Perceived Sexual Orientation and Attitudes towards Sounding Gay or Straight

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Abstract

Gaudio (1994) and Pierrehumbert et al. (2004) gave evidence that hearers can identify the sexual orientation of speakers without the aid of visual cues. Pierrehumbert et al. associated this result with an expanded vowel space for gay men. Smyth et al. (2003) created a scale of sexual orientation identifications (for men) based on listener judgments, noting that homosexual-sounding does not necessarily identify with homosexual. The present study follows Smyth et al. and created a scale of sexual orientation identifications based on listener judgments of the speech of 6 self-identified homosexual and 6 self-identified heterosexual male speakers. The research attempted to determine what cued listeners in judging sexual orientation. Based on the hypothesis that male homosexual-sounding speech might be associated with more careful-sounding speech, the study observes several phonetic factors that are associated with the careful-careless dimension, including vowel duration (as a measure of speech rate), vowel space dispersion, degree of diphthongization, and frequency of stop release. Results included the following: listeners in this study were not particularly accurate in identifying the sexual orientation of speakers. This conclusion goes against the findings of both Gaudio and Pierrehumbert et al., and against the notion of 'gaydar' (the supposed ability of gay individuals to correctly identify other gay persons). Listeners did not associate homosexual-sounding speech with more frequent stop release or longer vowel duration (slower speech). Contra Pierrehumbert et al., listeners did not associate homosexual-sounding speech with an expanded vowel space. There is evidence that listeners did associate homosexual-sounding speech with fronting of high vowels and lowering of low vowels.

The study also concentrated on exploring Judith Butler's (1990) notions of "heteronormativity" and "performativity". Heteronormativity is the idea that heterosexuality is pushed into society as the only positive and natural form of sexuality. Performativity relates to the hypothesis that gender and sexuality are not traits that people have or are born with, but acts that they do. This implies the possibility that individuals refuse to perform the gender or sexuality they are prescribed from birth. North American culture mostly sees homosexuality in a negative light. As such, any person who defies heteronormativity by sounding gay/lesbian (regardless of their sexual orientation) faces possible social consequences. This research utilizes interviews with all the speakers to investigate why some people might choose to defy heteronormativity by sounding homosexual. Preliminary results indicate that homosexual-sounding males who self-identify as heterosexual are clueless about their sounding gay.

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1 Introduction

Previous research on the study of language, gender, and sexuality (e.g., Gaudio 1994; Pierrehumbert et al. 2004; Munson et al. 2006) has shown that listeners can identify the sexuality of speakers without the aid of visual cues. This suggests that sexuality can be indexed through speech. Pierrehumbert et al. (2004) found that an expanded vowel space (along with the production of specific vowels) might relate to gay speech.

However, other studies (e.g., Smyth et al. 2003) show evidence that listeners might perceive the voice of a straight man as belonging to a gay man and vice versa. These results point to the possibility that a one-to-one correspondence between the self-declared sexuality of a man and his perceived sexuality does not always hold true. Smyth et al. established no clear-cut phonetic cues to index perceived sexuality. In this study, I investigated phonetic cues relating to perceived sexuality and reasons why a man might "choose" to sound gay or straight.

2 Background

Pierrehumbert et al. (2004) is to date the study that has employed the largest number of speakers. Focused on both gay and lesbian speech, it totaled 103 participants, including 26 straight men and 29 gay men. Pierrehumbert et al. recorded the speakers as they read sentences containing monosyllables that carried specific vowels, that is, the vowels at the corners of the vowel space. For each sounding group, they then calculated the average vowel space size. The results showed that a high degree of articulatory precision, resulting, for instance, in an expanded vowel space, characterized the speech of the gay men.

