Regional Features and the Jewish Ethnolinguistic Repertoire in Chicago

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Abstract

Regional features associated with New York City English have been argued to be a component of the Jewish American ethnolinguistic repertoire (Benor 2011), even for Jewish speakers who live elsewhere in the country (Knack 1991, Sacknovitz 2007). In Chicago, meta-linguistic commentary from Jewish Chicagoans suggests that they associate New York regional features with Jewish speakers, and Chicago features with Irish Catholic Chicagoans. In a socially-primed phoneme categorization task, however, Jewish Chicagoans' categorizations along TRAP-LOT and LOT-THOUGHT continua were not influenced by the top-down social information they were presented about the speaker's regional (New York v. Chicago) or ethnoreligious (Jewish v. Catholic) background. Rather, categorization along the TRAP-LOT continuum was significantly predicted by listener background: specifically, Orthodox Jewish listeners expected a more Chicago-like phonemic boundary for these vowel classes, relative to non-Orthodox Jewish listeners. This suggests that the relationships between Jewish speakers and New York City English that are discussed in meta-linguistic commentary did not influence lower-level perception in this task, and that the relationship between New York City English and Jewish speakers may in fact be complicated by social factors beyond straightforward ethnoreligious identity.

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1 Introduction

Linguistic varieties that are associated with particular ethnic groups are sometimes described as "ethnolects," language varieties that deviate from the White mainstream "norm" along morphosyntactic, phonetic, and/or lexical lines (Fought 2006). However, recognizing that not all individuals of a particular ethnic background engage in all of these linguistic practices, and, further, that different features or combinations of features can be useful in the construction of different types of identities or personae, Benor (2010) suggests the "ethnolinguistic repertoire" as a framework for understanding Jewish American linguistic practices in English.

Rather than viewing ethnically-based linguistic patterns as unified ethnolects, the repertoire approach considers these variants to belong to a collection of resources upon which speakers can draw to index ethnicity. The variants included in the ethnolinguistic repertoire are therefore features which distinguish Jewish speakers from other groups, without requiring a given Jewish speaker to use all – or any – of these features consistently. The Jewish American ethnolinguistic repertoire can thus include phonological features, such as /t/-release (Levon 2006, Benor 2011) and prosodic contours (Burdin 2016), as well as syntactic features and loanwords borrowed from Yiddish (Benor 2011).

In particular, regional dialect features associated with New York City have been included in the Jewish ethnolinguistic repertoire. At the discourse level, Tannen (1981) proposes that there is a recognizable "New York Jewish conversational style" involving fast-paced, overlapping speech. At the phonetic level, Jewish speakers throughout the country self-report that they use some New York place-linked features, including the MARY-MERRY distinction and New York pronunciations of the pre-rhotic vowel in words like *orange* and *horrible*, at higher rates than do non-Jewish speakers (Benor 2011). In Grand Rapids, Michigan, Jewish speakers were found to have raised THOUGHT vowel productions – another feature of NYC English – compared to White non-Jewish speakers (Knack 1991) and this feature was also thought to index Jewishness – and perhaps also particular denominations within Orthodoxy – in a Maryland community (Sacknovitz 2007).

This use of New York regional features by Jewish speakers has been attributed to contact factors such as social network ties between many Jewish Americans and New Yorkers (Knack 1991; Burdin 2019), as well as to ideological links between Jewish identity – especially Orthodox identity – and New York City (Sacknovitz 2007, Benor 2011). The ability for these New York City features to index Jewish identity would reflect an $n + 1^{st}$ order indexical association (Silverstein 2003), in which features originally associated with region have come to take on ethnoreligious associations with Jewish identity by virtue of ideological associations between the region and ethnoreligious background of some individuals who live there. While much past work has focused on this association in production (Knack 1991, Sacknovitz 2007) and self-report studies (Benor 2011), the ways in which this ideological link operates has been underexplored in perception.

The present study focuses on perception of regional features among Jewish Chicagoans. Chicago is the third largest city in the country and fifth in terms of its Jewish population, with approximately 300,000 Jewish residents in the metro area (Sheskin & Dashefsky 2015). While this study is the first exploration of Jewish English in the Chicago area, previous work suggests that ethnoreligious identity is a relevant factor in the production of regional dialect features associated with Chicago. In neighborhoods on Chicago's far Southwest side, Catholic high school attendance – associated with the neighborhoods' large Irish Catholic population – predicted the use of regionally-linked vowel productions (D'Onofrio & Benheim 2020). Neighborhoods and institutions associated

with newer, "ethnic" European immigrant communities (Jewish, Polish, Irish, Italian, etc.) also feature prominently in Chicagoans' folk ideologies about the social organization of the city (Binford 2004). This study examines how Jewish speakers within this major urban center discuss and perceive Chicago- and New York-linked features.

