Effects of Community Involvement and Age on Nativization: A Sociolinguistic Analysis of Jewish Communities

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Abstract

This study examines age and community involvement of Jewish people in North America as independent variables affecting the nativization of two phonemes, (χ) and (i) when using Hebrew loanwords in English or when reading out an Aramaic passage. Participants in this study filled out demographic questionnaires, listened to recordings of differing pronunciation of the variables in question to identify which one is closer to their own pronunciation, and finally recorded themselves saying target words. The (i) variable was found to be an indicator of change in progress towards a more Hebraic pronunciation. The (χ) variable is salient and nativization to /h/ is stigmatized, so it is highly sensitive to community involvement.

1 Introduction

Growing up in a Jewish community, I heard many animated discussions of the correct English transliteration of Hebrew words that include the graphemes *chet* (ח) and *chaf* (כ), phonetically best represented by /χ/. While some believe that "h" is the most understandable and accessible spelling, others prefer "ch" or "kh" to indicate a phonemic contrast with the sound /h/, represented orthographically in Hebrew by the letter *hey* (ה). Regardless of which orthographical variant each person selects, the reality is that these linguistic choices are intertwined with the social identity of North American English-speaking Jews. This orthographical debate represents something deeper – English speakers' variable pronunciations of the (χ) phoneme appear to indicate even more intraspeaker variation than their spellings.

Through anecdotal observation, I have noticed that more religiously observant and involved Jews tend to use pronunciations that are more closely aligned with Hebrew pronunciations, whereas Jews who are disaffiliated tend to further anglicize their pronunciation. This study examines age as well as the level of Jewish involvement and affiliation as social variables in North American Jewish communities and their

impact on the nativization of both the linguistic variable (χ) in words that are spelled with the Hebrew letters "chet" and "chaf" and on the linguistic variable (i) as it appears in closed syllables preceding alveolar obstruents in an Aramaic text.

The Linguistic Variables

This variability of (χ) as it is articulated as /h/[5] or /χ/ in Hebrew and Aramaic borrowings is consciously salient for most monolingual English speakers. In a perceptual task as part of this survey, participants had the opportunity to hear two pronunciations of each of five different Hebrew loanwords, and then had to select the variant they believed was most similar to their own pronunciation or select that they could not detect a difference. Among all participants and all words, there were only two instances of participants saying that they could not hear a difference between the pronunciation with /h/ and that with /χ/. Importantly, this is a phonemic contrast in Hebrew. While most speakers can articulate /χ/, many find it more difficult and will instead articulate /h/, especially in rapid and casual speech.[6] While the former variant is aligned with a more Hebraic pronunciation, the latter variant is nativized to be more pronounceable within the phonology of English. Given that this variable is salient and phonemic, the /χ/ variant is perceived by many as a more educated and correct pronunciation. Accordingly, the /h/ variant is stigmatized.

In a preliminary sociolinguistic interview with one middle-aged woman – a leader in her synagogue community, but not especially religious, and not raised in a particularly observant community – I played two audio recordings of English speakers pronouncing "challah," the braided bread traditionally eaten on the sabbath**.** In the first recording, the word was pronounced with /χ/ and in the second, /h/. I asked the interviewee what pronunciation was most similar to her own, and she quickly decided that the former was most aligned with her pronunciation, even as she proceeded to refer to the bread as /ˈha˛la/. Labov calls this phenomenon "linguistic insecurity," explaining that insecure speakers consciously strive for correctness, shifting toward prestige variants even in middle age (1972:117). This woman's assertion reflects her attitude towards the variable (χ) and her linguistic insecurity regarding her use of a stigmatized variant. In another interview, one speaker, a *Rebbetzin* (Rabbi's spouse) explained that she "would pronounce 'Chanukah' as /χanuka/ but 'Hanukkah' as /hanɪkʌ/." Her style-shifting isn't unique – Sarah Benor's paper on Jewish linguistic distinctness suggested that Jews are more likely to use

[5] Occasionally (χ) →Ø word-finally, in the binary code used, this was valued the same as /h/ because of its status as "full anglicization"

[6] In my experience teaching Hebrew to students aged 8-12

loanwords from Hebrew and Yiddish when talking with other Jews and about Jewish topics than with non-Jews (2009).

