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How Conservatism and Normative Gender Constrain Variation in Inland California: The Case of /s/

Robert J. Podesva
podesva@stanford.edu

Janneke Van Hofwegen
jmvanhof@stanford.edu

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Abstract

Sociophonetic research on /s/ has revealed that sex, gender identity, sexuality, and regional identity can significantly structure the variation found in the production and perception of its acoustic signal. Relative /s/ frontness has been associated with femininity (e.g., Stuart-Smith 2007) and gay-sounding speech (e.g., Munson et al. 2006), while relative /s/ retraction has been associated with masculinity (e.g., Zimman 2013) and a Southern or country identity (e.g., Campbell-Kibler 2011). However, much of the work to date has been experimental in nature or conducted in urban centers. This paper analyzes the acoustic realization of /s/ in one inland non-urban community in Northern California, where speakers carry strong antiurban (and anti-liberal) sentiment. Our acoustic analysis examines sociolinguistic interviews with 42 speakers, diverse in terms of gender, sexuality, and attitudes toward rurality (townoriented versus countryoriented). In this community, the data show a stronger polarization between men and women than found in urban settings (e.g., Hazenberg 2012, Zimman 2012), likely due to social conservatism prevalent in the community. These prominent gender norms seriously constrain the production of /s/ by gay men, who pattern much more like straight men in this community than to urban gay speakers. At the same time, variants of /s/ prevalent among straight country-oriented speakers serve as resources for sexual minorities (i.e., lesbians) to construct non-heteronormative identities without transgressing gender norms.

How Conservatism and Normative Gender Constrain Variation in Inland California: The Case of /s/

Robert J. Podesva and Janneke Van Hofwegen*

1 Introduction

In this paper, we analyze the realization of /s/ in a non-urban inland community in far Northern California. Residents of this community, especially those who identify as LGBT, harbor complex feelings about and relationships with their neighbors, fellow Californians to the South, and to the land. Our primary claim is that these complex local ideologies significantly shape the realization of /s/ in this community, primarily ideologies about how gender and sexuality should be expressed. Specifically, the sociopolitical conservatism characterizing this non-urban community effectively polarizes gender distinctions and heavily pressures sexual minorities to adhere to normative gender patterns.

This study builds upon a flurry of recent work on the acoustic characteristics and social patterning of /s/, but is unique in that it is contextualized within a community where rurality is an important axis of social distinction, and where traditional norms regarding gender and sexuality are upheld. Previous work has revealed three significant findings relevant to the analysis presented here. First, /s/ realization has been found to be strongly affected by speaker sex, stemming in large part from gross physiological differences between women and men. Given men's generally larger vocal tracts than women, the cavity in front of the constriction for /s/ is typically larger for them, yielding relatively lower-frequency concentrations of energy for fricatives. This in turn affects the acoustic quality of /s/ such that center of gravity is lower and skewness is higher for men than for women.

However, not only does physiological sex affect /s/ relative frontness, but also gender identity (Fuchs and Toda 2010, Hazenberg 2012, Levon and Holmes-Elliott 2013, Phrao, Maegaard, Møller, and Kristiansen 2014, Strand 1999, Stuart-Smith, Timmins, and Tweedie 2007, Stuart-Smith 2007, Zimman 2012). Indeed, it appears as though women and men alike play within a range of /s/ productions to fashion a variety of gendered selves. In previous work, men have been found to further retract and women to significantly front their productions of /s/ in ways that effectively enhance the physiological differences already present (Stuart-Smith, Timmins, and Tweedie 2007, Levon and Holmes-Elliott 2013). The indexical potential of /s/ and gender identity is particularly relevant for transgender individuals. Hazenberg (2012) has found that trans women and men pattern with members of their own gender group in /s/ production, rather than members of the sex class assigned to them at birth. Zimman (2012) finds longitudinal evidence that transitioning transmen show greater degrees of /s/ retraction (lower center of gravity) over time.

