay men sounded and how they were perceived on two scales, "affected" versus "ordinary" and "reserved" versus "emotional," although the strength of the correlation differed as a function of the content of the texts that the talkers were reading.

Perhaps these correlations reflect a sociolinguistic analog to homophony. The meanings "a thin outgrowth of the skin of a mammal" and "a member of the family Leporidae, especially genus *Lepus*" (both definitions taken from Merriam-Webster's online dictionary) share acoustic correlates not because the meanings are related, but because the phonetic form /hɛɹ/ is arbitrarily linked to both of them. Perhaps the relationship between phonetic form and social meaning is as arbitrary as the relationship between phonetic form and lexical meaning. Alternately, though, these different social meanings can be thought of as an indexical field, defined by Eckert (2008) as a "constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable." The meanings associated with the variants related to sexuality can likely be understood as an indexical field. Podesva (2008) argues, for example, that the exaggerated final stop consonant releases that he observes in his gay male speakers indexes something more like "prissiness" than "gayness." The same indexical field would presumably include "precise," "young," "small," "affected," "emotional," and any of the other perceptual ratings that are associated with gay-sounding speech in our and others' research.

Understanding the nature of the meaning associated with different gay-speech variants will require work that crosses traditional academic disciplines and modes of inquiry, from ethnographic studies (as in Podesva 2004, 2006), to experimental ones (as in Campbell-Kibler 2007, 2009). From the standpoint of someone whose work focuses on the nature of phonological representation in long-term memory, the issue of social meaning is important because it speaks to the inventory of form-meaning relationships that individuals might know. As reviewed by Munson, Edwards, and Beckman (forthcoming), individuals' knowledge of the sound structure of language is strongly tied to the size of their lexicons: people who know more words appear to have more highly developed abstract phonological representations for words than do individuals who know fewer words. That is, the expansion of the lexicon promotes the development of a system of categories—phonemes, syllables, and higher-order prosodic groupings. One of the functions of these

categories is to facilitate the acquisition of new lexical items, as new words can be interpreted as assemblies of known categories.

A similar relationship may exist for sociolinguistic form-meaning pairings: Munson (2010) argues that individuals who represent many such pairings in long-term memory may have more highly developed representations of the phonological characteristics of different speaker attributes than do individuals who know few such pairings. Key in resolving this issue is developing an understanding of whether the sociolinguistic form-meaning relationships are conventionalized in the same way that regular form-meaning correspondences are. Smith, Hall, and Munson (2010) argue that tests developed by formal semanticists for examining the conventionality of regular semantic meaning might be useful for examining the nature of social meaning.

Another challenge to studies of perception recalls Zwicky's (1997) call to examine issues related to nomenclature: namely, there is a strong possibility that the very labels used in perception experiments—labels like "gay" and "straight"—might drive many of the results of these experiments more strongly than listeners' actual knowledge and beliefs about sexuality and linguistic variation do. Some recent work has shown that even subtle differences in the categories and labels that are implied in an experiment affect listeners' perception. Munson et al. (2010) showed that simply mentioning the word "lisp" in the instructions to an experiment led listeners to judge 14% more of children's fricatives as inaccurate when compared to a group whose instructions did not contain the word "lisp." Hay and Drager (2010) showed that the presence of a stuffed kangaroo, iconic of Australia, and a stuffed kiwi, iconic of New Zealand, led to listeners responding as if they were listening to Australian or New Zealand English. The labels used to elicit perception of sexuality and speech might have a similar significant impact. Consider, for example, the consequence of using the phrase "gay, lesbian, or bisexual" in a task measuring the perception of the sexuality of men and women's speech, as was done by Munson et al. (2006). By including all three terms in one perception label, listeners might have activated a stereotype about the speech of communities in which those three groups regularly mix, such as groups of political or social activists. Separating talkers into sexes and using labels like "gay" or "lesbian" might activate only stereotypes about communities of gay men and lesbian women who do not interact.

