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**Highlights**

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- Chinese Americans in New York City and San Francisco differ in their vowel pronunciation.
  - Speakers in each city produce the BOUGHT vowel in line with their respective regional patterns.
  - Many older Chinese New Yorkers, similar to their European cohort, produce raised-BOUGHT.
  - Older Chinese San Franciscans, unlike their European cohort, do not produce raised-BOUGHT.
  - The patterning difference is best understood by examining the indexicality of raised-BOUGHT.
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# Regional variability and ethnic identity: Chinese Americans in San Francisco and New York City

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## ABSTRACT

This paper examines the realizations of the BOUGHT vowel (in words like *taught* and *sauce*) by Chinese Americans of Cantonese heritage in New York City and San Francisco. Quantitative analyses find that Chinese Americans in the two cities pronounce BOUGHT in ways that are more similar to their respective regional patterns than to one another. We argue that the quantitative results should be interpreted by considering the complex semiotic links this variable has with respect to non-Asian ethnicities and by considering speakers' negotiations of their local and cultural identities amidst different (and changing) sociohistorical contexts. We propose that regional features can index not just regional identity but also its intersection with ethnicity.

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## 1. Introduction

The intersection between regional dialectology, regional sound change, and ethnic identity is of increasing interest to sociolinguists, particularly in studies of variation in North American English (Bernstein, 1993; Eberhardt, 2010; Fought, 1999; Fridland and Bartlett, 2006; Ocumpaugh, 2010; Yaeger-Dror and Thomas, 2010; inter alia). Prior to this, traditional descriptions of US regional dialects tended to focus mainly on speakers of European descent (e.g. Irish, Italians, Germans, and Eastern European Jews), and regionally situated “ethnic variation” was often framed as variation among these various European groups (Carlock and Wölck, 1981; Labov, 1966, 1972 [1963], 2001). Studies of variation in English production among non-“white” ethnic minorities (e.g. African Americans, Latinos), with a few exceptions, have focused less on dialectal variation than on the identification of an ethnically-distinctive set of features that set those speakers apart from the white “mainstream” variety. Under such compartmentalization of regional versus ethnic varieties, minority speakers’ use of ethnolectal (Carlock and Wölck, 1981; Clyne, 2000) features has been viewed as a move to stake claims to ethnic membership. Their use of regional features, on the other hand, has often been framed as evidence of assimilation or accommodation to the white “mainstream” patterns and hence a departure from their distinct ethnic identity (e.g., Labov, 1972). Recent work, however, suggests that such dichotomization risks oversimplifying the multivalent and multimodal nature of identities as well as the nuanced ways in which these identities are indexed and negotiated linguistically (Benor, 2010; Eckert, 2008b; Mendoza-Denton, 2002). The problem is particularly apparent when one considers the use of English by members of various Asian American groups.

Attempts to identify a distinctive set of linguistic features or patterns that are associated uniquely with Asian American groups have been inconclusive (see Bucholtz, 2004; Mendoza-Denton and Iwai, 1993; Newman and Wu, 2011; Nagy et al., this volume). As Reyes and Lo (2009, p. 5) note, the lack of a singular, identifiable “Asian American ethnolect” suggests that it

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is not possible to apply an ethnolectal framework to account for how Asian Americans might index ethnic identity linguistically. Bucholtz argues that the “distinctiveness-centered models of language and ethnicity”—the models that have driven much of the work on variation and ethnicity in US English—‘fail outright when confronted with Asian Americans’ speech practices, especially but not only those of the English-speaking second generation’ (2004, p. 130). One reason for the absence of an unequivocal linguistic distinctiveness of Asian Americans is that the vast social, cultural, and linguistic diversity of “Asia” means that the category of “Asian America” is also, unsurprisingly, very diverse. With the 20th century rise of an Asian American middle class, this vast diversity within “the Asian American experience” is also glaringly apparent with respect to social class and immigrant generation. Even a more (superficially) focused construct such as “the Chinese American experience” is still a site of incredible *erasure* (Irvine and Gal, 2000) of the innumerable ways of being a person with Chinese heritage in the United States. For instance, as we will show in this paper, Chinese Americans who grew up in different parts of the US and/or at different eras of the US history may in fact experience being “Chinese American” in dissimilar ways.

The heterogeneity both within the Asian American construct and within different Asian American communities leads many researchers who work on the linguistic construction of Asian American identities to move beyond the traditional ethnolectal framework that often downplays intra-ethnic difference. Instead, these researchers show that despite the absence of a delineable ethnolect, Asian Americans still employ a range of linguistic resources for identity constructions. Many Asian American youths, for instance, are found to resist “white mainstream” forms by appropriating “African American English” forms (Bucholtz, 2004; Chun, 2001; Reyes, 2005, 2007). Scholars documenting this process show how features traditionally attributed to African American English (AAE) are resources that can index social meanings like “toughness” and “masculinity”, rather than “ethnicity”. These studies analyze the Asian American appropriation of AAE features not as a move by speakers to stake claims on African American ethnicity, but to construct particular personae and identities in locally situated contexts, such as being a (former) Laotian gang member (see Bucholtz, 2004) or being a hyper(hetero)sexual Korean male (see Chun, 2001). Speakers often project these personae and identities to distinguish themselves from (or align themselves with) other personae or identities that are salient within the local Asian American community or that are stereotypically linked to Asian Americans more generally. In other cases, the construction of complex Asian American identities and personae is achieved through the creation of new, locally recognized linguistic styles that combine elements typically associated with AAE with elements of Asian heritage languages (Shankar, 2008). The use of diverse linguistic resources that are drawn from multiple dialects or languages (as opposed to from a rigid set of ethnolectal features) is an increasingly common linguistic phenomenon that characterizes many contemporary immigrant communities (Bailey, 2000; Blommaert, 2010; Cutler, 2008; Wolford and Evanini, 2006). This body of work demonstrates that the elusive Asian American ethnolect leads productively to a more general perspective on language and (ethnic) identity: linguistic forms become linked to (ethnic) identity through interaction, simultaneous with other local meanings.

In this paper we draw on these previous insights about the complexity of Asian American English and identities and apply them to theories of sound change and dialectology. We examine the production of the BOUGHT<sup>1</sup> vowel among 24 Chinese Americans of Cantonese heritage<sup>2</sup> in New York City and San Francisco. Rather than choosing a variable that has been shown to index Asian/Chinese/Cantonese ethnicity, we chose a variable that is very well studied in the US dialectological literature (Labov et al., 2006, Chapter 9.1), and that is linked to non-Asian ethnic identities in complex ways (Becker, 2010, 2011, this volume; Eberhardt, 2010; Herold, 1997). Our focus is on the intersection between ethnic and regional identities (rather than maintaining a separation between the two). An intersectional approach (McCall, 2005) to ethnicity and regional identity follows from a perspective on language and identity that sees variation as locally emergent social practice (Bucholtz and Hall, 2005; Eckert, 2008a,b; Silverstein, 2003). This perspective foregrounds not only the multidimensionality of identity but also how multiple “dimensions” of identity enter into dialectic relationships with one another and can be mutually constitutive. As we will show in our paper, regional identities are not necessarily ethnically neutral. Ethnicity could function as an emblem (Agha, 2007) of a regional persona, along with other linguistic and cultural emblems. Similarly, in making sense of their ethnicity, individuals may draw on regions and regional personae to show certain alignments (or disalignments). The representation of a social persona often packages together multiple emblems—region, ethnicity, language, stance, etc. Consequently, linguistic features that are designated as “regional” by sociolinguists could have a rich field of indexical meanings including region, ethnicity, class, etc. Given the semiotic link between region, ethnicity and other dimensions of identity, we argue that participation in (or resistance to) regional changes in BOUGHT realization by Chinese Americans should not be interpreted narrowly and straightforwardly as accommodation to (or departure from) “mainstream” regional norms, per se, but rather as the outcome of identity work in which ethnicity plays an integral part. In this way, regional features can be considered potential features in a speaker’s ‘ethnolinguistic repertoire’ (Benor, 2010).

Unlike most papers that focus only on one location, this paper represents a comparative analysis of contemporary BOUGHT vowel production in two very different regional dialect areas of US English. This allows us to conduct the first systematic, cross-dialect comparison of Chinese Americans’ production of regional variation in US English. The comparison between New York and San Francisco is informative not simply because they constitute separate dialect regions with different realization of BOUGHT. The two regions also differ in how regional and ethnic identities intersect. This is more apparent when

<sup>1</sup> In this paper we primarily follow the bVt representation of vowel classes (Yaeger-Dror and Thomas, 2010). We supplement this with the classification in Wells (1982) in our discussion of distinctions that are not captured in the bVt representation.