Sexuality is another factor shown to correlate with /s/ realization (Campbell-Kibler 2011, Hazenberg 2012, Levon 2007, Linville 1998, Munson, McDonald, DeBoe, and White 2006, Phrao et al. 2014, Zimman 2013). Munson et al. (2006), for example, find that /s/ produced by gay men exhibits a more negatively skewed spectrum, and Campbell-Kibler (2011) has verified that listeners are likely to perceive /s/ with higher centers of gravity and lower skewness values as sounding gay, regardless of the linguistic style in which such realizations of /s/ are embedded.

While feminine and gay-sounding speech have been shown to correlate with fronted realizations of /s/, rurality, like masculinity, has been associated with retracted realizations (Campbell-Kibler 2011). In particular, retracted /s/ is a feature prevalent in Southern US speech styles. For example, through a matched-guise task, Campbell-Kibler (2011) found that speakers whose stimuli contained retracted variants were judged as sounding more Southern than the same speakers when their stimuli contained frontier realizations of /s/. Given that Southern identity is tightly intertwined with rural identity in the United States, retracted variants also have the potential to be per-

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ceived as sounding rural. As Hall-Lew and Stephens (2012) show in their work on Country Talk, users of the register often characterize their speech as regionally Southern.

The community under consideration here is Redding, California, and its surrounding area. In this paper, we show that country-identified speakers exhibit different patterns from speakers who orient to the town, and also that members of a tight-knit LGBT community exhibit somewhat different patterns from community members who do not identify as sexual minorities. We further contrast our findings with patterns previously observed for speakers in urban areas and find that in spite of significant differences between straight and LGBT speakers in Redding, both groups of speakers produce more normatively gendered patterns than do their counterparts in cities. In the following two sections, we provide a description of the community and our methods for analyzing the data collected there. We then present the results of our acoustic analysis, first identifying gender- and sexuality-based differences internal to the community under consideration, and then re-considering those patterns in light of patterns previously observed in urban settings.

2 The Community

Speakers in this study come from Redding (the county seat of Shasta County) and its surrounding towns. Redding proper, population roughly 90,000 as of the 2010 census, is the largest city in the Shasta-Cascade region of far northern California. This study constitutes part of a collaborative research project at Stanford University called *Voices of California*. Aiming to describe and document understudied dialect variation in California (i.e., for areas that are non-urban and non-coastal), *Voices of California* fieldworkers went to Redding in the summer of 2011 and gathered sociolinguistic interviews, word lists, and map tasks from roughly 130 lifelong residents. Data from the sociolinguistic interviews were used in this analysis.

Shasta County, and its largest town, Redding, lie just beyond the northern edge of the San Joaquin Valley, more commonly called the Central Valley. In many ways, people in Redding identify with and feel they have more in common with cities of the Central Valley (such as Merced and Bakersfield, where data have also been collected for the *Voices of California* project) than the geographically closer cities of San Francisco and Sacramento (see Figure 1, left). The Central Valley is a particularly interesting site because of its settlement history. The Dust Bowl in the 1930s brought a number of people west from Oklahoma, Texas, and other Southern states to the southernmost point of the Central Valley near Bakersfield, where they settled communities that utilized the region's fertile land to produce agriculture, raise livestock, and drill for oil. Many of the migrants continued up the Central Valley, some reaching as far north as Shasta County (see Figure 1, right). Due to the rather different landscape there, settlers pursued other industries tied to the land, like logging and ranching. These migration patterns have important linguistic ramifications, since the "Okies" that settled or significantly populated many of the Central Valley communities brought a number of Southern linguistic features with them, including the PIN-PEN merger (Geenberg 2014), vowel mergers preceding laterals, and, as will be discussed here, retracted /s/.

