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Whose gendered voices matter?: Race and gender in the articulation of /s/ in Bakersfield, California

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Correction: Maegaard, M., & Pharao, N. (2015) removed on November 6 2022 after first publication online.

Abstract

/s/ frontness is one of the most robustly studied linguistic variables in language and gender research. While much previous literature has established the pattern that women produce fronter /s/ than men, production work on /s/ has either largely focused on White speakers or left speaker race unexplored. This article addresses this gap by examining the production of /s/ among African American and White speakers in Bakersfield, California. While the White speakers exhibit a gender split consonant with previous studies, African American Bakersfieldians exhibit no gender split, with African American men producing /s/ as front as African American women. We argue that African American men in Bakersfield avoid a backed production of /s/ indexical of a White country identity which has historically oppressed them in the area. These production patterns illuminate the importance of an intersectional analysis, taking into account the effect of speaker race on gendered variables like /s/.

KEYWORDS
gender, indexicality, intersectionality, race, sociophonetics

1 | INTRODUCTION

The study of gender in sociolinguistic variation has long been concerned with investigating how realizations of particular linguistic variables pattern with speaker gender identity. When gendered patterns emerge for linguistic variables, it is argued that a linguistic variant indexes a particular gender if the variant is more commonly found among speakers of that gender identity than another one. This field of study has illuminated robust connections between linguistic variables and performances of gender,

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such that some variants are argued to be indexical of women or femininity, while others are argued to be indexical of men or masculinity. For example, with respect to the fundamental frequency, a lower f0 is more commonly found among men, and thus indexical of masculinity, and a higher f0 is more commonly found among women, and thus indexical of femininity (Graddol & Swann, 1983; Ferrand & Bloom, 1996; Guzik, 2004; Gorham-Rowan & Morris, 2006; Ohala, 1984; Smyth et al., 2003; Zimman, 2017).

While work on gender in sociolinguistics has done much to advance our understandings of how linguistic variables can both differentiate gender identities and be used to perform gender in particular ways, the study of gendered linguistic variables such as /s/ in English has largely focused on White speakers, underexploring its behavior among minoritized populations. Recent work in Denmark (Maegaard & Pharao, 2016; Pharao et al., 2014) has argued for the possibility that a linguistic variable's potential to index gendered social meanings may be dependent on stereotypes and ideologies that are related to speaker race, but there is still a dearth of research explicitly examining the role of race in conditioning the production of the aforementioned gendered linguistic variables, particularly among Black English speakers.

Studies of language and race initially concentrated on the use of ethnolectal features among racialized groups of people, especially in the study of African American Language (AAL). In initial examinations of gender in AAL, sociolinguists focused on Black male speakers' production of ethnolectal features (Labov et al., 1968) while showing that Black women tended to be more standard (Wolfram, 1969). However, more recent research has shown that young Black women can and do produce some of the most basilectal forms associated with the variety (Lanehart, 2002; Rickford & Mc-Nair Knox, 1994; Rickford & Price, 2013; Rickford & King, 2016). Beyond the study of these ethnolectal features, studies of Black speech has also shown that specific gender performances can condition the use of regional sound changes (King, 2021; Mallinson & Childs, 2007), /t/-release (Podesva et al., 2012), falsetto (Podesva, 2016), and specific discourse strategies (Lanehart, 2009; 2002). While work in the field of *raciolinguistics* (see Alim et al., 2016; Flores & Rosa, 2015) has interrogated the conceptualization of African American speech and ethnolects as static monoliths in sociolinguistic research (King, 2020; Benor, 2010), more research is needed on variables outside the variety, especially with respect to gendered linguistic variables, such as /s/.

Intersectionality is one framework that can be used to bridge the gap between the study of race and the study of gender in sociolinguistics. Originally introduced by Crenshaw (1989) to discuss the ways that Black women face oppression and discrimination because of both their race and their gender, intersectionality has also been a means to examine the complexity of co-occurring identities. That is, aspects of gender and race are not isolable, but are co-constitutive, such that a particular person's lived experience and performance of identity is influenced by the ways these dimensions of identity intersect with one another. Sociolinguists have recently argued for the utility of approaches in linguistic research which consider the multidimensionality of speakers' identities (Levon, 2015; see also Lanehart, 2009; Becker, 2014), arguing that the intersections between aspects of a speaker's identity can more accurately explain a speaker's linguistic practice than any one dimension of their identity can alone. We note that in the original articulation of the term intersectionality, the overlap in identities should refer to ones which are marginalized. Given this, when the co-constituted identities in question are not sociohistorically oppressed, we use the term *multidimensionality* which recognizes the multiple planes of social difference be they marginalized or not.

We aim to address the lack of attention to race in studies of gendered variation, as well as the lack of attention to nonethnolectal gendered linguistic variables among racialized speakers. Here, we examine how the frontness of /s/—a linguistic variable which has been robustly linked to performances of gender and sexual identity in much previous literature—is conditioned by not only gender but also by race

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through a production study of White and African American speakers in Bakersfield, California. We show that while White speakers exhibit patterns that are consonant with previous studies of /s/, such that women exhibit a more fronted variant than men, African American speakers stand in stark contrast to previous literature and exhibit no significant difference between men and women. These production patterns challenge previous indexical models for /s/ based on patterns found among White speakers in previous work, and they demonstrate the importance of multidimensional approaches to studying race and gender in explaining the indexical potential of linguistic variables like /s/. We argue that variables such as /s/ do not solely index isolated social meanings related to gender, since explaining the realization of /s/ solely in terms of gender does not account for the production patterns found across racial groups. Rather, in Bakersfield, /s/ indexes co-constituted personae that stand at the intersection of race, gender, and other dimensions of identity, and that are locally relevant to particular groups of speakers in specific sociohistorical and geographic contexts.