There is no easy solution to the nomenclative issue. At the very least, those researching the perception of sexuality should meticulously document their methods and consult with listener communities before designing experiments. Mack's (2009) study of perceived sexual orientation in Puerto Rican Spanish illustrates the importance of working with local consultants. One of the experiments in Mack's study was based in part on Munson et al.'s (2006)

study of perceived sexual orientation. Local consultants felt that the most appropriate anchors for the scale used to elicit perceptions in that study were "sounds gay" and "sounds neither gay nor heterosexual" (Mack 2009, 67) rather than the literal translations of the "gay" and "heterosexual" endpoints from Munson et al. (2006). Although these labels may seem counterintuitive to people outside of Puerto Rico (including me), the strong consensus among local consultants and others suggested that they were the most appropriate for a Puerto Rican listener community.

LISTENER DIFFERENCES

Among studies that have examined the perception of sexuality through speech—including my work—there is unfortunately only very limited discussion of systematic differences among listeners. Scattered evidence, however, does show some potentially substantial variation across listeners. Campbell-Kibler's (2007) study on the various social meanings ascribed to the different phonetic forms of *-ing* illustrates these differences. In that study, Campbell-Kibler found that speech samples acoustically altered to contain the alveolar nasal in *-ing* were rated by naive listeners to sound more "accented" than ones containing the citation-form velar nasal. This was true for samples from all talkers except one, who was rated as sounding more accented for passages containing the velar form. The result was listener-dependent: listeners who also identified that talker as sounding gay were more likely to rate the velar form as more accented than the alveolar form. Mack (2010) examined the acoustic cues associated with gay-sounding Puerto Rican Spanish. She found evidence for clusters of listeners who used qualitatively different cues when judging listeners' voices. Carahaly (2000) found that self-identified gay men and lesbian women identified the sexuality of women from audio-only samples more accurately than did self-identified heterosexuals.

The lack of scholarship on listener differences is particularly unfortunate in light of the very clear evidence that individuals differ substantially in their attitudes toward same-sex attraction. It is well established that some people hold prejudicial views of gay, lesbian, and bisexual (GLB) people. Hudson and Ricketts (1980) developed a standard instrument for measuring homophobia. Based on approximately 300 responses to this instrument, they concluded that the population is, on average, "low-grade homophobic," and 7.2% can be characterized as "high-grade homophobic." Haddock, Zanna, and Esses (1993) found an average affective rating of GLB people of 40 on a 100-point scale, where higher values indicated more-positive opinions. This corresponded roughly to a "slightly unfavorable" rating. While attitudes

have undoubtedly changed since those studies were completed, it is likely that a meaningful portion of the population still holds negative views of GLB people.

The extent to which such attitudinal differences might shape the results is largely unexplored. Consider, for example, the results of Munson and Zimmerman's (2006) study of the relationship between the perception of variants of /s/ and the perceived sexual orientation of men's voices. In that study, listeners rated tokens with hyperarticulate /s/ to be both more gay-sounding and LESS accurate than tokens with typical /s/ productions. The former finding was expected. The latter finding was not expected, as the acoustic correlates of these tokens of /s/ are arguably hypercorrect. One possibility is that listeners rate anything that does not sound like a canonical /s/ as incorrect, even if it enhances speech intelligibility. Another possibility is that the relationship between perceived sexual orientation and perceived accuracy is mediated by the complex set of associations between perceived sexual orientation, perceived stature, perceived age, and perceived speech accuracy noted by Mack and Munson (2010) and Munson et al. (2006). We might predict that these associations would differ between groups who had different stereotypes about gay men.