Redding residents have long felt alienated from the rest of the state, particularly from the large liberal cities in the south. This alienation stems from many things, but is perhaps best exemplified in political affiliations and movements in the region. Shasta County is extremely politically conservative: in the 2012 United States Presidential election, it had the third-highest percentage of supporters for Mitt Romney, the politically conservative Republican candidate, of the 58 counties in the state. This contrasts sharply with San Francisco and Sacramento, which heavily supported Obama. This political divide in many ways reflects a fundamental difference in values and way of life between Redding residents and the larger more liberal cities, based on contrasting social ideologies that typify non-urban versus urban places. Redding residents largely feel like their interests are not being heard or respected by state legislators in Sacramento, California's capital. One pivotal example in recent history is the rapid decline of the region's economic prosperity in the 1990s, due to environmental regulations coming out of Sacramento. These regulations greatly restricted Shasta-Cascade's number one industry—the logging and milling of timber—to the point where local unemployment levels peaked and most residents were forced to pursue other, more service-oriented occupations. Examples like these are numerous in the sociocultural consciousness of Shasta residents, contributing to a locally robust secessionist movement aimed at creating a new State of Jefferson, which would also include parts of southern Oregon.

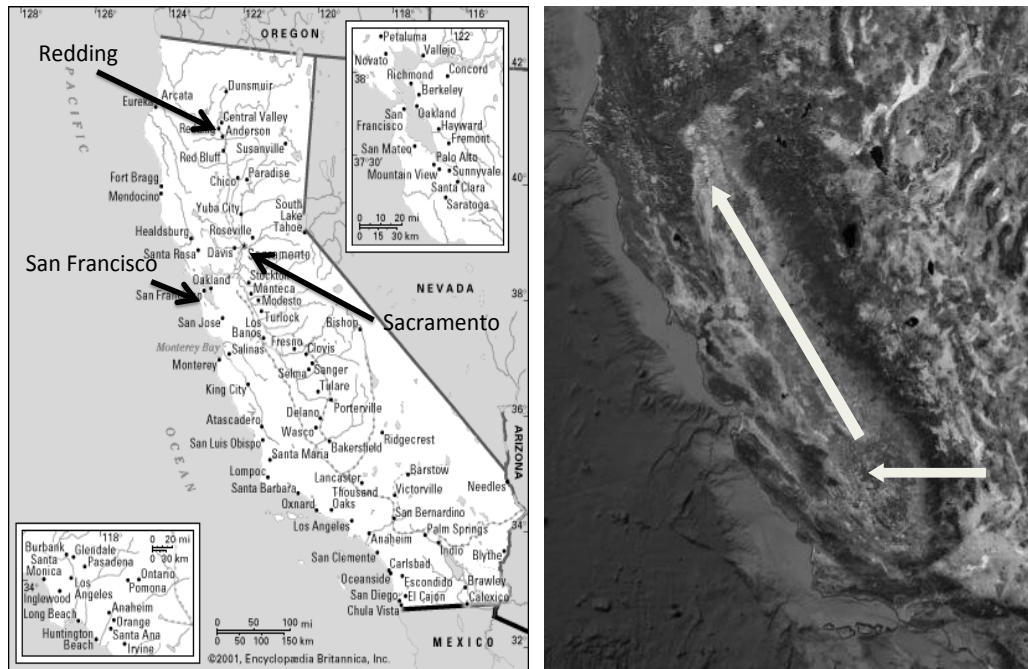


Figure 1: California geography. At left: Redding's location vis-à-vis large liberal Northern California cities. At right: Topographical map indicating migration patterns through the Central Valley.

Relationships with urbanity play out recursively within the town of Redding. So even though the community as a whole positions itself in opposition to cities, some people are more oriented to the town while others are more oriented to the country. We categorized interviewees as country-oriented if they lived outside of the Redding town limits, expressed preferences for a country lifestyle and/or disdain for city life, or make their living from agriculture, ranching, or other rural pursuits. All other speakers were categorized as town-oriented.