1.1 | /s/ as a gendered phonetic variable

The /s/ sound is perhaps the variable that has been most robustly linked to gender in sociolinguistic and phonetic literature. This sound is a voiceless anterior sibilant produced by placing the tongue against the alveolar ridge behind the top teeth and passing air over the tongue. The air creates a hissing sound, with the frequency range of the hissing sound depending on the size of the resonating cavity between the tongue and the top teeth. A fronter articulation of /s/, with the tongue closer to the top teeth, results in a smaller resonating cavity and thus a higher frequency frication, while a backer articulation of /s/ leaves more space between the tongue and top teeth, resulting in a lower frequency frication (Fuchs & Toda, 2010).

The frequency range that /s/ occupies is relatively high, usually above 4000 Hz in English (Shadle, 1990, 1991). Various spectral measures have been used in production studies to capture the frontness of /s/. Center of gravity (COG) captures the mean spectral frequency of the fricative, peak frequency captures the frequency with the highest amplitude, and spectral skew captures how much spectral energy is above or below the mean frequency. Higher COG values, higher peak values, and negative spectral skew values correspond to fronter articulations of /s/. Early work on /s/ production has shown that women produce /s/ with a higher frequency than men, with women exhibiting ranges between 6500 and 8000 Hz and men exhibiting ranges between 4000 and 7000 Hz (Flipset et al., 1999). As frequency range corresponds to frontness of articulation, this work suggests a fronter articulation for women than for men in general. This gender split—with women exhibiting fronter /s/ than men—has been replicated in numerous production studies both in laboratory and conversational contexts (e.g., Hazenberg, 2012; Podesva & Van Hofwegen, 2014, 2016; Stuart-Smith et al., 2003).

Researchers have hypothesized whether these gender differences in /s/ production are influenced by social dynamics or by physiological differences. While some have speculated that differences in articulator size can contribute to gendered differences in /s/ production (e.g., Podesva & Kajino, 2014), some work has suggested a social explanation (Stuart-Smith, 2007; Zimman, 2017), given that the frequency range is determined by the resonating cavity between the tongue and teeth, rather than a biological factor like vocal tract length. In fact, speakers have been shown to differentiate along gendered lines with respect to /s/ production even prior to pubertal changes in vocal tract length (Flipsen et al., 1999), cisgender speakers have been shown to retract and/or front their tongues to enhance gender differences (Levon & Holmes Elliot, 2013; Stuart Smith et al., 2003), and transgender speakers have been shown to pattern with respect to their gender identity rather than with their sex assigned at birth (Hazenberg, 2012; Parnell-Mooney, 2019; Zimman, 2017).

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These gendered differences in /s/ production have contributed to differences in perception as well. In one experiment, listeners were tasked with characterizing recorded stimuli as either /s/ or voiceless postalveolar sibilant /sh/, which has a lower spectral frequency than /s/ (Strand, 1999). Listeners were more likely to place the boundary between /s/ and /sh/ at a higher frequency for women than for men, suggesting that listeners expected women to produce fronter /s/ than men. Perception studies have also shown that listeners' ideas about a speaker's gender performance and sexual orientation are conditioned by /s/ frontness. For example, a male voice producing fronted /s/ is more likely to be perceived as gay (e.g., Campbell-Kibler, 2011) or less heteronormatively masculine (Zimman, 2017), while a backed /s/ is more consonant with normative masculinity.

While /s/ frontness has been robustly linked to gender, the variable has been linked with various other social meanings as well. For instance, while women in general are more likely to produce fronter /s/, a study in Glasgow has shown that working-class women produce backer /s/ than other women (Stuart-Smith, 2007), suggesting that /s/ can be conditioned not only by gender but by intersections between gender and class. A voice with a backed /s/ is also more likely to be perceived as southern or country (Campbell-Kibler, 2011) and country-oriented men in Redding, California were more likely to produce a backer /s/ than town-oriented men (Podesva & Van Hofwegen, 2014, 2016). Finally, in Danish, while male voices with fronted /s/ were more likely to be rated as gay if the voice otherwise sounded mainstream and White, fronted /s/ was less likely to be perceived as gay if the voice was perceived as being exemplary of "street style," a style of speech largely indexical of working class minoritized speakers (Maegaard & Pharao, 2016; Pharao et al., 2014). This work also suggests the importance of intersectional analysis, as specific intersections between race and masculinity may condition the indexical potential of /s/.

The production and perception literature suggest that the indexical field (Eckert, 2008) for /s/ contains a range of social meanings. With respect to gender, a fronted /s/ is indexical of femaleness or femininity, while a backed /s/ is indexical of maleness or masculinity. In addition, speakers deviating from expected pronunciations based on their gender identities may be perceived as gay, such that fronted /s/ from a male voice, for example, is indexical of gayness. In addition, there are social meanings related to class and urbanity, such that a backed /s/ is indexical of country or working-class identity, while a fronted /s/ may be indexical of urbanity or "street language."

Despite the wealth of literature on how /s/ production relates to gender and other social meanings, to date, production studies in the English-speaking context have underexplored race. Previous research on /s/ has been largely conducted with White subjects and thus illuminates how /s/ patterns for White subjects, but many of these patterns have been discussed as if they apply to all speakers. Thus, it is still unknown whether the aforementioned robust gender patterns, with women producing fronter /s/ than men overall, are borne out within communities of color. While Pharao et al. (2014) work in Denmark suggests that speaker race may condition the retrieval of gendered social meanings by fronted or backed /s/, it still remains an open question whether or not minoritized communities actually exhibit the gender split in production among English speakers. We address this question by analyzing /s/ production among African American and White speakers in Bakersfield, California, a town located in California's central valley. While the gender split has been found for White speakers in other cities in the central valley of California (Podesva & Van Hofwegen 2014), we explore whether this gender split is borne out in Bakersfield and whether speaker race plays a role in conditioning the split. Given how robustly this gender split has been established in much previous literature, we may hypothesize that the split will emerge in the production of /s/, regardless of speaker race. However, since some scholars have argued that gendered /s/ production is socially conditioned, there is the possibility that such a variable may exhibit different patterns across different speaker groups.