With regards to the (i) variable, this vowel is represented by the Hebrew *nikud* (diacritic) called *chirik*. It should remain a high tense front vowel when pronounced in accordance with Hebrew and Aramaic phonology (Blau 2010). In closed syllables, English speakers have a tendency to lax this vowel, articulating the variable instead as something most akin to /ɪ/. In English, short lax vowels cannot occur in open syllables, and tense nuclei often glide in closed syllables. Given this, maintaining (i) as a tense vowel may feel unnatural for some speakers, prompting them to lax it in the closed syllables examined here. Among many tokens of (i), this study only examines the thirteen tokens of (i) elicited per speaker that occurred in closed syllables that were either /j_s/ or /j_t/. In contrast to the Hebraic pronunciation, Yiddish does not have the phoneme [i] and instead has [ɪ] (Kleine 2003:263). While some speakers who produce /ɪ/ may be influenced by Yiddish, for most English speaking Jews this influence is minimal and indirect since children are taught to read Hebrew rather than Yiddish. Additionally, the laxing of (i) and the weakening of (χ) to /h/ are both phonological processes that may be easier for English speakers, so (i)-laxing will be considered hereafter as nativization.

The laxing of (i) does not appear to be stigmatized, likely because this variable appears to be beneath the level of conscious awareness. In another preliminary sociolinguistic interview, I instructed a highly involved young woman who worked as a Hebrew instructor at a Jewish summer camp to recite an Aramaic passage the way her campers would, with a strong American accent. Her recitation included many features of English phonology – she epenthesized to re-syllabify words that did not fit English syllable rules, pronounced all instances of (χ) as /h/, even giggling at the ridiculousness of the task as she did so – but she maintained all instances of (i) as tense vowels. In this way, the variable (i) is best classified as a Labovian indicator, given that it appears not to be subject to style-shifting and so it can be considered non-salient to speakers (Labov 1972:178). Instead, it appears to be a function of group membership. When I demonstrated the difference between the tense and lax pronunciation in an explicit minimal pair format and asked her explicitly how she felt about the lax pronunciation, she announced with disgust that she "would never say *that*." While the variable may not be salient to speakers in their own pronunciation, this informant's reaction indicates that, when explicit, the variable does hold negative prestige for fluent Hebrew speakers.

The Social Variables

Jewish involvement and affiliation as social variables can be understood similarly to the loose simplex and dense multiplex networks discussed in Milroy and Milroy's 1977 examination of Belfast.

Jews who are more religiously observant tend to be more involved in Jewish social life, and vice versa (Mitchell 2020). Among Jews who are religiously observant, there are significant social implications. Their extensive adherence to Jewish law obligates them to live in a Jewish community where they can access the resources to practice their tradition, including Jewish schools and kosher grocery stores. The synagogue becomes a center of social and religious life. This facilitates the creation of a dense, multiplex social network where speakers may be more likely to prioritize linguistic variants that demonstrate community belonging and to be less influenced by the phonological processes of the English vernacular.

In contrast, speakers who do not practice stringent adherence to Jewish law do not need to live walking distance to a synagogue, shop only at Jewish kosher supermarkets, or attend Jewish schools. This creates a much looser social network with more significant interaction with speakers of other dialects. Notably, speakers who are less religious and less socially involved typically have less exposure to Hebrew and Aramaic, perhaps making them more likely to nativize (i) and (χ) to /I/ and /h/.

