

LOCAL MEANINGS FOR SUPRALOCAL CHANGE: PERCEPTIONS OF TRAP BACKING IN KANSAS

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ABSTRACT: While the retraction of TRAP is found throughout the American West, it is primarily associated with California and supposed Californian values in both the popular media and the ears of Californian listeners. This study investigates the local construction of meaning for a supralocal sound change by examining perceptions of TRAP backing in Kansas, a locale that has also undergone front lax vowel retraction. Thirty-five college students heard matched-guise stimuli differing only by TRAP F₂, guessed speakers' regional origin, and rated speakers on 14 affective scales. Listeners associated TRAP backing with California (despite local participation in the sound shift) and general prestige. The authors suggest that this association with general prestige may help to explain the presence of this vowel shift in Kansas despite considerable ideological differences with California. They argue that these results highlight the interaction between local construction of meaning and broader national discourses for a sound change: while stereotypical associations with a sound change can spread rapidly through means like popular media, stance and identity associations are constructed at the local level.

KEYWORDS: indexicality, perceptual dialectology, language variation and change, sociophonetics, California Vowel Shift

THE PRESENCE OF A WIDESPREAD SOUND CHANGE in which TRAP¹ undergoes retraction has been thoroughly documented in a number of locations throughout the English-speaking world. A component of the California Vowel Shift (CVS), TRAP backing was first identified in California and Canada and has since been found throughout the United States as well as Australia, Ireland, and South Africa (Hickey 2017). When variants have such widespread distributions, perception studies can shed light on the ways in which communities interpret the social meaning of supralocal variants at the local level, potentially uncovering the motivations that lead to widespread adoption of a change. Additionally, because these sound changes have a widespread distribution, perceptual research on supralocal variants may illuminate the ways in which local meanings interact with or are influenced by widespread discourses about language and social meaning at the national or international level. In the case of TRAP backing, where popular discourses

associate this widespread sound change with California, we emphasize the importance of comparing perceptual associations in multiple locations to identify what differences develop, when similarities emerge, and what these processes may suggest about how supralocal variants and their social meanings develop and spread.

We examine perceptions of supralocal variants by investigating TRAP backing in a locale that receives relatively little linguistic scrutiny: Kansas. Located in the Great Plains region of the United States, Kansas is known more for its agricultural economy and Midwest values than for its distinctive speech styles. Yet, even as the CVS is frequently associated with California, both in popular media and in the ears of Californian listeners (D'Onofrio 2015; Pratt and D'Onofrio 2017; Villarreal 2018), components of the CVS have been active in Kansas for at least as long as it has been active in California (Kohn and Stithem 2015; see below). We administered a combination of a matched-guise and dialect recognition task to 35 college students who identified as native Kansans to seek attitudinal information on TRAP backing in the state. Results from this study enter into conversation with similar work in California, revealing both common trends and distinct differences in meanings in each location.

Unlike California, where the sound change has become associated with Californian identity (Villarreal 2018), this study indicates that Kansas college students do not associate TRAP backing with "Kansan-ness." Instead, our participants associate the sound change with general prestige and solidarity traits, including likeability, politeness, confidence, and educatedness, among others. The common tendency to associate the sound change with prestige traits may explain why this sound change is so widespread. Yet, while perceptions in Kansas overlap with those identified in California (D'Onofrio 2015; Villarreal 2018), they also differ, particularly for attributes related to solidarity, such as friendliness and likeability. The existence of variation in perceptions across field sites suggests that some social meanings of sound changes are constructed through "local face-to-face networks" (Meyerhoff and Niedzielski 2003, 537), as would be expected of high context knowledge, or knowledge that requires frequent and sustained contact to be transmitted (Meyerhoff and Niedzielski 2003; Centola and Macy 2007).

Despite the pervasiveness of the sound change in the Great Plains, this study also yielded the surprising finding that when forced to identify speakers' region, Kansans were more likely to associate TRAP backing with California than Kansas. We suggest that this association is possibly due to the enregisterment of Californian speech in popular discourses² and to the ways that stereotypes spread differently than nuanced sociolinguistic meanings. While stance, affect, and other meanings are likely constructed through social practice, stereotypes such as those surrounding California speech may be

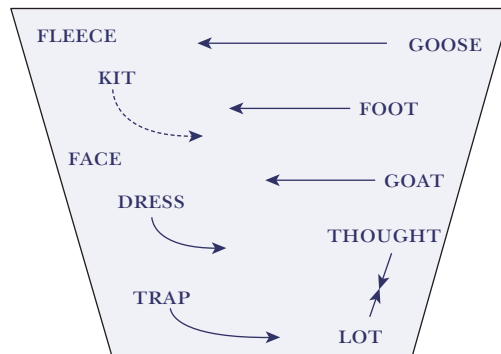
more capable of spreading across communities, even with relatively weak or absent ties. These findings suggest that social meanings for supralocal variants may originate through the interplay of locally constructed meanings with supralocal discourses surrounding the variant; in Kansas, listeners thus hear TRAP backing primarily as indexing generally positive traits, such as politeness, friendliness, and confidence, and only secondarily as supralocal, thus facilitating the spread of a variable that on the surface seems inconsistent with Kansas identity. The meaning of supralocal variants is thus predicted to be composed of superficial similarities that interact with and influence meanings constructed at the local level.

FRONT LAX VOWEL RETRACTION AND THE CALIFORNIA VOWEL SHIFT

In its most simple form, the CVS is described as a system in which LOT and THOUGHT are merged and the TRAP, DRESS, and KIT vowel classes retract (Fridland et al. 2016, 2017); TRAP is often characterized by a nasal split in which prenasal TRAP raises and fronts while nonprenasal TRAP retracts (Labov, Ash, and Boberg 2006).³ Several North American communities that undergo front lax vowel retraction also participate in back vowel fronting (Godinez and Maddieson 1985; Hinton et al. 1987; Clarke, Elms, and Youssef 1995; Hagiwara 1997; Labov, Ash, and Boberg 2006; Boberg 2010; Kennedy and Grama 2012), although it remains to be seen whether these sound changes are related processes. Figure 1 provides a depiction of the CVS.

The CVS is a sound system with many names: the Western Vowel Pattern (Fridland et al. 2017), Short Front Vowel Lowering (Hickey 2017), the Third

FIGURE 1
The California Vowel Shift (CVS), Based on Gordon (2005)



Shift (Clarke, Elms, and Youssef 1995; Durian 2012), the Canadian Shift (Boberg 2005, 2019; Labov 2010), among others. This variability in nomenclature is no accident; the field lacks consensus about the origin, distribution, and cause of the shift. Several scholars suggest less regionally specific terms, such as the Elsewhere Vowel Shift (Fridland, Kendall, and Farrington 2013) and the Low-Back-Merger Shift (Becker 2019), as research reveals a much wider distribution to the CVS than previously imagined.

In addition to the Western United States (Godinez and Maddieson 1985; Hinton et al. 1987; Hagiwara 1997; Kennedy and Grama 2012; D'Onofrio et al. 2016; Fridland et al. 2017; among others) and Canada (Clarke, Elms, and Youssef 1995; Boberg 2005; Hagiwara 2006; Roeder 2012; among others), components of the CVS, including front lax vowel retraction, have been spotted in Ohio (Durian 2012), Missouri (Lusk 1976; Strelluf 2014), Alaska (Bowie et al. 2012), and even in Northern Cities Shift areas such as Rochester, New York (King 2017), and Lansing, Michigan (Wagner et al. 2016). The urban South's retreat from the Southern Vowel Shift (SVS) also produces a system remarkably similar to the CVS (Fridland 2001; Dodsworth and Kohn 2012). Other terms reflect theories of a triggering event for a chain shift. The Third Shift (Clarke, Elms, and Youssef 1995; Durian 2012) and the Low-Back-Merger Shift (Becker 2019), for example, theoretically imply that the system is a chain shift triggered by the low back merger as it utilizes the label coined by Labov (1991) to reference dialects with this merger. This widespread distribution firmly establishes front lax vowel retraction as a supralocal sound change that extends well beyond California's borders.

The name California Vowel Shift, on the other hand, reflects early documentation of this system in California (Godinez and Maddieson 1985; Hinton et al. 1987), as well as a general folk-linguistic understanding that California English has a unique sound. In this sense, the name California Vowel Shift itself reflects the enregisterment of California English.⁴ By 1987, Hinton and colleagues reported that front lax vowel retraction was a component of Valley Girl and Californian parodies, a trend that has only grown more pronounced through performances such as in *Saturday Night Live's* recurring "The Californians" comedy sketches (Pratt and D'Onofrio 2017). As such, it is perhaps unsurprising that most Americans believe that California has a special way of speaking (Preston 1996; Hartley 1999). Although California speech stereotypes include lexical items such as *hella* and *dude* (Bucholtz et al. 2007), these stereotypes also feature phonological changes prominently, including front lax vowel retraction and back vowel fronting (Hinton et al. 1987; Kiesling 2004; Pratt and D'Onofrio 2017). It is not surprising that research on the perception of CVS features has shown that they are associated with Californian identity and Californian personae like the Valley Girl

by listeners both in California (Villarreal 2018) and in various other U.S. states (D’Onofrio 2015, 2018b, 2018a). As the origin and cause of the shift continue to be debated, we echo Hinton et al.’s (1987, 125) observations: “The only facts we can be certain of at this point are that the vowels are shifting, and that these shifts are perceived to be characteristic of California.” In short, while there is nothing uniquely Californian about the CVS and the vowel changes it covers, Californian associations cast a long shadow over the CVS’s folk-linguistic profile.

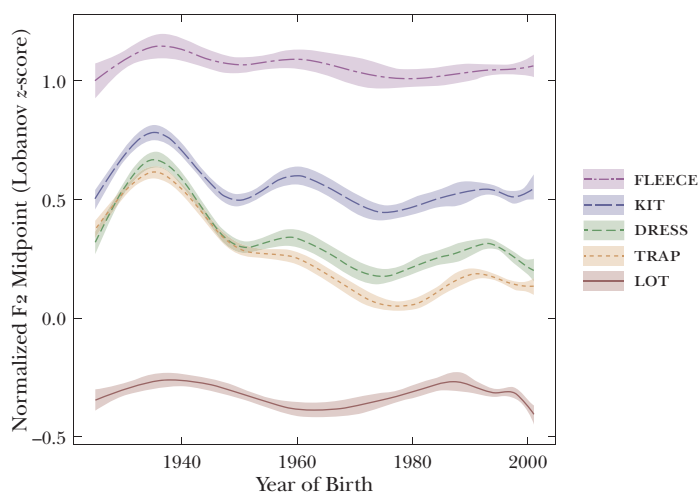
THE CVS IN KANSAS. Located 1,500 miles away from California in the exact geographic center of the continental United States (figure 2), Kansas may appear to be far removed from the linguistic stereotypes of the country’s most populous state. Yet, research in Kansas (Kohn and Stithem 2015) shows that TRAP retraction is well established there. Figure 3 presents generalized additive model (GAM) curves for Lobanov (1971) *z*-score normalized F₂ midpoints from the front vowel system of 37 European American Kansans born 1924–2000 and recorded between 2014 and 2017. Only stressed vowels between obstruents in nonfunction words were analyzed, resulting in a total of 2,663 LOT tokens, 5,576 TRAP tokens, 3,146 DRESS tokens, 3,514 KIT tokens, and 3,036 FLEECE tokens.