Smyth et al. (2003) recorded 25 male speakers (17 gay and 8 straight) reading two passages and narrating a story of their choice. They then played a 30-second sample of all recordings from each passage to 46 listeners, of whom 14 were gay. The rest were reportedly straight. On the basis of the listeners' judgments, Smyth et al. created a scale of male voices ranging from "very gay-sounding to very straight-sounding" (Smyth et al. 2003:329). The scale indicated that some gay men sounded straight and vice versa. Although Smyth et al. investigated pitch as a possible contributing factor for the judgments, they did not find statistically-significant results.

Smyth et al. interpreted their results in terms of "performativity". This is a concept derived from queer theorist Judith Butler (1990), and introduced in queer linguistics by Deborah Cameron (1997) as follows: "'Feminine' and 'masculine' are not what we are, nor traits we *have*, but effects we produce by way of particular things we *do*" (Cameron 1997:49, emphasis in original). According to this approach, individuals are social agents who have a certain amount of freedom in how they perform their identities. Thus, for instance, a gay man might sound either gay or straight. Performativity also entails the importance of audiences. A performance must be recognized by others, in order to be accepted or rejected (at varying degrees). Smyth et al.'s speakers had listeners as their audiences, and their voices were recognized as sounding either gay or straight. Smyth et al. suggested that some men "decide" to sound gay, wondering why they would chose to do so in the face of likely discrimination, but did not pursue the matter.

3 Research Questions and Hypotheses

In my study, I follow the approach proposed by Smyth et al., seeking to determine what phonetic features might index perceived sexuality for male speakers? As seen previously, Smyth et al. (2003) found that, for their speakers, pitch did not relate to perceived sexuality. Thus, I decided to investigate other features, that is, monophthong quality, diphthong distance, vowel space dispersion, and stop release. Some of these features, such as vowel space dispersion, had been previ-

ously studied by Pierrehumbert et al. (2004). The remaining cues were first observed in this paper.

Pierrehumbert et al. found that their gay participants presented high articulatory precision compared to that of straight participants. Although Pierrehumbert et al. categorized their speakers in terms of self-declared sexuality, there is evidence that these speakers were perceived mostly according to their self-declared sexuality. 80 listeners rated the voices of all the speakers, and the results showed that, on average, the straight speakers sounded straight, while the gay speakers sounded gay. Thus, it appears reasonable to utilize their results for my hypothesis in relation to my main research question. I hypothesized that, in my study, the gay-sounding men might perhaps hyperarticulate their speech. Measurements of hyperarticulation are an expanded vowel space and a high degree of diphthongization. Therefore, vowel space dispersion and diphthong articulation were observed,[1] expecting that the speech of the gay-sounding speakers studied would present an expanded vowel space, a strong diphthongization, and a high number of stop releases. Individual monophthong articulation was also studied. The methodology used for these measurements appears in the next section.

As a secondary research question, I investigated reasons why a man would "choose" to sound gay, as that likely brings with it social challenges, though I also was interested in learning why a man might "decide" to sound straight. To pursue this matter, I interviewed all of my speakers, regardless of self-declared sexuality. The next section details the approach used in the interviews. In an attempt to provide some answers to this question, I utilized another concept derived from queer theory, and introduced by Michael Warner (1991), that is, "heteronormativity", referring to the fact that heterosexuality is perceived in society as the only positive form of sexuality. As a consequence, heterosexuality is the norm, and as such, it goes unnoticed. Therefore, when a man does not sound heteronormative (i.e., straight), his performance stands out. This question then can be formulated as follows: why would a man choose to defy (or uphold) heteronormativity?

4 Methodology

4.1 Participant Selection

All of the 36 people participating in this study were divided into speakers and listeners. First speakers were recorded, then digitized, then listeners were played a selection of the recordings, as explained in the following sections.

4.1.1 Speaker Selection

The speakers were 12 male speakers, all born and raised near Honolulu, Hawaiʻi, and native speakers of Hawaiʻi English. Half of the speakers were self-identified as gay and the remaining half were self-identified as straight. They were recruited by word-of-mouth and through mailing lists, and were remunerated for participation with movie coupons.