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1.2 | The community: Bakersfield, California

Data for this study come from a collaborative project aiming to explore and document dialectal variation among understudied, less urban regions of California including Central Valley communities like Redding, Merced, and Bakersfield, as well as coastal communities like Humboldt and Salinas. In this project, researchers visit a field site for up to 2 weeks in late summer or early autumn and collect sociolinguistic interviews with life-long residents of that particular region.

Studies on these aforementioned locations have revealed that beyond places like San Francisco, Los Angeles, and Santa Barbara (DeCamp, 1953; Hall-Lew, 2009; Kennedy & Grama, 2012; Moonwomon, 1991), speakers in less populous and less urban regions also take up aspects of the California Vowel Shift. Focusing on these regions has also demonstrated the different constructions of place identity across the geographically and culturally diverse state, with speakers in the central valley tending to hold distinct political, economic, and social orientations from those in more coastal or metropolitan areas (D'Onofrio et al., 2015). This research on the Central Valley has highlighted the relationship between inland communities and Dustbowl regions like Oklahoma, Arkansas, Colorado, Kansas, and Texas. Migrants of The Dustbowl Migration relocated to California in the 1930s, selling and abandoning their farms as a result of severe dust storms and in search of new opportunities California promised. Between 1935 and 1940, the largest percentage of migrants was represented in the Los Angeles and San Joaquin Valley regions, the latter of which is characterized as less urban and more rural (Gregory, 1989). Settlement in San Joaquin Valley, alongside the prevalence of labor tied to agriculture and oil drilling, links ideologies of "countriness" with cities in the Central Valley, in comparison to their metropolitan peer, Los Angeles.

We can recognize this distinction between the Central Valley and more Coastal regions as a kind of rural-urban divide, and this divide has been argued to be recursive across the Central Valley reproducing itself as a town-versus-city or town-versus-country opposition (King, 2016; D'Onofrio et al., 2015; Geenberg, 2014; Podesva et al., 2015). Furthermore, such ideologies of place have been tied to gender, with recent research in Redding, California revealing that variables like /s/ have become a site for observing how antiurban stances and conservative local ideologies intersect with performances of gender and sexual identity (Podesva & Van Hofwegen, 2016). In Podesva and Hofwegen's examination of the gendered variable, /s/, the authors find that the gender split is predicted by country orientations and age within the Redding community. Specifically, older straight men who identified with the country were more likely to produce the most retracted /s/ tokens in the sample, even more retracted than younger and town-identified men. Furthermore, in comparison to more urban communities, speakers from Redding, which is considered to be more rural, display a greater gender split between men and women, suggesting a stricter adherence to more traditional gendered language norms. The results indicate that /s/ might be a more robust resource for doing gender work among older and country-oriented people than for those oriented toward the town or in metropolitan cities. Such findings underscore the importance of understanding how gender performances can emerge differently across place.

Having established that performances of gender and sexuality are connected to specific performances of place identity in Redding, this article extends previous work in the Central Valley by exploring gender and race dynamics within a single space. While Redding is located in the north of the San Joaquin Valley, Bakersfield, the site for this study is located on the southernmost point of San Joaquin Valley. Bakersfield sits in Kern County and is primarily a producer of both agriculture and energy. Bakersfield is inland, like Redding, but, perhaps, more of a metropolitan area than Redding. Despite this difference, VOC participants from Redding have reported to have more in common with inhabitants of the Central Valley than those in neighboring cities (Podesva & Van Hofwegen, 2016).

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FIGURE 1 Memes linking Bakersfield with country identity

Thus, it is an interesting site for continuing to observe how similarities between these Central Valley locations show up with respect to gendered linguistic behavior.

As mentioned previously, the association of a "country" identity with Bakersfield, a city less urban than Los Angeles, but perhaps more urban than Redding, is in part due to migration patterns to the area in addition to the farm work done in the region. Such associations can also be observed in the country music genre, Bakersfield Sound, made popular by singers like Buck Owens and the Buckaroos and Merle Haggard and the Strangers. Furthermore, this country identity is identifiable in the discourses of locals happening both online and in interviews with participants. The memes in Figure 1 are just two examples from Bakersfield meme pages on Facebook and Instagram which show a few ways locals might ideologize Bakersfield and its residents. In the first meme, on the left, "country" is used as a descriptor for people from Bakersfield, but is in quotes, suggesting that the legitimacy of such is up for debate. In the second meme, the goal is to contrast stereotypes of California in contrast to a place like Bakersfield, marked in the bottom half of the picture with the signpost "Bakersfield, City Limit." The stereotype of California presents a more urban picture displayed with palm trees, skyscrapers, and traffic, while the other picture shows open dirt roads upon reaching Bakersfield, to suggest that it is located in the state of California but does not appear to belong to it.

Country identity can be ideologized as White in this space, given previous research done on White speakers (e.g., Podesva & Van Hofwegen, 2014, 2016) and the association of country identity with White celebrities or personae such as Buck Owens and Merle Haggard. However, African American speakers in Bakersfield also share an orientation to the country. Some of these speakers share similar roots as their neighbors who were descendants of the Dustbowl migration. For example, in a conversation with Ella and Carl, the interviewer addresses the term "Okie" with two speakers from Omugee, Oklahoma who migrated as children from the Dustbowl region.

> **Interviewer**: So do y'all – So what do y'all have some Oklahoma connection? Do y'all use that term, Okies, or is that, a derogatory thing?

> **Carl**: We used to. But as years pass you know you get away from that.

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Ella: But it's never used as, you know never used as a derogatory thing, I know.

Carl: Oh he's – y'know "you an Okie?" yeah y'know, I've heard Whites and Blacks and y'know,

Interviewer: Yeah yeah yeah. That's what I was wondering.

In addition to drawing on the labels used for people from these regions, participants also discuss how they are viewed as more country in relation to their family members from more urban regions. Below is an excerpt of a conversation between a participant and interviewer where one speaker references themselves as a "country" girl via constructed dialogue with an uncle:

Interviewer: How was the experience of living in L.A.?