The conservatism evidenced in Redding politically also plays out socially as well. Our data show this concretely in the experiences of the LGBT community members as recounted in sociolinguistic interviews and in other ethnographic observations. Redding differs substantially from the liberal cities in Northern California, which have long welcomed sexual minorities, in that Redding LGBT community members have experienced rather extreme policing of their expression of gender and sexuality. As described in more detail in Podesva and Van Hofwegen forthcoming, the LGBT community members have experienced extreme instances of harassment and violence, even to the brink of death. The danger and stigma associated with being a sexual minority in Redding is dealt with in different ways by LGBT community members. Often because of strong pressure from religious organizations, some choose to keep their sexuality private. Others view being out in a sometimes hostile community to be an important political statement and precondition for social change. In all, while all our LGBT speakers call Redding their home, their relationship with city politics and with their fellow residents is fraught and complex.

3 Methods

This analysis includes only white-identified speakers. While focusing on white speakers does not reflect the values of the Voices of California project overall, it is nevertheless true that Redding is an overwhelmingly white community. Redding has an ethnic profile of roughly 90% white inhabitants. The other 10% of the population is composed of African Americans and Latinos, as well as a significant Nor El Muk Indian population.

In all, of the 130+ sociolinguistic interviews conducted for the Redding field site, 51 are used in this analysis. 15 speakers identified as LGBT and the remaining 36 speakers (18 female; 18 male) did not self-identify as LGBT, and for simplicity's sake will be referred to as "straight" henceforth. The straight speakers were further classified as either "country-oriented" or "town-oriented" based on the criteria discussed above. LGBT speakers were not categorized in this way because none of them were country-oriented. Among the LGBT speakers, 7 were gay/bi men, 4 were lesbians, 2 were transmen, and 2 were transwomen. Table 1 summarizes the speakers and their orientations, sexuality, gender, and age characteristics.

	Country-oriented		Town-oriented	
	N	Ages	N	Ages
Straight females	7	19–69	11	19–73
Straight males	5	20–86	13	18–64
Lesbians			4	33–50
Gay/bi men			7	18–73
Transmen			2	25, 37
Transwomen			2	27, 45

Table 1: Summary of speakers according to country-/town-orientation, gender identity, sexual orientation, and age.

In analyzing the relative frontness/retraction of /s/, we utilized similar acoustic measurements used by other sociophonetic studies of /s/ that focus on gender, sexuality, and/or region. These measures include highest peak frequency (e.g., Levon and Holmes-Elliott 2013, Stuart-Smith 2007) as well as the first four spectral moments: center of gravity, standard deviation (e.g., Campbell-Kibler 2011, Stuart-Smith 2007), skewness (e.g., Zimman 2012, 2013), and kurtosis (e.g., Stuart-Smith, Timmins, and Wrench 2003). In terms of these measures, a relatively fronter /s/ is characterized by higher peak frequency, higher center of gravity (COG), higher standard deviation, higher kurtosis values, and lower (often negative) skewness values, and vice versa for retracted /s/.

All sociolinguistic interviews were first orthographically transcribed in their entirety and time-aligned. Word and phone segments were then obtained using the Penn forced alignment software package FAVE. Forced alignment enabled the automated extraction of nearly 113,000 tokens of /s/ across all three of the field sites visited by the Voices of California project (Redding, as well as Merced and Bakersfield). Tokens from all three field sites were analyzed together to determine the relevant internal linguistic factors predicting /s/ variation in a broader California population. Significant linguistic factors were included in the statistical analysis presented below, but will not be discussed at length in this paper.

In order to make spectral measurements, each token was then band-pass filtered to a 1000–22050 Hz bandwidth. At this point, spectral measurements were taken at the midpoint of a 40 ms Hamming window. The duration of each token was also recorded and log-transformed to ensure a more normal distribution of duration values. Finally, tokens with adjacent sibilants were removed from the analysis, since boundaries between such sounds cannot be determined systematically, leaving a total of 63,851 /s/ tokens from Redding alone. Prior to statistical analysis, a subset of these tokens was checked for alignment reliability, in terms of whether the 40 millisecond Hamming window was indeed contained inside the /s/ segment. In the course of reliability testing, a very small proportion of the total number of tokens (3.25%) were determined to be mis-aligned. Moreover, further investigation into the mis-aligned tokens revealed that two-thirds of them were still likely to lead to reliable spectral measurements.