1.1 Regional Dialect Features of Chicago and New York

Chicago English is characterized by the Northern Cities Vowel Shift (NCS), or the clockwise rotation of the low and mid vowels typical of the Inland North region (Labov et al. 2006). Features of the NCS are available to index ethnoreligious identity (D'Onofrio & Benheim 2020, Knack 1991) and other socially meaningful group affiliations. With respect to Jewish speakers, Knack (1991) investigated the production of THOUGHT among Jewish speakers in Grand Rapids, Michigan, within the Inland North, but did not study any other NCS features.

Given that Jewish speakers have been associated with New York-linked regional dialect features, features for which New York and NCS vocalic systems make differing predictions are of particular interest in exploring how these features are integrated into perceptions of Jewish speakers' vowel spaces. The present study focuses on three such features: the TRAP, LOT, and THOUGHT vowels. Under the NCS, TRAP is raised and fronted, LOT is fronted, and THOUGHT is fronted and lowered (Labov et al. 2006, McCarthy 2011). In New York City, LOT is produced further back in the vowel space than in the Northern Cities, and THOUGHT is raised. Raised THOUGHT in particular has been implicated in previous work on Jewish English (Knack 1991, Sacknovitz 2007, Benor 2011). While TRAP follows a complex "short-a" system in New York City in which it is tensed in certain phonological contexts, New York City TRAP is lower and backer than NCS TRAP in non-tensing contexts (Labov et al. 2006, Becker 2010).

Recent work in both New York and the Inland North, including Chicago, has found that the vocalic patterns typical of both regions have been undergoing reversal in apparent time (McCarthy 2011, Becker 2014, D'Onofrio & Benheim 2020), with Jewish speakers among those leading the reversal in New York (Becker 2014) and undergoing the same NCS reversal pattern ongoing among other speakers in southeastern Michigan (Morgan et al. 2017). Despite these trends towards reversal, however, meta-linguistic commentary among Jewish Chicagoans still maintains these ideological links between Jewish speakers and New York linguistic features. Moreover, these speakers discursively connect NCS features with a different local ethnoreligious group – Irish Catholics. The following section details the patterns emergent in this meta-linguistic commentary. Next, a socially-primed phoneme categorization task was used to assess whether the associations discussed by Jewish Chicagoans in their meta-linguistic commentary also appear in lower-level perception. Results suggest that these meta-linguistic stereotypes are not straightforwardly mapped onto lower-level perception, which is more strongly predicted by facets of the listeners' backgrounds than by top-down social information about the speaker's regional and ethnoreligious affiliation.

2 Meta-linguistic Commentary

Meta-linguistic commentary regarding the "Chicago accent" was collected from two sources: first, sociolinguistic interviews were conducted in 2019 with 21 Jewish Chicagoans, ages 21-70. These individuals also participated in the perception study discussed below. All speakers self-identified as Jewish, lived in the Chicago metropolitan area at the time of the interview, and had been raised in the area, though many had lived elsewhere during college or early adulthood. Twelve speakers reported their gender as "female" and nine as "male." Individuals who participated in both the interview and the perception experiment discussed below were compensated $15 for their time.

As part of the interview, participants were asked (1) whether they thought there was a "Chicago accent" and, if so, what the features of this accent were, (2) whether there were certain types of people who were likely to have a "Chicago accent" or places in the city where they were likely to hear it, and (3) whether there were particular "Jewish ways of speaking." All participant names discussed below are pseudonyms.