Mixed-effects linear regression analyses were constructed by Kohn and Stithem (2015) to evaluate change over time for these 37 participants.⁵ Their

FIGURE 2
Locations of California and Kansas in the United States



FIGURE 3
 GAM Curves for Normalized F₂ Values of the Front Vowel System
 for 37 European American Kansans Age 15 to 90, Recorded in 2014–17
 (adapted from Kohn and Stithem 2015)



NOTE: Shading denotes the 95% confidence limits of the GAM estimate. Zero z-score represents the center of the vowel space.

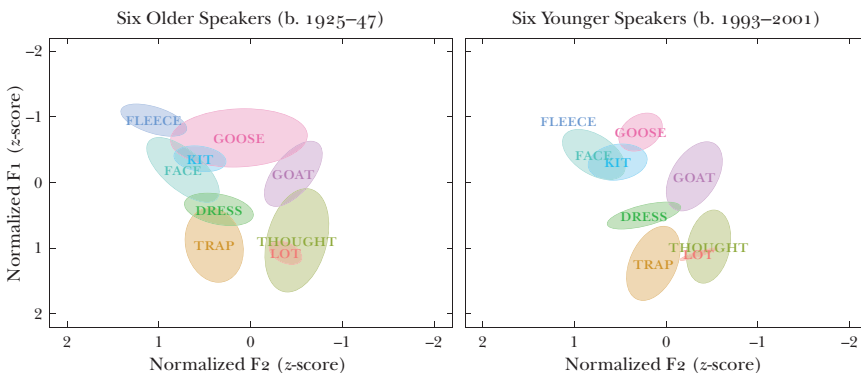
regression results confirm that TRAP and DRESS are retracting in apparent time for these Kansas communities. Best models considering normalized midpoint F₂ measures for TRAP and DRESS both included age (TRAP: $\beta = 0.003$, $t_{34} = 3.53$, $p < .001$; DRESS: $\beta = 0.002$, $t_{35} = 2.09$, $p < .05$); the KIT F₂ model was not significantly improved by the inclusion of age ($p = .13$). For TRAP and DRESS, positive effect sizes indicate that F₂ values become larger with age, indicating a more fronted pronunciation for older speakers. In other words, younger participants are retracting TRAP and DRESS, though this change appears to be leveling off slightly among more recent generations. These models indicate no change in F₁ in apparent time in Kansas ($ps > .05$); for this reason, our analysis will be confined to the F₂ dimension.

The timing of the shift in Kansas appears to roughly correspond with the transition from the Greatest Generation to the Baby Boomers, a finding that is echoed in many of the U.S. studies listed above. Archival work places the start of the sound change “roughly between the two world wars” in Oregon (McLarty, Kendall, and Farrington 2016, 153) as well as Nevada and California (Fridland and Kendall 2017). The timing of the shift may be similar in the Great Plains, as suggested by two studies in nearby Kansas City (Lusk 1976; Strelluf 2014). TRAP retraction, along with a nasal split, appeared to

be present among Lusk's (1976) younger participants, born in the 1960s, and TRAP has continued to retract since then (Strelluf 2014). Again, for the Kansas speakers depicted in figure 3, the TRAP class appears retracted among participants born after 1960, indicating that the change is no longer novel in the state. A slight rebound among the youngest generation may even indicate that the sound change has reached its apex, although further investigation is needed to confirm this position. Regardless, TRAP retraction has clearly been present in Kansas for some time. Moreover, as figure 4 indicates, the retraction of TRAP in Kansas has co-occurred in apparent time with other changes characteristic of the CVS (figure 1): the merger of LOT and THOUGHT and the fronting of GOOSE and (to a lesser extent) GOAT.

KANSAS AND CALIFORNIA: STRANGE (FOLK-)LINGUISTIC BEDFELLOWS. It is surprising that Kansas and California should participate in similar sound changes given that they are very different both in their makeup and in the popular imagination.⁶ Kansas is both less populous and less densely populated than California; as of 2017, Kansas's population of 2.9 million ranks 35th among U.S. states, while California's 39.5 million makes it by far the most populous state; Kansas has 36 people per square mile (41st) versus 254 for California (11th). Kansas is also more ethnically and linguistically homogeneous than California: 76% of the Kansas population is white (compared to 38% in California) and 11% speak a language other than English at home (compared to 44% in California). Given the relationship of political orientation and language change (Labov 2012), it is worth noting that the two states occupy opposite ends of the political spectrum: in the 2016 U.S. presidential election, Hillary Clinton won California by 30 percentage

FIGURE 4
Normalized Vowel Spaces for 12 Kansans by Age Group, Recorded in 2014–17
(adapted from Kohn and Stithem 2015)



points and lost Kansas by 22 percentage points, winning just 2 of Kansas's 105 counties (*New York Times* 2017).

Kansas and California also occupy different profiles in the popular mind. California is represented near-constantly in American popular media, such that the fan-edited website TV Tropes lists seven distinct media tropes for California; none are listed for Kansas (TV Tropes, n.d.). If anything, the defining feature of Kansas in popular media seems to be wholesome small-town living. Kansas's limited appearances in film foreground the agricultural heartland image of the state. Dorothy from the *Wizard of Oz* (1939) returns to a poor black-and-white farm in a small town in Kansas, forming a stark contrast with the technicolor wonderland of Oz through which she adventures. Smallville, the fictional Kansas hometown of DC Comics's Superman, stands in for a wholesome middle-American small town. More recently, the 2018 Marvel movie *Black Panther* contrasts the wonder of the fictional African country Wakanda with the dull image of Kansas: when CIA agent Everett Ross wakes from a coma in a techno-futuristic lab and asks, "Is this Wakanda?" Shuri sarcastically responds, "No, it's Kansas" (Internet Movie Database 2018), indicating that Kansas is the antithesis of the fantastical land of Wakanda. While it is true that many parts of California are rural and agricultural, similar to Kansas, these locations are typically erased in the popular imagination of California identity, particularly as it is represented in broad media platforms (Villarreal 2016).

In addition, California's folk-linguistic profile is strong enough that folk commentators outside California sometimes identify it as a dialectological region unto itself (Preston 1996; Hartley 1999). The enregisterment of California speech has been ongoing for nearly 40 years, from Frank Zappa's popular 1982 song "Valley Girl" ("Valley" referring to Southern California's suburban San Fernando Valley) to *Saturday Night Live*'s recurring "The Californians" sketches in 2012–13 (Pratt and D'Onofrio 2017); stereotypes about California speech have even traveled across the world (Wahl 2010). To say the least, there has been no comparable enregisterment of Kansas speech.

How, then, do Kansans perceive this sound change? Is this decades-old system viewed as local or a product of the West Coast? What kinds of stance and affect meanings have come to be associated with front lax vowel retraction in the center of the Great Plains region, and how might such associations influence its spread? Given the potential for widespread enregisterment of this shift as Californian, "[i]t will be very interesting to see, over the next few decades, whether the perception will itself play a role in sound change, by serving as a self-fulfilling prophecy" (Hinton et al. 1987, 125). Over 30 years of research later, Hinton and her colleagues' words remain surprisingly contemporary.

SUPRALOCAL VARIANTS

We are interested in perceptual associations of TRAP backing because of what such associations might reveal about the nature of supralocal variants. When investigating supralocal variants, “it is important to investigate whether their original geo-spatial associations travel with them or whether the items become nativized on the perceptual level” (Buchstaller 2006, 373). Constraints on supralocal variables in production data are rarely perfectly consistent across field sites, and yet these constraints often show overlap in some respects. The same appears true for social associations identified in perception studies. So, for example, work on quotative *be like* not only indicates that gender and age constraints in production are not consistent across field sites, but also that people’s reactions to the use of quotative *be like* are not consistent. While perception studies in the United States and Britain both identified similar status traits, with the presence of *be like* evaluated as less educated, differences emerged for solidarity traits so that U.S. participants associated the variable with social attractiveness, while British participants additionally associated the variant with unpleasantness (Dailey-O’Cain 2000; Buchstaller 2006). Even when perceptions of a variable appear similar at first glance, these similarities may reflect more localized processes. For example, Blake and Shousterman (2010) report that prerhotic vowel centralization, the (urr) variable (e.g., *hurr* for ‘here’), indexes local identity in St. Louis despite appearing in multiple African American communities across the United States. Researchers in other predominantly African American communities report similar social associations (Charlie Farrington and Shelby Arnson, pers. comm., Nov. 2, 2017), presenting the complex picture that (urr) is a supralocal marker of local identity.

Such inconsistencies and complexity may reflect differences in the way certain kinds of information can travel. Sociological research has found that simple “contagions” may transfer across groups with weak ties, while more complex information requires multiple points of interaction (Centola and Macy 2007). Within the domain of linguistics, Meyerhoff and Niedzielski (2003) suggest based on production data that social information, such as the social meanings of linguistic variables, is a type of complex information that may only be transmitted via face-to-face interactions typical of social networks with strong ties.⁷ As such, this kind of knowledge may be expected to emerge within communities rather than transfer across groups that have little contact. Differences in perceived stance and affect across communities for quotative *be like* may reflect this process, as such meanings require extensive context to spread (Meyerhoff and Niedzielski 2003). Stereotypes, on the other hand, may function as simple information, moving rapidly across

weak ties. It follows, then, that different aspects of perception for supralocal variants are likely to require different network structures in order to be linked across communities. Perception findings for quotative *be like* support this hypothesis, as social associations for the variable do indeed differ across locales, even as a general stereotype regarding education is consistent across field sites (Buchstaller 2006). The unusual pattern of the (urr) variable could demonstrate how communities in one locale may be unaware and unaffected by perceptions of that variable in other locales that also use the same variable. Because simple information, such as stereotypes, will be more likely to spread across communities, while more complex information is expected to be locally constructed, supralocal variants are likely to demonstrate some overlap in social meanings, while also displaying subtle nuances across communities.