Also examined was age as a social variable, looking at the speech of young adults in their early to mid-twenties, as well as their parents' generation. Among the speakers in this study, age was pretty evenly distributed, with nearly equal groups of older and younger speakers. In terms of religious involvement and practice, none were Hasidic or strictly religious. All were my personal friends or friends-of-friends, meaning that although they all had varying levels of involvement and religious practice, they were all at least somewhat integrated into the general American or Canadian cultures of the cities in which they lived. All were native English speakers, and most were monolingual. In this way, social involvement and Jewish community practices can be interpreted as a way to measure a speaker's familiarity with Hebrew and Aramaic as Jewish contact languages and the extent to which they employ that familiarity in their nativization of foreign phonemes and application of English phonological processes. Some older Ashkenazi Jews (from the Baby Boomer generation or older, with Yiddish speaking parents) and Hasidim have more extensive influence from Yiddish, so among this population, producing lax /i/ would not necessarily be indicative of (a lack of) familiarity of Hebrew or Aramaic. However, these populations were not examined in this study.

The Jewish community is linguistically interesting given that nativization as well as other linguistic patterns may not follow the typical patterns found in previous research of other communities. While the dense multiplex networks described by Milroy and Milroy are most typical of working class communities, Jewish communities are comparatively quite well off, with 79% of non-Orthodox Jews reporting middle-class or higher family incomes (Mitchell 2021). Despite the fact that dense multiplex networks are not as typical in other well-to-do communities, the religious and cultural identity of Jews creates rather homogenous communities, which helps maintain linguistic distinctness in English. Previous research has found less raising of /æ/ before nasals in Jewish communities compared with the general

population, more released /t/ word-finally, and even syntactical differences (Benor and Cohen 2011). Given the distinct features of Jewish English, it is especially interesting to examine intragroup variation.

In previous research on Canadians' nativization of the foreign (a) phoneme, young Canadians appeared to be leading the trend towards the more American (a) patterning rather than /æ/, although it was lexically selective. With /æ/ being considered the more "native" English vowel, in the word *Iraq*, it could be that the /æ/ pronunciation "...is associated in Canada as much as in the United States with nativistic, anti-foreign attitudes and therefore rejected by those with a politically liberal outlook, despite neutral or negative feelings toward American culture" (Boberg 2020). In a similar way, the nativization of Aramaic loanwords can be associated with speakers' identification with Judaism, the Jewish community and their position within it.

Kroch explained that one of the main characteristics of "prestige dialects" includes the "blocking" of "phoneme assimilation" (1978:28-29). This aversion to full nativization by emphasizing one's knowledge of foreign language and culture allows speakers to indicate their social values and level of education, with variants closer to the original foreign pronunciation having greater prestige (Boberg 2020). In this population, the phenomenon of nativization is unique given that this is a language and culture that, at the same time, is both foreign and familiar. While these speakers grew up hearing these words, they do not use them in their vernacular speech as they are not fluent speakers of Hebrew or Aramaic. As such, a speaker's social identity will impact their categorization of the word as something more foreign or more familiar.

I hypothesized that Jews who are more involved in Jewish life are less likely to nativize their speech towards the more anglophone variants, with lower rates of /h/-pronunciation and (i)-laxing. Additionally, I hypothesized that younger speakers will also be more likely to articulate (χ) as /χ/ compared with older speakers favouring /h/ given that there is evidence of a shift towards the more prestigious Hebraic pronunciation. Since I believe (i)-laxing to be below the level of conscious awareness, I suspect this will be more correlated with lower Jewish involvement rather than age.

2 Method

I solicited data from friends and friends-of-friends via a three-part survey, which I shared with Facebook groups and email lists for alumni of a Jewish summer camp, a Chicagoland synagogue and Jewish book club, and a Montreal Jewish community. All participants in this study were involved enough in the Jewish community to have joined virtual Jewish groups, seen the post, and self-selected to complete the survey. The majority of participants were based in the Midwest (see tables 1-3 for demographic information).

Table 1: Regional Demographics

Regional Background	Number of Speakers
Inland North Midwestern (Chicago Area, parts of NW Indiana, Milwaukee)	30
Other (Montreal, Vancouver, Toronto, New York, Bay Area, Pennsylvania)	10

Table 2: Age Demographics

Age	Number of Speakers
Over 30	18
Under 30	22

Table 3: Gender Demographics

Gender	Number of Speakers
Men	17
Women	23

In future research, it would be interesting to see if there are significant differences between Canadian and American Jews. However, Benor reports that, to a large extent, Jewish speech communities often have displaced dialectalism, tending to have variants typical of New York and not participating in some local sound changes (2009). This, combined with the small sample size solidified my decision not to examine regional influence at this time.