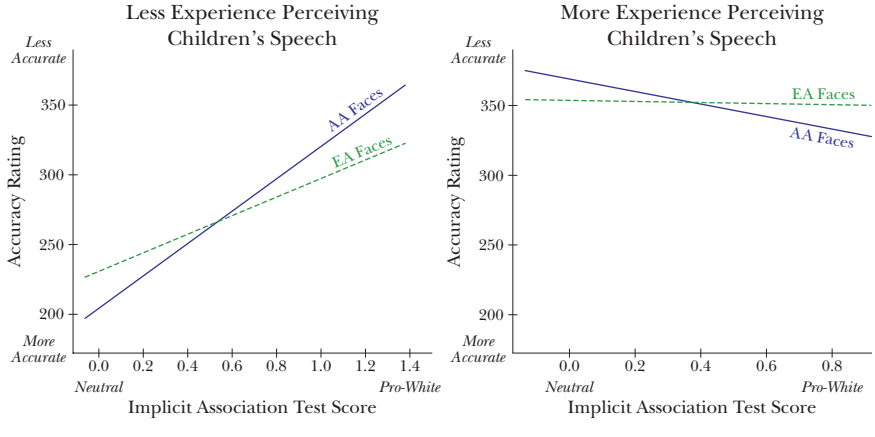
The search for predictors of listener differences is made all the more pressing in light of recent findings by Christy (2010), who examined the perception of purported race on the perception of final consonants. Previous work by Staum (2008) showed that listeners were more willing to interpret forms like [mæs] as *mast* when they were paired with pictures of African American speakers than of European American ones. Presumably this reflects tacit knowledge that in African American English (AAE), [mæs] is a possible pronunciation of *mast*, due to the cluster reduction process in AAE. Christy created a set of stimuli from children's natural productions with final /t/. By gating off the final /t/, stimuli were created to give the illusion of unreleased and glottalized final /t/, both of which are characteristic of AAE (Labov 1972; Thomas 2007). These were paired with pictures of African American and European American children in a task in which listeners rated the accuracy of children's speech. Listeners included both graduate students in speech-language pathology and undergraduates from the general population, to ensure a range of experience in perceiving children's speech. All listeners completed a task designed to measure implicit attitudes toward African Americans and European Americans, the Implicit Association Test (IAT) described by Greenwald, McGhee, and Schwartz (1998). In principle, this IAT yields a score that ranges from pro-black to pro-white. The IAT scores for 39 listeners in Christy's sample—a predominantly European American sample from Minnesota—ranged from race-neutral to pro-white (i.e., there were no pro-black IAT scores).

Results of a mixed-effects logistic regression model predicting ratings of the accuracy of /t/-final words that had been acoustically modified to sound unreleased are presented in figure 1, which separates the ratings of listeners who had relatively little experience perceiving children's speech from those who had relatively more experience, as gauged by self-report. In each plot, the ratings are on the *y*-axis (with higher scores indicating tokens perceived to be less accurate) and IAT scores are on the *x*-axis (with higher scores indicating more pro-white implicit attitudes). The coefficients for ratings made with European Americn and African American children's faces are shown separately.

As the left diagram in figure 1 shows, there was a clear relationship between implicit attitudes and ratings for words paired with African American and European American children's faces. Individuals with more pro-neutral implicit attitudes rated words as would be predicted by Staum: words were rated to sound more accurate when paired with African American children's faces than when paired with European American children's faces. Those with more pro-white implicit attitudes showed the reverse effect: words were rated to be less accurate when paired with African American children's faces than when paired with European American children's faces. As shown in the right diagram of figure 1, the relationships among perceived race, IAT score, and accuracy ratings did not hold for the group of listeners with more experience perceiving children's speech. For these listeners, the interaction between picture race and IAT was not statistically significant. That is, experience

FIGURE 1

Effect of Implicit Attitudes about Race on Accuracy Ratings of Unreleased and Glottalized Final /t/ When Paired with African American and European American Children's Faces (from Christy 2010)



perceiving children's speech mediated the influence of implicit attitudes about race on audiovisual speech perception.

Christy's (2010) findings are significant: they show that one recent influential result in the sociophonetics literature, Staum's data on the effect of purported race on the perception of final consonants, is strongly mediated by both experience and by attitudes toward race. This topic is ripe for extension to research on the perception of sexuality. Banse, Seise, and Zerbes (2001) developed an implicit association test to measure attitudes toward homosexuality that could be used in studies of the perception of sexuality in speech. This, in conjunction with a measure of experience interacting with gay people, might yield results parallel to those from Christy's study. If these methods were combined with the mixed-methods approach illustrated by Campbell-Kibler (2007), it is likely that we would find that perception of sexuality is mediated by explicit beliefs, implicit processes, and experience.

LEARNING HOW TO SOUND GAY

Perhaps the most intriguing question surrounding sexuality and speech is when and how the distinctive variants associated with GLB speech are acquired. It is particularly intriguing in light of the stigma that marks gay-sounding speech: why would someone learn to speak in a manner that invited negative response? It is also intriguing in the logistic difficulty it poses to researchers. The most comprehensive study would be to follow a population-based sample of children from infancy to adulthood, to rigorously assess the acoustic and perceptual characteristics of their speech and that of their caregivers and peers, to assess the structure of their social networks, and to assess their sexuality. The scope of such a project dwarfs past proposals by the linguist Derek Bickerton to rear children in relative isolation to assess the structure of universal grammar.