Previous work in Chicago has found that White Catholic school attendees had more Northern Cities-like productions of some NCS-implicated vocalic classes than those who attended public schools, and that for older speakers, Irish Catholics produced more NCS-like vowel spaces than

their Protestant neighbors (D'Onofrio & Benheim 2020). Jewish speakers in the present study also explicitly link regional dialect features associated with Chicago with these same social types. When asked who is likely to have the Chicago accent, Ezra, 21, responded, "*The image I have in my head is like… Irish, working class person from the like, near South Side or West Side.*" Similarly, Emmett, 53, stated, "*If you went to Bridgeport. Like old Irish neighborhoods. You'd hear a strongly old Chicago Irish Catholic accent… the trope here is the White ethnics. Meaning the White, kinda, lower middle class, more blue collar, strongly associated with their parish.*"

Additional meta-linguistic commentary comes from Jewish Chicagoan participants in the online perception experiment discussed in further detail below. Following the experiment, participants completed a questionnaire, including a question regarding whether they believe there to be particularly Jewish ways of speaking. Ideological associations between Jewish speakers and New York regional features emerge in Jewish Chicagoans' metalinguistic commentary: one participant responded that, "*A lot of the Jewish accent sounds similar to the New York accent.*" Another wrote, "*In my mind, yes,* [there is a Jewish way of speaking] *best summed up by 'cawfee tawk,*" referencing a *Saturday Night Live* sketch involving Jewish women with exaggerated New York City accents; notably, the title 'Cawfee Tawk' draws attention to the raised THOUGHT vowel documented by Knack (1991) and Sacknovitz (2007). Such comments also emerge in interviews. For instance, Erica, 30, discusses watching the television show *The Sopranos*: "*It's like these very New York-area accents. Like when I first started watching the show, I was like, 'Oh, are they Jewish?' Like, 'They all sound Jewish!'*"

Meta-linguistic commentary from Jewish Chicagoans therefore indicates that at least some individuals draw links between New York City and Jewishness broadly construed, as well as links between other White ethnic Chicagoans – especially Catholics – and the "Chicago accent." In order to test whether the ideologies that surface in this meta-linguistic commentary are reflected in lower-level perception, participants also took part in a socially-primed phoneme categorization experiment.

3 Phoneme Categorization Task

A phoneme categorization paradigm was used to analyze Jewish listeners' expectations for TRAP, LOT, and THOUGHT, depending on the information they were provided regarding a speaker's regional (Chicago v. New York) and ethnoreligious (Jewish v. Catholic) background. Previous work has found that priming listeners with social information about a speaker can lead to the adjustment of phonemic boundaries in low-level linguistic perception (e.g. Strand 1999, Drager 2011, D'Onofrio 2018). In this paradigm, all listeners categorize a continuum of acoustic stimuli from one phoneme to another, but groups of listeners are presented with different social information about the speaker. Differences in the placement of phonemic boundaries across conditions are used as evidence for listeners' expectations of the vowel space of a speaker with the given social characteristics.

3.1 Stimuli

The critical stimuli were recorded by a female speaker in her twenties from the New York City area. Two word pairs were selected for each vowel continuum of interest: for TRAP-LOT, these were *pat-pot* and *cat-cot*; for LOT-THOUGHT, *pod-pawed* and *cot-caught*. These word pairs were chosen to control for phonological environment across vowels. Filler items included *sheep-ship* and *right-rice*; these were included as categorical stimuli and were not resynthesized. Resynthesized continua between the MARY, MERRY, and MARRY class phonemes were also included in this task, though they were not the focus of the present study and will not be discussed further here. Midpoint measurements for F1, F2, and F3 of the critical word pairs were hand-measured in Praat and used as target endpoints for vocalic continua between each stimulus pair. For TRAP tokens, the speaker's original (backed) production was perceived by some listeners to be ambiguous with a fronted LOT, so the ultimate endpoint for this vowel was manipulated to be fronted and raised to create an endpoint target that was heard unambiguously as TRAP.

Using the F1-F3 measurements of the speaker's original productions, nine-step vocalic continua were created using the Akustyk package (Plichta 2013) in Praat. For each stimulus pair, the original productions with the clearest steady-state formants were used as baselines for resynthesis. For the LOT-THOUGHT continuum, LOT was always used as the baseline. This is because the speaker

naturally produced an ingliding, diphthongal THOUGHT vowel, typical of NYC English (Becker 2014). For this vowel, target F1-F3 measurements were taken from the midpoint of the steady-state portion of the vowel nucleus, and all resynthesized tokens were created from the speaker's naturally produced LOT to prevent a duration or trajectory difference across the continuum. Using the "create global synthesis" command in Akustyk, resynthesized items were produced at nine equal steps between the baseline (1) and target (9). Since Akustyk downsamples all stimuli to 10 kHz, baseline and filler items were also downsampled. Table 1 shows the formant frequencies at steps 1 and 9 for F1-F3 of each continuum, as well as the distance in Hz between each of the nine continuum steps.