THE PRESENT RESEARCH

Despite the considerable differences, real and perceived, between Kansas and California, speakers in both locales share some variants associated with the so-called California Vowel Shift. It is reasonable to hypothesize that different indexical processes have allowed a similar set of sound changes to emerge in such different places—especially given the prominent place that California occupies in the popular imagination and given California’s prominent associations with the CVS. In other words, the presence of front lax vowel retraction in Kansas represents a prime opportunity to investigate how social meaning relates to the supralocal distribution of a sound change, particularly in light of an asymmetry in folk-linguistic profiles. In the present research, we use a perceptual approach to uncover Kansans’ perceptions of one of the components of the CVS, TRAP backing.

METHODS

We investigated the social meanings of TRAP backing in Kansas via a perception task in which listeners rated speakers for perceived regional identification and several personal characteristics. Among these speakers were two pairs of matched-guise stimuli differing only by TRAP F2 (simulating front vs. back TRAP); we compared listeners’ responses to these guises to determine the social meanings of TRAP backing in Kansas.

The design of this task combined attributes of dialect recognition tasks (e.g., Williams, Garrett, and Coupland 1999) and matched-guise tasks (e.g., Campbell-Kibler 2007). Dialect recognition tasks are useful for studying

perceptual dialectology because listeners draw on their attitudes toward certain regions when they judge where a speaker is from. For example, in Williams, Garrett, and Coupland (1999), Welsh listeners rated speakers from across Wales on affective scales and guessed speakers' regional origin. Speakers who were rated most likeable were also more likely to be identified (and misidentified) as belonging to a listener's regional ingroup. In matched-guise tasks, listeners respond to speech samples that differ by only a crucial feature, style, variety, or language; any difference in responses to guises can thus be attributed to the effect of the linguistic structure under study. This technique has been widely used to investigate the social meanings of sociolinguistic variables (Dailey-O'Cain 2000; Campbell-Kibler 2007).

Stimuli were drawn from excerpts of "Comma Gets a Cure" (Honorof, McCullough, and Somerville 2000) read by a demographically matched sample of Kansan speakers; all speakers in this sample were young (born 1993–2001, recorded in 2014–2015) female Kansans from predominantly European American communities with populations under 7,000. These reading passages were extracted from a task at the end of a longer sociolinguistic interview conducted by community members as part of the Kansas Speaks Project. The excerpt, "Sarah Perry was a veterinary nurse who was very happy to start a new job at a superb private practice in North Square near the Duke Street Tower," was selected because it contains two tokens of TRAP (*happy*, *practice*) and is sensible as a standalone syntactic/prosodic unit. (As with most of the United States, Kansas has the *marry-merry-Mary* merger [Labov, Ash, and Boberg 2006, 56], so *Sarah* is not considered a token of TRAP in this speech community.) The TRAP tokens in this excerpt do not precede nasals or voiced velars, phonological contexts that are associated with raising and fronting in areas with TRAP retraction (Labov, Ash, and Boberg 2006; Wassink 2015; Cardoso et al. 2016; Boberg 2019). Some research on the CVS has suggested that speakers increase or decrease the distance between prenasal TRAP and nonprenasal TRAP to index different social personae, but it is unclear to what degree each individual movement contributes to this social meaning (Eckert 2008b); as a result, stimuli were designed to omit prenasal TRAP.

Excerpts from two speakers were used in critical trials, with these excerpts manipulated to two guises apiece differing only in terms of TRAP. Although most matched-guise studies typically use just one critical speaker, we chose to use two speakers for the sake of generalizability; as we discuss below, this decision proved useful as speaker identity was responsible for some ratings differences. The critical speakers were selected on practical grounds: vowel manipulation is a sensitive, finicky process that does not always produce

good results, so several speakers' vowels were initially manipulated for testing purposes, and the critical speakers were those whose manipulated vowels sounded the most natural and realistic. Manipulated tokens fell within the range of natural production for each speaker as produced within the context of the longer sociolinguistic interview, representing plausible productions within each speaker's repertoire. Excerpts from four additional speakers with nonmanipulated vowels were used in filler trials. Excerpts were 10–12 seconds in duration.

Scripts coded in Praat (Boersma and Weenink 2014) created matched guises from critical excerpts via source-filter resynthesis of TRAP tokens. This procedure modifies the filter (formant structure) after decoupling the source and filter, producing manipulated vowels that are highly similar to the original save for perceived vowel position (Styler 2017). Villarreal (2018) includes more details about the particularities of this procedure; scripts similar to those used in the current study are freely available at <https://github.com/djvill/Vowel-Manipulation>.

The TRAP tokens in critical excerpts were manipulated to two guises, “conservative” and “shifted,” with each guise containing only conservative or only shifted TRAP tokens. Since TRAP F1 shows no change in apparent time in this community (Kohn and Stithem 2015; see above), only F2 was manipulated. Conservative TRAP tokens had higher F2 values, corresponding to fronter TRAP, and shifted TRAP tokens had lower F2 values, corresponding to backer TRAP. The F2 values that represented these guises were based on “natural breaks” for nonprenasal TRAP F2 from *The Atlas of North American English* (ANAE) (Labov, Ash, and Boberg 2006). The conservative and shifted targets were defined as 1899 Hz and 1592 Hz, respectively, which represent the midpoints of two ANAE “natural break” ranges for nonprenasal TRAP F2: the second-most front range (1843–1955 Hz, represented by yellow tokens in ANAE's map 10.6) and the most back range (1442–1742 Hz, the blue tokens) (Labov, Ash, and Boberg 2006, 83). Since ANAE's “natural breaks” are based on normalized formant values, not raw formant measurements, we “reverse-normalized” these ANAE-based target values to fit the critical speakers' vowel spaces. This was done by calculating scaling factors for each speaker in the manner described in ANAE (Labov, Ash, and Boberg 2006, 39–40) and dividing targets by these scaling factors to get speaker-specific targets.⁸ Speaker 1's scaling factor of 1.056 yielded targets of 1798 Hz (conservative [ɹ̥]) and 1508 Hz (shifted [ɹ̥]); speaker 2's scaling factor of 0.957 yielded targets of 1985 Hz (conservative [ɹ̥]) and 1664 Hz (shifted [ɹ̥]).⁹ After speaker 1 and 2's excerpts were manipulated to their respective conservative and shifted targets, we both listened to these four critical stimuli to ensure that the resynthesized vowels sounded natural in their carrier sentences.

Figure 5 demonstrates the end result of this process on the level of an individual TRAP token: the TRAP vowel in speaker 1's *practice*. The conservative and shifted tokens largely preserved the spectral properties of the original token, differing from one another only in F2. In other words, any difference in responses to the shifted versus conservative trials can be attributed to this difference in the position of TRAP.

Given the role of context in shaping listeners' interpretations of language variation (Gumperz 1982; Campbell-Kibler 2007; Leach, Watson, and Gnevsheva 2016; Villarreal 2018), we expected ratings to be affected by properties of the stimuli that co-occurred with the feature we manipulated. To that end, we found that speaker 2's excerpt displays a greater pitch range, higher pitch, and more creak (table 1). Speaker 2's excerpt is also more advanced in nonmanipulated CVS features (figure 6), compared with speaker 1's excerpt, with more retracted KIT, lower and more retracted DRESS, and lower TRAP.

The survey was administered via a paper-and-pencil task in undergraduate writing courses at a large land grant institution in Kansas. The ostensible purpose of the task was evaluating candidates for a job at a local radio station, a framing used by several past studies to provide context for otherwise decontextualized questions about a speaker's personal characteristics (Labov et al. 2011; Villarreal 2018). The task consisted of eight trials and a demographic questionnaire. All listeners heard stimuli in a predetermined randomized

FIGURE 5
Formant Tracks of Original, Conservative, and Shifted Versions
of the TRAP Vowel in *practice* by Speaker 1

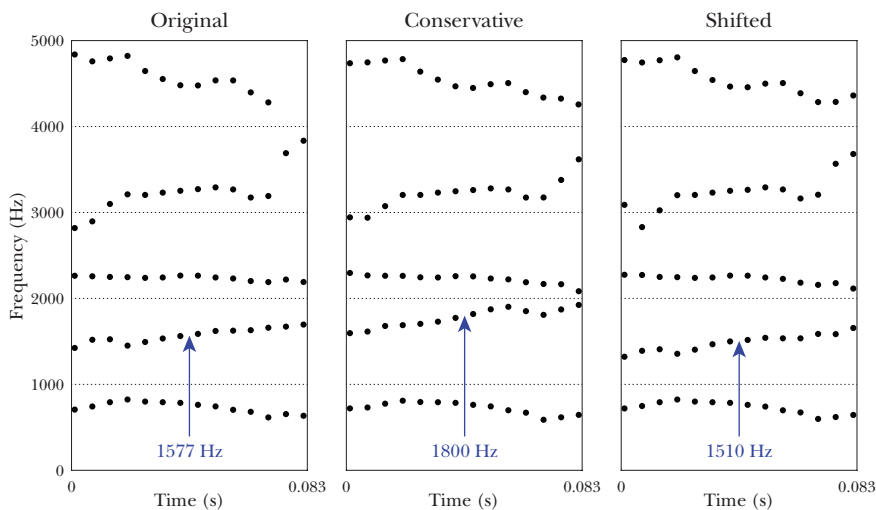
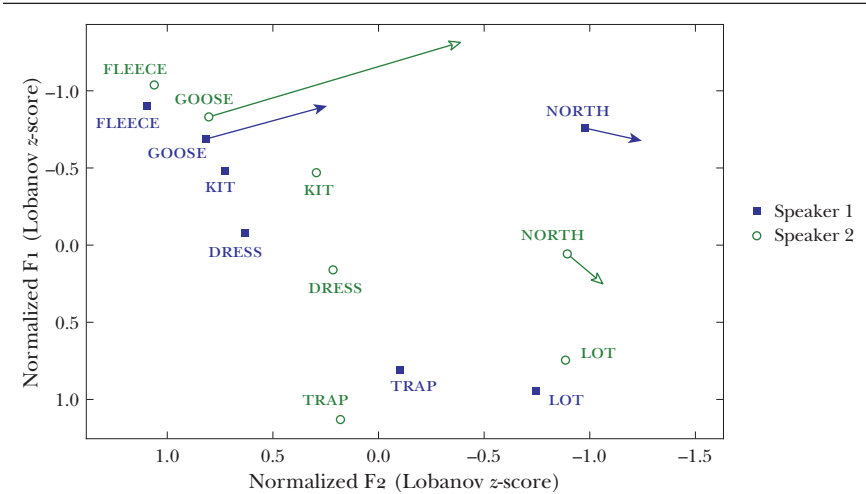


TABLE 1
Selected Suprasegmental Characteristics of Critical Excerpts

	<i>Speaker 1</i>	<i>Speaker 2</i>
Minimum pitch (Hz)	160.0	189.6
Maximum pitch (Hz)	293.8	406.6
Pitch range (Hz)	133.7	217.0
Mean pitch (Hz)	206.3	248.9
Pitch standard deviation (Hz)	28.49	44.35
Creaky syllables (out of 39)	3	7

FIGURE 6
Critical Speakers' Stressed Vowel Spaces in Conservative Guise



NOTE: Since only TRAP was manipulated, vowel spaces are identical in both guises, except for TRAP, which is farther back in the shifted guise.

order—speaker 2 conservative, speaker 3 (filler), speaker 1 conservative, speaker 4 (filler), speaker 5 (filler), speaker 2 shifted, speaker 6 (filler), speaker 1 shifted—or its reverse. Trial ordering was counterbalanced across administrations to assess the effect of stimulus presentation order.