That such a study is not feasible is unfortunate, as studies of the acquisition of linguistic variants that code sexuality have interesting implications for theories of cognitive and linguistic development more generally. Sexual orientation is interesting to study because it is often not encountered—or at least, not encountered with an explicit label—until relatively late in life, making it unlikely that children would learn distinctive speech styles simply by imitating people whose sexuality they knew. Moreover, individuals typically do not self-identify as gay, lesbian, or bisexual until after adolescence (Remafedi et al. 1992). Studying the development of knowledge of the relationship between sexual orientation and phonetic variation—both in

perception and in production—gives an opportunity to study an aspect of first-language acquisition that typically occurs after the so-called "critical period" for development.[2]

There is sound evidence that children do learn linguistic variants related to speaker attributes and social categories relatively early in life. Docherty et al. (2006) showed that children acquiring the Tyneside variety of English produce sex-specific variants of medial /t/ very early in life. Roberts and Labov (1995) and Roberts (1997) showed that preschool children acquiring Philadelphia English produced variable forms of /æ/ and of final /t/ and /d/ that mirrored those of adult speakers of the ambient dialect. Li et al. (2008) showed that Mandarin-acquiring preschool children learned a gender-marked variant for the fricative /ɕ/ in Mandarin, but that Japanese-acquiring preschool children had not yet learned a gender-marked stop voicing pattern. There is also evidence that children are especially sensitive to linguistic variation and that they weight it over other sources of variation in some tasks. Recent work by Kintzler et al. (2009) showed that an unfamiliar talker's accent guided children's social preferences more strongly than did a talker's race (as depicted in an associated picture).

The early acquisition of GLB speech styles would require children either to selectively imitate adults whose sexuality is known or to selectively imitate a subset of the variants they are exposed to. For example, for children to acquire the distinctive /s/ documented by Munson et al. (2006), they would have to selectively attend to and emulate the tokens of /s/ that have those characteristics. There is evidence that children do selectively learn some aspects of language from specific talkers. Koenig and Harris (2005) found that children learn novel-object labels more readily from speakers who provide accurate descriptions of known objects over those who either provide inaccurate descriptions of known objects or profess ignorance about what they are. Rohrbeck, Aldana, and Wagner (2010) showed that children imitated native-accent speakers over foreign-accented ones when learning how to manipulate novel toys. Relatedly, Babel (2009, 2010) showed that adult speakers selectively imitate the phonetic characteristics of talkers whom they have positive views of, as gauged both by explicit measures of perceived attractiveness of the speaker and by implicit measures of their attitudes toward the talkers' race. It is possible that the acquisition of GLB speech styles follows a pattern similar to that seen in Babel's research: children might imitate those speakers whose social roles they most identify with or who serve somehow as a role model.

CONCLUSION: THE ELUSIVE WHY, THE UBIQUITOUS SO WHAT

In closing, I turn partly away from the academic aspects of this topic and address two questions that I and others who work on this topic are inevitably asked when we discuss our work with members of the public: WHY? and SO WHAT? First, the WHY. Why do some people use a distinctive speech style that conveys their sexuality? Speculation about this question abounds and runs the gamut from the extreme essentialist to the extreme constructionist. At the extreme essentialist end, Rieger et al. (2010) argue that gay-sounding speech is an evolutionary adaptation that allows gay people to mark themselves as such to potential sex partners. This explanation does hold some appeal, as it provides an explanation for why GLB people would use a distinctive speech style in the face of potential discrimination resulting from being identified as gay, lesbian, or bisexual. Simply put, this explanation posits that GLB people are GLB-sounding because they cannot help it and because it helps them find sexual partners. Such an explanation presumes that gay people across cultures and languages should share an evolutionary drive to develop a speech style that conveys their sexuality. Both of these hypotheses remain untested. At the other end of the spectrum are the explanations advocated by Podesva (2006), Eckert (2010), and others who argue that gay speech is not a unified phenomenon per se, but is instead the result of a collection of features that convey different attributes that are important for the different communities of practice that gay men and lesbian women operate in. Podesva argues that the exaggerated final consonant releases characteristic of the talker he studied index a number of different meanings depending on the context. This explanation is appealing for a number of reasons. It is consistent with more-general theories of sociolinguistic meaning, such as Silverstein (2003) and Eckert (2008). It also lends itself to a positive acquisition scenario: distinctive phonetic variants indexing sexuality are learned because they have utility in indexing other information as well. Our research community needs to continue examining the question of why. We are in a unique position as a group of researchers to contribute to the ongoing debates on the origins and consequences of linguistic variation more generally.