<sup>2</sup> We use the term “Cantonese” here to refer both to the geographic origins of the immigrant generations of the American-born Chinese in this study and the linguistic varieties associated with the region, including Cantonese, Taishanese (Toisanese) and other Yue varieties.

we consider the emblematic figures/personae that are associated with the two regions. While the iconic New Yorker continues to be indexed largely with being “white” (Jewish/Italian) and seldom with being Asian (American), Northern California identity is increasingly (but not exclusively) constructed in part through Asian (American), and specifically Chinese (American), cultural practices.<sup>3</sup> The difference between the two regions in terms of their ethnic associations is a result of long and complex historical developments. Chinese Americans have salient historicity in Northern California, whereas in New York, Chinese Americans have mostly become significant in number only since the 1970s (Wong, 2010). Before then, many Chinese New Yorkers lived in ethnic enclaves and were not considered a part of the mainstream society. Other Chinese New Yorkers who did not reside in ethnic enclaves often found themselves living as members of an ethnic minority in majority “white” (often Jewish, Italians, Irish and Polish) neighborhoods. Consequently, a stereotypic New York persona is often of someone with Jewish, Irish or Italian—and seldom Asian or more specifically Chinese—ancestry, and is linguistically indexed through variables that were associated with these “white” ethnic New Yorkers. The social persona of a “white ethnic” New Yorker may be invoked by Chinese New Yorkers as they negotiate their intra-ethnic and inter-ethnic identity.

Although ethnic segregation also characterized early San Francisco up until World War II, the salience of the Chinese community dates back to the city’s founding. Nowadays, the Chinese population constitutes an increasingly integrated and visible segment of both cities, but arguably more so in San Francisco than in New York City. In San Francisco, the combination of a partially Asian founder population, a new Asian plurality (or majority, in some neighborhoods), along with an increase in class diversification among Asians has resulted in a social situation that is relatively unusual in the context of contemporary North America, one marked by a surprising<sup>4</sup> lack of stigma towards linguistic and social practices linked to Asian and specifically Chinese immigrant identities (Hall-Lew, 2013, in press-a; Hall-Lew and Starr, 2010; see also Shankar, 2008 for a similar point about South Asian identities). In such a context, linguistic variants that previously indexed only “white” Californian persona may be acquiring new orders of indexicality which encompass Chinese American persona. One possibility of this social shift is that the meanings of “Californian” and “Chinese American” may increasingly come to co-index one another, and that previously “Californian” variables may even gain such a rich indexical field of meanings that the association with Californian identity ceases to be primary (see Podesva, 2011 for a similar process for gay male identity). In such a scenario, these linguistic variables may have important consequences for the linguistic variability of all Chinese-heritage Americans who have access to, recognize, and orient to those indexical meanings. Under this view, a variable’s indexical field must be modeled to permit one to understand, among other things, its potential participation in ethnic variation.

## 2. The linguistic variable: phonological patterns and indexical meanings

Our investigation of English use among Chinese Americans focuses on the BOUGHT vowel, building on previous work among non-Chinese Americans in New York City and San Francisco (Becker, 2010, this volume; Cogshall and Becker, 2010; Hall-Lew, 2009; Labov, 1966; Labov et al., 2006; Moonwomon, 1991). The well-documented quantitative phonological differences between the low back vowels of San Francisco English and New York City English offer a useful starting point of comparison between speakers of the two regions.

The BOUGHT vowel in New York City is not only traditionally distinct from BOT but is also more raised and in-gliding than in other US dialects. Labov (1966) argued that raised BOUGHT began in New York City as an ethnically stratified feature that indicated speakers’ identification originally with New Yorkers of (Eastern European) Jewish descent. And as the traditional orientation of New Yorkers into separate groups of Jews, Irish, and Italians gradually gave way to new social patterns in which the “white” population was contrasted as a whole to the non-“white” population, raised BOUGHT also became a socially stratified feature that indicated speakers’ affiliation with the (“white”) working class in the region. More recent research on raised BOUGHT in New York City found that New Yorkers of non-“white” backgrounds including African Americans, Chinese Americans and Latinos also produced raised BOUGHT to varying degrees (Becker, 2010, this volume; Cogshall and Becker, 2010; Wong, 2007). There is also apparent-time evidence that traditionally raised BOUGHT is lowering in New York City (Becker, 2010; Wong, 2012). Younger New Yorkers’ vowel nuclei for BOUGHT are found to be lower than those of their elders, although not as low as for BOT. In other words, while younger New Yorkers’ continue to distinguish BOUGHT and BOT, fewer young speakers in the region are producing raised BOUGHT than older and middle-aged speakers.

In contrast, in Western US Englishes, the BOUGHT vowel nucleus appears to be merging (or has already merged) with BOT, at least in F1/F2 space. San Francisco, however, appears to be lagging behind the rest of the Western region and, specifically, the rest of California (Labov et al., 2006). While BOUGHT appears to be lowering and fronting at a slower rate than what might be expected for an unimpeded change in progress, some evidence does suggest that English in San Francisco is nonetheless progressing in the direction of merger (Hall-Lew, 2009, 2013; Moonwomon, 1991).

Despite regional differences in the realizations of BOUGHT, there appear to be subtle and ongoing ideological and linguistic links between the two cities, possibly including this variable. Prior work has proposed that San Francisco’s resistance to BOUGHT lowering may be related to ethnic identity and the construction of a particularly “traditional” San Franciscan persona (Hall-Lew, 2009). Evidence from earlier descriptions (DeCamp, 1953) and more recent analysis (Hall-Lew, in press-b)

<sup>3</sup> The number and type of such practices is well beyond the present scope, but include patterns of material consumption, physical adornment, and language use; see Hall-Lew (2009) and Starr (2011).

<sup>4</sup> Surprising, given a history of formal and informal racism and xenophobia towards Chinese Americans in North America, such as the Chinese Exclusion Act of 1882, and the perpetuation of racism throughout much of the US today.



suggests that certain older European Americans in San Francisco seem to take New York City as a model for “local”, “real San Franciscan” speech patterns. Contemporary acoustic data from speakers with this particular ideology shows that they also produce a raised, in-gliding BOUGHT vowel that may be similar to the contemporary New York type. Residual ideological connections between a San Franciscan English and New York City English may account, in part, for the perseverance of an unmerged and raised BOUGHT vowel, at least among European Americans. A backed and raised BOUGHT vowel also probably indexed European (and especially Irish; see Hall-Lew, *in press-b*) ethnicities in early 20th century San Francisco, by virtue of its link with New York City indexes (see below) as well as its local distribution of use. For some older contemporary San Franciscans, it may still index local authenticity.

Younger San Franciscans, in contrast, are entirely unaware of any ideologies connecting San Francisco English to New York City English. They have grown up at a time when California is increasingly imagined, both within and outside of the state, as liberal and multicultural as well as carefree and affluent (Eckert, 2008b; Podesva, 2011). Instead of looking towards the Eastern Seaboard for cultural and linguistic models like their older counterparts, younger speakers in San Francisco likely look to more general regional patterns of phonetic production, such as the merger between BOT and BOUGHT, as their target model (Hall-Lew, 2009). The lowering, fronting (and eventual loss) of the BOUGHT phoneme is pervasive across the Western US in general and California in particular. Its rapid spread throughout the Western region paralleled rapid increases in urban multiculturalization. For example, in the 1950s DeCamp noted that the low back merger characterized the Pacific Northwest (‘parts of Washington’) and other parts of the West (‘Utah, for example’; DeCamp, 1959, p. 60), but only just ‘beginning in San Francisco’ (DeCamp, 1953, p. 555). Less than 40 years later, Moonwomon concluded that all of the youngest San Franciscans in her study showed ‘complete or almost complete’ merger (Moonwomon, 1991, p. 119–203). The speed and cultural context of this change might be one reason why the newer, lowered BOUGHT variant does not seem to index any particular ethnicity in the way that raised BOUGHT does (at least not for more speakers; see Hall-Lew, 2013). Without the same kind of indexical load, lowered BOUGHT may be more readily available than raised BOUGHT as a resource for younger San Franciscans of diverse ethnic backgrounds to stake claims to regional identity.