4.1.2 Listener Selection

24 listeners of both genders, equally divided into gay men, lesbian women, straight men and straight women, were used. They were all native speakers of American English. They were recruited in the same way as the speakers were.

4.2 Tasks

4.2.1 Speaker Tasks

For the first task the speakers were recorded while reading a text that contained the phonetic features being studied (refer to Section 4.3. for details about the text). For the second task, I interviewed them about their voices.

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[1]Frequency of stop release was also measured, because it was predicted that the gay-sounding speakers would produce a higher number of releases than the straight-sounding speakers. Since this was not the case, I exclude this feature from the rest of the discussion.

To accomplish their first task, I met with each speaker at the laboratory. On a laptop, each speaker was shown a short video clip of an octopus "walking" on two arms. They were then asked to read a related text to themselves, allowing them do so at their own pace. It was thought that this first reading would let the speakers familiarize themselves with the written material and, as a consequence, would help to minimize reading errors in the subsequent recording. When they finished reading the text, they were invited to imagine they had seen the clip and then, afterward, had read an article (i.e., the text) in a magazine that they had found amusing enough to read to one or more actual friends of the same gender and sexuality. I then set up the recording device (a Sony MiniDisc Recorder) and microphone, and left them to complete this reading task, with their imaginary audience, alone in one of the sound booths. The reason for suggesting they keep this setting in mind relates to performativity. As pointed out earlier, audience has a fundamental function in individuals' performances. Thus, I decided to ask the speakers to read as if they had in front of them the best audience to elicit from them their most recognizably gay or straight personas. Once the speakers completed their first task, they were interviewed (while being recording) in order to explore reasons why an individual might sound gay or straight.

4.2.2 Listener Task

I met with each listener in a quiet room at the University of Hawaiʻi campus, and asked each to listen to a selection of the same passage that had been read and recorded by all the speakers. The selection was on a digitized CD and played with a portable CD player using a high-quality headset. The listeners were instructed to rate each speaker's voice using a supplied form (see below). The listeners were given the opportunity to sit comfortably and to play the CD whenever they were ready, but they were asked to neither pause nor play back any part of the recording.

4.3 Materials

4.3.1 Speaker Materials

The speakers read a fictional text that I had written (found in the Appendix) about an actual octopus species that has developed the protective strategy of incorporating both camouflage and freedom of movement into its behavior. Into this text were inserted several repetitions of all the features that were being investigated. This topic was chosen with the intention of focusing on performativity. It is a neutral topic, one which would not stereotypically appeal to either sexuality, and would avoid influencing the performances of the speakers, thus allowing them, as suggested, to put their attention on the audiences they had in mind. Further, the reading attempted to be entertaining (as confirmed by all the speakers), therefore this helped the speakers to forget about the recorder, thus encouraging a more natural reading.

The text contained repetitions of the phonetic features observed. This included all the monophthongs occurring at the corners of the vowel space in General American English (Wells 1992):

$$\text{/i/, /æ/, /ɑ/, /u/}$$

I further studied the following General American English (Wells 1992) symmetrical diphthongs:

$$\text{/eɪ/, /aɪ/, /aʊ/, /oʊ/}$$

All of these monophthongs and diphthongs are used in Hawaiʻi English and were produced by all the speakers who participated in my study. The vowels appeared in monosyllables at intonation peaks within sentences. Each vowel was pronounced five times.

Vowel space dispersion, which provides a measurement for how wide vowels are from the center of the vowel space was calculated for each speaker. Details on all the features and their calculations appear in Section 4.5.2.