Tiara: It was different 'cause I – We had uncles that lived there, and they were like, ''You're not gonna survive here 'cause you're a country girl coming from Bakersfield.''

Interviewer: Is that the impression that – that

Tiara: Well, you know 'cause my – I mean, even though we hung out on the scene, we pretty much led a really sheltered life.

These examples recognize that African American speakers can also be connected to the country, albeit with possibly different conceptions of what that means. While African American and White speakers share connections to the country, the racial division between the communities is also a point of discussion among community members. As discussed in previous work on this community, African American Bakersfieldians were subject to employment and housing discrimination, as well as sundown curfews in towns like Oildale (King, 2016; King & Calder, 2020). For example, one speaker Wendy stated "African Americans or Blacks were not allowed in certain places. And I do remember that uh because where I live now, African Americans could not live there." Even the authors of this study, Latine and African American, were advised to avoid certain neighborhoods, especially during sundown hours. As outsiders, the explicit warnings of such underscored that there was racial tension within the community which could not be ignored. Thus, even if there were shared backgrounds with respect to family migration patterns among White and African American Bakersfieldians, it did not necessitate that both groups peacefully shared space within the city. Another speaker, Victor speaks to the segregation in his neighborhood, while also recognizing prejudice more broadly, stating "I think we had few whites, but majority black. Prejudice is still here. I don't think it will ever go away." Bakersfield represents a specific, local instantiation of larger race dynamics in the United States, with a binary opposition between Black and White identity manifesting in the community. Given this social distinction, and the fact that social distinctions are often articulated through linguistic distinctions (Bucholtz & Hall, 2004; Irvine & Gal, 2000; Irvine, 2001), it is possible that a linguistic variable like /s/ can be one such site of linguistic distinction between White and Black speakers in the community.

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2 | METHODS

2.1 | Data procedure

The data come from sociolinguistic interviews collected in Bakersfield between 2012 and 2014[1]. Interviews lasted between 45 min and 3 h and were recorded at a 44.1 kHz sampling rate with lapel microphones attached near the interviewee's chest. The bulk of the interview consisted of relatively informal conversation with the interviewee about their life and experiences in Bakersfield. The conversational portion was followed by a word list and a perceptual dialectology task (Preston, 1989).

We analyzed the speech of gender-balanced samples of 12 African Americans (ages 23 to 75) and 18 White speakers (ages 18–80). These samples are the largest possible speaker samples balanced for gender and age given the demographic makeup of speakers represented in the corpus of interviews. All speakers are Bakersfield natives who have either never lived outside of Bakersfield or have only lived outside of Bakersfield for a couple years in adulthood. While /s/ frontness has been shown to pattern with sexual orientation, at this time we restrict our analysis to heterosexual speakers. Additionally, all speakers in the current analysis are cisgender. While we explore how race and gender condition /s/ realization in this study, we leave the exploration of how queerness intersects with race and gender for a future analysis.

All interviews were transcribed in ELAN (Wittenburg et al., 2006) and force-aligned into word and sound segments using FAVE software (Rosenfelder et al., 2015). Praat scripts were used to automatically extract every token of /s/ from each interview's sound file based on the intervals generated by the forced aligner, and duration and COG measurements were taken for each token of /s/. While there are multiple spectral measures that arguably correspond to /s/ frontness, we choose to focus on COG to facilitate comparison with other production studies in North America (e.g., Hazenberg, 2012; Podesva & Van Hofwegen, 2016; Zimman, 2013). To collect COG measurements, all tokens were band-passed filtered to a 1000–22,050 Hz bandwidth in order to filter out frequencies too low to be in the range of /s/ frication. COG measurements were taken within a 40 ms Hamming window centered at the midpoint of the segment.

Following previous work (e.g., Calder, 2019a, 2019b; Podesva & Van Hofwegen, 2016), we excluded each token of /s/ shorter than 40 ms from analysis, due to the influence of phonological environment on short segments, and segment duration was log transformed. In addition, we excluded tokens immediately adjacent to another sibilant sound, given the ambiguity of delimiting boundaries between adjacent sibilants. Finally, we restricted analysis to tokens that came from the conversational portion of each interview as a way to control for differences in attention paid to speech between the various tasks. In total, we analyzed 31,371 tokens of /s/ across both samples: 10,381 tokens for the African American sample and 20,990 tokens for the White sample.

[1] All African American participants were interviewed by the authors together (a Black woman and a queer Latine), meaning that interviewer race was controlled for among these speakers. However, the interviews with White speakers come from a larger project with a range of interviewers, most of whom were White. That means that most speakers were interviewed by a person of the same race, but there was a small number of White speakers who were interviewed by people of color. A qualitative exploration of the effect of interviewer race within the White sample is one possible avenue for future research.

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TABLE 1 Mixed-effects results for /s/ center of gravity within White participants

Fixed Effect	Estimate	*t*-Value	*p*-Value	
Birth year	24.52	2.418	0.028785	*
Gender (M)	−1962.34	−5.052	0.000143	***
Logged duration	712.87	34.747	2e-16	***

TABLE 2 Mixed-effects results for /s/ center of gravity within African American participants

Fixed effect	Estimate	*t*-Value	*p*-Value	
Birth year	−4.981	9.0	−0.272	n.s.
Gender (M)	130.941	9.0	0.203	n.s.
Logged duration	804.241	23.672	2e-16	***

2.2 | Statistical methods

We used three statistical models to analyze the /s/ measurement data: a model which includes only data from African American speakers (within-AA model), a model which includes only data from White speakers (within-White model), and a model which includes all data from both groups (across-race model). The data for each model were fit to a mixed-effects linear regression in RStudio (2020) using the lme4 package (Bates et al., 2015). COG was the dependent variable in all models, with speaker gender, speaker birth year, and logged duration of the segment included as fixed effects. Speaker, word, preceding phonological environment, and following phonological environment were included as random effects. Finally, for the across-race model, speaker race was included as an additional fixed effect. Interactions between fixed effects were tested, but final models only include those interactions that emerged as statistically significant.