In each trial, a stimulus was played twice over loudspeakers, and listeners gave several types of responses: regional identification, scales, and checkboxes. The regional identification item gave listeners several states to identify where they believed the speaker was from: Kansas, California, Wisconsin, New York, and Georgia. A write-in blank accompanied the Kansas option so listeners could specify where in Kansas they thought the speaker was from. The distractors (Wisconsin, New York, and Georgia) were included

TABLE 2
Semantic Differential Scales in Perception Task

small town–big city	likeable–not likable
hard working–lazy	suitable for the job–not suitable for the job
Kansan–not Kansan	speaks like me–doesn’t speak like me
friendly–unfriendly	younger–older
polite–rude	confident–not confident
fast–slow	good English–bad English
feminine–Tom-boy	educated–uneducated

to cue salient dialect regions outside of the Western United States or Kansas and were chosen based on folk-linguistic hand-drawn maps collected from students in Kansas over five years. Listeners rated speakers from 1–6 on 14 semantic differential scales, which were presented in the same order for each trial (table 2). In addition to semantic differential scales typical of subjective reaction tasks, additional scales were selected in consultation with native Kansan undergraduates as traits that were likely to be locally meaningful. For example, Kansas undergraduates included the value of “hard working” as an important value for Kansans, leading to the construction of the differential scale “hard working”–“lazy.” Nine checkboxes, traits that did not easily map to scalar categories, were also included: “stuck up,” “has strong family values,” “vegetarian,” “patriotic,” “independent,” “meat-eater,” “church-goer,” “Valley girl,” and “well-traveled.” These check-boxes yielded low proportions of check responses, so we do not analyze them further here.

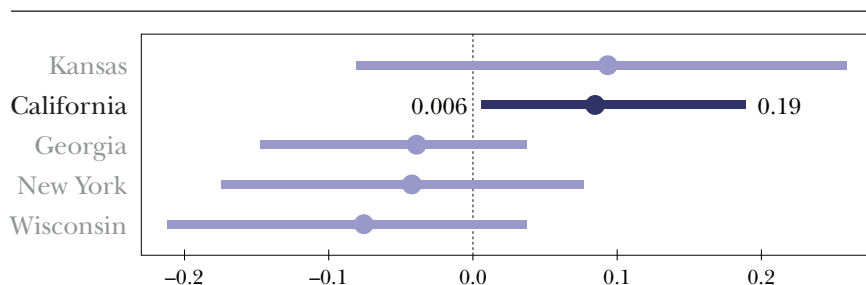
RESULTS

Fifty-one students participated in the listening task. The data set for analysis comprises the 35 listeners who responded affirmatively to the question “Do you consider yourself to be a Kansan?”; it was important to get the perspective of listeners who considered themselves Kansans because of how they would perceive a variant (backed TRAP) that is common in Kansas speech but is overtly associated with a different place. These listeners were overwhelmingly young (94% were age 18–22) and male (67%). Information on ethnicity and places lived was available for only 25 of these 35 listeners due to a task error; this subset of listeners was overwhelmingly European American (88%) and nonmobile (72% reported having lived in only 1–2 places) and represented all corners of the state. In terms of counterbalancing order, 17 listeners heard speaker 2’s conservative guise first, and 18 heard speaker 1’s shifted guise first.

REGIONAL IDENTIFICATION. Regional identification responses were analyzed via a Bayesian hierarchical model (Kruschke 2015). This type of model is preferable to the alternative, multinomial logistic regression, as it allows for comparing rates of conservative versus shifted guises within each response category. More information about this model is given in the appendix. Figure 7 displays the results of the model analyzing the effect of guise. The highest density intervals (HDIs) in the figure are akin to 95% confidence intervals, and the interpretation is the same: if the interval excludes zero as a credible value for the difference between shifted and conservative guises, then the response difference is significant (i.e., responses are significantly more numerous for one of the guises).

The results in figure 7 indicate that Kansans appear to perceive TRAP backing as Californian, as shifted stimuli were significantly more likely to be identified as Californian than conservative stimuli.¹⁰ The results for the other response categories suggest a nonsignificant tendency toward Kansas being associated with shifted stimuli, and the other regions being associated with conservative stimuli. (Note that the majority of responses to both conservative and shifted guises were Kansas [53%], possibly due to the task telling listeners that speakers were candidates for a radio job in Kansas, which accounts for the wider 95% HDI for Kansas.) There were no significant effects of speaker, listener age, listener gender, listener ethnicity, or trial order on regional identification responses. The lack of a significant effect of speaker is notable, as it suggests that listeners' judgments as to speakers' origin were not guided by the cues that differed between speaker 1 and speaker 2 (e.g., creak, KIT/DRESS retraction).

FIGURE 7
Shifted Minus Conservative Difference in Identification Rates

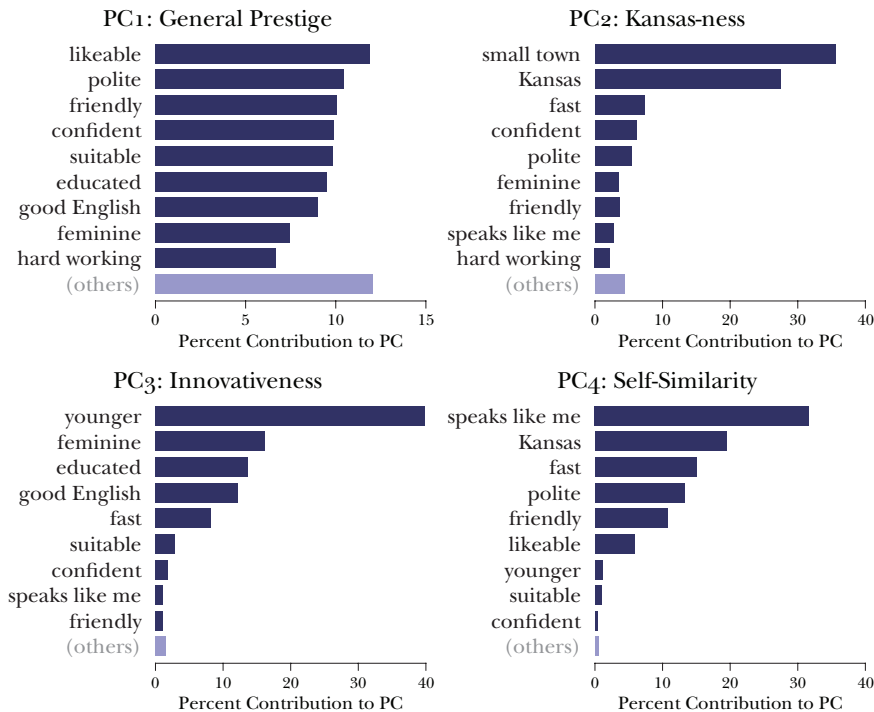


NOTE: Bars indicate 95% highest density intervals; dots indicate modes. The dark bar and label for California indicates a contrast that significantly excludes zero; lighter bars/labels indicate contrasts not significantly above or below zero.

AFFECTIVE SCALES. Prior to inferential modeling, scales data for all trials (not just critical trials) were submitted to principal components analysis in order to reduce the dimensionality of the response space to make it more manageable for analysis, as well as to uncover underlying constructs connecting the discrete traits measured by individual scales. We performed this analysis using the FactoMineR package for R (Husson et al. 2015). Based on the results, we selected the first four principal components (PCs) for analysis, which together explained 69.0% of the total variance in scales responses (respectively, 40.2%, 13.2%, 8.3%, and 7.2%).

We then labeled the constructs measured by these first four principal components by identifying the scales that most contributed to each (figure 8). PC1 was not dominated by any one or two scales but combined “likeable,” “polite,” “friendly,” “confident,” “suitable,” “educated,” and “good English.” Notably, whereas status traits like “educated” and solidarity traits like “likeable” are typically orthogonal in language-attitudes findings (e.g., Edwards

FIGURE 8
First Four Principal Components and the Scales That Contributed to Them



1999; Preston 1999), this construct collapses status and solidarity traits. Instead, the traits making up PC1 accord with Cameron's (2000) description of an ideal call-center worker as a speaker who conveys both aptitude and interpersonal competence. Since this construct cannot be neatly classified as either status or solidarity, we labeled it General Prestige (with the emphasis more on "general" than "prestige").

Compared to PC1, the remaining principal components were more closely tied to specific traits. PC2 was dominated by "small town" and "Kansan," indicating that, unsurprisingly, Kansan listeners considered these two traits to pattern together. We labeled PC2 Kansan-ness. PC3 was dominated by "younger" and also included "feminine," "educated," and "good English"; since youth and femininity are associated with sociolinguistic changes in progress (with education/articulateness marking class in a way that points to change from above), we labeled PC3 Innovativeness. Finally, PC4 was dominated by "speaks like me," so we labeled PC4 Self-Similarity. As with all interpretations of principal components, we caution that these labels are better considered heuristic constructs rather than ethnographically rich reflections of this community's social values; nevertheless, they represent clusters of traits that are clearly salient to our listeners.

These four principal components were treated as response variables in separate models. Using the lmerTest package for R (Kuznetsova, Brockhoff, and Christensen 2016), we compared linear mixed-effects models to find the predictor structure that best modeled each principal component. The predictors that we tested were guise, regional identification responses, individual speakers, and listener predictors (age, gender, ethnicity, trial order). All models included a maximal random effects structure (Barr et al. 2013): random intercepts and by-guise slopes for individual listeners and speakers. Unlike the principal components analysis, for which we used all trials from our 35 Kansan listeners (in order to obtain constructs that represented the overall scales response space), the data for these linear models included only critical trials. We discuss the results of these models below, focusing on PC1 and PC2 since they are especially germane to our analysis.