In our analysis of patterns of the BOUGHT vowel among Chinese Americans, we consider the ways in which the quantitative profiles may be similar or different between speakers across the two regions. Our statistical analysis explores the significance of region as a main effect in two different models of BOUGHT variability. To understand the quantitative differences found in our speakers, we make reference to the patterns of BOUGHT production among speakers of non-Chinese backgrounds documented in existing literature (Becker, 2010; Hall-Lew, 2009; Labov, 1966; Labov et al., 2006; Moonwomon, 1991). We draw on ethnographic and sociohistorical data to interpret and discuss our statistical results, focusing particularly on speakers’ reflective discourse on how they navigate being Chinese American amidst the changing social orders within and across the two regions over time. We argue that the linguistic variability in our sample, whether in terms of BOUGHT vowel height or in terms of its distinction from BOT, is best understood with reference to speakers’ fluid negotiation of identities in a given space and time. A thorough understanding and explanation of the significant linguistic differences between Chinese Americans within and across the two regions depends heavily on modeling the concept of “region” to speakers’ lived experience of region, which cannot be separated from their lived experience of ethnicity. What appear to only be regional differences may be more deeply understood through attention to the relevant social meanings in each region.

### 3. Methods

The analysis is based on a comparison of 24 Cantonese Americans (Table 1), twelve from New York City (NYC) and twelve from San Francisco (SF). 21 of 24 are second-generation Americans (whose parents immigrated), and of the remaining three, one immigrated at the age of five (“Nick”, NYC), one immigrated as a teenager (“Lou”, SF), and one is third-generation (“Ruth”, SF). Six of the twelve speakers in each location are female and the sample is stratified according to age, with an effort to match each New Yorker with a San Franciscan of comparable age and gender. Age-matched pairs are within at most six years of one another, with the exception of the two oldest male speakers; the New Yorker (“George”) is 61 while the San Franciscan (“Lou”) is 87.

Data were obtained from sociolinguistic interviews conducted by the second author during semi-ethnographic fieldwork in San Francisco in 2008–2009 and the first author during ethnographic fieldwork in New York in 2009–2010.<sup>5</sup> Fieldwork in San Francisco focused on the Sunset District, a majority Asian American neighborhood with a strong Cantonese presence, considered both locally and academically to be a ‘New Chinatown’ (Laguerre, 2005; see Hall-Lew, 2009). Fieldwork in New York sampled Chinese Americans who came from a range of New York City neighborhoods (see Wong, 2012). Vowel tokens were taken from interview contexts in most cases, and supplemented with extra tokens from reading passages when (1) there were fewer than ten tokens for a particular vowel class for a given speaker, and (2) the reading passage tokens’ formant values did not differ to any noticeable extent from the interview tokens’ formant values.

For comparison between the two regional datasets, the BOT and BOUGHT vowels were of analytical interest. BEET, BAT, and BOOT were also measured for normalization purposes. The envelope of variation was defined conservatively: all vowel tokens followed by a nasal, liquid, or glide were omitted from analysis. All BAT vowels followed by a voiced stop or a voiceless fricative

<sup>5</sup> The first author is a Hong Kong Chinese native who speaks English with a non-American accent. The second author is a 5th-generation Mixed-race Chinese American with complete BOT/BOUGHT merger.

**Table 1**

The 24 Cantonese Americans analyzed in this study.

Speaker pseudonym	Age @ Interview	YOB	Gender	Region	Immigrant generation
Winnie	71	1940	F	NYC	2
Jane	61	1949	F	NYC	2
Tina	58	1952	F	NYC	2
MadamX	39	1970	F	NYC	2
EmilyNY	25	1985	F	NYC	2
Cindy	15	1995	F	NYC	2
George	61	1949	M	NYC	2
Norman	41	1969	M	NYC	2
Joseph	36	1974	M	NYC	2
Ernie	29	1980	M	NYC	2
Tim	19	1990	M	NYC	2
Nick	15	1995	M	NYC	(2)
Enid	76	1932	F	SF	2
Jenny	60	1949	F	SF	2
Ruth	53	1954	F	SF	3
EmilySF	37	1970	F	SF	2
Jojo	27	1982	F	SF	2
Monica	16	1991	F	SF	2
Lou	87	1922	M	SF	1
Sal	45	1962	M	SF	2
John	30	1977	M	SF	2
Hector	28	1981	M	SF	2
Pete	23	1984	M	SF	2
Skylar	16	1991	M	SF	2

were eliminated (in both datasets) because of their differential patterning in the New York vowel system (Labov, 2007; Labov et al., 2006), and all BOOT vowels preceded by a coronal consonant (TOO) were coded separately (in both datasets) because of their differential patterning in the San Francisco and New York vowel systems (Hall-Lew, 2009, 2011; Labov et al., 2006). All PALM-class tokens (Wells, 1982) were excluded in both datasets.<sup>6</sup> Tokens of the CLOTH lexical set (Wells, 1982) were also excluded in the San Francisco data, where the system is more variable, but were retained in the New York data where it is clear from judgments obtained from speakers of New York City English that they are always merged with the BOUGHT class and can be coded as such.<sup>7</sup>

Formant measurements were taken at the point of inflection of the vowel's nucleus.<sup>8</sup> Tokens were normalized simultaneously across all 24 speakers using the Lobanov (Lobanov, 1971) method, as made available through the NORM suite (see also Thomas and Kendall, 2007; Watt et al., 2011). To capture differences in sound change between the two regions, the position of BOUGHT was calculated in two ways: (1) a direct comparison of normalized *F1* values of BOUGHT across speakers, representing a change in vowel height, and (2) a comparison of the difference between BOUGHT and BOT in terms of both *F1* and *F2*, for each speaker, representing the change towards vowel merger. We used the Pillai–Bartlett trace (Hall-Lew, 2010; Hay et al., 2006), a type of MANOVA, to measure and quantify the degree of distinction between BOUGHT and BOT as represented by tokens that are unevenly distributed across phonological contexts; the method is described in the next section where we report our acoustic analysis and quantitative results on the overall effects of region and age on the height (*F1*) of BOUGHT and the extent of BOUGHT/BOT distinction (Pillai score). We interpret these results with reference to ethnographic and sociohistorical data to provide a more nuanced understanding of the variation in BOUGHT realization between the two regions.

#### 4. Quantitative analysis and results

To model variability in the realization of BOUGHT and BOT among these 24 speakers, we performed two mixed-effects linear regression analyses: one model based only on BOUGHT *F1* (height), and one model compared the degree of distinction between BOUGHT and BOT with respect to both *F1* and *F2* (distinction). All statistical analyses were performed using the R environment for statistical computing (R Development Core Team, 2012). For the height analysis, normalized *F1* of BOUGHT was the response variable. The predictor variables included following phonological environment, region, and year of birth. We also included speakers' self-reported competence in Cantonese as a predictor variable. Since we found no significant or meaningful correlation between this variable and BOUGHT height, or between this variable and the degree of BOUGHT/BOT distinction, we will not report further on speaker differences in Cantonese competence. Speaker and lexical item were both entered into the model as random effects for the height analysis, which was a token-level comparison.

<sup>6</sup> Some examples of words in the PALM-class include words like *father*, *Mafia*, and *bravado*.

<sup>7</sup> Some examples of words in the CLOTH-class include words such as *off*, *cough*, *boss*, and *coffee*.

<sup>8</sup> We did not include formant measurements of any vowel's off-glide, since the focus of the current paper was on the height of the BOUGHT vowel and its extent of distinction from BOT on the height and advancement dimensions.



**Table 2**

Predictor variables for BOUGHT.

Predictor variables	
1. Following Phon. Environment	5 levels: _ /t/ (e.g. caught, thought) _ /k/ (e.g. talk, hawk) _ /s, z/ (e.g. sauce, cause) _ /f/ (e.g. off, cough) _ # (e.g. saw, law)
2. Region	2 levels: New York City San Francisco
3. Year of Birth	Continuous

For the *distinction* analysis, normalized *F1* and *F2* were first entered as the response variables to be considered simultaneously in the MANOVA test, with following phonological environment and word class as the two predictor variables. Following phonological environment was included in the analysis to first account for variation due to known phonological conditioning *before* determining if there is still a significant contrast between the two word classes. The MANOVA analysis produced for each speaker an *F*-value (the Pillai–Bartlett trace, henceforth, *Pillai score*) which can be interpreted as a summary of the extent to which the two word classes are statistically distinct. A Pillai score closer to 1 represents the maintenance of a relatively more robust distinction between BOUGHT and BOT either because there is greater distance between the two word classes, or because of less dispersion within each word class or a combination of both. The 24 speaker-specific Pillai scores were then entered as the response variable in a speaker-level fixed-effect linear regression analysis, with region and year of birth as the predictor variables. Table 2 provides the details of the predictor variables that were significant (e.g., gender was not a significant factor).