3 | RESULTS

A number of factors emerged as significantly conditioning the frontness of /s/ among the speakers. Table 1 presents the results of the within-White model. As shown in the table, both speaker gender and logged duration emerged as highly significant, while speaker birth year also emerged as significant. As shown in the left-hand plot in Figure 2, White Bakersfieldians exhibit the gender split shown in previous studies with respect to /s/ frontness, such that White women produce significantly fronter /s/ than White men. In addition, the duration findings are consonant with previous studies (e.g., Podesva & Van Hofwegen, 2016), such that longer tokens of /s/ are more likely to be produced more fronted. Finally, the age pattern shows that as birth year increases, COG increases, that is, younger speakers produce fronter /s/ than older speakers, another finding aligning with previous production studies. Overall, White Bakersfieldians exhibit similar patterns to speakers from previous production studies with respect to /s/ articulation, especially those in Redding, their Central Valley peer (Podesva & Van Hofwegen, 2014, 2016).

Table 2 presents the results from the Within-AA model. Like the previous model, logged duration emerges as highly significant, such that longer tokens of /s/ are more fronted than shorter tokens. Interestingly, neither of the social factors (speaker birth year or gender) emerge as statistically significant predictors of /s/ frontness among Bakersfield African Americans. These findings diverge from findings

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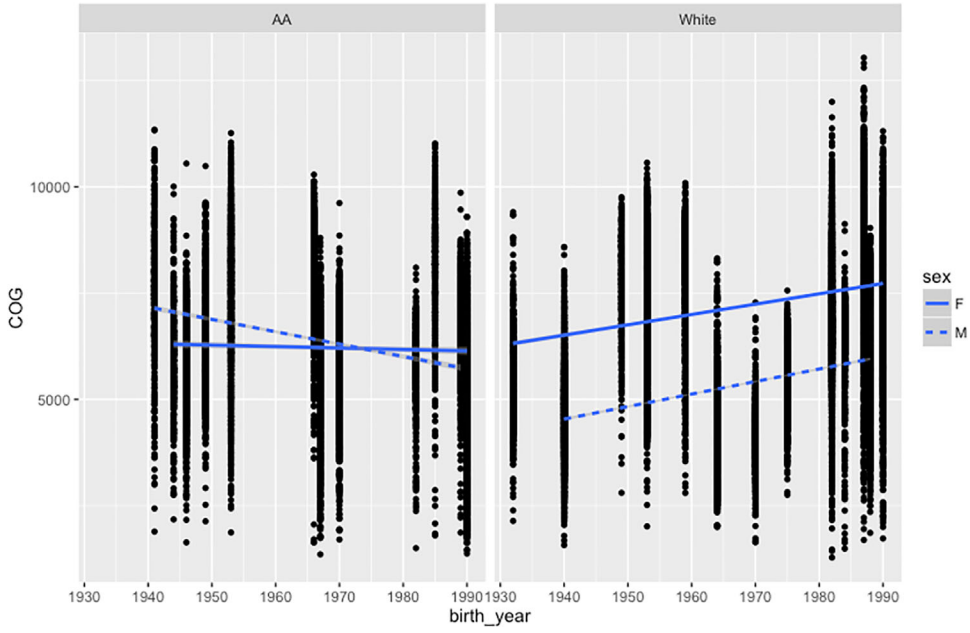

FIGURE 2 /s/ center of gravity by race, birth year, and gender

TABLE 3 Mixed-effects results for /s/ center of gravity across race

Fixed effect	Estimate	*t*-Value	*p*-Value	
Birth year	13.790	1.437	0.16297	n.s.
Gender (M)	182.638	0.325	0.74775	n.s.
Race (White)	927.853	1.808	0.08238	.
Logged duration	743.354	41.763	2e-16	***
Gender (M) × race (White)	−2169.891	−2.995	0.00603	**

in the previous literature, as Bakersfield African Americans do not exhibit the gender split shown in other production studies. As shown in the right-hand plot in Figure 2, African American men produce /s/ with COG ranges comparable to African American women in Bakersfield. Additionally, neither gender increasingly fronts /s/ over time, and perhaps surprisingly, African American men exhibit the opposite age pattern from White speakers, with older African American men producing fronter /s/ than younger African American men, though this is not statistically significant.

Finally, the results for the across-race model are shown in Table 3. Logged duration once again emerges as highly significant, with longer tokens of /s/ having higher COG than shorter tokens. The model also shows that White speakers exhibit marginally higher COG than African American speakers, but this does not reach statistical significance. Finally, an interaction between speaker race and gender emerges as significant. As shown in Figure 2, this interaction reflects the fact that there is a gender split with respect to /s/ COG among White speakers but no gender split among AA speakers. The figure shows that White men appear to be producing backer /s/ than White Women, African American men, and African American women. Interestingly, the African American men in Bakersfield are producing /s/ with COG on par with ranges exhibited by women.

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Overall, while the results show that White Bakersfieldians exhibit COG patterns in line with previous production studies—that is, that women produce fronter /s/ than men and that younger speakers produce fronter /s/ than older speakers—Bakersfield African Americans exhibit patterns that diverge from what has been shown in previous literature. There is no gender split with respect to /s/ COG among African Americans in Bakersfield— with African American men exhibiting frontedness on par with African American women—and African Americans in Bakersfield do not front /s/ over time.

4 | DISCUSSION

Various results emerge for race and gender across this sample of Bakersfieldians, confirming some predictions, while countering others. The prediction that a gender split for /s/ production would emerge was supported when assessing the linguistic behavior of the White speakers in the sample. These results align with what has been reported in Redding, an inland Californian community (Podesva & Van Hofwegen, 2014, 2016), as well as previous foundational studies in the field of language and gender (Hazenberg, 2012; Levon & Holmes-Elliot, 2013; Stuart-Smith et al., 2003). In addition to the gender split, we also observed an important finding relative to age. Younger White speakers appear to be fronting /s/ more than older speakers, suggesting the split may be decreasing for the youngest generation of speakers. This may suggest that fronting /s/ is a White-led change over time, however, given the dearth of research on the variable in other non-White communities, more research is needed to probe whether this is the case.