The best model of PC1, General Prestige, included two predictors, guise and speaker, as no other predictors significantly improved the model fit. As table 3 shows, shifted guises were rated higher on general prestige than conservative guises, and speaker 2 was rated higher than speaker 1. Guise and speaker did not significantly interact. Notably, the estimate for the effect of speaker (1.382) was greater than that of guise (0.881). In other words, while young Kansan listeners appear to associate TRAP backing with general prestige, this association is not the only factor affecting how generally prestigious they consider listeners to sound. (We will return to the effect of

TABLE 3
Summary of Fixed Effects for Best Model of PC1 'General Prestige'

	<i>Estimate</i>	<i>Std. Error</i>	<i>df</i>	<i>t value</i>	<i>Pr(> t)</i>
(Intercept)	-0.34680	0.34553	66	-1.004	0.319169
GuiseShift	0.88147	0.42230	83	2.087	0.039926 *
Speaker2	1.38183	0.39728	66	3.478	0.000902 ***
GuiseShift : Speaker2	-0.55203	0.56333	65	-0.980	0.330741

speaker in the results for PC3.) The model failed to indicate a significant interaction effect between speaker and guise, meaning speaker and guise affected responses independently of one another; the effect of the shifted guise was the same for both speakers, and the effect of speaker 2 was the same in both guises.¹¹ We also note that whereas PC1 was significantly affected by both guise and speaker, regional identification was affected by guise but not speaker, suggesting that TRAP backing may index a more specific set of meanings than do the other cues differing between listeners.

The best model of PC2, Kansan-ness, included only regional identification as a significant predictor. As table 4 shows, speakers were rated significantly lower for Kansan-ness if listeners also identified them as being from California, New York, or Wisconsin, relative to the baseline regional identification category of Kansas (which is reflected in the intercept in the PC2 model); speakers identified as being from Georgia were rated lower on PC2 than those identified as being from Kansas, but this difference was not significant. In other words, speakers identified as being from Kansas were also rated highly Kansan and rural. This result is to be expected given that the regional identification and scales tasks were combined within the same trial; it is an open question whether or how much listeners' responses to one task affected or guided their responses to the other.

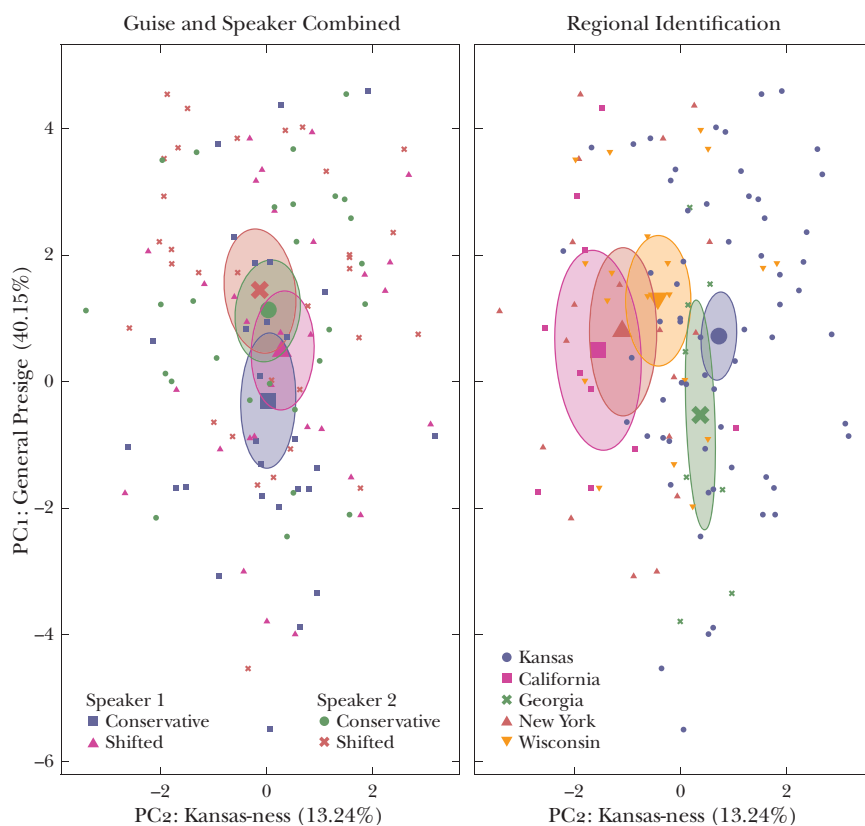
Figure 9 compares the results for PC1 and PC2 by plotting all critical trials in PC1-PC2 coordinate space, with means and 95% confidence ellipses highlighting the predictors significant for each PC (guise and speaker are

TABLE 4
Summary of Fixed Effects for Best Model of PC2 'Kansan-ness'

	<i>Estimate</i>	<i>Std. Error</i>	<i>df</i>	<i>t value</i>	<i>Pr(> t)</i>
(Intercept)	0.71390	0.16123	7	4.428	0.00276 **
RegionalIDCalifornia	-2.24936	0.35434	118	-6.348	4.20E-09 ***
RegionalIDGeorgia	-0.29201	0.36378	111	-0.803	0.42386
RegionalIDNewYork	-1.86702	0.26679	116	-6.998	1.80E-10 ***
RegionalIDWisconsin	-1.18046	0.26885	114	-4.391	2.53E-05 ***

combined in the left panel as stimulus). Notably, these effects appear to be orthogonal. While different stimuli vary quite a bit in their PC1 values, they vary rather little in PC2; while regional identification responses affect PC2 responses considerably, they have little effect on PC1. In other words, among listeners in Kansas, the constructs of General Prestige and Kansan-ness are insensitive to one another.¹² This finding speaks to the question of how different indexical processes have allowed the same set of sound changes to emerge in such different places, especially given that popular discourses associate these changes with just one of these locales. In particular, it appears that among Kansans, backed TRAP loses its place-laden indexical meanings when these are considered among a broader array of speaker attributes. We expand upon this point in the discussion.

FIGURE 9
All Critical Trials Plotted in PC1-PC2 Coordinate Space



NOTE: Ellipses indicate 95% confidence for best-model predictors

Only speaker emerged as significant in the best model of PC₃, Innovativeness, as speaker 2 was rated significantly more innovative than speaker 1 ($t_{103} = 2.994$; $p < .005$). It is not surprising that listeners do not associate the more innovative (shifted) TRAP guises with innovativeness, given that this sound change has been present in Kansas since the Baby Boomer era and reached its current degree of retraction at least one generation ago (figure 3; Kohn and Stithem 2015). Given that PC₃ is dominated by “younger,” it is clear that among young Kansan listeners, TRAP retraction is not heard as indexing a speaker’s generation; it is an open question whether this lack of association between youth and TRAP retraction would be observed among listeners whose linguistic experience includes a time when this sound change was still progressing in the community.

The results for PC₁ and PC₃ together indicate that listeners were responding to some difference in vocal characteristics between speaker 1 and speaker 2, with speaker 2 rated more prestigious and more innovative; this is a challenge inherent to research in perceptual sociolinguistics, as listeners are sensitive to a multiplicity of linguistic cues in the signal, not just the cues that the researcher manipulates or is most interested in (Leach, Watson, and Gnevsheva 2016). As mentioned above, speaker 2’s excerpt displayed a greater pitch range, higher pitch, and more creak (table 1) and was more advanced in nonmanipulated CVS features (figure 6) than speaker 1’s excerpt. It is unknown to us which of these characteristics (or others) led listeners to hear speaker 2 as more generally prestigious and innovative. Nevertheless, it is clear that listeners responded to properties of the signal beyond the TRAP manipulation. In other words, TRAP retraction is heard as prestigious by our participants, but prestige is likely also boosted through other variables, leading to the significant speaker effect in PC₁. Further, variables beyond TRAP retraction are necessary to signal innovativeness for our cohort, likely as a result of the age of the sound change in question. While prestigious, TRAP retraction alone does not index innovativeness among our young listeners.

Regional identification and trial order both emerged as significant in the best model of PC₄, Self-Similarity. Speakers identified as being from Kansas were rated more self-similar than speakers identified as being from California ($t_{111} = 2.414$; $p < .05$) or Wisconsin ($t_{114} = 2.205$, $p < .05$), with no significant difference between Kansas and Georgia or New York. In addition, PC₄ was significantly affected by trial order, with one order yielding higher PC₄ ratings than the other ($t_{34} = 2.215$; $p < .05$); as trial order did not significantly interact with any other predictors (including trial number), it is unclear what motivated this effect.

DISCUSSION: SUPRALOCAL VARIANTS AND SOCIAL MEANING

To summarize, when forced to consider speakers' regional origin, our young Kansan participants are more likely to identify shifted guises as Californian than conservative guises, despite the fact that Kansans vigorously participate in TRAP backing and have done so for about as long as Californians have. This result aligns with Villarreal's (2018) findings that Californians identify more shifted guises as Californian and parallels Niedzielski's (1999) finding that Michigan listeners associated Northern Cities Shift features with Canada despite the presence of these features in Michigan. Given the widespread association of Californian identity with innovative speech patterns—supported elsewhere by folk dialectology work (Preston 1996; Hartley 1999) and representations of Californian speech in the media (Pratt and D'Onofrio 2017)—these findings suggest that TRAP backing has become enregistered with Californian identity at the national level. TRAP backing may now have developed into a stereotype of Californian identity, which was then available to spread rapidly through the many media outlets associated with the entertainment industry. With Californian speech patterns enjoying more widespread representation than Kansan speech, our Kansas listeners appear to associate this CVS feature with California, despite local participation in the sound change.

When assessed with a larger array of traits, associations between TRAP backing and general prestige traits predominate for our young Kansas participants. These listeners associated traits such as likeability, friendliness, confidence, politeness, and education with more shifted variants. Notably, these associations are the kinds of attributes that would be beneficial for professionals working with the public—in other words, a “customer service” voice (Cameron 2000). These findings overlap with results from Villarreal (2018) and D'Onofrio (2018b) in which confidence and professionalism, respectively, were associated with backed TRAP. The CVS, then, has become a sociolinguistic resource that young people associate with traits necessary for upward mobility. Such overtly prestigious associations may explain why this sound change has become so pervasive, providing insight into its widespread distribution.