4.3.2 Listener Materials

The listeners played to themselves a CD (digitized at 16,000 Hz) containing a selection of all the speakers' recordings of the following same passage:

> "[…] disguising only works so much," the octopus pondered as it sat there, "and it does not get you around." The octopus felt safe but could only move a little. When you live in an area with very few hiding points, you cannot be at peace. As soon as you move away from your post, those spread-out tentacles give it away. Some big, stout fish passing by might spot you, get ready for a nice octopus soup and sink its huge, fat horrible teeth into you, just like that. You cannot put up a fight with this monster. If you are in its sight, you must quickly play your usual trick. You stop in your tracks, flop down, wrap yourself tight in your own tentacles, and hope you will not become its favorite soup. If you are fast, it works, but our octopus friend must have gotten tired of it.
> Here it is, pondering: "I wish I could just hover around without worrying about all those fat predators. But hovering puts me at risk. On the other tentacle, the rock trick keeps me safe. Yet, on the third tentacle, if I am a rock, I am pretty much stuck. Certainly, I need to find a way to be safe, and I am not safe like that."

This particular selection was created because it contained several instances of the features studied, thus ensuring that the listeners would hear them. Further, the reading sample was placed well into the reading passage, which favored a smoother reading by the speakers, and, as a consequence, less distractions for the listeners. Overall, the speakers took 30 to 45 seconds to read the selection. Their voices appeared in a random order on the 3-minute CD, and were each followed by a 15-second pause to allow the listeners to give their ratings.

The listeners judged the voices on a rating form which had, for each speaker, a scale from 1 to 7. One corresponded to "sounds definitely homosexual" and 7 to "sounds definitely heterosexual". The form further asked for the level of confidence with which each rating was given. This also ranged from 1 (or "very confident") to 7 (or "not confident at all").

4.4 Speaker Interviews

After the speakers completed their reading task, I interviewed them. Each interview was recorded on the same MiniDisc device I used for the readings. I asked the speakers three basic questions verbatim:

> (1) "How would you describe your voice or the way you talk? Do you think it sounds interesting, warm, rude, silly etc.? Why?"
> (2) "Have you ever been given any hard time because of your voice or the way you talk? If so, can you tell me about it or give me an example about it?"
> (3) "Have you ever experienced any benefit/advantage thanks to your voice? If so, can you tell me about it or give me an example about it?"

Interview interpretations are described in Section 4.5.3.

4.5 Data Analysis

After determining which speakers were consistently recognizable as sounding gay or straight, on the basis of the listeners' ratings, I proceeded to analyze the features investigated.

4.5.1 Speaker Further Selection

I observed and compared the ratings given by all the listeners together and by the individual listener groups (i.e., the lesbian group, the gay group, the straight male group, and the straight female group). On the basis of these ratings (see Table 1 for the ratings given by all the listeners) and on their confidence levels, the speakers who were consistently recognized as sounding either gay or straight were selected. A low confidence level for a listener group bore less weight in the selection than a higher one. Table 2 (below) shows the results of the selection.

4.5.2 Phonetic Features

The recordings were digitized them at 16,000 Hz. For each speaker, the first two formants for each monophthong token were measured with Praat, then averaged the tokens for each monophthong. The values for each monothong formant were averaged for each sounding group. ANOVAs were performed to compared the results between the gay-sounding group and the straight-sounding group to determine whether or not any of the monophthong formants differed depending on the sounding group.

A similar procedure was used to determine the articulation of the diphthongs for each sounding group. Once the formant values of each diphthong target had been obtained, the degree of diphthongization of the diphthong by measuring the distance between the two targets, or the hypotenuse of the triangle formed by the two targets, was calculated. I then averaged the values thus obtained for each speaker and, then, for the each of the two sounding groups.

For each speaker, vowel space dispersion was calculated using the same technique utilized by Pierrehumbert et al. (2004) and created by Bradlow et al. (1996) involving computing the Euclidean distance between the center of the vowel space and the farthest vowel tokens from the center.

4.5.3 Speaker Interviews

As can be seen from the questions introduced in Section 4.4, the speakers were not asked speakers directly whether or not they believed they sounded gay or straight. If they felt comfortable enough with me, they would share any thoughts they might have on the topic. My decision takes into account both performativity and the importance of audience in the construction of a performance. I expected that their responses to me would be influenced by my gender, position as a researcher, and performance as an interviewer, along with any other factors assumed (correctly or incorrectly) by the speakers.