#### 4.1. Height analysis

Region, following phonological environment, and age were found to be significant main effects in a model of BOUGHT height. Region was by far the most significant predictor for the height of BOUGHT ( $p < 0.001$ ); BOUGHT is a much higher vowel for Cantonese-heritage New Yorkers (mean  $F1 = -0.172$ ) than for Cantonese-heritage San Franciscans (mean  $F1 = 0.657$ ). This difference is clearly seen in Fig. 1, which plots Lobanov-normalized *F1* means for each speaker against speaker year of birth. (Note, though, that the regression is modeled over tokens, not means). In Fig. 1, higher y-axis values represent phonetically higher vowels (lower normalized *F1* values). Lobanov-converted values are rescaled with respect to the center of the vowel space, so negative Lobanov values indicate vowels articulated in the upper half of the speaker's vowel space (i.e., closer to BOOT than to BOT). The mean normalized *F1* for BOOT and BOT (averaged across the entire sample) are also plotted in the figure as reference points to gauge the relative height of BOUGHT. As Fig. 1 shows, all but the two youngest New Yorkers are producing the average midpoint of the nucleus of BOUGHT as a mid or mid-high vowel, whereas all of the San Franciscans are producing it as a low vowel.

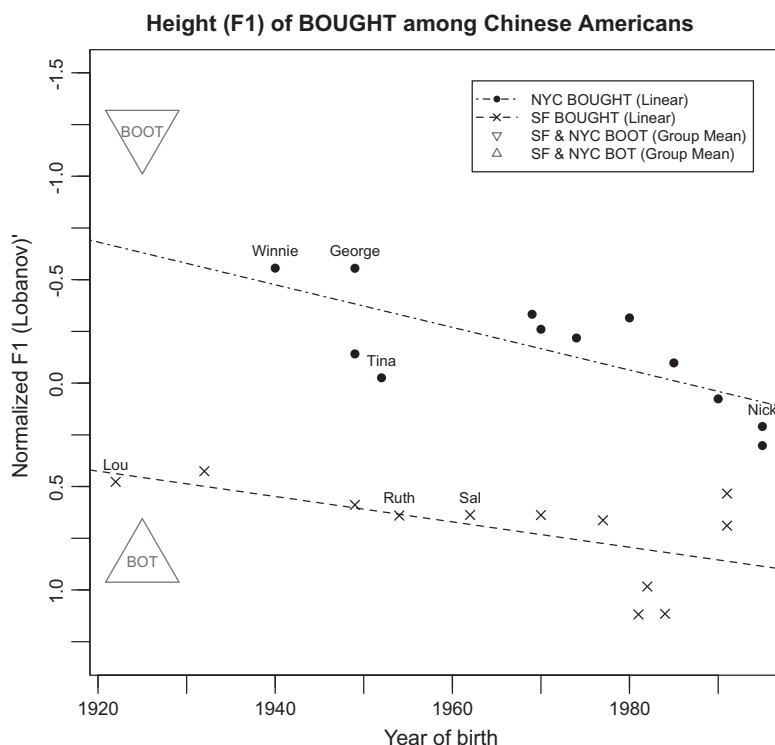
Despite the stark differences between regions, Fig. 1 also shows how year of birth is significantly correlated with the height of BOUGHT for both regions ( $p = 0.001$ ), with older speakers in both New York and San Francisco producing higher BOUGHT than their younger counterparts (coef. = 0.007). This is not surprising, given that BOUGHT is undergoing change-in-progress in both regions. Corroborating the findings in the literature, our results confirm that Chinese Americans in both regions are very much a part of their respective patterns of regional variation for this vowel.

Similar mixed model linear regression analyses were performed on the San Francisco and New York data separately with the same response and predictor variables (minus region). For the San Francisco data, year of birth was found to be the only significant main effect ( $p = 0.012$ ), with younger San Franciscans again producing relatively lower BOUGHT than the already-rather-low BOUGHT production by older San Franciscans (coef. = 0.006). Year of birth was also a significant predictor for the New York data ( $p = 0.003$ , coef. = 0.01), again in the same direction. Unlike the San Francisco data, BOUGHT height among the New Yorkers was also conditioned by following phonological environment ( $p < 0.001$ ; Table 3).

#### 4.2. Distinction analysis

The height of BOUGHT is one dimension of difference between regions; the other is the extent to which the nuclei of BOUGHT and BOT are distinguished from one another. A speaker's degree of distinction between BOT and BOUGHT along the height and advancement dimensions was operationalized by calculating a single Pillai score for each of the 24 speakers.<sup>9</sup> The Pillai score

<sup>9</sup> While, as already noted, the distinction between BOUGHT and BOT may also manifest itself through other aspects of differences, such as in vowel duration, the trajectory of the glides, or phonation (Di Paolo and Faber, 1990), the present analysis only considers distinction according to the height and advancement of the vowel nuclei.



**Fig. 1.** Mean F1 (height) of BOUGHT for 24 Chinese Americans, plotted by year of birth and region. Mean F1 of BOOT and BOT (averaged across the entire sample) are plotted as reference.

**Table 3**

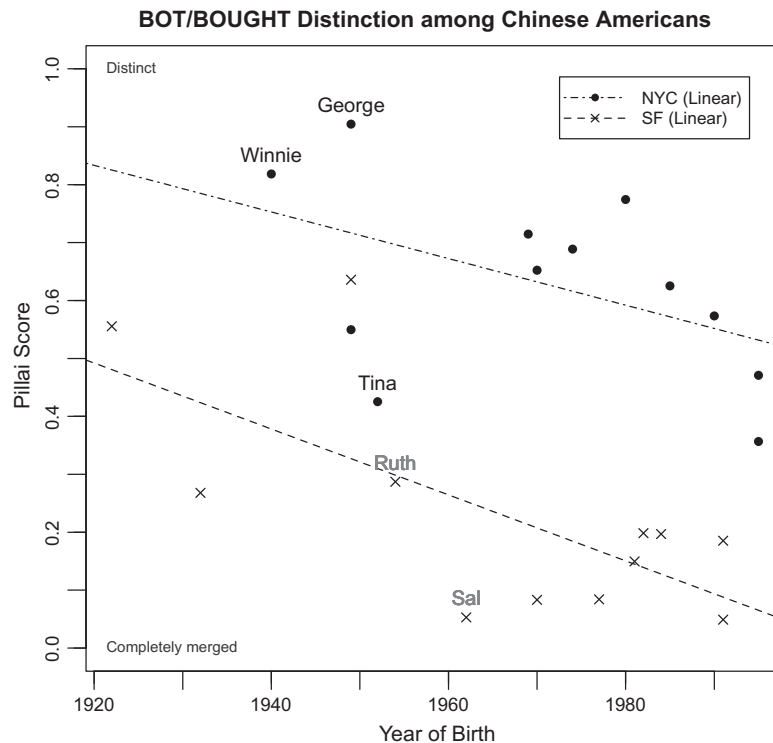
Following phonological environment as a significant predictor of BOUGHT height in the New York data.

Predictors	Linear coefficient	N	Mean F1
Following phonological Environment			
_/t/ (thought, caught)	−0.266	99	−0.372
_# (saw, law)	−0.126	13	−0.280
_/s, z/ (sauce, cause)	−0.048	87	−0.246
_/f/ (cough, off)	0.128	58	0.000
_/k/ (talk, hawk)	0.312	53	0.163