	Formant	Step 1 (Hz)	Step 9 (Hz)	Difference between each continuum step (Hz)
CAT-COT	**F1**	1134	950	23
	F2	1939	1339	75
	F3	2957	2525	54
PAT-POT	**F1**	1196	1012	23
	F2	1973	1293	85
	F3	2955	2539	52
COT-CAUGHT	**F1**	1021	868	20
	F2	1506	1162	43
	F3	2706	2594	14
POD-PAWED	**F1**	1007	863	18
	F2	1461	1117	43
	F3	2777	2321	57

Table 1. F1, F2, and F3 formant frequencies (Hz) by word pair for endpoints (step 1 and step 9) of categorization stimuli, as well as the distance between each step (in Hz) for each continuum.

Participants also listened to stimuli for a filler block, which was not analyzed. The 56 items in the filler block were recorded by a male speaker in his thirties from New York City. These included some of the same word pairs as the first block (*cot-caught*, *cat-cot*, *pod-pawed*, *pat-pot*, *ship-sheep*, *right-rice*) as well as one additional word pair (*mat-mass*). The speaker's naturally produced items were downsampled to 10 kHz but not otherwise manipulated.

3.2 Procedure

Participants completed the experiment online. They were instructed to sit in a quiet room and wear headphones to complete the experiment. They were randomly assigned to one of four conditions, based on the social information they were provided about the speaker, crossing ethnoreligious identity and region: Jewish Chicagoan, Catholic Chicagoan, Jewish New Yorker, or Catholic New Yorker. All participants heard the same auditory stimuli; the only difference between conditions was the written information presented about each speaker. Following the target block, all participants completed a shorter filler block. For the filler block, all participants were told that they were listening to a speaker who was a "Jewish Los Angeleno." The filler block was included to (1) mask the specific regions under study and (2) present all listeners (even those in "Catholic" conditions) with a speaker who was assumed to be Jewish, since participants were recruited on the basis of their Jewish identity. Since the filler block always followed the target block, it did not influence target block results for any listener.

In each trial, participants were presented with an auditory stimulus and a visual presentation of the orthographic form of the relevant word pair (e.g., *cot-caught*) and asked to identify which word they heard by pressing the [1] or [0] key on their keyboard to indicate the left and right side of the screen, respectively. Each participant heard every stimulus in the same order; stimuli were pseudorandomized such that each stimulus never immediately preceded or followed another stimulus from the same continuum. Within each half of the block, each stimulus was presented once, with orthographic forms of items from the same continuum always presented on the same side of the

screen (e.g., *cot* always on the left, *caught* always on the right). Participants were then invited to take a 1-to-2-minute break. Upon continuing, the same stimuli were presented a second time in the same pseudorandomized order, but with the stimulus-screen side pairings reversed (e.g., *cot* always on the right, *caught* always on the left), to avoid a potential bias towards words on a particular side of the screen (following Drager 2011). This means that for each vowel class pairing (e.g., TRAP-LOT), participants heard 36 stimuli (2 phonological frames x 9 steps x 2 presentations).

3.3 Participants

The link to the online perception experiment (hosted on Google's Firebase platform) was distributed via social media, flyers, and snowball sampling. Participants were informed that they would be participating in a listening experiment regarding language in the Jewish community in Chicagoland, and that the researchers were interested in learning more about how they perceive language. Following the second (filler) block, participants responded to a series of demographic questions surrounding their macrosocial characteristics (e.g., age, gender, denomination) as well as their involvement in Jewish life in Chicago and various religious practices. Information was also collected on participants' social networks, including estimates of the proportion of their friends and family who live in each of the critical regions (Chicago and New York) and the proportion of their friends who are Jewish, following Benor (2011).

A total of 89 participants began the experiment, but data was excluded from analysis for those who exited the experiment before completion (N=21). Of the remaining 68 participants, data was excluded from analysis for those who did not (1) self-identify as Jewish, (2) report that they currently live in the metro Chicago area, and (3) report that they lived in the area for the majority of childhood and adulthood. Similarly, participants who reported that they had a hearing impairment in either ear, completed the experiment in a noisy environment, or were non-native speakers of English were excluded (total exclusions: N=8). Data was analyzed for the remaining 60 participants.