5 Results

5.1 Speaker Selection

The selection of speakers who were consistently rated as sounding straight or gay appears in Table 1. Of 12 total speakers, only two were excluded from the selection. This suggests that the "gay-sounding" construct is a strong one. As expected, speakers were rated as sounding gay or straight regardless of their sexuality. Only one man was judged as sounding definitely gay, G_M_3. Overall, the listeners were mostly inaccurate in recognizing the self-declared sexualities of the speakers. Table 2 (below) shows that, for instance, the gay listeners correctly identified 3 gay speakers out of 6, but also indicated 3 straight men to be gay. The inaccuracy of these assessments spanned across all the listeners, independently from the listeners' sexualities. Evidently, the linguistic "gaydar", or the supposed ability to recognize gay men, receives little support from this study.

Speaker	Avg. Listeners' Rating	Avg. Listeners' Confidence
G_M_3	1.60	6.00
Het_M_4	2.30	4.85
G_M_5	2.35	5.05
G_M_6	2.60	4.65
Het_M_3	3.15	4.40
G_M_4	4.65	4.20
Het_M_2	4.65	4.40
G_M_1	4.70	4.65
Het_M_5	4.95	4.55
Het_M_1	5.40	4.55

Table 1: Speaker selection based on all of the listeners' ratings

	Correct Identification	Incorrect Identification
	Gay men Identified as Gay Men	Straight Men Mistaken for Gay Men
Gay Listeners	3/6	3/6
Lesbian Listeners	4/6	3/6
Total Gay/Lesb. Listeners	7/12	6/12
Straight Male Listeners	4/6	3/6
Straight Fem. Listeners	3/6	2/6
Total Straight Listeners	7/12	5/12

Table 2: Number out of total indentified as speakers' sexualities

5.2 Phonetic Features

The results do not support the hypothesis that gay-sounding speakers present a hyperarticulated speech. ANOVAs show that only the articulation of some vowels significantly differs between the two-sounding groups. Specifically, the gay-sounding men fronted their high vowels /i/ ($F(1,8) = 6.86$, $p=0.03$) and /u/ ($F(1,8)=6.62$, $p=0.03$), and, possibly, lowered their /ɑ/ ($F(1,8) = 4.27$, $p=0.07$). Figure 1 shows the difference found in monophthong articulation.
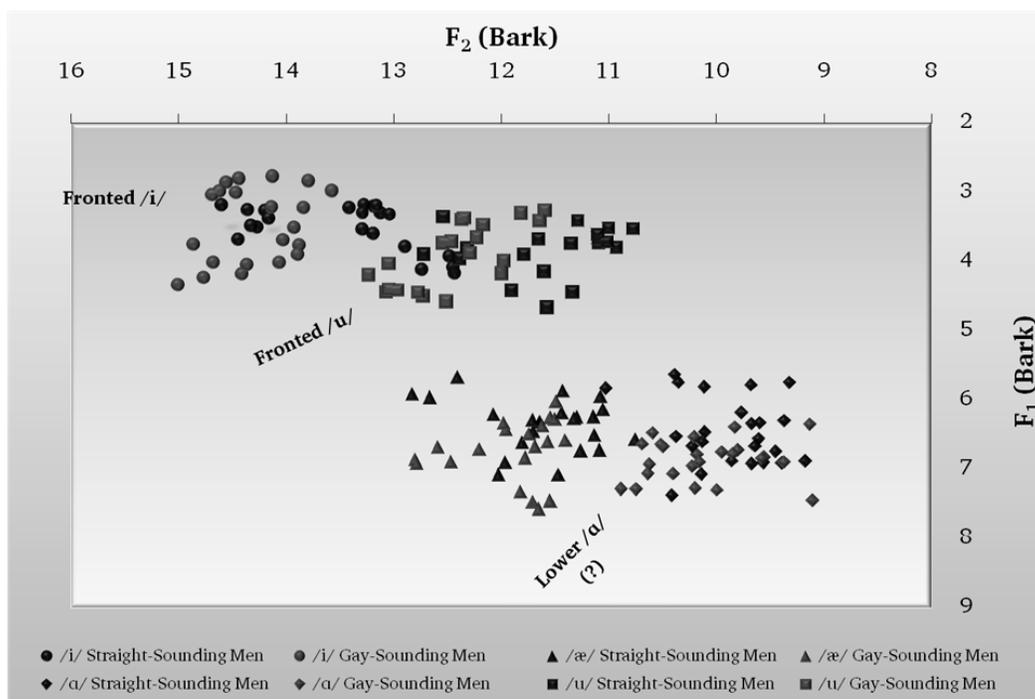
Figure 1: Monophthong articulation results