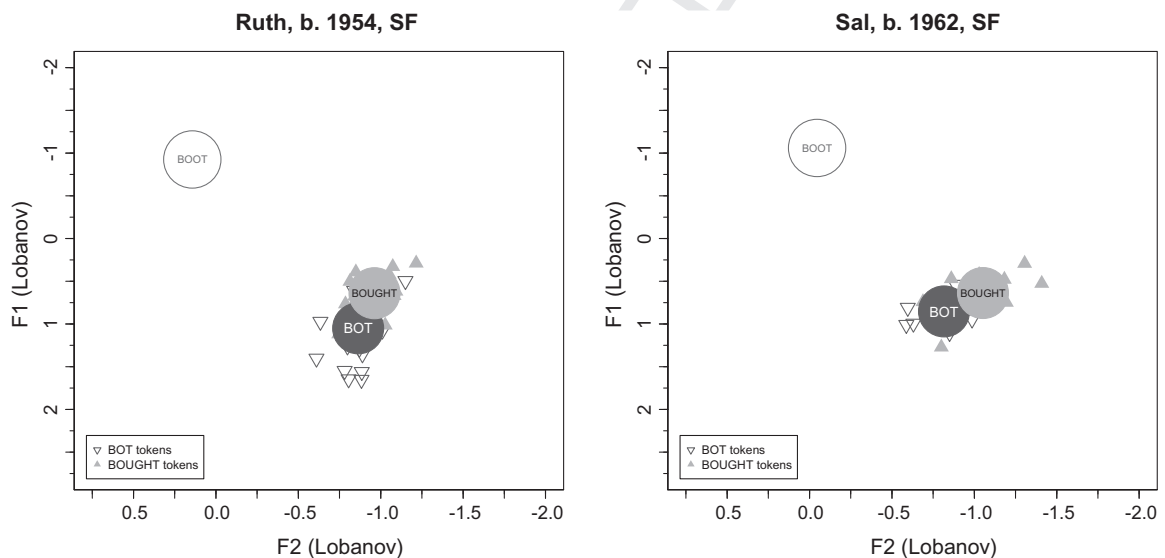
is essentially the  $F$ -value of a MANOVA that represents whether the BOT and BOUGHT tokens for a given speaker constitute two statistically distinct clusters, or not. The MANOVA takes into consideration both the amount of difference between the two vowel classes (i.e., BOT vs. BOUGHT) and the degree of variability within each vowel class along the height and anteriority dimensions concurrently. Given similar (ideally, identical) degrees of freedom for each individual, the Pillai scores are roughly comparable across speakers. The Pillai score ranges from 0 to 1, with 0 representing no distinction between the nuclei in F1 and F2, and with 1 representing the greatest possible distinction (see Hall-Lew, 2010 for more details). Conversely, the closer the Pillai score is to 0, the lower the degree of BOT/BOUGHT distinction in F1/F2 for that speaker. In other words, the greater the distance between the nuclei of the two vowel sets, the greater the Pillai value, all things being equal.

The MANOVA test also produces a  $p$ -value which estimates the extent to which the difference between tokens is predictable by vowel class membership. A significant  $p$ -value identifies those speakers whose BOT and BOUGHT are indeed distinct (although, unfortunately, an insignificant  $p$ -value cannot distinguish between a merged speaker and a speaker whose low back vowels are phonologically distinct but acoustically close, which describes much of the data for at least a near-merger). Fig. 2 plots the Pillai scores of the 24 speakers by region and by year of birth. Note that, in these data, Pillai scores over 0.25 all receive a significant  $p$ -value, showing that all but the eight San Franciscans born after 1960 have significantly distinct Pillai scores for these two vowel nuclei.

The factors of region ( $p < 0.001$ ) and year of birth ( $p = 0.003$ ) significantly predict BOT/BOUGHT distinction, as defined as Pillai value. Chinese San Franciscans' vowels show more overlap (mean Pillai = 0.23) than Chinese New Yorkers' vowels (mean Pillai = 0.63). Older speakers in both regions produce a higher degree of distinction than younger speakers (coef. = −0.004). The



**Fig. 2.** BOT/BOUGHT distinction, represented by Pillai score, for 24 Chinese Americans, plotted by year of birth and region (a higher Pillai score reveals a greater difference between the token distributions of two categories being compared).



**Fig. 3.** BOT & BOUGHT vowels of two San Franciscans – Ruth, Female, born in 1954 and Sal, Male, born in 1962 – with BOOT plotted as a reference.

results provide another means of modeling the observation that Chinese Americans in both New York and San Francisco are representative of their local sound changes in progress, at least with respect to this variable.

Regression analyses were also performed on the San Francisco and New York data separately, with the same response and predictor variables (minus region. As found previously (see Hall-Lew, 2009, 2013), year of birth correlated with BOT/BOUGHT

distinction in San Francisco ( $p = 0.01$ ,  $\text{coef.} = -0.006$ ). Unlike the results for  $F1$ , however, year of birth was not a significant main effect for the New York data ( $p = 0.12$ ). Visual inspection of the vowel plots of the New York speakers reveals that all but one of them (Tina, b. 1952) did conform to the linear, age-based pattern established for the combined dataset, suggesting that this one speaker may be obscuring a general main effect of year of birth. There is robust ethnographic evidence that Tina's experiences and ethnic alignment may have an effect on her linguistic behavior, suggesting that her BOUGHT production patterns may be uncharacteristic of a speaker her age. A subsequent analysis of the New York sample with Tina's data removed indeed found year of birth to be a significant predictor of BOT/BOUGHT distinction ( $p = 0.02$ ,  $\text{coef.} = -0.006$ ). We return to Tina in the discussion section.

In modeling the BOT/BOUGHT distinction, the effect of region is stronger than the effect of year of birth. Furthermore, there is no statistical interaction between region and year of birth ( $p = 0.587$ ). In other words, although the apparent time pattern in both regions is toward the lowering of BOUGHT (and even, possibly, the loss of the BOUGHT phoneme, in San Francisco; see Hall-Lew, 2013), the changes are qualitatively different between the two regions. This is supported by the fact that all the New Yorkers maintain distinct vowel nuclei (Pillai scores  $> 0.25$ ), whereas only four of the twelve San Franciscans do. The gap between the vowel nuclei is clearly narrowing for San Franciscans, whereas the change in New York is towards lowered BOUGHT while continuing to maintain a robust BOT/BOUGHT distinction (Fig. 2). This is particularly interesting given San Francisco's historical links with New York City and NYC English, and suggests quite strongly that (Cantonese American) residents of San Francisco are now rapidly conforming to the city's geographically contiguous linguistic norms, instead. In other words, our results show that Americans of Cantonese heritage appear to better approximate the patterns of low back vowel production in their respective dialect regions than to one another. In addition, as mentioned earlier, we found no significant results that would suggest any meaningful correlation between speakers' competence in Cantonese and the height of BOUGHT or the degree of distinction/merger. In the next section, we suggest that there may be more to this pattern than a simplistic analysis wherein only regional identity matters and ethnic identity does not. Rather, the correlation with regional patterns can be further interpreted with respect to the social meanings attached to regional identities, particularly as related to ethnicity. The potential meanings behind the macro-social quantitative patterns, above, are explored through bringing an inter-sectional perspective to the qualitative evidence.

## 5. Discussion and qualitative analysis

At one level, the regional difference presented here closely parallels the patterns identified elsewhere for non-Chinese Americans: Chinese Americans in New York maintain a robust low back distinction while Chinese Americans in San Francisco are narrowing that distinction. However, when we look more specifically at the height ( $F1$ ) of BOUGHT and how individual (or groups of) Chinese Americans pattern similarly with (or diverge from) their non-Chinese cohorts in the regions, we begin to see subtle interplays between region and ethnicity. One basic ethnic difference in San Francisco concerning the height of BOUGHT is that while some older non-Chinese Americans in San Francisco may produce a raised, in-gliding, "New York style" BOUGHT vowel (Hall-Lew, 2009), no older Chinese Americans in San Francisco ever do. Older Chinese Americans in New York, like their local age mates, produce very raised BOUGHT. In this section we show how these facts may be understood through an analysis of the indexical meanings of raised BOUGHT and the ways in which these meanings are negotiated depending on the different and changing positions Chinese Americans occupy in the social orders of the two regions.

Recent work (Hall-Lew, 2009, in press-b) has argued that raised BOUGHT was probably associated in early San Francisco with working-class European ethnicities, specifically Irish, Jewish, and Italian, by virtue of the likely fact that it was a part of a more general "Mission Brogue" style associated with the Mission District neighborhood and its residents of that demographic. Some older European Americans in San Francisco today continue to maintain the ideological connection between the "Mission Brogue" and "New York City English", constructing and perpetuating an older version of San Francisco authenticity through a multivalent indexical link to both European ethnicities and a geographically distant locale. The early 20th century indexical field for raised BOUGHT in San Francisco thus includes various European ethnicities, working class identities, and both "Mission" and (imagined) "New York" locations. However, Chinese Americans raised during those years used a different set of local resources, preserving the BOT/BOUGHT distinction without the distinctive "Mission" raising. In this sense, the phonetic patterns of production of BOUGHT are part of a host of semiotic resources, linguistic and otherwise, which Chinese San Franciscans in the mid-20th century employed as they began to move out of the Chinatown area and into "white"-dominant spaces.