Yet, while these prestigious associations indicate some overlap between findings in California and Kansas, our results do not simply duplicate previous research on TRAP backing. There is a clear positive affective association for backed TRAP in Kansas that is not identified in California, including traits such as likeability and politeness. Such differences potentially point to key elements of how supralocal variants gain their social meanings. In particular, stance and affective associations may be more representative of

a complex contagion that requires more sustained and personal contact to transmit (Centola and Macy 2007). As there are limited population flows between California and Kansas, we may hypothesize that the distinct social and stance associations in the two locations are the result of local construction of meaning, rather than a diffusion of meaning across locales. While TRAP backing clearly appears prestigious among young people, the exact nature of this prestige appears to be locally constructed.

But how do broader national discourses interact with the local construction of meaning for supralocal variants? Here, it is useful to turn to the notions of indexical order and the indexical field. In this account, “the meanings of variables are not precise or fixed but rather constitute a field of potential meanings—an *indexical field*, or constellation of ideologically related meanings, any one of which can be activated in the situated use of the variable” (Eckert 2008a, 454). As such, social meanings are subject to ideological mediation in ways that extend the field of possible meanings by drawing upon preexisting indexical associations (Eckert 2008a). As described by Silverstein (2003) and Johnstone, Andrus, and Danielson (2006), variables are linked to macrosocial meanings at the first order of indexicality (also known as the *n*th order of indexicality) by the nature of group-level patterning; for example, if TRAP backing is a feature of California English, it can be used to convey Californian identity. These group-associational meanings do not exist in a vacuum. For example, as California is associated with specific personae (and not others), so these first-order meanings are subject to reinterpretation as second-order indexical links as speakers draw upon these meanings in specific interactional moments to convey stances and identities that only indirectly call upon group-associational meanings (Johnstone, Andrus, and Danielson 2006); thus, a speaker may use TRAP backing to index a “Valley girl” persona, which is mediated by Californian identity. Contemporary sociolinguistic research typically emphasizes the primacy of stances and identity projects in the construction of indexical fields. These processes are necessarily locally constructed through direct interaction. Yet, as Schilling (2013, 328) describes, these interactions can create a feedback loop:

Stances and attributes can become associated with individuals, character types, and social groups, and in turn these wider-scale meanings are drawn upon by speakers and listeners in unfolding conversation. Hence, the local and the global work together: Just as individual linguistic usages shape individual, group, and social identities and meanings, so too do established social meanings shape what individuals can do with language.

Enregisterment of TRAP backing as “supralocal,” or even potentially “Californian,” could impact indexical links for the variable, shaping what

individuals can do with this new variant. A defining trait of supralocal variants may include this layering of meaning where “new associations interact with possibly second-hand ones” (Buchstaller 2006, 375). In other words, stance may be locally defined, but local meanings for supralocal variants necessarily interact with any social meanings that may traverse multiple locations where the variant might be found. This may be particularly true when the variant is represented in popular media, which opens the door to widespread enregisterment.

Supralocal variants can come to share some indexical meanings, but due to varying social and linguistic landscapes, variations in indexicality will emerge across communities. We may expect that indexical fields in each location will be coherent and noncontradictory within the cognitive framework of the community. While second-order indexical links may drive the production and interpretation of style at the local level, it is possible that first-order indexical links transfer between groups more quickly and easily. As a result, supralocal variants may be more likely to have greater heterogeneity in terms of stance associations than group-level associations. Enregisterment of TRAP backing with California is a broad stereotype and therefore can travel rapidly, while stance and identity projects are likely to elicit more locally nuanced interpretations. Still, these locally informed interpretations are likely to be evaluated in the context of rapidly spreading first-order indexical associations. A speaker may sound young and professional, or a speaker may sound Californian, but critically, youth and professionalism are not in conflict with perceptions of Californian identity. In contrast, given that Kansas is marked as a rural, traditional, and largely agricultural place, Kansan identity is less likely to occur in the same indexical field as confidence and professionalism. So, a Kansas speaker can index upward mobility, but the linguistic tools the speaker uses to do so will likely differ from any tools used to indicate local Kansan identity. Despite local, Kansan participation in the sound change, Kansans resist associating a prestigious sound change with a place they associate with rural, traditional life, instead associating the sound change with California. Thus, the potential for first-order indexes to emerge may depend on whether the ideological meanings associated with these groups are synergistic with second-order indices (or vice versa).

What can be learned about supralocal variants from a comparison of California and Kansas? Supralocal variants potentially accrue the baggage of stereotypes and associations from distant communities involved in the same change. This baggage has the potential to skew or shape the construction of meaning in other locations. Yet, this influence will not produce carbon-copy results. Instead, high context information will emerge locally to produce idiosyncratic patterns at the community level. We should not be surprised to see broad stereotypes shared across distinct communities when examining

supralocal variants—especially when popular media takes an active role in the circulation of these stereotypes—but we should also expect local variation that sets each community apart in the process of identity work and stance.

With the rise of supralocal variants, linguists have the obligation to understand how such variants emerge so rapidly and by what means they gain social associations. One such supralocal variant, TRAP backing, shows no signs of slowing its spread. In the present study, we find that Kansan college students associate one of the elements of the California Vowel Shift, TRAP backing, with California and with general prestige; we suggest that this association with general prestige may help to explain the presence of this vowel shift in Kansas despite considerable ideological differences with California. While TRAP backing is associated with California, the ideological connections between California and traits considered attractive in a speaker mean that speakers can use TRAP backing to sound generally prestigious independent of sounding like a Kansan or a Californian. In sum, an understanding of supralocal variants requires linguists to bring the global and the local together to better understand how indexical meanings move through communities and space.

APPENDIX

Bayesian Hierarchical Statistical Modeling

To analyze regional identification results, we used a Bayesian hierarchical model (Kruschke 2015) rather than the alternative, a multinomial logistic regression model. Multinomial regression requires the analyst to select a reference outcome against which the effects of other outcomes are measured (e.g., the listener selects “Kansas”), and for this reference outcome it is not possible to perform a contrast by condition (i.e., to compare conservative vs. shifted); this method thus loses a certain amount of information as a result of this restriction. The Bayesian model we used did not have this restriction, so it was possible to compare responses in the conservative and shifted guises for all regional identification categories.

This model uses a multinomial distribution as the likelihood function and Dirichlet distribution priors (Gelman et al. 2013). With five possible response categories, the priors for the individual proportions in the Dirichlet distributions were beta distributions with shape parameters 2 and 8 (representing a noncommittal prior assumption that the identification rate for each cell is 20%). These models were run using R and the Bayesian sampling program JAGS (Plummer 2003; R Core Team 2019), based on R scripts from Kruschke (2015); these scripts are available from the first author upon request. Procedures standard to Bayesian inference were used to ensure models’ validity (see e.g., Kruschke 2015): diagnostic plots for selected parameters were inspected to ensure the convergence of Markov chain Monte Carlo chains, and the sampling parameters of each model were adjusted so that the chains that sampled the parameters corresponding to each predictor had an effective sample

size of at least 10,000. This model structure was used for all predictors individually: guise, speaker, and listener factors (age, gender, ethnicity, trial order). As guise was the only predictor to yield significant effects, we report only the results of the guise model. Because of limitations of this model, interaction effects could not be analyzed.

NOTES

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1. In Wells's (1982) notation for vocalic lexical sets, TRAP stands in for the variable canonically characterized by the sound /æ/. All variables in this study are referred to using Wells's notation.
2. We refer to Agha's (2003, 231) definition of "enregisterment" as "processes through which a linguistic repertoire [or bundle of features] becomes differentiable within a language as a socially recognized register of forms."
3. In addition to the conditioning effect of following nasals, some studies in California (Cardoso et al. 2016) and in other areas undergoing TRAP retraction, such as Washington state (Wassink 2015) and Canada (Boberg 2019), have found that TRAP also raises and fronts before voiced velars. In this article we implicitly exclude both contexts in our discussion of TRAP retraction, as neither are relevant to the TRAP tokens in our stimuli (*happy, practice*).
4. Thanks to an anonymous reviewer for making this point.
5. Models were constructed through likelihood ratio tests in R (R Core Team 2019), considering the phonetic variables of preceding and following place of articulation (coronal, labial, dorsal, glottal, or none), preceding and following manner of articulation (stop, fricative, affricate, none), preceding and following voicing, and duration. The social variables considered for analysis included age, gender, and community. Speaker and word were included as random effects in the model. More complex models were compared with simpler models, and the model with the lowest AIC/BIC score was selected as the best model.
6. Data in this paragraph come from the U.S. Census Bureau website (accessed Feb. 26, 2018): population totals and ethnic/linguistic characteristics from vintage 2017 data (<https://www.census.gov/quickfacts/fact/table/KS,CA,US/PST045217>); density calculated from state area measurements (<https://www.census.gov/geo/reference/state-area.html>). For "white," we use the Census Bureau's categorization of "White alone, not Hispanic or Latino."
7. The process of transmission and its relation to social networks usually comes up in sociolinguistics in the context of the transmission and diffusion of linguistic variables (e.g., Bailey et al. 1993; Labov 2007; Dodsworth and Benton 2017; among many others). Here we focus on the transmission not of variables them-

selves, but of the meanings attached to those variables—although, as we discuss below, the two are intertwined.

8. As in *ANAE* (Labov, Ash, and Boberg 2006, 39–40), scaling factors were calculated as the exponentiated difference between the geometric mean of the first two formants for all speakers and the geometric mean of the first two formants for the speaker in question. The data set for these calculations comprised primary and secondary stressed tokens in lexical sets other than CHOICE, PRICE, or MOUTH, excluding a list of stop-words. This data set included 231 vowel tokens for speaker 1 and 236 for speaker 2, all from the “Comma Gets a Cure” reading passage.
9. The speaker icon (🔊) indicates that the online PDF version of this article (<http://doi.org/10.1215/00031283-8186897>) contains an embedded audio clip of the guise that will play when the icon is clicked on. Note, this feature may not be supported by all PDF viewers; if you are unable to access the audio clip using your current viewer, open the PDF in Adobe’s free Acrobat Reader or other Acrobat product (<http://get.adobe.com/reader/>).
10. An anonymous reviewer asks, “What is the evidence that choosing California when forced to choose among five states is not simply a reflection of association with nonlocalness and supralocalness, instead of to California specifically? Especially since three of the states chosen for the regional identification task (Wisconsin, New York, Georgia) represent other distinct regional accents, as well as being areas where the CVS has not yet been observed. Perhaps California was seen as generic (and was not associated with localness).” While it is possible that listeners’ California responses reflected a generalized association with nonlocalness, we believe it is more likely to reflect a specific association with California itself given the prominent folk-linguistic profile that California has in this community; this is suggested by over five years of folk-linguistic hand-drawn maps collected from students in Kansas, in which students consistently single out California as having a distinctive dialect and where Kansas is rarely identified as having a distinctive accent. Such observations indicate that Californian English is indeed enregistered among college students in Kansas. However, our conclusions do not entirely rest on the place indexicality of TRAP backing being occupied by California in particular, but any nonlocal place whose general prestige is at odds with local Kansas identity.
11. An anonymous reviewer points out a potential confound between the guise manipulation and its vocalic context; as a consequence of speaker 2’s more retracted KIT and DRESS, speaker 2 has a much smaller difference in F2 from TRAP to KIT and DRESS than speaker 1 does (figure 6). The lack of a significant interaction effect between guise and speaker suggests that listeners did not interpret TRAP backing differently based on the location of KIT and DRESS but rather where TRAP fell in the overall vowel space. In other words, this result suggests that the vocalic context did not act as a normalizing baseline for the degree of TRAP retraction so much as it carried social meaning in its own right. However, as this task was not set up to disentangle these effects, it remains an interesting empirical question to what extent nonmanipulated stimulus context carries social meaning versus simply normalizes critical vowels.