While the electronic survey methodology made it easier to collect data, it was not a random sample and not free of bias. This paper examines data from 40 participants, although there were nearly twice as many survey respondents. Yet, only 40 participants provided complete data for all three parts of the survey, likely due to technological difficulties and confusion, especially in the second and third parts of the survey – a perceptual task and audio recording.

The first part of the survey included demographic questions and questions about Jewish practice. Answers to these questions informed the study of the social variables discussed above. With the survey responses, I created an *Index of Jewish Involvement*, and was able to give respondents a numerical score to facilitate comparing speakers. I developed this index following the research tradition of Eckert and Benor and enlightened by the findings of the 2020 Pew study on Jewish American Identity, as well as through my own knowledge of these specific Jewish communities acquired through my own experience as a participant-observer.

The Pew study found that "people who are highly observant by traditional measures […] also tend to report the highest participation rates in […] cultural Jewish activities […] Those who are low on the scale of traditional religious observance, meanwhile, tend to be much less active" (Mitchell 2020). Given this finding, it did not make sense to separate religious and cultural practices. The *Index of Jewish Involvement* (hereafter referred to as IJI) examines these factors simultaneously.

Also, I wanted to account for the fact that many people do not have the same Jewish practices now as they did as children. However, the childhood "critical age" is when speech forms are acquired and learned. Accordingly, I created a separate *Index of Childhood Practice* (referred to as ICP). For the ICP, I gave speakers a numerical score out of four, assigning one point for each of the following: having a b'nai mitzvah ceremony, attending a Jewish private school, going to a Jewish summer camp, and partaking in Jewish youth group programming. I selected these as variables to include in the ICP, separate from the IJI, because they are not ongoing activities in adulthood. Additionally, while Jewish practice in adulthood is one's personal choice and may be reflective of one's orientation and attitudes towards their religion and culture, children did not choose to take part in these social and educational experiences. Although their participation in these experiences may not have been voluntary, these activities include significant Jewish learning and time socializing within a Jewish network, and increased ease in decoding or speaking Hebrew.

The IJI was based on Sarah Bunin Benor and Steven Cohen's findings in their Survey of American Jewish Language. In their survey, they examined generational cohort, religiosity through synagogue attendance, the proportion and engagement of Jewish friends within social networks, visits to Israel and time spent there, and Orthodox identity as independent social variables (Benor and Cohen 2011).

The IJI is calculated with respect to six factors and scored out of ten as is illustrated in table 4, below. In keeping with Benor and Cohen's work, I examined religiosity with a slightly higher weight on Conservative and Orthodox denominational identity as well as synagogue attendance and Shabbat observance, as I believed that this would most differentiate speakers in my sample. In addition to asking about Shabbat observance in question one ("Do you observe Shabbat?") I added a second question ("Do you handle money on Shabbat?") to differentiate those who observe Shabbat casually with those who keep Shabbat in a strict sense, given that handling money is prohibited by *halacha* (Jewish law). I used the fifth and sixth questions ("Do you work for a Jewish organization?" and "How many of your friends are Jewish?") to measure social networks. While Benor and Cohen did not look at occupation, those who work for Jewish organizations have more contact with other Jews even if they are not close friends with

their coworkers, so I thought that this was valuable to include as part of information about social networks. Additionally, those who are employed as members of clergy have had extensive schooling and training in Jewish texts and liturgy as well as immersing themselves in Jewish social spheres, which is why working as a member of clergy was weighted more heavily than working in another Jewish job.