The San Franciscans analyzed here who were born before 1950 – Enid, Jenny, and Lou – were all raised in entirely Chinese communities; for Lou it was China, and for Enid and Jenny it was San Francisco Chinatown. Their friends were of Cantonese descent, and although Enid and Jenny were US-born, none of these three spoke English regularly prior to entering school at age five (and for Lou, it was later still). At the other end of the age spectrum, those speakers who were born after 1980 – Hector, JoJo, Monica, Pete, and Skylar – were also all raised in majority Asian communities (here, the Sunset District), where the majority of their friends were also of Cantonese descent. Therefore, it is those speakers born between 1950 and 1980 – EmilySF, John, Ruth, and Sal – who are the ones who were raised at the crucial time of transition, when Chinese Americans gained upward mobility, shifted residency from Chinatown to neighborhoods like the Sunset District, and began to establish a new kind of local identity. San Francisco, at the same time, developed into a truly multiethnic and multicultural city, when strictly European American models of local identity gradually became changed or lost. These four speakers are the ones who

are perhaps phonetically most revealing as well, particularly the older two, Ruth (the plot on the left in Fig. 3; Pillai score = 0.287) and Sal (the plot on the right in Fig. 3; Pillai score = 0.0527<sup>10</sup>), who maintain a low back vowel distinction but who show little BOUGHT raising. EmilySF (Pillai score = 0.0833) and John (Pillai score = 0.0841), who are relatively younger, produce overlapping vowel nuclei. Ruth and Sal are the two Chinese Americans who were raised with a mixed group of friends, including both Irish Americans and Cantonese Americans. They were old enough to have been aware of the “traditional” San Franciscan “Mission District” accent and its indexical link with European Americans, and at the same time were very active in terms of asserting and constructing their Asian American identity – both were and continue to be involved in Asian American politics, both locally and nationally, to a greater extent than any of the other ten speakers in the San Francisco sample. Ruth and Sal’s generation experienced a dramatic transition relative to the relationship between ethnicity and local identity in San Francisco, which is reflected in their vowel production.

As one older San Franciscan (who witnessed the transition) says, ‘San Francisco has become a new Hong Kong.’ As a consequence, the younger cohort of Chinese San Franciscans is experientially unaware of their previous age cohort’s struggles as members of an ethnic minority, because as young Chinese Americans in the Sunset District, they were raised as part of the locally dominant ethnic group. Their San Francisco is not a European American one, and neither is their BOUGHT vowel. Not only is their city more ethnically diverse, but the ideological borders between the city and the rest of Northern California are softer than they were in previous generations. And like the rest of the wider region, they produce merged or near-merged BOUGHT vowels. For these younger speakers, raised BOUGHT has a very different indexical field than it had for their parents; the “New York” associations may remain, but their co-indexing with “San Francisco” identity has been entirely lost. While older “white” San Franciscans are baffled as to why people ask them if they are from New York, younger speakers may be the very people asking them that question. For them, there are no local meanings for raised BOUGHT, and therefore no European ethnic indexicalities to resist or avoid. If there is any vestigial local meaning for the raised variant among younger speakers it might be a considered old-fashioned, and therefore avoided just the same (see Watt, 2000). In contrast, the merged or near-merged variant of BOUGHT receives no metalinguistic commentary, and therefore functions as a correlate of local identity below the level of awareness, by virtue of not indexing non-locality.

The contemporary linguistic market in San Francisco stands in stark contrast to the experiences of Chinese New Yorkers. In New York City, raised BOUGHT has traditionally been (and continues to be) associated with the image of a working class New Yorker (c.f. the term “Brooklynese”). And a stereotypic image of the working class New Yorker, as discussed earlier, is often of someone who is of “white ethnic” (e.g., Jewish, Italian or Irish) backgrounds. The regional, ethnic and class associations of raised BOUGHT correspond to, and arose partially as a result of, its historical quantitative variability in the region: Labov (1966) found that raised BOUGHT was used more frequently among members of the working classes and in spontaneous speech. He also found that Lower East Side Jews produced the highest BOUGHT. The traditional profile of raised BOUGHT is so salient that it is often exploited by actors portraying “white” working class New York personae, like “Linda Richman” from *Saturday Night Live* and “Fran Fine” in *The Nanny*. These media representations of New Yorkers show that the social persona of a stereotypic New Yorker—itsself an ideological typification—is often marked by an array of emblems (Agha, 2007) encompassing language (e.g., the use of raised BOUGHT), class (e.g., working-class), ethnicity (e.g., being Jewish) and other demeanors (e.g., being “mean”). Becker’s (2011) perceptual study on raised BOUGHT confirms that many New Yorkers today continue to perceive raised BOUGHT as indexing a rich field of social meanings: “New York”, “local (white)” and other nuanced social attributes and stances such as “mean” and “aloof”. Crucially, the semiotic association between raised BOUGHT and “white” ethnic New Yorkers is conceived *in spite of* the fact that the feature is used by New Yorkers of other ethnic backgrounds. While quantitative research and speakers’ own experience of the dialect show that raised BOUGHT and other traditional features of New York City English may be changing, the ideological link between a certain “New York accent”, as it were, with “white” ethnic New Yorkers continues to be relevant to and circulated by those New Yorkers who have access to and recognize these features. Chinese Americans sampled in this study vary in the ways they align with this traditional, New York archetype, with variation among speakers reflecting the variation in persona alignment.

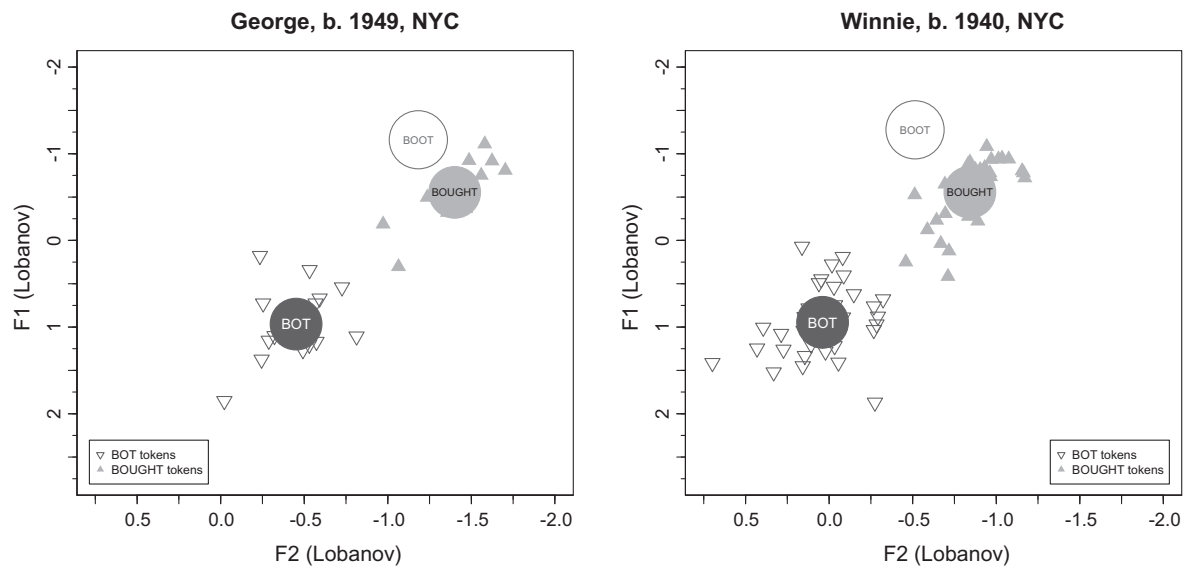
In articulating and carving out their ethnic identity and orientation, Chinese Americans in the New York sample often invoked a contrast between being Chinese and being American. For some, such as George and Winnie, being Chinese was indexed by linguistic and other social practices linked to the less familiar immigrant generations. Being American, on the other hand, could be indexed by orienting towards the local New York persona. George and Winnie, the oldest speakers in the New York sample produced the highest BOUGHT and the most distinct BOT/BOUGHT vowels (George: mean F1 = -0.556, Pillai = 0.90, see the plot on the left in Fig. 4; Winnie: mean F1 = -0.73, Pillai = 0.82, see the plot on the right in Fig. 4). George and Winnie grew up at a time when Chinese immigration to New York was still highly limited and the number of second generation Chinese Americans very low (Wan, 1978; Wong, 2010; Zhou, 1992). Both of them discussed growing up when Chinese Americans were the minority, so for George, who grew up in Coney Island in the 1950s, identifying as Chinese (American) was not necessarily desirable:

<sup>10</sup> Note that Sal’s Pillai score appears surprisingly low given that his BOT and BOUGHT vowel nuclei are not overlapping in normalized F1/F2 space (Fig. 3). This fact points to one of the downsides of using Pillai to represent vowel distinction, namely that if a speaker’s BOT and BOUGHT distributions are very similar with respect to the amount of variance *within* each vowel class, this will result in a low measure of the difference between the two distribution, despite maintained differences in the “distance” between them. Another possibility is that, for Sal, phonological environment accounts for more of the variance in F1/F2 than it does for the other speakers, so that the effect of vowel class is mitigated. In any case, for no other speakers did we find this clear mismatch between observed vowel quality and Pillai score, and so Pillai scores were retained for this analysis.