In an effort to determine the predictive linguistic and social factors for relative fronting/retraction of /s/, multi-level mixed effects regression modeling was used. Because there were so many response variables (i.e., the spectral measures) to consider, regression modeling was conducted in three series. The first series of analyses, utilizing data from all three Voices of California field sites, were conducted in order to ascertain the relevant linguistic constraints as well as the broad patterns for /s/ in California. Results for the first series of statistical analyses will not be discussed here, given that our primary focus is on patterns in Redding. The linguistic factors that

we found to be significant in the first series were nevertheless incorporated into all subsequent models. The second series of regression models looked at straight Redding speakers only, in order to examine the effects of town- or country-orientation on the realization of /s/. Finally, a third series of models incorporated LGBT speakers alongside the straight speakers, to examine patterns according to sexuality and gender identity.

4 Results

Statistical models reveal remarkably consistent effects of linguistic and social factors on the realization of center of gravity, peak frequency, and skewness. In the interest of space, and to facilitate comparability with previous studies on /s/ (Hazenberg 2012, Zimman 2013), we report results on center of gravity (COG) only. Details about the duration of /s/, previously found to be an important cue for signaling gay-sounding speech (Levon 2007, Linville 1998), appear in Podesva and Van Hofwegen forthcoming.

The effects of linguistic factors on the realization of /s/ were ascertained through an analysis of a larger dataset (encompassing nearly 112,000 /s/ tokens), as mentioned in the previous section. Higher COG values were observed when /s/ appeared in a stressed syllable, in onset position and/or at the beginning of a phrase, was long in duration, and was followed by an apical consonant (in the case of coda /s/) or by a front vowel. Lower COG values were observed when /s/ appeared in phrase-final, unstressed, and/or coda position, was short, and when it was preceded or followed by /ɹ/, /ɜ/, or /ə/. All of these linguistic factors were included in subsequent models investigating the influence of social factors.

The second regression model analyzed /s/ tokens from the straight Redding speakers to determine whether orientation to the country influences the COG of /s/. Main effects were found for gender ($p < 0.001$), with females unsurprisingly exhibiting higher COG than males, and for age ($p < 0.0096$), with speaker age correlating inversely with COG. An interaction between age and orientation to the country ($p < 0.0113$) reveals that the country-oriented speakers are driving the age effect. As illustrated by Figure 2, town-oriented speakers exhibit rather uniform COG values over time, while country-oriented speakers exhibit change in apparent time. In sum, country orientation in straight speakers plays an important role in /s/ variation in Redding, in that the older country speakers produce a more retracted /s/, but younger country people appear to have adopted the town norm: a relatively more fronted realization of /s/.