Table 4: Summary of the Index of Jewish Involvement

Index of Jewish Involvement	
Do you observe Shabbat?	+0 no, +1 sometimes, +2 yes
Do you handle money on Shabbat?	+0 yes, +1 no
How often do you attend synagogue or participate in other Jewish spaces?	+0 rarely, +1 roughly monthly, +2 weekly or more
Which of the following best describes your denominational identity?	+0 Reform, Reconstructionist, Humanistic; +1 Conservative, Orthodox, Traditional
Do you work for a Jewish organization?	+0 no, +1 yes but not as clergy, +2 clergy
How many of your friends are Jewish?	+0 some, +1 roughly half, +2 all/mostly Jewish, +2 all/mostly Jewish

While Israel visits proved to be significant in Benor and Cohen's 2011 study as well as in the 2020 Pew study, I did not ask about this variable given my belief that attitudes towards Israel are changing, especially among liberal Jews such as those in the Facebook groups where I posted the survey. Many of these Jews are trying to define their Jewish identity and practice without centering Israel and trying to speak Hebrew as a Jewish language rather than as a way to connect with the state of Israel[7]. Within this sample, Israel visits would not be uniformly indicative of the strength of the speaker's involvement. Additionally, I worried that asking about Israel would politicize the survey, leading to fewer respondents.

While the IJI allows for a score between zero and ten, the highest score in this sample was an eight and the lowest score was one. This is largely due to the limitations of the sampling method used. It may also be related to the audio file that was solicited as part of the second portion of the survey, which asked speakers to record their recitation of the Mourner's Kaddish (also called *Kaddish* or *Kaddish Yatom*), a prayer traditionally said by a child mourning the loss of a parent, but also used widely as a general prayer for mourning. Although many Orthodox Jews would be uncomfortable reciting and recording for non-religious purposes and therefore unfortunately excluded from the survey, this passage

[7] This decision was largely informed by my personal experiences as a participant-observer in these communities with many friends, acquaintances, and clergy asserting a non-Zionist position with respect to the Hebrew language and Jewish involvement.

was optimal for several reasons. Firstly, although it must be acknowledged that sociolinguistic interviews are wonderful for their ability to elicit more natural speech in several different styles, the nativization of these linguistic variables would be largely inaccessible due to their absence in casual speech. Given this, asking speakers to record a passage was the most efficient way to gather uniform elicitations. Additionally, this passage was ideal given that it is spoken and not sung, and has several tokens of the relevant linguistic variables.

With regards to style, the passage cannot easily be categorized on the Labovian speech style continuum of casual speech and reading style. Given that the passage is a prayer for the dead, speakers may feel emotional when reciting this passage, causing them to be less cognizant of their speech. On the other hand, the fact that speakers are prompted to read and record the passage may heighten their awareness of their pronunciation. That being said, many speakers do have this passage memorized and have familiarity reciting it from childhood, which suggests that perhaps it could be better classified as a "childhood rhyme," and a substyle of casual speech (Labov 1972:70-109). Perhaps though, this illuminates the need for more or different classifications of speech style, with "prayer style" being considered as distinct.

Another important factor in the selection of this passage was the language. While most Jewish prayers are written in Hebrew, this prayer is in Aramaic. Given that no respondents are speakers of Aramaic and all speakers are native English speakers, all speakers were inclined to nativize the phonology of their speech. That being said, while Aramaic is distinct from Hebrew, this study is built on the assumption detailed by Shelomo Morag in his book, *The Vocalization Systems of Arabic, Hebrew, and Aramaic*: Aramaic and Hebrew share the same phonology and allophones, and that all Aramaic vowel phonemes can be denoted by the vocalization systems of Hebrew. Morag elaborates, observing that "it appears that the vocalizers did not encounter any difficulty in applying the same vocalization systems to both Hebrew and Aramaic, in spite of the phonetic and phonemic differences between the two languages. This is to be explained by the fact that the vowel phonemes of Hebrew and Aramaic differ from each other mainly in their distribution…" (Morag 2019:45-47). Respondents who pronounced the passage as if it were Hebrew were not nativizing the Aramaic passage to L1 Hebrew, but rather attempting to minimize their nativization to English phonology compared with those who used the variants /h/ and /ɪ/.