Second, the SO WHAT? As researchers in academia, we could fill volumes far larger than this with arguments for the importance of this work. If asked SO WHAT? by a fellow academic, two answers come to mind. The first relates to the study of variation. At the time of the inception of linguistics as a modern discipline, sexuality was viewed very differently from how it is viewed now. As we move into a time when sexuality is viewed as part of normal variation—more similar to categories like age, social class, and ethnicity than to categories like disability, personality, and psychopathology—it is simply

natural for it to be included as a potential explanatory variable in variationist studies. Second, many of the factors that predict variation—social networks, social stereotypes, and social attitudes—are in a state of rapid flux as they relate to sexuality. A man who lived from 1937 to 2009 saw in his lifetime a seismic shift in the understanding of sexuality; someone who was born in 1971 will likely see a similarly large shift. Sexuality is an ideal variable to examine when building real-time models of the influence of social-level changes on linguistic variation.

To people in the general public, however, GLB speech styles may mean something very different from what they mean to people in academia. To some they are a mark of group membership, pride, and solidarity. To others they are an annoying affectation. To some others, they are barely noticeable and indistinct from other linguistic variants. To still others, they are an unintentional disclosure to a hostile audience. Work on this topic should endeavor not only to contribute to variationist theory more generally, but to understanding the consequences of linguistic variation for the lives of people of diverse sexualities. Since my first publication on this topic (in Pierrehumbert et al. 2004), I have received a handful of e-mails from men who wish to change or eliminate their gay-sounding voices. While this is admittedly a nonrandom sample, it illustrates both the persistent homophobia that many sexual minorities face and the fact that phonetic variation is a trigger to this homophobia. If nothing else, we should endeavor to keep these issues in mind as we conduct our work and disseminate our findings.

NOTES

Many of the ideas in this article grew out of conversations I have had with Janet Pierrehumbert over the past ten years. Much of my work on this topic would never have been done without her inspiration and thoughtful input. I thank E. Allyn Smith and Kathleen Hall for a very productive collaboration on issues related to sexuality and social meaning. I am also indebted to Molly Babel for teaching me much about social cognition and its relationship to language production and perception. I am also grateful to Melissa Koenig for introducing me to the literature on children's moral reasoning. As always, I thank Mary E. Beckman and Jan Edwards for a truly inspirational long-term partnership examining the acquisition of phonetic variation. Finally, I thank Andrea Christy for allowing me to use portions of her thesis project in this article.

1. Admittedly, Munson et al. (2006) had only a rough measure of the dialect of these people: a questionnaire on where they had lived. Though the two groups were from the same geographic region, it is possible that they had been exposed to different regional dialects during acquisition or adulthood.
2. I thank Janet Pierrehumbert for pointing this out to me.

REFERENCES

Babel, Molly. 2009. "Phonetic and Social Selectivity in Speech Accommodation." Ph.D. diss., Univ. of California, Berkeley.

———. 2010. "Dialect Divergence and Convergence in New Zealand English." *Language in Society* 39: 437–56.

Banse, Rainer, Jan Seise, and Nikolas Zerbes. 2001. "Implicit Attitudes towards Homosexuality: Reliability, Validity, and Controllability of the IAT." *Zeitschrift fur Experimentelle Psychologie* 48: 145–60.

Beckman, Mary E., Benjamin Munson, and Jan Edwards. 2007. "Vocabulary Growth and the Developmental Expansion of Types of Phonological Knowledge." In *Laboratory Phonology 9*, ed. Jennifer Cole and José Ignacio Hualde, 241–64. New York: Walter de Gruyter.

Bell, Allan. 1984. "Language Style as Audience Design." *Language in Society* 13: 145–204.

Campbell-Kibler, Kathryn. 2007. "Accent, (ING), and the Social Logic of Listener Perceptions." *American Speech* 82: 32–64.

———. 2009. "The Nature of Sociolinguistic Perception." *Language Variation and Change* 21: 135–56.