12. Of course, principal components within the same response space are orthogonal to one another, by definition; it would be trivial to say that PC1 and PC2 themselves are orthogonal, since they must be. However, it is not trivial that the predictors that best model PC1 are largely orthogonal to those that best model PC2.

REFERENCES

- Agha, Asif. 2003. "The Social Life of Cultural Value." *Language and Communication* 23, nos. 3-4 (July-Oct.): 231-73. [https://doi.org/10.1016/S0271-5309\(03\)00012-0](https://doi.org/10.1016/S0271-5309(03)00012-0).
- Bailey, Guy, Tom Wikle, Jan Tillery, and Lori Sand. 1993. "Some Patterns of Linguistic Diffusion." *Language Variation and Change* 5, no. 3 (Oct.): 359-90. <https://doi.org/10.1017/S095439450000154X>.
- Barr, Dale J., Roger Levy, Christopher Scheepers, and Harry J. Tily. 2013. "Random Effects Structure for Confirmatory Hypothesis Testing: Keep It Maximal." *Journal of Memory and Language* 68, no. 3 (Apr.): 255-78. <https://doi.org/10.1016/j.jml.2012.11.001>.
- Becker, Kara, ed. 2019. *The Low-Back-Merger Shift: Uniting the Canadian Vowel Shift, the California Vowel Shift, and the Short Front Vowel Shift across North America*. Publication of the American Dialect Society 104. Durham, N.C.: Duke University Press. <https://read.dukeupress.edu/pads/issue/104/1>.
- Blake, Renée, and Cara Shousterman. 2010. "Diachrony and AAE: St. Louis, Hip-Hop, and Sound Change outside of the Mainstream." *Journal of English Linguistics* 38, no. 3 (Sept.): 230-47. <https://doi.org/10.1177/0075424210374955>.
- Boberg, Charles. 2005. "The Canadian Shift in Montreal." *Language Variation and Change* 17, no. 2 (July): 133-54. <https://doi.org/10.1017/S0954394505050064>.
- . 2010. *The English Language in Canada: Status, History, and Comparative Analysis*. Cambridge: Cambridge University Press.
- . 2019. "A Closer Look at the Short Front Vowel Shift in Canada." *Journal of English Linguistics* 47, no. 2 (June): 91-119. <https://doi.org/10.1177/0075424219831353>.
- Boersma, Paul, and David Weenink. 2014. Praat: Doing Phonetics by Computer (software). Version 5.4.01. <http://www.fon.hum.uva.nl/praat/>.
- Bowie, David, Tracy Bushnell, Alison Collins, Peter Kudenov, Stacie Meisner, Melissa Ray, Brennan Scotland, Noelle Valentine, Becky Dricoll, Jessa Joehnk, and Katie Kubitskey. 2012. "A Very Northern California Shift? The Vowel System of Southcentral Alaska." Paper presented at New Ways of Analyzing Variation 41 (NWAV 41), Bloomington, Ind., Oct. 25-28, 2012.
- Bucholtz, Mary, Nancy Bermudez, Victor Fung, Lisa Edwards, and Rosalva Vargas. 2007. "Hella Nor Cal or Totally So Cal? The Perceptual Dialectology of California." *Journal of English Linguistics* 35, no. 4 (Dec.): 325-52. <https://doi.org/10.1177/0075424207307780>.

- Buchstaller, Isabelle. 2006. "Social Stereotypes, Personality Traits and Regional Perception Displaced: Attitudes towards the 'New' Quotatives in the U.K." *Journal of Sociolinguistics* 10, no. 3 (June): 362–81. <https://doi.org/10.1111/j.1360-6441.2006.00332.x>.
- Cameron, Deborah. 2000. *Good to Talk? Living and Working in a Communication Culture*. London: Sage.
- Campbell-Kibler, Kathryn. 2007. "Accent, (ING), and the Social Logic of Listener Perceptions." *American Speech* 82, no. 1 (Spring): 32–64. <https://doi.org/10.1215/00031283-2007-002>.
- Cardoso, Amanda, Lauren Hall-Lew, Yova Kementchedjhieva, and Ruaridh Purse. 2016. "Between California and the Pacific Northwest: The Front Lax Vowels in San Francisco English." In Fridland et al. 2016, 33–54. <https://doi.org/10.1215/00031283-3772890>.
- Centola, Damon, and Michael Macy. 2007. "Complex Contagions and the Weakness of Long Ties." *American Journal of Sociology* 113, no. 3 (Nov.): 702–34. <https://doi.org/10.1086/521848>.
- Clarke, Sandra, Ford Elms, and Amani Youssef. 1995. "The Third Dialect of English: Some Canadian Evidence." *Language Variation and Change* 7, no. 2 (July): 209–28. <https://doi.org/10.1017/S0954394500000995>.
- Dailey-O'Cain, Jennifer. 2000. "The Sociolinguistic Distribution of and Attitudes toward Focuser *like* and Quotative *like*." *Journal of Sociolinguistics* 4, no. 1 (Feb.): 60–80. <https://doi.org/10.1111/1467-9481.00103>.
- Dodsworth, Robin, and Richard A. Benton. 2017. "Social Network Cohesion and the Retreat from Southern Vowels in Raleigh." *Language in Society* 46, no. 3 (June): 371–405. <https://doi.org/10.1017/S0047404517000185>.
- Dodsworth, Robin, and Mary Kohn. 2012. "Urban Rejection of the Vernacular: The SVS Undone." *Language Variation and Change* 24, no. 2 (July): 221–45. <https://doi.org/10.1017/S0954394512000105>.
- D'Onofrio, Annette. 2015. "Persona-Based Information Shapes Linguistic Perception: Valley Girls and California Vowels." *Journal of Sociolinguistics* 19, no. 2 (Apr.): 241–56. <https://doi.org/10.1111/josl.12115>.
- . 2018a. "Controlled and Automatic Perceptions of a Sociolinguistic Marker." *Language Variation and Change* 30, no. 2 (July): 261–85. <https://doi.org/10.1017/S095439451800008X>.
- . 2018b. "Personae and Phonetic Detail in Sociolinguistic Signs." *Language in Society* 47, no. 4 (Sept.): 513–39. <https://doi.org/10.1017/S0047404518000581>.
- D'Onofrio, Annette, Penelope Eckert, Robert J. Podesva, Teresa Pratt, and Janneke Van Hofwegen. 2016. "The Low Vowels in California's Central Valley." In Fridland et al. 2016, 11–32. <https://doi.org/10.1215/00031283-3772879>.
- Durian, David. 2012. "A New Perspective on Vowel Variation across the 19th and 20th Centuries in Columbus, OH." Ph.D. diss., Ohio State University.
- Eckert, Penelope. 2008a. "Variation and the Indexical Field." *Journal of Sociolinguistics* 12, no. 4 (Sept.): 453–76. <https://doi.org/10.1111/j.1467-9841.2008.00374.x>.

- . 2008b. "Where Do Ethnolects Stop?" *International Journal of Bilingualism* 12, nos. 1–2 (Mar.): 25–42. <https://doi.org/10.1177/13670069080120010301>.
- Edwards, John. 1999. "Refining Our Understanding of Language Attitudes." *Journal of Language and Social Psychology* 18, no. 1 (Mar.): 101–10. <https://doi.org/10.1177/0261927x99018001007>.
- Fridland, Valerie. 2001. "The Social Dimension of the Southern Vowel Shift: Gender, Age and Class." *Journal of Sociolinguistics* 5, no. 2 (May): 233–53. <https://doi.org/10.1111/1467-9481.00149>.
- Fridland, Valerie, and Tyler Kendall. 2017. "Speech in the Silver State." In Fridland et al. 2017, 139–64. <https://doi.org/10.1215/00031283-4295222>.
- Fridland, Valerie, Tyler Kendall, Betsy E. Evans, and Alicia Beckford Wassink, eds. 2016. *Speech in the Western States*. Vol. 1, *The Coastal States*. Publication of the American Dialect Society 101. Durham, N.C.: Duke University Press. <https://read.dukeupress.edu/pads/issue/101/1>.
- Fridland, Valerie, Alicia Beckford Wassink, Tyler Kendall, and Betsy E. Evans, eds. 2017. *Speech in the Western States*. Vol. 2, *The Mountain West*. Publication of the American Dialect Society 102. Durham, N.C.: Duke University Press. <https://read.dukeupress.edu/pads/issue/102/1>.
- Fridland, Valerie, Tyler Kendall, and Charlie Farrington. 2013. "The Role of Duration in Regional U.S. Vowel Shifts." *Proceedings of Meetings on Acoustics* 19: 060296. <https://doi.org/10.1121/1.4799047>.
- Gelman, Andrew, John B. Carlin, Hal S. Stern, David B. Dunson, Aki Vehtari, and Donald B. Rubin. 2013. *Bayesian Data Analysis*. 3rd ed. Chapman & Hall/CRC Texts in Statistical Science. Boca Raton, Fla.: CRC Press.
- Godinez, Manuel, Jr., and Ian Maddieson. 1985. "Vowel Differences between Chicano and General Californian English?" *International Journal of the Sociology of Language* 1985, no. 53: 43–58. <https://doi.org/10.1515/ijsl.1985.53.43>.
- Gordon, Matthew J. 2005. "The West and Midwest." In *A Handbook of Varieties of English: A Multimedia Reference Tool*, vol. 1, *Phonology*, edited by Edgar W. Schneider, Kate Burridge, Bernd Kortmann, Rajend Mesthrie, and Clive Upton, 338–50. Berlin: Mouton de Gruyter.
- Gumperz, John J. 1982. *Discourse Strategies*. Cambridge: Cambridge University Press.
- Hagiwara, Robert. 1997. "Dialect Variation and Formant Frequency: The American English Vowels Revisited." *Journal of the Acoustical Society of America* 102, no. 1 (July): 655–58. <https://doi.org/10.1121/1.419712>.
- . 2006. "Vowel Production in Winnipeg." *Canadian Journal of Linguistics* 51, nos. 2/3 (July–Nov.): 127–41. <https://doi.org/10.1353/cjl.2008.0022>.
- Hartley, Laura C. 1999. "A View from the West: Perceptions of U.S. Dialects by Oregon Residents." In *Handbook of Perceptual Dialectology*, vol. 1, edited by Dennis R. Preston, 315–32. Amsterdam: Benjamins.
- Hickey, Raymond. 2017. "'Yes, That's the Best': Short Front Vowel Lowering in English Today: Young People across the Anglophone World Are Changing Their Pronunciation of Vowels According to a Change Which Started in North America." *English Today* 34, no. 2 (June): 9–16. <https://doi.org/10.1017/So266078417000487>.