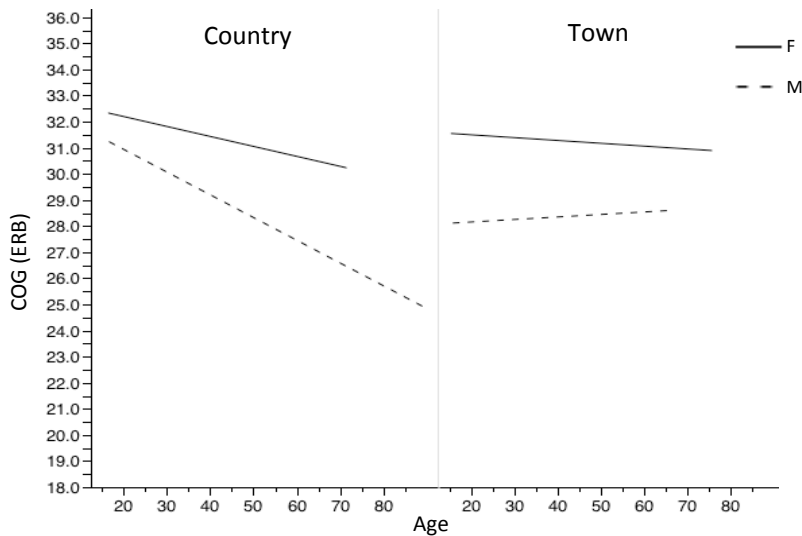


Figure 2: Center of gravity (ERB) of /s/ as a function of age for women (solid) and men (dashed), for speakers oriented to the country (left) and town (right), straight-identified speakers only.

The third regression analysis incorporates data from the 15 LGBT speakers in the sample to investigate the potential effects of sexuality. Figure 3 shows the COG for each gender and sexuality group, ordered from lowest to highest. The statistical model indicates that gay men in the community produce /s/ with a significantly higher COG than do the straight men, which is consistent with previous literature on other communities. Lesbians show significantly lower COG values than the straight women in this community, a pattern that has not been shown in previous studies on other communities. There was no difference between gay men and lesbians. We did not include the transgender speakers in our statistical models, since there were too few within each group ($N = 2$) for meaningful statistical comparisons. We nevertheless represent their patterns in Figure 3 to facilitate comparisons with other studies (Hazenberg 2012, Zimman 2013). A fuller discussion of the trans speakers' patterns appears in Podesva and Van Hofwegen forthcoming.

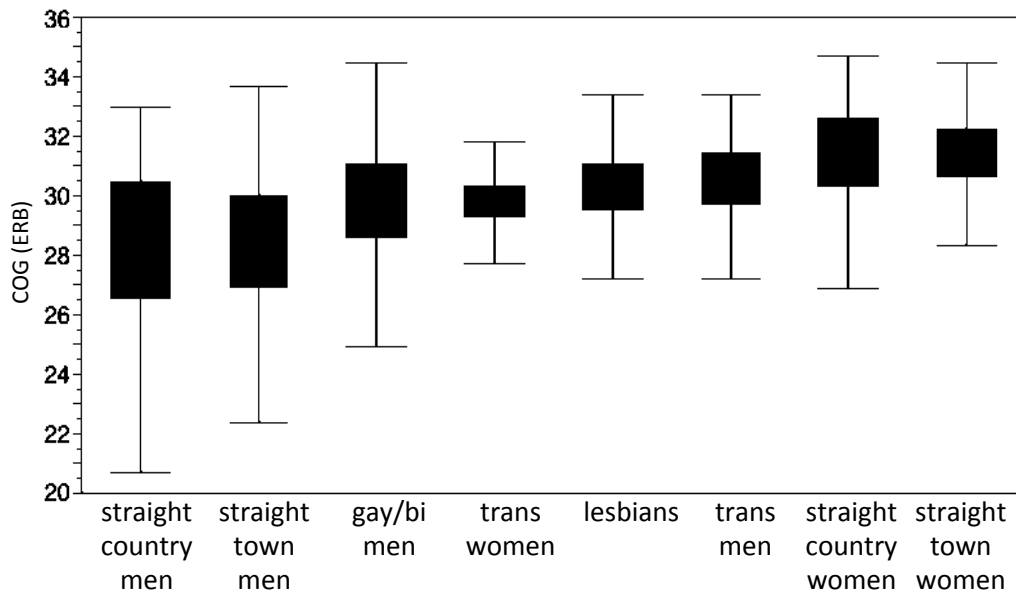


Figure 3: Center of gravity (ERB) of /s/ by gender identity and sexuality.