Condition (Social Information about the Speaker)	Age range	Mean and median age	Gender	Denomination (Ortho-dox/Other)
Catholic Chicagoan (N=16)	18-72	Mean: 48; Median: 54	10 female; 6 male	5 Orthodox; 11 Other
Jewish Chicagoan (N=15)	24-69	Mean: 44; Median: 39	6 female; 9 male	2 Orthodox; 13 Other
Catholic New Yorker (N=11)	24-63, 1 did not report	Mean: 42; Median: 42	8 female; 3 male	2 Orthodox; 9 Other
Jewish New Yorker (N=18)	21-69; 2 did not report	Mean: 43; Median: 48	12 female; 4 male, 2 did not report	4 Orthodox; 14 Other

Table 2. Demographic characteristics of participants by condition

Table 2 depicts the demographic breakdown of participants by condition. Participants ranged in age from 18 to 72 (3 participants declined to report their age). In an open-response survey question, 37 participants self-reported their gender as female, 22 as male, and 2 participants declined to report their genders. As part of the questionnaire, participants were asked to check one or more boxes from a list (following Benor 2011) reflecting with which Jewish denominations (if any) they affiliate. While participants chose among the options in varying combinations, the best model fit involved a binary coding of Orthodox v. Other Jewish denominations. Although finer level distinctions exist within both Orthodoxy and other ways of practicing Judaism, this broad binary categorization is also reflective of commentary from participants, who in interviews frequently discuss social practices which differentiate Orthodox from non-Orthodox Jewish Chicagoans. In interviews, both Orthodox and non-Orthodox participants discuss Orthodox Jews as being more "visibly Jewish" as a result of their attire and adherence to other religious practices. Several non-Orthodox speakers discuss choosing a synagogue based on the availability of services like on-site preschools, rather than

the particular denomination with which it was affiliated. Orthodox speakers were also more likely to live in particular regions within the Chicago area (especially the West Rogers Park neighborhood in Chicago and the suburb of Skokie) and to opt out of the public school system for their children in favor of specifically Orthodox Jewish schools; non-Orthodox Jewish speakers, especially those in suburban areas, overwhelmingly attended public schools. Based on these distinctions, individuals' denominational affiliations were collapsed into a binary Orthodox v. non-Orthodox categorization for this analysis.

3.4 Statistical Analysis

Participant responses were entered into logistic regression models for each vowel class continuum (TRAP-LOT and LOT-THOUGHT). Fixed effects of interest included the speaker's perceived region and religion, as well as the listener's Orthodox background (Orthodox v. non-Orthodox). Interactions between these fixed effects were also tested, but were dropped from the final models as they were not found to improve model fit. Control fixed effects included continuum step, word pair, and device (headphones, earbuds, computer speakers, or external speakers). Including step and word pair allows for the generalization of social information differences across the entire continuum, controlling for word pair. Similarly, including device allows us to ensure that any observed effects are over and above any effects due to the device used by the participant. Several additional factors were initially included in the models. These were listener age, given apparent time reversal of the NCS and New York City vocalic patterns (McCarthy 2011, Becker 2014) and listener gender, as well as whether each listener had ever lived in New York, what proportion of their friends and family were Jewish, and what proportion of their friends and family lived in New York (self-reported in the post-task demographic survey). These final three factors were tested based on work by Benor (2011), who found them to be positively correlated with self-reported use of certain features from the Jewish ethnolinguistic repertoire. However, none of these additional factors were found to improve model fit as assessed by a comparison of the sums of squares of the residuals, so they were ultimately dropped from the models. The effects included in the final models are listed in Tables 3 and 4, below.

