

## Social Influences on the Degree of Stop Voicing in Inland California

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Studies of stop consonant variation have primarily examined properties of the release phase (Docherty and Foulkes 2005) and variation in manner of articulation (Drager 2011), rather than phonetic variation in the closure itself. A notable exception is Jacewicz et al.'s (2009) study of word-initial /b/, which reports that Southerners (from North Carolina) voice a greater percentage of stop closures than people from Wisconsin. This paper examines social influences on the realization of voiced stops in inland California, demonstrating that a greater degree of voicing is evident in the speech of people who earn their livelihood off the land.

We examine data from Redding, Merced, and Bakersfield, marking the northern, middle, and southern ends, respectively, of California's Central Valley. All of these communities witnessed heavy in-migration during the Dust Bowl, bringing new residents from several Southern states, including Oklahoma and Arkansas. Many migrants pursued industries that drew on the natural resources of their communities, like timber and ranching in Redding, farming in Merced, and oil in Bakersfield. These migrants also brought Southern speech features to the Central Valley, including the PIN-PEN merger (Geenberg 2014), retracted /s/ (Podesva and Van Hofwegen 2014), and, argued here, strongly voiced stops.

We analyzed sociolinguistic interviews with 62 white residents of the three communities, balanced for sex, age, and whether a speaker earns their livelihood off the land. Interviews were transcribed and forced-aligned (Rosenfelder et al. 2011), and – for each speaker – stop closures, voicing intervals within stop closures, release bursts, and following vowels were annotated for 15 tokens each of /b, d, g/. The duration and intensity of each interval were recorded via Praat script. Two measures of voicing strength were considered: %\_voiced (percentage of voicing during closure), following Jacewicz et al. (2009), and voicing\_intensity (closure intensity relative to following vowel intensity), a novel measure. Mixed effects linear regression models were constructed for both voicing measures, with a number of linguistic (stop place, phonological context, duration) and social (sex, age, ties to the land, whether speakers descend from Dust Bowl “Okies”) predictors considered in addition to random effects (speaker, word).

Results show that %\_voiced did not differentiate speakers, as nearly everyone exhibited voicing throughout the closure. The voicing\_intensity measure, however, reveals significant effects of place of articulation ( $p < 0.005$ ), closure duration ( $p < 0.001$ ), and ties to the land ( $p < 0.021$ ). While speakers earning their livelihood off the land exhibit more strongly voiced stops than those who do not, stronger voicing was not more evident in the speech of Okies.

We argue that although strongly voiced stops likely entered California during the Dust Bowl, they have taken on new life as a local feature more closely linked to the values held by its speakers (e.g., working the land) than to their families' geographic origin, replicating Geenberg's (2014) findings with respect to the PIN/PEN merger in Trinity County. Our findings also raise the question of where the linguistic limits of socially structured variation lie, given the systematic patterns observed here for low-level phonetic details operating far below the level of consciousness.