The final part of the survey was a perceptual task. Using the web based platform Edpuzzle, speakers heard two pronunciations recorded by myself, the researcher, of each of five different loanwords and phrases: chag sameach, challah, chai, Hanukkah, and Pesach[5]. They then were able to respond by

selecting the variant that most aligned with their own pronunciation. The goal of this perceptual activity was to better understand the salience of the /χ/ variable.

After collecting all survey data, I calculated scores on the IJI and ICP for each speaker. I then used a binary coding system to analyze all variables. All instances of laxed-(i) were coded as 0 while tense /i/ was coded as 1; all instances of /h/ were coded as 0 and /χ/ was coded as 1. These numerical values were assigned impressionistically while the audio was played at reduced speed. After adding all the tokens together, I calculated a percentage of total tokens that were articulated in accordance with the Hebraic forms /i/ and /χ/, respectively. I also calculated a variable I called *Non-Anglicized Tokens* or NAT, which was the sum of the total realizations of /i/ with the total realizations of /χ/. Then, I was able to compare the average percentages of tokens articulated in the target form with the scores on the indexes and age to understand the way the social and linguistic variables interact.

To determine the significance of the findings, I used a two-tailed t-test with a p-value of 0.05. All data presented below was found to be statistically significant with $p<0.05$. I also ran a linear regression model looking at the NAT with the explanatory variables of age, IJI, and ICP.

3 Results & Discussion

As predicted, differences between men and women were found to be null as determined by a t-test. This is likely because the differences are superseded by the effects of involvement. In more liberal Jewish communities, such as the ones surveyed, differences in Jewish education and practice are negligible for men and women, who pray together. In Jewish communities that adhere to traditional gender roles, these roles are enforced by strict interpretations of Jewish law, which occur in every aspect of community life, meaning that these communities are exceptionally isolated from the larger anglophone community. Having received a Jewish education from a young age, members of these traditional Jewish communities have been exposed to lots of Hebrew and Aramaic, making them likely to be categorical users of /χ/ and avoid (i)-laxing. While this variable showed differences to be negligible, it is likely that significant gender differences could be found when examining a different variable.

As was expected through anecdotal observation and with consideration of previous research, Jewish involvement proved to be a highly significant predictor of both /χ/ and /i/ realizations. Speakers who were more involved in Jewish life, as indicated by their higher index scores, were less likely to "fully" nativize their speech, avoiding both placeless /h/ articulations and (i)-laxing.

Figure 1[8]: Jewish Involvement and /χ/ Realizations

Number of Speakers	Jewish Involvement by Indexical Score IJI	Average Percent of Tokens Realized as /χ/
22	More involved, 4-8	85.0%
18	Less involved, 0-3	59.1%

As demonstrated in Figure 1, above, speakers who had relatively high scores realized significantly more tokens as /χ/ compared with their less engaged peers. While this pattern held for /i/ realizations compared with the /ɪ/ variant (see Figure 2 below), overall there were higher rates of /χ/ realizations, perhaps due to the fact that this variable was more salient to speakers.

Figure 2[9]: Jewish Involvement and/ i/ Realizations

Number of Speakers	Jewish Involvement by Indexical Score IJI	Average Percent of Tokens Realized as /i/
22	More involved, 4-8	82.2%
18	Less involved, 0-3	57.7%

The effects of the ICP, as illustrated below in figure 3, were similar to the effects of the IJI. While higher involvement levels in childhood practice were associated with a higher percentage of NAT, these ICP and IJI scores do not appear redundant.

Figure 3[10] Childhood Involvement and /i/ and /χ/ rather than /ɪ/ or /h/ realizations

Number of Speakers	Childhood Involvement by Indexical Score ICP	NAT (Average Percent of Tokens realized as /i/ & /χ/ rather than /ɪ/ or /h/)
26	More involved, 3-4	85.0%
14	Less involved, 1-2	47.8%