While the emergence of the gender split was supported for the White speakers in the sample, this prediction was not confirmed for African American speakers in the sample. That is, gender and age do not condition /s/ COG for the African American speakers in this study, countering what we have found previously for men and women in language and gender studies. While African American women do not appear to exhibit as front of an /s/ as previous studies reported for women, as shown in Figure 3, African American men also do not have as retracted of an /s/ pattern that has been observed in previous studies. On the other hand, White men and women in Bakersfield pattern closely with White men and women from previous studies. Alongside the results for the individual communities, the results across race confirm the observation that these two racial groups do not share the same gendered linguistic behavior insofar as African American speakers do not exhibit a significant gender split with respect to /s/ COG.

What does it mean for gender differences to not emerge among this population of speakers as expected? We could perhaps attribute differences in /s/ realization to other social contrasts patterning with /s/ frontness in previous research, like country-ness versus urbanity, or socioeconomic class, as summarized above. However, our ethnographic research in the community suggests that both Black and White speakers in our sample orient to country-ness, and speakers of both races in our sample are all working class. Therefore, none of these dimensions singularly manifest as social contrasts between the White and Black speakers and therefore do not explain the production contrast between these two groups. Another possibility is to attribute this lack of a gender split to being a unique feature of AAL. However, because this is the only study of /s/ on an African American community, we hesitate to generalize this to all African American communities or varieties of AAL. Another potential reason for this behavior could be that this feature is not the means through which this set of speakers *does* gender. That is, perhaps there are other linguistic norms through which speakers distinguish themselves. For example, previous work on pitch has shown that African American men exhibit greater variation in to F0 range than African American women, White women, and White men (Hudson & Holbrook, 1981, 1982). Furthermore, gendered differences have also been observed relative to female

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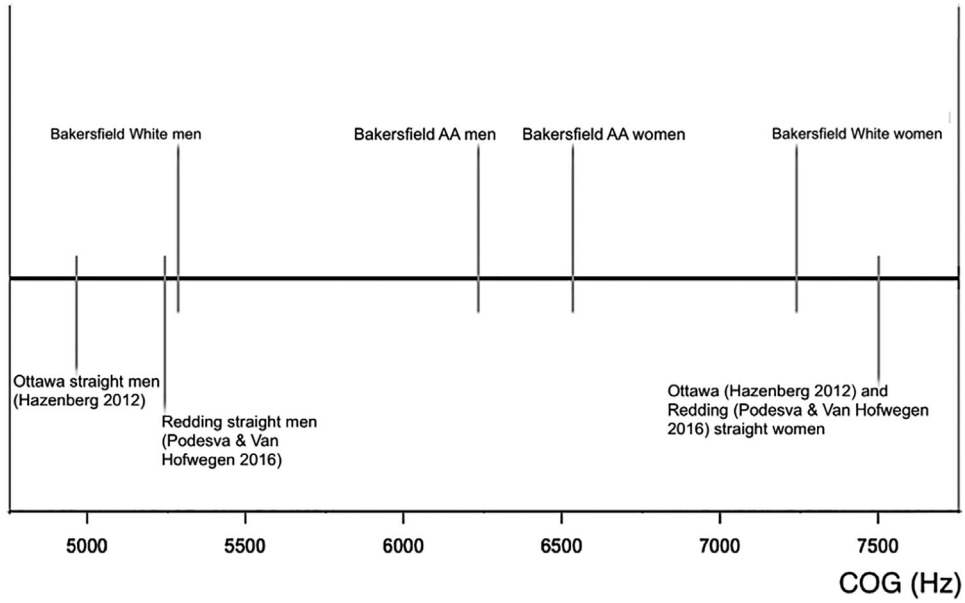

FIGURE 3 /s/ center of gravity means for African American and White men and women in Bakersfield (top), and men and women in previous production studies in Ottawa and Redding (bottom)

AAL speakers' preferences for H* pitch accent types (McLarty, 2018). Even beyond these specific aforementioned variables, the ethnolect has centered around the observation of African American male subjects (Bucholtz, 2003; Smitherman, 1988; Wassink & Curzan, 2004) and this historical gendering of the variety might suggest that AAL itself is another means through which African American gender performances become legible. Recent work in sociolinguistics has problematized the assumption that one-to-one mappings between particular performances of gender and gendered linguistic variables like /s/ should always emerge, arguing that gender is instead a process of stylistic bricolage; that is, if we do not find that a variable like /s/ indexes gender in an expected way for a group of speakers, it could be another linguistic variable (Zimman, 2017) or another semiotic modality entirely (Calder forthcoming) that carries the indexical load of doing gender work. One possibility is that, among African American men in Bakersfield, aspects of AAVE rather than /s/ may be contributing to the construction of a particular type of masculinity. This is to emphasize that the broader study of gender performances must consider the gendering of linguistic variables across racial groups, and must consider racialized language use as being gendered.

4.1 | Reinterpreting the social meanings of /s/

In light of the results which show differences across race, age, and gender, we situate the indexical potential of this variable relative to the associated meanings with retracted and fronted /s/ variants. While retracted /s/ has been associated with maleness, masculinity (Hazenberg, 2012; Levon & Holmes-Elliot, 2013; Podesva & Van Hofwegen, 2016), countriness (Campbell-Kibler, 2011; Podesva & Van Hofwegen, 2016), and working-class identity (Stuart-Smith, 2007), a fronted /s/ has been associated with femaleness, femininity and non-normative masculinity (e.g., Calder, 2019a, 2019b; Campbell-Kibler, 2011; Strand, 1999; Zimman, 2017), street styles (Pharao et al., 2014), wealth and