The trend in Figure 3 clearly indicates that straight men and women form the poles of the continuum in Redding, with LGBT speakers in the middle. This gender polarization in Redding becomes more noteworthy when we compare the Redding findings with those from urban communities. Straight men in Redding, for example, produce a considerably more retracted /s/ (i.e., /s/ with a lower COG) than straight men in San Francisco, as reported by Zimman (2013). Comparable data for women in San Francisco are not available, but a comparison with Hazenberg's (2012) data from Ottawa reveals that straight town-oriented women from Redding exhibit frontier /s/ than straight women from Ottawa.

It should be noted that to facilitate meaningful comparisons with data from Zimman 2013 and Hazenberg 2012, we transformed our data (using Hz instead of ERB), or analyzed subsets of it (including only *so* in comparisons to Hazenberg 2012), to replicate their methodologies as closely as possible. Doing this was important because looking at trends within communities provides us with a limited frame of interpretation. If we considered Redding speakers only, we would be left knowing only that straight men and women define the envelope of variation, not that the magnitude of the COG difference between men and women is relatively extreme.

The value of cross-study comparisons is also evident for the LGBT speakers. Comparing gay men to their counterparts in urban communities, we find that gay men in Redding have a more retracted /s/ than even straight men in San Francisco (Zimman 2013). Thus, even though gay men produce more fronted /s/ than straight men within Redding, both groups of men exhibit more retracted /s/ overall than straight men in San Francisco. An analogous pattern does not emerge for

women in Redding. That is, lesbians in Redding do not produce a fronter /s/ than straight women in an urban location (Hazenberg 2012).¹ In fact, lesbians in Redding tend to produce a more retracted /s/ than their town-oriented straight counterparts. As shown in Figure 4, which shows COG values for all female speakers in rank order, 3 of the 4 lesbians in the sample exhibit what are among the lowest COG values. Country-oriented women form the poles of the continuum, with the older country-oriented women producing the lowest COG values, values that are comparable to those for the lesbians who produce the most retracted /s/. We discuss the significance of this pattern in the following section.

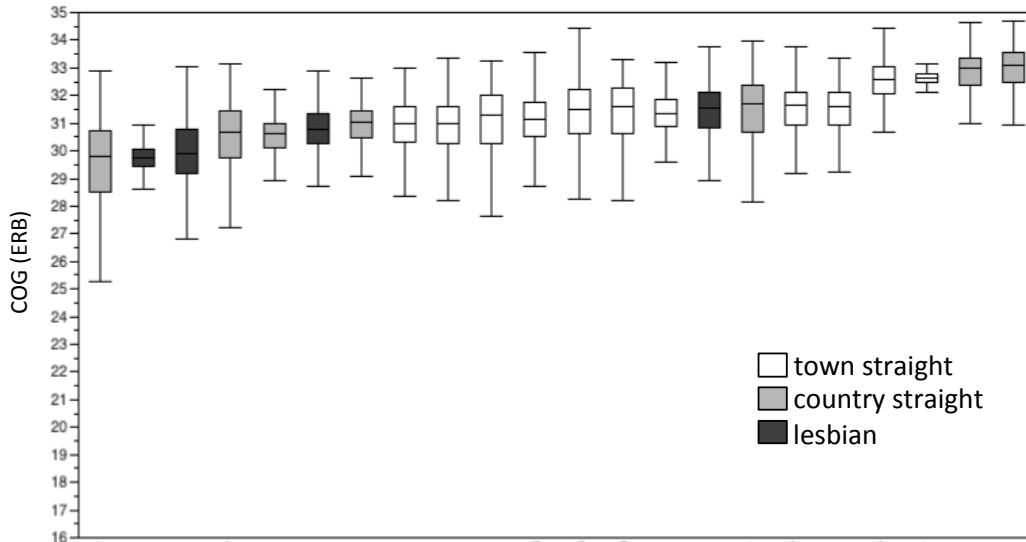


Figure 4: Center of gravity (ERB) of /s/ by individual for lesbian (black), straight country-identified (gray), and straight town-identified (white) women.