5.3 Interviews

In this section, I outline the speakers' responses to my interviews. The responses are divided into groups based on perceived sexuality.

5.3.1 Gay-Sounding Speakers

Three gay men were rated as sounding gay. They appeared to have an awareness of sounding gay, and claimed that modifying their voice or speech to sound differently would imply dishonesty. The two straight men who sounded gay seemed clueless about their sounding so. As they mentioned having taken speech and acting classes, it is likely they were automatically using their acting voices when reading the text. This was interpreted by the listeners to index gayness.

5.3.2 Straight-Sounding Speakers

Two gay men sounded straight. They claimed that in their younger years they struggled to modify their voices in a likely effort to sound straight. At the moment of the interview, they were unconcerned about the way they sounded, possibly because they sounded straight to themselves (and, arguably, to the listeners as well). The three straight men who sounded straight did not expressed apprehension about sounding gay or straight. They only wished to speak "proper" English.

6 Conclusions

The present study focused on male speakers and based itself on observations of perceived, rather than self-identified, sexuality and showed that the sexuality of a speaker can be misidentified by listeners. Its primary goal was to identify phonetic features relating to perceived sexuality. The features that were found to distinguish the production of the gay-sounding speakers from that of the straight-sounding speakers (i.e., the articulation of high monophthongs and, possibly, a low

monophthong) do not confirm the hypothesis (and Pierrehumbert et al.'s results) about hyperarticulated speech for gay-sounding men. However, the fact that the manipulation of back monophthongs conveys perceived sexuality aligns itself with both Pierrehumbert et al. (2004) and other studies on identity (such as Habick, 1991) that have established a link between the production of back vowels and the projection of identity.

As its secondary research question, this study sought to understand reasons why speakers uphold or challenge heteronormativity. It was found that heteronormativity seemed to be defied involuntarily by the gay-sounding men, as sounding gay was either part of their identities or it was a one-time performance. Heteronormativity, instead, was upheld by the straight-sounding men for the obvious reason that heteronormativity goes unnoticed, thus it creates no social problems (although the gay men in this category were more aware of it than the straight men, as they had a history of struggling to attain a straight-sounding voice).

Appendix: Story text

"Life at the bottom of the ocean can be tough, especially when you are not at the top of the food chain. It's even worse when big fish float around you, and seek to turn you into an octopus soup. You can only escape or hide. Or you can pretend you are something else. But you can't certainly poke those fish in the eyes or stop them with a tentacle chop! I hate this... I wish I could find a better way to cope with it..."

This – we like to imagine – is what an octopus thought one day as, once again, it was mistaken for a rock by a huge octopus-eating fish. That certainly saved its life. "But disguising only works so much," the octopus pondered as it sat there, "and it does not get you around." The octopus felt safe, but could only move a little. When you live in an area with very few hiding points, you cannot be at peace. As soon as you move away from your post, those spread-out tentacles give it away. Some big, stout fish passing by might spot you, get ready for a nice octopus soup and sink its huge, fat horrible teeth into you, just like that. You cannot put up a fight with this monster. If you are in its sight, you must quickly play your usual trick. You stop in your tracks, flop down, wrap yourself tight in your own tentacles, and hope you will not become its favorite soup. If you are fast, it works, but our octopus friend must have gotten tired of it.