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prestige (Bekker, 2007), and education (Campbell-Kibler, 2011; Levon, 2014). The results among the White men in Bakersfield are consistent with the social meanings linking backness to countriness and masculinity, as found in Redding. Although Black speakers do exhibit some affiliation with a country identity in Bakersfield, one could make the argument that they are not only shying away from this country social meaning in their /s/ COG values, but are also moving toward a more street style stereotypically associated with racialized communities. With regard to the latter claim, there is a dearth of ethnographic research to support the idea that all Black men are orienting toward more urban personae, but it is worth noting that traditional approaches to studying Black language have prioritized Black men from urban regions as the norm for which to define AAVE, as well as Black masculinity (King, 2020). Minimally, Black men may, instead, be avoiding a specific construction of country identity associated with White masculinity. That is, in a nonurban region with high racial tensions and a low population of African Americans, African American men could be resisting the racialized, regionalized, gendered feature which has been associated with White Men in the Californian Central Valley more broadly (Campbell-Kibler, 2011; Podesva & Van Hofwegen, 2016). In other words, the social distinction between White and Black masculinity in the community may be manifesting through /s/ production among men in Bakersfield, such that White men exhibit the retracted variant indexical of White, country masculinity, and Black men avoid this variant.

Importantly, we hesitate to interpret the observed behavior as African American men being less masculine or more feminine because they do not use the variable typically associated with heteronormative masculinity as other heterosexual men in the study do. Such an interpretation would ignore the sociohistorical context which has hypersmasculinized African American men via controlling images, or stereotypes of minoritized groups which maintains their otherness as a means to justify their oppression in the broader society (Golash Boza, 2016; Hill-Collins, 1991). Even in sociolinguistics, African American men have been the hypermasculine standard to which other racialized men are measured via their uptake of AAVE features (Chun, 2001; Cutler, 1999). Situated alongside those studies, an intersectional lens can help us confront the reproduction of African American men's linguistic practices as hypermasculine while also questioning the indexicality of the fronted /s/ and the retracted /s/ as always and solely feminine or masculine, respectively.

The inconsistent linguistic behavior across men for a variable which is supposed to be gendered masculine underscores the need for an intersectional/multidimensional approach in order to interpret different /s/ patterns for the same gender group while viewing identity categories as co-constituted (see Levon, 2015), rather than as separable, additive entities. That said, a single variable can simultaneously index multiple social categories, which can be interpreted as holistic packages, rather than just as singular social meanings associated with one another. In interpreting these social meanings simultaneously, we can point to specific constructions of identity that map to broader personae which are legible in a specific social landscape. In the context of Bakersfield, a more retracted /s/ is not just singularly indexical of masculinity or countriness, but speaks to the construction of an integrated country White male identity. If retracted /s/ COG values were only indexical of masculinity, *all* men would display a more retracted /s/. If it were indexical of only countriness, African American *and* White men *and* women with ties to the land would display more retracted forms. Additionally, if it were just indexical of race, all White speakers should show the same linguistic behavior, yet we see variation in both gender and age. These observations are to prompt the reconceptualization that a variable only and always indexes a single demographic category.

These results highlight the need to rethink macrosocial identity categories, as well as social meanings, in relation to each other. These meanings are not always separable, and beyond attempting to find individual meanings, we must understand how these individual meanings co-articulate or propagate into larger social units, like styles and personae. An approach which prioritizes multidimensionality

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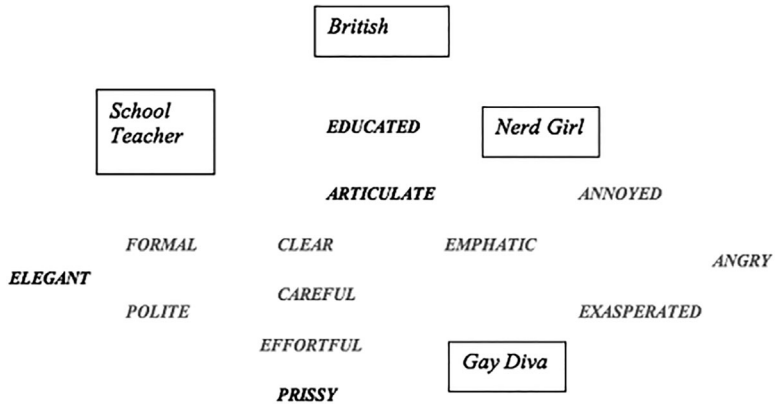

FIGURE 4 Indexical field for released /t/ (reproduced from Eckert, 2008)

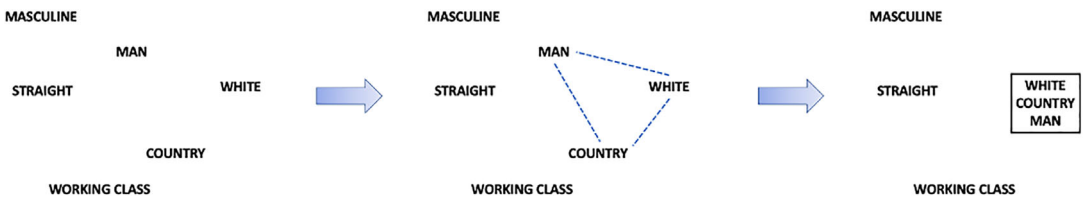

FIGURE 5 Indexical field for retracted /s/, showing how discrete meanings (left) are ideologically linked (center) and comprise legible personae (right) which can themselves be indexed

necessitates attending to the particularity of a linguistic behavior for a certain person or group of people, and the social or historical circumstances that prompt the emergence of this behavior, in order to make sense of the variation observed across speakers for which we hypothesized there would be none.

Previous approaches to representing the indexical field have shown the clustering of ideologically related meanings for variants of a specific variable. For example, Figure 4 below (reproduced from Eckert, 2008) illustrates an indexical field for released /t/, showing that the variant indexes a number of social meanings, which can be qualities, or figures of personhood (the latter represented by boxes). While individual meanings are depicted as being visually closer to each other based on similarity, the meanings are represented as discrete from one another. While such conceptualizations of the indexical field are valuable in illustrating how a single variable can index multiple discrete meanings, they do not tell us how these meanings assemble or co-occur into broader stylistic packages, or how lower-level meanings corresponding to qualities assemble into higher level meanings like figures of personhood or personae.