3.5 Results

Given the meta-linguistic commentary linking Jewish speakers with New York linguistic features, and Catholic Chicagoans with NCS features, listeners may expect more New York-like phonemic boundaries from a speaker who is perceived to be from New York *or* who is perceived to be Jewish, but from Chicago. Though this would align with the meta-linguistic commentary regarding these groups, the results of this experiment do not support this expectation.
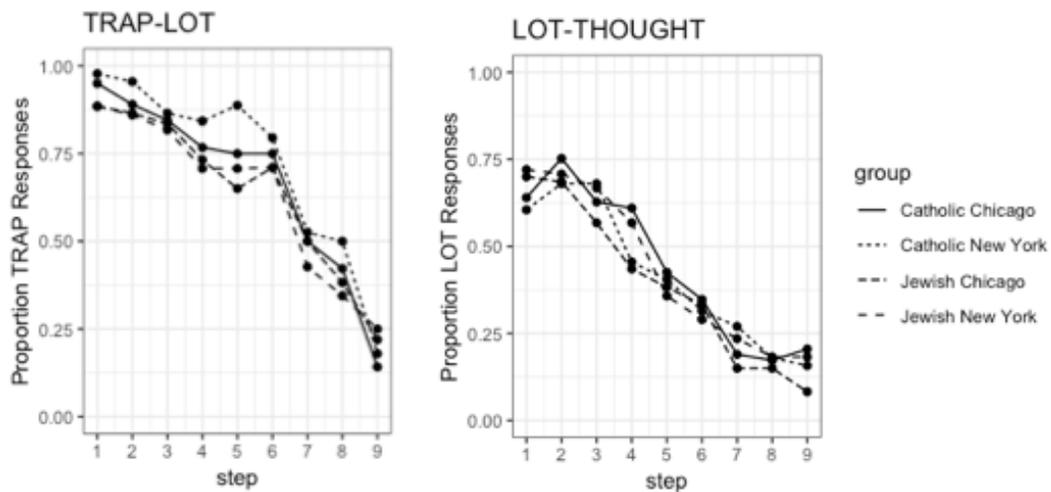

Figure 1. Proportion of TRAP responses on a TRAP-LOT continuum (left) and LOT responses on a LOT-THOUGHT continuum (right) by condition by continuum step.

Figure 1 depicts the proportion of TRAP responses on the TRAP-LOT continua and LOT responses on the LOT-THOUGHT continua by speaker social information condition (Catholic Chicagoan, Jewish Chicagoan, Catholic New Yorker, Jewish New Yorker). On both graphs, higher values reflect responses that expect more New York-like boundaries (i.e., backer boundaries along each continuum) and lower values reflect expectations of more Northern Cities-shifted boundaries.

Tables 3 and 4 (below) present the model summaries (marked for significance) for the TRAP-LOT and LOT-THOUGHT continua, respectively.

Continuum	Fixed effects	Estimate	Std. Error	z-value	Pr(>|z|)
LOT-THOUGHT	(Intercept)	-1.885	0.251	-7.508	<0.0001***
	Step	0.407	0.022	18.233	<0.0001***
	Word Pair = POD-PAWED	0.402	0.103	3.916	<0.0001***
	Region = New York	-0.080	0.193	-0.416	0.677
	Religion = Jewish	0.096	0.198	0.484	0.628
	Device = earbuds	-0.068	0.242	-0.279	0.780
	Device = external speakers	-0.047	0.404	-1.167	0.243
	Device = head-phones	0.462	0.247	1.873	0.061

Table 3. Model summary for TRAP-LOT continua; significance: *=p<0.05, **=p<0.01, ***=p<0.001.

Continuum	Fixed effects	Estimate	Std. Error	z-value	Pr(>|z|)
TRAP-LOT	(Intercept)	5.568	0.486	11.453	<0.0001***
	Step	-0.749	0.038	-19.917	<0.0001***
	Word Pair = PATPOT	0.009	0.131	0.066	0.947
	Region = New York	0.310	0.467	0.664	0.507
	Religion = Jewish	-0.421	0.468	-0.898	0.369
	Denomination = Orthodox	-1.616	0.559	-2.893	0.004**

Table 4. Model summary for LOT-THOUGHT continua; significance: *=p<0.05, **=p<0.01, ***=p<0.001.

As noted above, step and word pair are control effects allowing for generalization of social information effects across the entire continuum. However, neither region nor religion information about the speaker proved significant in determining phonemic boundaries for the LOT-THOUGHT continua, nor for the TRAP-LOT continua. Though THOUGHT height is implicated in previous work on Jewish English (Knack 1991, Sacknovitz 2007), top-down social information does not influence the placement of phonemic boundaries for these listeners.