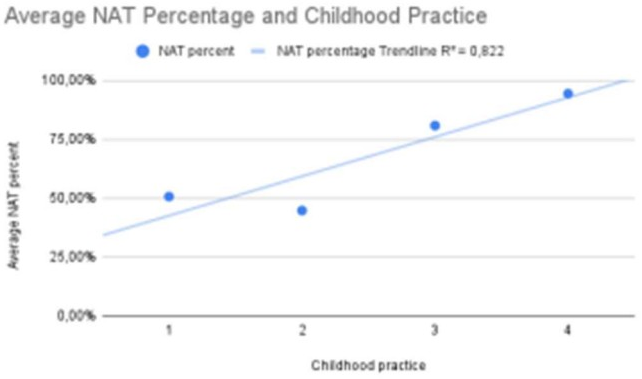
[8] The difference between speakers with indexical scores of 0-3 vs. speakers with scores 4-8 was found to be significant at p = 0.0004

[9] The difference between speakers with indexical scores of 0-3 vs. speakers with scores 4-8 was found to be significant at p=0.0489

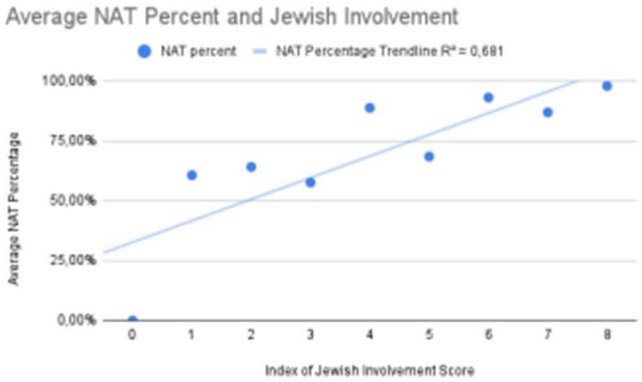
[10] The difference between speakers with childhood indexical scores of 1-2 vs. speakers with scores 3-4 was found to be significant at p = 0.0005

With regards to the average NAT percentage when compared with both indexical social variables, the average percentage in the aggregate appeared highly significant, as shown in the graphs below.

Graph 1: NAT and ICP



Graph 2: NAT and IJI



Despite the large significance in average values when aggregated, there was a large standard deviation in the sample, meaning that there was minimal significance when examining outside the aggregate, suggesting the need for further research with a larger sample.

With regard to the salience of /χ/, speakers' intuitions about their usage appear relatively accurate. Although no speaker reported exclusive usage of /h/ in the perceptual task, one speaker did have categorical /h/ used in their recording of the passage. Among speakers who self-reported variable usage of /χ/ in the perceptual task, they recorded significantly fewer tokens of (χ) as /χ/ than those who self-reported exclusive usage of /χ/. However, even the self-declared categorical users of /χ/ articulated about 12% of tokens as /h/ (see figure 4, below).

Figure 4[11]

Number of Speakers	Self-reported use of /χ/	Average Percent of Tokens Realized as /χ/
24	Speakers who report **variable** usage of /χ/ and /h/	62.5%
16	Speakers who report **exclusive** usage of /χ/	87.9%

This could be because /χ/ was highly salient perceptually and carries a strong positive prestige, so speakers were more likely to report using /χ/ even if they do not actually use it. Alternatively, this could be due to a difference in contextual styles. Nearly all speakers reported pronouncing *chai*, a Hebrew word meaning "life," with /χ/, even if they reported pronouncing *Hanukkah* with /h/. This could be because *chai* would be most typically used when speaking with Jewish interlocutors, whereas *Hanukkah* has made its way into mainstream English vernacular. In addition to further research on the variability of these phonemes between different types of borrowings, further research is needed to determine if /χ/ is more common in Hebrew loanwords than in an Aramaic prayer passage.

With respect to age, there were no significant results for the (χ) variable. This appeared to be significant only for (i). This is likely due to the status of each variable, as speakers are more consciously aware of (χ) and hold pragmatic values for speakers, whereas (i) is more variable. In the sample surveyed here, the older group was skewed as it included a high proportion of Rabbis, who are highly involved in the Jewish community, having completed many years of education. To really examine the effect of age without the confounding effect of involvement and religiosity, I excluded all Rabbis from the analysis of age and (i). In the graph below, it is clear that among this group, there is no real correlation between age and involvement, illustrating that the distinction is needed.