5 Discussion

In the previous section, we presented apparent time evidence for increasingly fronter realizations of /s/ among the country-oriented speakers, whereas greater stability was observed for town-oriented speakers, who produced relatively anterior realizations of /s/. We interpret this pattern to mean that the /s/ that was once retracted among country-oriented speakers, and perhaps brought into the community in the Dust Bowl Migration, is now leveling to a fronted standard. This finding is not surprising, because the community is undergoing urbanization. Given that environmental legislation has all but shut down the once thriving logging industry, the community is relying on other industries located in the town proper to sustain the economy. And even as the economy has suffered, the town's population has continued to grow, as the community attracts retirees from other locales, as well as new members to the influential local Bethel Church. It remains an open question whether other Southern features will be leveled to the urban standard, though Geenberg's (2014) work on the PIN-PEN merger in neighboring Trinity County suggests that at least some Southern features have taken on a life of their own and are well represented in the speech of younger speakers.

The prevalence of retracted /s/ among country speakers, even as the feature recedes, suggests that it may index an orientation to the country. This indexical meaning of retracted /s/ coexists with meanings that relate to the expression of gender, such as masculine, non-normatively feminine, or perhaps lesbian. We argue that the indexical ambiguity of retracted /s/ is essential for ex-

¹ A more complete comparison with urban studies of /s/ and sexuality/gender identity can be found in Podesva and Van Hofwegen forthcoming.

plaining why several of the lesbians in our sample use this variant in a community where gender and sexuality are policed so heavily. That is, if a lesbian produces retracted /s/, a listener may read her as a lesbian, but the listener could also conceivably draw on the feature's "country" meaning, which has presumably long been available to members of this community. In other words, it is because of these additional readings of retracted /s/ that a lesbian's use of the variant need not be viewed as a transgression of gender norms.

While the indexical space for retracted /s/ is expansive, fronted variants of /s/ are more unambiguously tied to femininity and gay identity (as verified in Campbell-Kibler's 2011 study). Because fronted /s/ is more likely to be interpreted as a non-normative linguistic behavior among men, gay men in Redding are likely to adhere to gender norms and produce relatively retracted /s/ (compared to, for example, straight men in San Francisco). Even though gay men in Redding produce fronted realizations of /s/ than straight men in the same community, they do so within the strict confines of community standards of gender normativity. Straight men and women are subject to the same constraints on gender expression, and as a result, they exhibit polarized patterns, with straight men retracting /s/ the most and (town-oriented) women producing a relatively fronted /s/. These patterns of gender polarization are reminiscent of Stuart-Smith's (2007) Glasgow findings, as well as Levon and Holmes-Elliott's (2013) findings for British reality shows. In both of these cases, ideologies of gender are mediated by the ways that speakers understand other aspects of their identity, such as class. In the present study, we see that gender ideologies, particularly normative ideologies according to which women and men should be maximally distinct from one another, are influenced by conservative sociopolitical ideologies that privilege a country lifestyle, which is crucially characterized as standing in opposition to city life.

6 Conclusion

In this paper, we have shown that the way a speaker produces /s/ in Redding depends on their gender, sexuality, age, and orientation to the country. In communities where orientations to the country are salient, rurality is important not just as a demographic factor but also as a social construct with significant ideological underpinnings. Rurality is not simply about where one lives, but about how one sees the world, including how one sees and experiences gender. It is because of the salience of rurality that /s/ has emerged as such a rich variable in this community. Retracted variants of /s/ simultaneously serve as resources for indexing a country orientation, heteronormative masculinity, and also non-heteronormative femininity in a way that does not overtly transgress gender norms. And while we have referred to these variants as resources from which identities can be constructed, speakers exercise agency in a highly constrained manner (Ahearn 2001). In the case of the rural community of Redding, strong community pressure encourages speakers to maximize gender distinction in normative ways.

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Department of Linguistics
Stanford University
Stanford, CA 94305-2150
podesva@stanford.edu
jmvanhof@stanford.edu