- Hinton, Leanne, Birch Moonwomon, Sue Bremner, Herb Luthin, Mary Van Clay, Jean Lerner, and Hazel Corcoran. 1987. "It's Not Just the Valley Girls: A Study of California English." In *Berkeley Linguistics Society: Proceedings of the Thirteenth Annual Meeting, February 14–16, 1987*, edited by Jon Aske, Natasha Beery, Laura Michaelis, and Hana Filip, 117–28. Berkeley, Calif.: Berkeley Linguistics Society. <https://doi.org/10.3765/bls.v13i0.1811>.
- Honorof, Douglas N., Jill McCullough, and Barbara Somerville. 2000. "Comma Gets a Cure." <https://www.dialectsarchive.com/comma-gets-a-cure>.
- Husson, Francois, Julie Josse, Sebastien Le, and Jeremy Mazet. 2015. FactoMineR: Multivariate Exploratory Data Analysis and Data Mining (software). Version 1.36. https://cran.r-project.org/src/contrib/Archive/FactoMineR/FactoMineR_1.36.tar.gz.
- Internet Movie Database. 2018. "Black Panther (2018): Quotes." Accessed March 2, 2018. <http://www.imdb.com/title/tt1825683/quotes>.
- Johnstone, Barbara, Jennifer Andrus, and Andrew E. Danielson. 2006. "Mobility, Indexicality, and the Enregisterment of 'Pittsburghese.'" *Journal of English Linguistics* 34, no. 2 (June): 77–104. <https://doi.org/10.1177/0075424206290692>.
- Kennedy, Robert, and James Grama. 2012. "Chain Shifting and Centralization in California Vowels: An Acoustic Analysis." *American Speech* 87, no. 1 (Spring): 39–56. <https://doi.org/10.1215/00031283-1599950>.
- Kiesling, Scott F. 2004. "Dude." *American Speech* 79, no. 3 (Fall): 281–305. <https://doi.org/10.1215/00031283-79-3-281>.
- King, Sharese. 2017. "African American Identity and Vowel Systems in Rochester, New York." Paper presented at New Ways of Analyzing Variation 46 (NWAV 46), Madison, Wis., Nov. 2–5, 2017.
- Kohn, Mary, and Carly Stithem. 2015. "The Third Vowel Shift in Kansas: A Supra-regional Shift with Regional Variation." Paper presented at New Ways of Analyzing Variation 44 (NWAV 44), Toronto, Oct. 22–25, 2015.
- Kruschke, John K. 2015. *Doing Bayesian Data Analysis: A tutorial with R, JAGS, and Stan*. 2nd ed. Boston: Academic Press.
- Kuznetsova, Alexandra, Per Bruun Brockhoff, and Rune Haubo Bojesen Christensen. 2016. lmerTest: Tests in Linear Mixed Effects Models (software). Version 2.0-33. <https://mran.microsoft.com/snapshot/2017-02-04/web/packages/lmerTest/index.html>.
- Labov, William. 1991. "The Three Dialects of English." In *New Ways of Analyzing Sound Change*, edited by Penelope Eckert, 1–44. San Diego, Calif.: Academic Press.
- . 2007. "Transmission and Diffusion." *Language* 83, no. 2 (June): 344–87. <https://doi.org/10.1353/lan.2007.0082>.
- . 2010. *Principles of Linguistic Change*. Vol. 3, *Cognitive and Cultural Factors*. Chichester, U.K.: Wiley-Blackwell.
- . 2012. *Dialect Diversity in America: The Politics of Language Change*. Charlottesville: University of Virginia Press.
- Labov, William, Sharon Ash, and Charles Boberg. 2006. *The Atlas of North American English: Phonetics, Phonology, and Sound Change*. Berlin: Mouton de Gruyter.

- Labov, William, Sharon Ash, Maya Ravindranath, Tracey Weldon, Maciej Baranowski, and Naomi Nagy. 2011. "Properties of the Sociolinguistic Monitor." *Journal of Sociolinguistics* 15: 431–63. <https://doi.org/10.1111/j.1467-9841.2011.00504.x>.
- Leach, Hannah, Kevin Watson, and Ksenia Gnevshva. 2016. "Perceptual Dialectology in Northern England: Accent Recognition, Geographical Proximity and Cultural Prominence." *Journal of Sociolinguistics* 20, no. 2 (Apr.): 192–211. <https://doi.org/10.1111/josl.12178>.
- Lobanov, Boris M. 1971. "Classification of Russian Vowels Spoken by Different Speakers." *Journal of the Acoustical Society of America* 49, no. 2, pt. 2 (Feb.): 606–8. <https://doi.org/10.1121/1.1912396>.
- Lusk, Melanie. 1976. "Phonological Variation in Kansas City: A Sociolinguistic Analysis of Three-Generation Families." Ph.D. diss., University of Kansas.
- McLarty, Jason, Tyler Kendall, and Charlie Farrington. 2016. "Investigating the Development of the Contemporary Oregonian English Vowel System." In Fridland et al. 2016, 135–58. <https://doi.org/10.1215/00031283-3772934>.
- Meyerhoff, Miriam, and Nancy Niedzielski. 2003. "The Globalisation of Vernacular Variation." *Journal of Sociolinguistics* 7, no. 4 (Nov.): 534–55. <https://doi.org/10.1111/j.1467-9841.2003.00241.x>.
- New York Times. 2017. "Presidential Election Results." Aug. 9, 2017. <https://www.nytimes.com/elections/results/president>.
- Niedzielski, Nancy. 1999. "The Effect of Social Information on the Perception of Sociolinguistic Variables." *Journal of Language and Social Psychology* 18, no. 1 (Mar.): 62–85. <https://doi.org/10.1177/0261927X99018001005>.
- Plummer, Martyn. 2003. JAGS: A Program for Analysis of Bayesian Graphical Models Using Gibbs Sampling (software). Version 4.0.0.
- Pratt, Teresa, and Annette D'Onofrio. 2017. "Jaw Setting and the California Vowel Shift in Parodic Performance." *Language in Society* 46, no. 3 (June): 283–312. <https://doi.org/10.1017/S0047404517000227>.
- Preston, Dennis R. 1996. "Where the Worst English Is Spoken." In *Focus on the USA*, edited by Edgar W. Schneider, 297–360. Amsterdam: Benjamins.
- . 1999. "A Language Attitude Approach to the Perception of Regional Variety." In *Handbook of Perceptual Dialectology*, vol. 1, edited by Dennis R. Preston, 359–73. Amsterdam: Benjamins.
- R Core Team. 2019. R: A Language and Environment for Statistical Computing (software). Version 3.6.1. <https://www.r-project.org/>.
- Roeder, Rebecca. 2012. "The Canadian Shift in Two Ontario Cities." *World Englishes* 31, no. 4 (Dec.): 478–92. <https://doi.org/10.1111/j.1467-971X.2012.01775.x>.
- Schilling, Natalie. 2013. "Investigating Stylistic Variation." In *The Handbook of Language Variation and Change*, 2nd ed., edited by J. K. Chambers and Natalie Schilling, 327–49. Chichester, U.K.: Wiley-Blackwell.
- Silverstein, Michael. 2003. "Indexical Order and the Dialectics of Sociolinguistic Life." *Language and Communication* 23, nos. 3–4 (July–Oct.): 193–229. [https://doi.org/10.1016/S0271-5309\(03\)00013-2](https://doi.org/10.1016/S0271-5309(03)00013-2).
- Strelluf, Christopher. 2014. "'We Have Such a Normal, Non-accented Voice': A Socio-phonetic Study of English in Kansas City." Ph.D. diss., University of Missouri.

- Styler, Will. 2017. "Using Praat for Linguistic Research." <http://wstyler.ucsd.edu/praat/>.
- TV Tropes. n.d. "Indexed States of America." Accessed Feb. 26, 2018. <http://tvtropes.org/pmwiki/pmwiki.php/Main/IndexedStatesOfAmerica>.
- Villarreal, Dan. 2016. "Do I Sound Like a Valley Girl to You?" Perceptual Dialectology and Language Attitudes in California." In Fridland et al. 2016, 55–75. <https://doi.org/10.1215/00031283-3772901>.
- . 2018. "The Construction of Social Meaning: A Matched-Guise Investigation of the California Vowel Shift." *Journal of English Linguistics* 46, no. 1 (Mar.): 52–78. <https://doi.org/10.1177/0075424217753520>.
- Wagner, Suzanne Evans, Alexander Mason, Monica Nesbitt, Erin Pevan, and Matt Savage. 2016. "Reversal and Re-organization of the Northern Cities Shift in Michigan." In "Selected Papers from New Ways of Analyzing Variation (NWA 44)," edited by Helen Jeoung. *University of Pennsylvania Working Papers in Linguistics* 22, no. 2: 171–79. <https://repository.upenn.edu/pwpl/vol22/iss2/19/>.
- Wahl, Alexander R. 2010. "The Global Metastereotyping of Hollywood 'Dudes': African Reality Television Parodies of Mediatized California Style." In "Media Intertextualities: Semiotic Mediation across Time and Space," edited by Mie Hiramoto. Special issue, *Pragmatics and Society* 1, no. 2: 209–33. <https://doi.org/10.1075/ps.1.2.02wah>.
- Wassink, Alicia Beckford. 2015. "Sociolinguistic Patterns in Seattle English." *Language Variation and Change* 27, no. 1 (Mar.): 31–58. <https://doi.org/10.1017/S0954394514000234>.
- Wells, J. C. 1982. *Accents of English*. Cambridge: Cambridge University Press.
- Williams, Angie, Peter Garrett, and Nikolas Coupland. 1999. "Dialect Recognition." In *Handbook of Perceptual Dialectology*, vol. 1, edited by Dennis R. Preston, 345–58. Amsterdam: Benjamins.

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