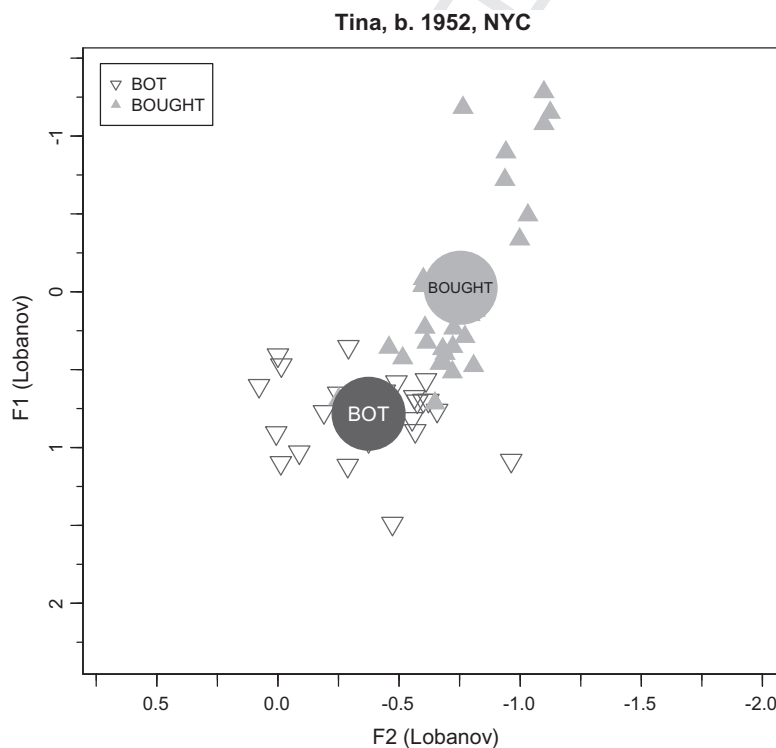
1. George, M, 1949 (New York City)

“And why should I want to be identified with Chinese when all my friends are white? It was a whole different world!”

Winnie, growing up in the Lower East Side in 1940s/1950s, echoed these sentiments. Although she said that she made it her business to understand Chinese traditions so that she would not feel totally out of place within the Chinese community, when asked about her cultural identification, she replied without hesitation, “American.” Older speakers like George and Winnie felt a certain dissonance from their heritage immigrant culture, although a uniquely Chinese American identity



**Fig. 4.** BOT & BOUGHT vowels of two New Yorkers – George, Male, born in 1949 and Winnie, Female, born in 1940 – with BOOT plotted as a reference.



**Fig. 5.** Tina, Female, born in 1952 (New York City) – BOT & BOUGHT vowels, with BOOT plotted as a reference.



was not as available for them as for their Chinese American agemates in San Francisco, or children growing up in today's "majority minority" New York (or San Francisco). A stronger identification with the non-immigrant mainstream may be more desirable to speakers like George and Winnie than identifying (at least directly) with their heritage immigrant culture. It is perhaps not a coincidence that these speakers who resided in predominantly Jewish and Italian neighborhoods and who expressed stronger identification with the mainstream American culture (as opposed to the immigrant culture) were also using raised *BOUGHT*, a variable that evokes a stereotypic New York persona, thereby aligning themselves with the locally dominant mainstream.

However, not all Chinese Americans in New York growing up before the 1960s inevitably identify with the local mainstream nor with being American. Recall Tina (age 58, Fig. 5), whose *BOT/BOUGHT* distinction patterns quite differently from other New Yorkers her age. Not only was Tina's *BOT/BOUGHT* distinction much subtler (Pillai = 0.43) than that of Winnie and George, the tokens of her *BOUGHT* class were rather dispersed, with some raised tokens but also many low *BOUGHT*. The mean height of her *BOUGHT* vowel was also quite low (mean  $F1 = -0.026$ ), and is acoustically more similar to that of the youngest New Yorkers in the sample.

Tina's cultural identification and experience was quite different from George's and Winnie's. Tina became politically active in college during the 1960s and was a strong advocate for the development of Asian American studies as a legitimate university subject. Tina expressed how improbable it was for her to identify with mainstream Americans since being "Asian" was not seen as a congruent image of an American:

2. Tina, F, 1952 (New York City)

'...as much as we may think we're American, other people don't think we are American. Americans don't accept us as Americans.'

Instead of aligning herself with the local ("white") mainstream, Tina took inspiration from Asian Americans on the West Coast and sought identification with the pan-ethnic "Asian American" identity that was emerging there at the time. For Tina, the emergence of an "Asian American" identity is closely tied to "California", which is further evidence for the confluence of ethnicity and regional identity:

3. Tina, F, 1952 (New York City)

'Asian Americans, the whole identity thing came later to the East coast than the West coast. So I didn't really understand what it was all about until I heard people talking about it from California. So *that's* what they're talking about and so you begin to identify more with that.'

Tina's identification with an "Asian American" identity goes hand in hand with her alignment with Asian Americans in California, which may explain her atypical low back vowel production. A striking and suggestive pattern emerges when Tina's low back vowels are compared with those produced by Ruth, the Chinese San Franciscan in our sample who is closest to Tina's age and who is also active in Asian American politics (Fig. 6). Ruth's *BOUGHT* and *BOT* vowels resemble the older San Francisco pattern for Chinese Americans: the vowels are distinct, but phonetically close. While some of Tina's *BOUGHT* tokens are raised, like George's and Winnie's, many other tokens are as low as Ruth's.<sup>11</sup> One possible interpretation of Tina's similarity to Ruth lies in the indexical meaning of raised *BOUGHT* in both regions. While Ruth was part of the generation moving toward broader California norms as local, Tina was politically motivated to orient away from the dominant local norms epitomized in the social persona of a "white ethnic" New Yorker and potentially align with California norms.

The statistical results from the previous section showed clear apparent time changes in the pronunciation of the *BOUGHT* vowel by Chinese Americans in both San Francisco and New York City. *BOUGHT* lowering and the probable loss of the *BOT/BOUGHT* distinction are linguistically different changes, the first of which is occurring in both cities, and the second of which is not found in New York. However, despite crucial differences, the acoustic similarities between the two – and their conflation in San Francisco English – do raise interesting questions as to any long-term similarities between the two regions, specifically concerning the future of *BOUGHT* lowering in New York City. It is an open empirical question whether features of "California English" (see Eckert, 2008b; Podesva, 2011) might become resources for indexing ethnic identity among Chinese Americans in New York. However, one suggestive example of the adoption of a "California English" feature by Asian Americans in New York is Singler's (2001) finding that quotative *all*, a form initially associated with California English, is used at a relatively higher rate among Asian Americans in New York City than other ethnic groups. He notes that: "More than is true for college students generally, interaction among Asian-American students on college campuses seems to be decidedly bicoastal. Thus, among upper-middle-class Asian-American college students at least, if *all* is going to expand beyond California, the Northeast is a likely next site" (Singler, 2001). The analysis of Tina's production of *BOUGHT* suggests that there are perhaps implications for phonetic variation, as well; if we compare the rate of *BOUGHT* lowering between Chinese New Yorkers and New Yorkers of other ethnic backgrounds, might the rate be faster among the Chinese Americans? The extent to which Californian identity might bear on the sociolinguistic positioning of Chinese-heritage New Yorkers is left for future study.

We have suggested in this section that attention to sociohistorical context, individual differences, and theories of indexicality allow for a more nuanced understanding of the variability in *BOUGHT* realization by Chinese Americans between- and

<sup>11</sup> The height of Tina's *BOUGHT* tokens is not significantly predicted by phonological factors, nor by whether the tokens were produced in interview or reading contexts.