Here it is, pondering: "I wish I could just hover around without worrying about all those fat predators. But hovering puts me at risk. On the other tentacle, the rock trick keeps me safe. Yet, on the third tentacle, if I am a rock, I am pretty much stuck. Certainly, I need to find a way to be safe, and I am not safe like that." Just then, we like to imagine that a piece of rock rolled by, bumped into our octopus friend, rolled over the bottom of the ocean for quite a few feet, then stumbled onto a bigger rock, floated up and around it, and kept going. That greatly inspired the octopus. "So, rocks can move around... I don't have to be a dumb, unmovable rock! That's right! I can be a smart, mobile rock! Maybe I found a way to fool those fat fish..." That said, the octopus tried out its new strategy. It gazed around, then lifted up six tentacles and wrapped them tight around its body. Next, balancing on its remaining two tentacles, it tentatively raised itself up. Water helped its efforts, and the octopus could, sort of, stand up. Delighted, it thought: "I'm gonna shout out loud! It works! This is great! Now, since there is no fish in sight, I will try to scoot off...". The octopus quickly propelled itself out of its post, and was able to "run" for a couple of feet, uncertainly balancing on its two tentacles. "I can walk! Yes! Ouch!", the octopus cheered, and then got surprised, as it unexpectedly fell on its face. "Oops... I guess I was running against the current... I should go South: that's the direction of the current." That said, it rose on its two, hmm, feet, scooped up the other six, and set out. Its improvised walk was not very elegant, but it was incredibly effective. Going with the South current helped it balance on its walking tentacles. Wrapping its other tentacles around its body still made it look like a rock. The octopus was delighted. As it was heading to its house, it ran into a big predator. The fish looked at the octopus, the octopus blinked for half a second, but kept playing the walking rock, and the fish swam away. Hurray! No more octopus soup for the big fish!

References

Bradlow, Ann R., Gina M. Torretta, and David B. Pisoni. 1996. Intelligibility of normal speech I: Global and fine-grained acoustic-phonetic talker characteristics. *Speech Communication* 20:255–272.

Butler, Judith. 1990. *Gender trouble: Feminism and the Subversion of Identity*. New York and London: Routledge.

Cameron, Deborah. 1997. Demythologizing sociolinguistics. *Sociolinguistics: A Reader and Course Book*, ed. N. Coupland and A. Jaworsky, 55–67. New York: St. Martins.

Gaudio, Rudolf. 1994. Sounding gay: Pitch properties in the speech of gay and straight men. *American Speech* 69:30–57.

Habick, Timothy. 1991. Burnouts versus rednecks: effects of group membership on the phonemic system. *New Ways of Analyzing Sound Change*, ed. by Penelope Eckert. Academic Press, San Diego.

Munson, Benjamin; Elizabeth McDonald; Nancy DeBoe; and Aubrey White. 2006. The acoustic and perceptual bases of judgments of women and men's sexual orientation from read speech. *Journal of Phonetics* 34:202–240.

Pierrehumbert, Janet B., Tessa Bent, Benjamin Munson, Ann. R. Bradlow, and Michael J. Bailey. 2004. The influence of sexual orientation on vowel production. *Journal of the Acoustical Society of America* 116:1905–1908.

Smyth, Ron, Greg Jacobs, and Henry Rogers. 2003. Male voices and perceived sexual orientation: An experimental and theoretical approach. *Language in Society* 32:329–350.

Warner, Michael. 1991. Introduction: Fear of a queer planet. *Social Text* 9:3–17.

Wells, John C. 1982. *Accents of English*. Cambridge: Cambridge University Press.

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