In conceiving of the indexical field for a variable like /s/ using data from a broader community study, it becomes evident that the broader meanings associated with specific social categories must represent both the qualities and personae as observed in the field for /t/ release while also attending to the relationship between the various meanings. In Figure 5, focusing on retracted /s/, we illustrate how individual meanings in an indexical field are not always discrete from one another but can be ideologically linked in such a way that they comprise holistic figures of personhood, which can themselves be indexed. Importantly, we see that while some of this social information is directly linked, the specificity of these particular connections can help in assembling into personae, and these personae may be more

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relevant and accurate than the individual meanings that comprise them in explaining what is actually indexed by linguistic variants like retracted /s/ in particular communities. To be specific, in Bakersfield, retracted /s/ does not merely index whiteness, or maleness, or countriness, as there are white speakers, male speakers, and country speakers who do not exhibit the variant. Instead, retracted /s/ can more specifically index personae like "white country man," which are legible and relevant in the semiotic and ideological landscape, and which more accurately reflect the production patterns exhibited in the data.

5 | CONCLUSION

One goal of this article was to contribute to the literature evidence in favor of a biological or social explanation for the gender performance of /s/. The results of this article lend support to the hypothesis that /s/ is socially conditioned rather than a physiological phenomenon. Since we do not observe the same behavior across all men (e.g., Black men are not retracting to the same degree as White men), this suggests that gender performances for the same gender may not be biologically determined for this variable. Being able to articulate such relied on observing this behavior in a marginalized community where we have not examined this feature.

In this specific community, we found that the gender split did not emerge in the same way across African American and White speakers, suggesting that the social meanings associated with this variable are complex and may not emerge the same way across different communities. This observation necessitates that we do not assume a priori that performances of gender will be the same across race and gender groups. Prior to this investigation, most studies done on /s/ focused on White participants, and as a result, White participants become the norm to which other speaker populations are compared against. Such a practice targeting White participants as the prototypical speaker across studies of gender and race participate in the deracialization of Whiteness (King, 2021) while also assuming gender is raceless. This has sociopolitical consequences for the field of language and gender insofar as it potentially erases variation across other groups for whom analyses of gendered variables have been ignored or underexplored. Simultaneously, examining variables such as /s/ among African American speakers expands our description of their speech, while also complicating how Blackness gets constructed across sociolinguistic studies. Together, for both African American and White speakers cross-regionally, studying variables like /s/ provides a window to view the co-construction of race and gender. This kind of approach affords us the opportunity to become more curious about how the co-articulation of identities actualizes differently across people, time, and space.

Language and gender research has increasingly come to explore how linguistic variables index or constitute gender *indirectly*, through other stances or qualities (e.g., Ochs, 1992). According to this perspective, demographic-level differences (like "man" versus "woman") are instantiated through more base-level differences in meaning relating to qualities that may be ideologically associated with those demographic identities in particular sociocultural contexts. For example, features of women's' language in Western society first index a quality like indirectness or submissiveness, which then come to indirectly index the identity of "woman" that ideologically aligns with those qualities in popular consciousness. One possibility for the difference in realization of a gendered variable like /s/ between White and Black Bakersfieldians is that conceptualizations about what it means to be a "man" or a "woman" in these two racialized groups are ideologically associated with different qualities, and differences in /s/ production may also reflect these qualic differences. That is, gender may be indirectly indexed through different qualities, and this difference may be conditioned by race-specific ideologies about what gender identities look like for speakers of a particular race. Importantly, the indirect index-

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icality of the feature in question is not just related to a single dimension of identity and the qualities we associate with gender but can also become associated with specific race and location-based identities, hence the White Country Masculine persona.

We discuss how both groups identify with a country-oriented identity but the performance of such can look different based on how speakers construct locality or traverse space. Recall the restricted movement of African Americans where speakers were once not allowed to reside in certain neighborhoods and/or could not be caught in certain areas past sundown, as well as the fact that the authors were also instructed not to visit certain places. The ideological salience of such exclusion could affect African Americans' ideologies about place, thus affecting their conceptions and performances of countriness, and as a result, the material and ideological constraints could be mirrored in linguistic distinctions. A retracted /s/ may be more directly associated with a kind of dominance or authority which White Bakersfieldian men may feel at more liberty to exercise. Such a view would align with the broader racial theory which views Whiteness as property, tracing the historical construction of such via the colonial domination of Black and Indigenous communities and land through conquest, to the current moments of segregation and unequitable property distribution and its resources (Harris, 1993). This theory can be a lens through which to view how relationships to property, place, or land can be tools for exclusion in material and abstract ways. Put simply, due to the indexical co-occurrence between retracted /s/ and White men that we can empirically observe, and the sociohistorical dynamics in Bakersfield driving segregation in the community, it is likely that a retracted /s/ is indexical of a specific type of White country man that represents this segregation, and neighborhoods like Oildale with which this type of persona might be ideologically linked. While individuals of color still physically avoid Oildale and the specific type of White country persona associated with it, they may also be linguistically avoiding a variant which is ideologically linked with this kind of Whiteness. That is, the social distinction between White and Black, and the segregation that motivates this distinction, may be manifesting (at least among men) in the linguistic distinction between retracted and nonretracted /s/. Still, there remains a possibility that there is some other difference in qualic orientation between White and Black Bakersfieldians motivating differences in /s/ production, and this possibility remains a fruitful avenue for future ethnographic exploration with the community.

In addition to reconsidering which populations we examine in studies of /s/, we aimed to complicate our conceptions of identity as individual separable demographic categories. That is, in our analyses and interpretations of participants who multiply occupy different social categories, we accounted for the complexity of overlapping identities and how this co-occurrence may have motivated participants to take up variables differently. Furthermore, we argued that researchers must recognize this co-constitution as crucial to the indexicality of some variables and represent it as such in its indexical field. Ultimately, expanding our analyses of well-studied phenomena like /s/ to understudied groups provides another means through which to continue building our theory of language, identity, and social meaning.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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