Carahaly, Lynn. 2000. "Listener Accuracy in Identifying the Sexual Orientation of Male and Female Speakers." M.A. thesis, Ohio State Univ.

Christy, Andrea L. 2010. "The Effects of Explicit Knowledge of and Implicit Attitudes about Race on Adult Perceptions of Children's Speech." M.A. thesis, Univ. of Minnesota.

Docherty, Gerard, Paul Foulkes, Jenny Tillotson, and Dominic Watt. 2006. "On the Scope of Phonological Learning: Issues Arising from Socially-Structured Variation." In *Laboratory Phonology 8*, ed. Louis Goldstein, D. H. Whalen, and Catherine T. Best, 393–421. Berlin: Mouton de Gruyter.

Eckert, Penelope. 2001. "Style and Social Meaning." In *Style and Sociolinguistic Variation*, ed. Penelope Eckert and John R. Rickford, 119–26. Cambridge: Cambridge Univ. Press.

———. 2008. "Variation and the Indexical Field." *Journal of Sociolinguistics* 12: 453–76.

———. 2010. "Three Waves of Variation Study: The Emergence of Meaning in the Study of Variation." Unpublished MS. http://www.stanford.edu/~eckert/PDF/ThreeWavesofVariation.pdf.

Edwards, Jan, Benjamin Munson, and Mary E. Beckman. 2011. "Lexicon-Phonology Relationships and the Dynamics of Early Language Development: A Commentary on Stoel-Gammon's 'Relationships between Lexical and Phonological Development in Young Children.'" *Journal of Child Language* 38: 35–40.

Gaudio, Rudolf P. 1994. "Sounding Gay: Pitch Properties in the Speech of Gay and Straight Men." *American Speech* 69: 30–57.

Goldinger, Stephen D., and Tamiko Azuma. 2004. "Episodic Memory Reflected in Printed Word Naming." *Psychonomic Bulletin and Review* 11: 716–22.

Greenwald, Anthony G., Debbie E. McGhee, and Jordan L. K. Schwartz. 1998. "Measuring Individual Differences in Implicit Cognition: The Implicit Association Test." *Journal of Personality and Social Psychology* 74: 1464–80.

Haddock, Geoffrey, Mark P. Zanna, and Victoria M. Esses. 1993. "Assessing the Structure of Prejudicial Attitudes: The Case of Attitudes toward Homosexuals." *Journal of Personality and Social Psychology* 65: 1105–18.

Hay, Jennifer, and Katie Drager. 2010. "Stuffed Toys and Speech Perception." *Linguistics* 48: 865–92.

Hudson, Walter W., and Wendell A. Ricketts. 1980. "A Strategy for the Measurement of Homophobia." *Journal of Homosexuality* 5: 357–72.

Johnson, Keith. 2006. "Resonance in an Exemplar-based Lexicon: The Emergence of Social Identity and Phonology." *Journal of Phonetics* 43: 485–99.

Kintzler, Katherine D., Kristin Shutts, Jasmine DeJesus, and Elizabeth S. Spelke. 2009. "Accent Trumps Race in Guiding Children's Social Judgments." *Social Cognition* 27: 623–34.

Klein, Julie Thompson. 2004. "Prospects for Transdisciplinarity." *Futures* 36: 515–26.

Koenig, Melissa A., and Paul L. Harris. 2005. "Preschoolers Mistrust Ignorant and Inaccurate Speakers." *Child Development* 76: 1261–77.

Labov, William. 1972. *Language in the Inner City: Studies in the Black English Vernacular.* Philadelphia: Univ. of Pennsylvania Press.

———. 1994. *Principles of Linguistic Change.* Vol. 1, *Internal Factors.* Cambridge, Mass.: Blackwell.

———. 2001. *Principles of Linguistic Change.* Vol. 2, *Social Factors.* Cambridge, Mass.: Blackwell.

Ladd, D. Robert. Forthcoming. "Phonetics in Phonology." In *Handbook of Phonological Theory*, ed. John A. Goldsmith, Jason Riggle, and Alan Yu. Malden, Mass.: Wiley-Blackwell.