Controlling for condition, however, one element of listener background was found to significantly predict categorization along the TRAP-LOT continuum: Orthodox v. non-Orthodox identity (Figure 2, left). For the TRAP-LOT continuum (left), Orthodox listeners were significantly more likely to respond LOT, as opposed to TRAP, to a given token on the continuum (lower on the plot), indicating that they have a significantly *fronter* boundary between the two than non-Orthodox listeners (Table 4). In other words, they are more likely to expect LOT-fronting, a NCS feature. The LOT-THOUGHT boundary (right), which has been linked to Jewish (Knack 1991) and specifically Orthodox (Sacknovitz 2007) identity is not significant, though it trends in the same direction, with

Orthodox listeners expecting a lower/fronter (i.e.more Northern Cities-shifted) boundary. Though Sacknovitz (2007) has suggested that Orthodox Jewish individuals may be most likely to recruit New York vocalic features, especially raised THOUGHT, this result runs against such predictions.
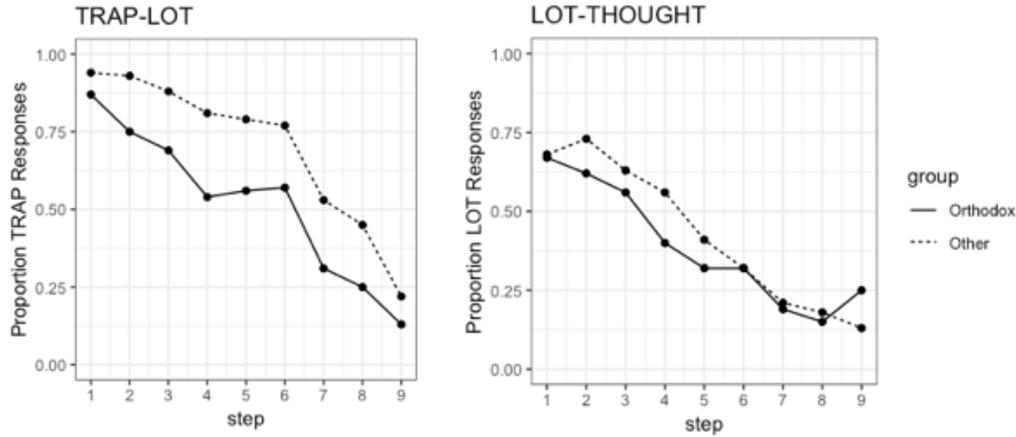

Figure 2. Categorization for TRAP-LOT (left) and LOT-THOUGHT (right) continua by continuum step and listener denomination. Solid line = Orthodox listener and dashed = non-Orthodox listener.

4 Discussion

Self-report and production studies have suggested that features of New York City English can index Jewish identity in a variety of regions (Knack 1991, Sacknovitz 2007, Benor 2011). Ideologies linking Jewish speech styles with NYC English feature heavily in meta-linguistic commentary by the Jewish Chicagoans studied here. This commentary likewise links the "Chicago accent," especially salient NCS features TRAP and LOT, with White ethnic Catholic Chicagoans. However, despite the pervasiveness of these ideologies in meta-linguistic commentary, priming listeners with top-down social information about a speaker did not influence phonemic categorization. These explicit ideologies do not appear to map onto expectations in this lower-level perception task.

Though social information about the speaker did not predict categorization in this study, listener background was found to significantly predict categorization along the TRAP-LOT continuum, with Orthodox listeners expecting fronter, more Northern Cities-shifted vowels. This finding runs counter to predictions suggesting that, when compared with other Jewish Americans, the Orthodox are most strongly associated with features of NYC English (e.g., Sacknovitz 2007). Here, Orthodox listeners are in fact more likely to posit a Northern Cities-like boundary than non-Orthodox listeners — the opposite direction of what would be observed if they expected a more NYC-like boundary.

Of course, a correlation between Orthodox listeners and expectations of a higher/fronter phonemic boundary between TRAP and LOT does not necessarily mean that Northern Cities-shifted vowels – or avoidance of New York-like productions of these vowels – is indexical of Orthodox identity. For one, the lack of an overall effect based on social category information about the speaker's perceived religious affiliation suggests that these listeners are not straightforwardly connecting religious background to vocalic productions. Additionally, meta-linguistic commentary linking Jewish speech styles with New York features does not single out particular denominations as being more or less likely to use these styles.