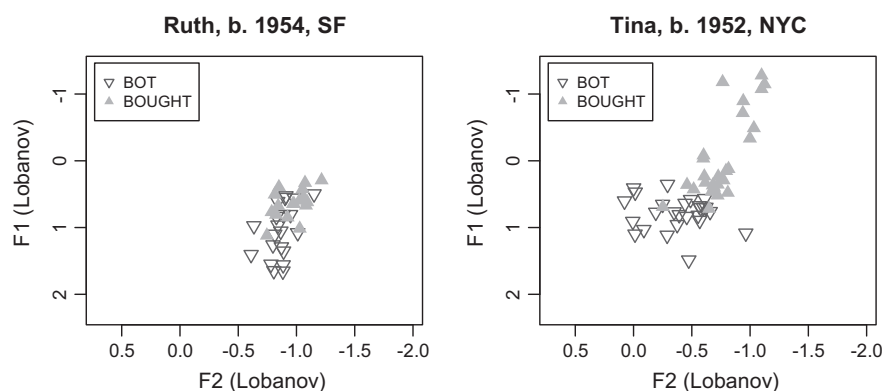


Fig. 6. A comparison of the low back vowels produced by Tina (NY) and Ruth (SF).

within-region. In this analysis we focus on the indexical field of raised *BOUGHT* the older variant. Social personae such as “a typical New Yorker” or “an old timer from the Mission District” become meaningful through their relationship to a rich array of social emblems, encompassing region, ethnicity, language, and more. Raised *BOUGHT* is one of these emblems, entering the array via processes of personae construction and interpretation. The co-indexing of social meaning inherent to any variable’s indexical field means that a variant such as raised *BOUGHT* is inherently multivalent and available for negotiation in context. While the indexical field of raised *BOUGHT* potentially encompasses the social meanings of (New York) region, (working) class, (European) ethnicity, and their intersection, these links are neither solidified nor inevitable. By definition, the indexical order is always socially and historically situated, and the indexicality of raised *BOUGHT* is accessed and evaluated differently by Chinese Americans in the two regions across different times. Because of the salient associations between raised *BOUGHT* and a particular kind of New York persona and because of their experience as members of an ethnic minority in a majority “white” society, the feature could be accessed and recruited by some older Chinese New Yorkers studied here to construct a local, mainstream identity, thereby distinguishing themselves from foreign-born Chinese New Yorkers (see also Wong, 2007). Similarly in San Francisco, it is very likely that raised *BOUGHT* was once recruited by some European-heritage San Franciscans in the construction of a particular San Francisco identity that was ideologically (and perhaps historically) linked to New York City, and in that historical context, those social meanings would have been either unavailable (e.g., due to social segregation) or irrelevant to Chinese San Franciscans. Of course, this lack of access or relevance was not limited to Chinese Americans, but to San Franciscans of any ethnic group that was not Irish, Italian, or Jewish, or who was not living in and around the Mission District. It is no surprise that raised *BOUGHT* has all but disappeared in present-day San Francisco English, where its indexicality was much weaker than in New York City. A steady increase in non-European ethnic diversity is a demographic fact shared between New York City and San Francisco. In fact, the access and/or relevance of raised *BOUGHT* may also be lessening in present-day New York City. Younger New Yorkers are growing up in a city that is increasingly populated by non-European immigrant groups. Speakers not only have limited access to this variable but the stereotypical New York persona indexed by this variable may also be increasingly unappealing to younger, more multi-ethnic, upwardly mobile New Yorkers.

To the extent that our analysis does bear on an understanding of phonetic variation among Chinese Americans, it is to show first and foremost that 2nd-generation Americans of Cantonese heritage participate in local sound changes in progress and exhibit regional diversity with respect to well-known regional variation. Further, exploratory analysis of indexical meaning suggests the hypothesis that Chinese Americans in any US English dialect region will have an ambivalent relationship toward the use of raised *BOUGHT*. We suggest that a meaning such as “Chinese” is unlikely to be added to the indexical field of raised *BOUGHT*, in part because raised *BOUGHT* is saliently associated with a regional persona that does not include “Chinese” as one of its markers. At the very least, this suggests that raised *BOUGHT* is an unlikely phonetic resource for the construction of a (non-regional) Chinese American identity. This, however, does not mean that the use (or avoidance) of raised *BOUGHT* tell us nothing about speakers’ ethnic identity or orientation. Close examination of ethnographic and discursive evidence in fact suggests that variation in the use of raised *BOUGHT* corresponds to variation in how individuals, in negotiating their ethnic identity, orient differently to local and ethnically-indexed personae.

## 6. Conclusion

There is clear quantitative evidence for the progression of regional English sound changes among Cantonese-heritage Americans: the lowering of *BOUGHT* in both New York City and San Francisco, and the gradual loss of distinction between *BOT* and *BOUGHT* in San Francisco. We have argued in this paper that the differences between the two cities, particularly the ways in which Chinese Americans were positioned vis-à-vis other ethnic groups, are useful in understanding and modeling the patterns of variation unique to each location. We have approached the statistical results with the perspective that the indexical meanings of phonological variables are multivalent and interconnected within an indexical field (Eckert, 2008a).

These concepts help elucidate why BOUGHT height and BOT/BOUGHT distinction differ in these ways across time (older vs. younger) and space (New York City vs. San Francisco). In both cities, the relationship between BOUGHT production and ethnicity is co-indexed with location and social class, and speakers' access to and recruitment of this variable is community-dependent. While some of these results might alternatively be understood simply in terms of speakers' rates of exposure to older regional norms, exposure alone does not fully account for the ethnographic and sociohistorical evidence that points to the indexical meanings of these norms. In New York, raised BOUGHT has long indexed a "typical New Yorker" persona but Chinese Americans vary in their alignment with this persona. In San Francisco, although raised BOUGHT was once an index of a "Mission District old timer", this local meaning was unavailable to older Chinese San Franciscans and is irrelevant to younger San Franciscans altogether. This has consequences for patterns of use among Chinese Americans of this feature.

The changing ethnic composition of the population in both cities means that the semiotic link between ethnic identity and regional identity is continuously evolving. We suggest that the social changes occurring in the wider population in both cities are related to the sound changes we found in the study. Numerous recent studies have also found that the changes in the ethnic make-up of large urban centers influence the patterns of linguistic variation and change and even the rate of language shift (Bayley and Bonnici, 2008; Cheshire et al., 2008; Sharma, 2011; Sharma and Sankaran, 2011). Our analysis draws on both historical information and ethnographic evidence to interpret the quantitative patterns, and future work might employ attitudinal survey methods (Nagy et al., this volume), or deeper discourse analysis of interview data (Becker, this volume), in order to further triangulate these observations.

Our analytic focus on San Francisco and New York began because of these cities' particularly large and socially salient Chinese American populations. Comparing San Franciscans with New Yorkers is clearly not just about comparing one regional dialect with another, West coast versus East coast, or vowel height versus vowel distinction. The comparison also reveals important ideological links between the two cities, a co-construction of ethnicity and place through a cross-country gaze of self-identification that went in both directions, at different points in history. While European San Franciscans in the early 20th century looked to New York for the construction of local identity, in the 1960s, some Chinese New Yorkers looked to California. While it seems that young, contemporary San Franciscans are completely unaware of New York meanings mapping onto local identities, one open question is the extent to which young, contemporary New Yorkers may still draw on "Californian" semiotic resources, and the extent to which that process is connected to Cantonese, Chinese, Asian, or other ethnic identities. This provides an interesting context to consider how both 'global' and local processes of meaning-making feed into one another.

We have tried as best as possible in the current analysis to limit our discussion with respect to both heritage language and immigrant generation, focusing with only a couple exceptions on 2nd generation Cantonese Americans. This decision, while drastically underestimating the Chinese American sociolinguistic picture in these two cities, also explicitly acknowledges the social importance of both heritage language background and immigrant generation status and its potential importance for patterns of linguistic production. While differences in the English produced by heritage Mandarin speakers versus heritage Cantonese speakers remains an entirely open question, what is clear is that significant differences in language use could be found between different immigrant generations (Mendoza-Denton and Iwai, 1993; Sharma, 2011). Indeed, the longer period of Chinese immigration in the San Francisco Bay Area means that there are more 3rd and higher immigrant generations in that region than in New York City, a fact which may then have under-theorized influences on patterns of English variation among 2nd generation speakers in those locations.

Patterns of English variation among the US-born generations of Chinese Americans are under-documented. By comparing speakers from two major US cities, it becomes clear that ethnic identity must be analyzed with respect to region. Our focus on Chinese Americans of Cantonese heritage gives us but one window onto this ever-shifting relationship between place and ethnic identities. We suggest that understanding the relationship between Chinese Americans and their language use benefits most from understanding the historical development of the city's Chinese population and the historical development of a variable's indexical field, and the connections between the two.

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