Li, Fangfang, Eun Jong Kong, Mary Beckman, and Jan Edwards. 2008. "Adult Acoustics and Developmental Patterns for Gender-Marked Phonetic Variants in Mandarin Fricatives and Japanese Stops." Poster presented at the eleventh conference on laboratory phonology, Wellington, New Zealand, June 30–July 2. Available at http://www.ling.ohio-state.edu/~edwards/labPhon11_LiKong.pdf.

Linville, Sue Ellen. 1998. "Acoustic Correlates of Perceived versus Actual Sexual Orientation in Men's Speech." *Pholia Phoniatrica et Logopaedica* 50: 35–48.

Mack, Sara. 2009. "Socially Stratified Phonetic Variation and Perceived Identity in Puerto Rican Spanish." Ph.D. diss., Univ. of Minnesota.

———. 2010. "A Sociophonetic Analysis of Perception of Sexual Orientation in Puerto Rican Spanish." *Journal of Laboratory Phonology* 1: 41–63.

Mack, Sara, and Benjamin Munson. 2010. "The Influence of /s/ Quality on Perception of Men's Sexual Orientation: Explicit and Implicit Measures of the 'Gay Lisp' Stereotype." Unpublished MS. Available at http://www.tc.umn.edu/~munso005/MackMunson_01February_2010.pdf.

Munson, Benjamin. 2010. "Levels of Phonological Abstraction and Knowledge of Socially Motivated Speech-Sound Variation: A Review, a Proposal, and a Commentary on the Papers by Clopper, Pierrehumbert, and Tamati; Drager; Foulkes; Mack; and Smith, Hall, and Munson." *Journal of Laboratory Phonology* 1: 157–77.

Munson, Benjamin, and Molly Babel. 2007. "Loose Lips and Silver Tongues; or, Projecting Sexual Orientation through Speech." *Linguistics and Language Compass* 1: 416–49.

Munson, Benjamin, Jan Edwards, and Mary E. Beckman. 2005. "Phonological Knowledge in Typical and Atypical Speech-Sound Development." *Topics in Language Disorders* 25: 190–206.

———. Forthcoming. "Phonological Representations in Language Acquisition: Climbing the Ladder of Abstraction." In *Handbook of Laboratory Phonology*, ed. Abigail Cohn, Cécile Fougeron, and Marie K. Huffman. Oxford: Oxford Univ. Press.

Munson, Benjamin, Jan Edwards, Sarah K. Schellinger, Mary E. Beckman, and Marie K. Meyer. 2010. "Deconstructing Phonetic Transcription: Covert Contrast, Perceptual Bias, and an Extraterrestrial View of *Vox Humana*." *Clinical Linguistics and Phonetics* 24: 245–60.

Munson, Benjamin, Kathleen Currie Hall, and E. Allyn Smith. 2009. "An Acoustic Analysis of /æ/ Variation and Its Relationship to Perceived Sexual Orientation in American English." Poster presented at the spring meeting of the Acoustical Society of America, Portland, Ore., May 18–22. Repr. in *Journal of the Acoustical Society of America* 125 (2009): 2575.

Munson, Benjamin, Elizabeth C. McDonald, Nancy L. DeBoe, and Aubrey R. White. 2006. "The Acoustic and Perceptual Bases of Judgments of Women and Men's Sexual Orientation from Read Speech." *Journal of Phonetics* 34: 202–40.

Munson, Benjamin, and Lindsey J. Zimmerman. 2006. "Perceptual Bias and the Myth of the 'Gay Lisp.'" Poster Presentation at the Annual Meeting of the American Speech-Language-Hearing Association, Miami, Fla., Nov. 16–18.

Pierrehumbert, Janet B. 2003. "Phonetic Diversity, Statistical Learning, and Acquisition of Phonology." *Language and Speech* 46: 115–54.

Pierrehumbert, Janet B., Tessa Bent, Benjamin Munson, Ann R. Bradlow, and J. Michael Bailey. 2004. "The Influence of Sexual Orientation on Vowel Production." *Journal of the Acoustical Society of America* 116: 1905–8.

Pierrehumbert, Janet B., and Cynthia G. Clopper. 2010. "What Is LabPhon? And Where Is It Going?" In *Laboratory Phonology 10*, ed. Cécile Fougeron, Barbara Kühnert, Mariapaola D'Imperio, and Nathalie Vallée, 113–32. Berlin: Mouton de Gruyter.