It is possible, however, that social information beyond broad regional and ethnoreligious identification may influence the perception of these features, as well as ideologies about the types of speakers who are likely to use them. Specifically, past work has found Northern Cities-shifted vowels to correlate with working class speakers, and more NCS-reversed vowel spaces with upper middle class speakers (McCarthy 2011, Durian & Cameron 2018). Indeed, the speakers quoted above mention socioeconomic status as a relevant part of the stereotypical NCS-linked persona: Ezra, for instance, mentions "*working class*" speakers, and Emmett describes these speakers as "*blue collar.*" While this proposal is speculative, in Chicago, there are socioeconomic differences between Ortho-

dox and non-Orthodox Jews, broadly speaking. The Orthodox Jewish community is largely concentrated in the neighborhood of West Rogers Park and the Northwest suburb of Skokie, whereas a large number of non-Orthodox Jews reside in suburbs to the North of the city (Ukeles et al. 2010, Shapiro 2012). As of 2018, West Rogers Park has a median household income of $53,000 per year, below the $63,300 median income of the Chicago area as a whole. Highland Park, on the other hand, a northern suburb with a largely non-Orthodox population, has a median household income of $130,400 – more than double that of West Rogers Park (Statistical Atlas 2018). Although information on participant factors such as socioeconomic status or their neighborhoods of residence was not collected for this study, it is possible that social factors like socioeconomic status could condition this listener background effect. Future work exploring this potential relationship between socioeconomic status and NCS features in this community could help elucidate whether this is indeed a driving factor for this effect.

That said, listeners' Orthodox background did not significantly predict categorization along the LOT-THOUGHT continuum, though the results trend in the same direction as those for TRAP-LOT, with Orthodox listeners expecting a lower/fronter (i.e., more Northern Cities-shifted) phonemic boundary than non-Orthodox listeners. This finding may be at least partly due to the construction of the stimuli themselves: as discussed above, the acoustic resynthesis used to produce stimuli only involved steady-state formant measurements, and information regarding duration and trajectory was removed from the speaker's original THOUGHT productions so that only vowel quality differed across successive continuum steps. However, since New York City THOUGHT is typically ingliding and longer in duration than LOT, the removal of these cues may have resulted in an unrealistic endpoint for this continuum.

Finally, as noted above, both the NCS and NYC vocalic systems are undergoing reversal in apparent time (McCarthy 2011, Becker 2014, D'Onofrio & Benheim 2020). The speaker in the present study was relatively young, but it is possible that a more substantial difference based on perceived region may have emerged in responses to an older speaker's voice. Exploring the ways in which socially primed, lower-level perception of these vocalic features differs based on perceived speaker age (e.g., Drager 2011) would also be an interesting avenue for future work. That said, the fact that Orthodox listeners still expect a more Northern Cities-shifted TRAP-LOT boundary, even for a younger speaker, suggests that Orthodox identity may intersect with other social factors in ways that implicate these regional features, even if meta-linguistic commentary about regional features and ethnoreligious identity does not map neatly onto lower-level perception in this task.

5 Conclusion

While previous work has suggested that regional features associated with New York City English are a component of the Jewish ethnolinguistic repertoire, and meta-linguistic commentary by Jewish Chicagoans aligns with this assumption, these ideologies do not straightforwardly map onto expectations about a speaker's vowel space in a lower-level perception task. Rather, listeners' backgrounds – in particular, whether or not they are Orthodox – significantly predict their expectations for the placement of the speaker's phonemic boundaries. This suggests that the relationship between regional features and the ethnolinguistic repertoire may be complicated by social factors beyond Jewish identity alone. For instance, while Sacknovitz (2007) proposed that Orthodox speakers in Maryland produced New York-like raised THOUGHT vowels, the present study finds the opposite pattern in perception, with Orthodox listeners expecting more Northern Cities-shifted TRAP and LOT.

That expectations of vocalic features do not seem to be tied to broad regional and ethnoreligious categories in perception for Jewish Chicagoans suggests that the specific components of the ethnolinguistic repertoire which are deployed by particular speakers may differ based on a region's sociolinguistic landscape (e.g., Wong & Hall-Lew 2014). While ideologies linking New York City and Jewish speech styles may be pervasive, the social factors which condition regional variation in different locations may lead to differences in the ways these components of the ethnolinguistic repertoire are deployed by speakers and, therefore, expected by listeners. Recruiting New York-linked features associated with the Jewish ethnolinguistic repertoire in Chicago would necessarily involve altering the production and perception of features like TRAP, LOT, and THOUGHT, which have their own social meanings and patterns in Chicago, by virtue of their involvement in the NCS.

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