[11] The difference between speakers who self-report variable usage of /h/ vs. /χ/ compared with speakers who report exclusive use of /χ/ was found statistically significant at p=0.002

Graph 3: Age and IJI

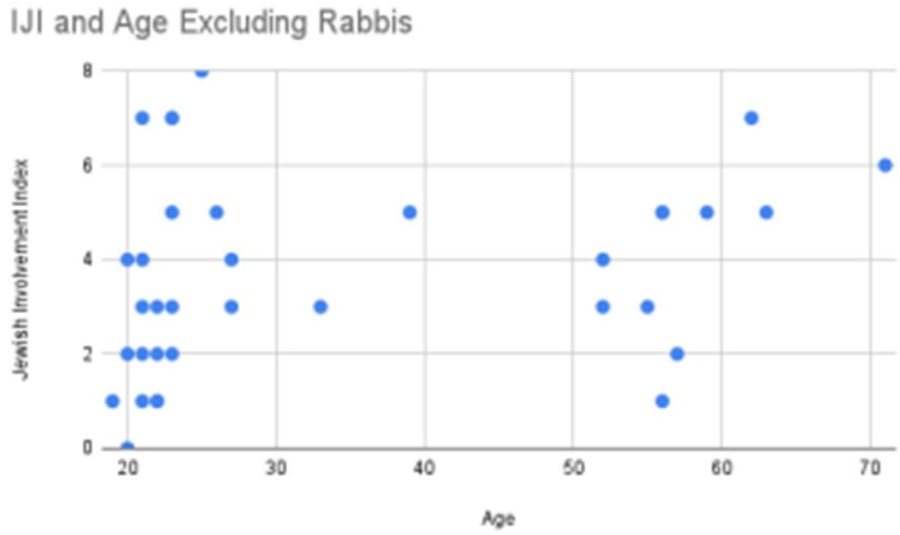


Figure 5 below illustrates that speakers over thirty realized significantly more tokens of /ɪ/ than the younger speakers.

Figure 5[12] Age and /i/ realizations, excluding Rabbis

Number of Speakers	Age	Average Percent of Tokens Realized as /i/
13	Older, Age > 30	49.1%
22	Younger, Age < 30	78.7%

With the (i) variable, older speakers were much more likely to lax their vowel. This suggests that it is not merely involvement and knowledge that impacts the laxing of (i), and that this could be indicative of a change in progress towards a more Hebraic variant rather than full nativization.

Overall, in this sample, the IJI proved to be the most significant in a linear regression model. The effects of age and ICP were also significant, but the large standard deviation and small sample size means that further research is required to better understand the relationships between these social variables and the linguistic variables.

[12] The difference between speakers over the age of 30 vs. speakers under the age of 30, excluding Rabbis, was found to be significant at $p = 0.0429$

4 Conclusion

While this study illuminated some intra speaker variation, further research is needed to better understand the larger picture. It would be interesting to examine the nativization of borrowings in other contextual styles. It would be especially interesting to further examine the scope of the (i)-variable among a highly involved and religious sample who had more extensive contact with Yiddish. Likewise, it would be helpful to examine age in a larger sample with a more representative number of Rabbis. Alternatively, it would be interesting to compare the speech of clergy members with the general population.

Despite its limitations, the use of "prayer style" was quite helpful to compare the same passage with different speakers and it would be interesting to employ this cross-linguistically in other research beyond just examining the nativization of Aramaic. Recordings of prayers are also available on youtube and other internet sources, and we can speculate demographic information with some certainty by examining the channels that publish such recordings.

Similar to the nativization of foreign (a), with speakers' social attitudes influencing their linguistic choices, speakers' relationship with their Jewish faith and culture was predictive of their pronunciation of both linguistic variables examined. Contrary to my initial hypothesis that (χ) would be significantly impacted by age, it was not. Age was, however, significant for the (i) variable, suggesting a potential change in progress. Younger people lead the trend towards the more Hebraic pronunciation, similarly to the way younger people lead the Canadian shift towards the more American production of (a).

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