Podesva, Robert J. 2004. "The Significance of Phonetic Detail in the Construction of Social Meaning." Paper presented at the Annual Meeting of the Linguistic Society of America, Boston, Jan. 8–11.

———. 2006. "Intonational Variation and Social Meaning: Categorical and Phonetic Aspects." In "Selected Papers from NWAV 34," ed. Michael L. Friesner and Maya Ravindranath, 189–202. *University of Pennsylvania Working Papers in Linguistics* 12.2.

———. 2008. "Three Sources of Stylistic Meaning." In "SALSA XV: 2007," ed. Kate Shaw, Sarah Wagner, and Eiko Yasui. *Texas Linguistic Forum* 51. http://studentorgs.utexas.edu/salsa/proceedings/2007/Podesva.pdf.

Remafedi, Gary, Michael Resnick, Robert Blum, and Linda Harris. 1992. "Demography of Sexual Orientation in Adolescents." *Pediatrics* 89: 714–21.

Rendall, Drew, Paul L. Vasey, and Jared McKenzie. 2008. "The Queen's English: An Alternative, Biosocial Hypothesis for the Distinctive Features of 'Gay Speech.'" *Archives of Sexual Behavior* 37: 188–204.

Rieger, Gerulf, Joan A. W. Linsenmeier, Lorenz Gygax, Steven Garcia, and J. Michael Bailey. 2010. "Dissecting 'Gaydar': Accuracy and the Role of Masculinity-Femininity." *Archives of Sexual Behavior* 39: 124–40.

Roberts, Julie. 1997. "Acquisition of Variable Rules: A Study of (-t, d) Deletion in Preschool Children." *Journal of Child Language* 24: 351–72.

Roberts, Julie, and William Labov. 1995. "Learning to Talk Philadelphian: Acquisition of Short *a* by Preschool Children." *Language Variation and Change* 7: 101–12.

Robinson, John. 2008. "Being Undisciplined: Transgressions and Intersections in Academia and Beyond." *Futures* 40: 70–86.

Rohrbeck, Kristin L., Elaine Aldana, and Laura Wagner. 2010. "Children Follow Native-Accented Speakers When Learning Cultural Information." Poster presented at the 22nd annual conference of the Association for Psychological Science, Boston, May 27–30. Available at http://faculty.psy.ohio-state.edu/wagner/lab/pages/documents/APSposter2010.pdf.

Sá, Creso M. 2008. "'Interdisciplinary Strategies' in U.S. Research Universities." *Higher Education* 55: 537–52.

Schellinger, Sarah K., Jan Edwards, and Benjamin Munson. 2010. "The Role of Intermediate Productions and Listener Bias on the Perception of Children's Speech." Unpublished MS. Available at http://www.tc.umn.edu/~munso005/SchellingerEtAl_ToBeSubmitted_July8.pdf.

Silverstein, Michael. 2003. "Indexical Order and the Dialectics of Sociolinguistic Life." In "Words and Beyond: Linguistic and Semiotic Studies of Sociocultural Order," ed. Paul Manning, 193–229. Special issue, *Language and Communication* 23.

Smith, E. Allyn, Kathleen Currie Hall, and Benjamin Munson. 2010. "Bringing Semantics to Sociophonetics: Social Variables and Secondary Entailments." *Journal of Laboratory Phonology* 1: 121–55.

Smith, E. Allyn, Benjamin Munson, and Kathleen Currie Hall. 2008. "Rethinking the Meaning of Minnesotan [æ]: Sexual Orientation or Personal Well Being?" Paper presented at the 37th annual conference on New Ways of Analyzing Variation (NWAV 37), Houston, Texas, Nov. 6–9.

Smyth, Ron, Greg Jacobs, and Henry Rogers. 2003. "Male Voices and Perceived Sexual Orientation: An Experimental and Theoretical Approach." *Language in Society* 32: 329–50.

Staum, Laura. 2008. "Experimental Investigations of Sociolinguistic Knowledge." Ph.D. diss., Stanford Univ.

Thomas, Erik R. 2007. "Phonological and Phonetic Characteristics of African American Vernacular English." *Language and Linguistics Compass* 1: 450–75.

Zwicky, Arnold M. 1997. "Two Lavender Issues for Linguists." In *Queerly Phrased: Language, Gender, and Sexuality*, ed. Anna Livia and Kira Hall, 21–32. Oxford: Oxford Univ. Press.