PHONETIC CONTRAST IN NEW YORK HASIDIC YIDDISH VOWELS:

LANGUAGE CONTACT, VARIATION, AND CHANGE

by

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ABSTRACT

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This study analyzes the acoustic correlates of the length contrast in New York Hasidic Yiddish (HY) peripheral vowels /i/, /u/, and /a/, and compares them across four generations of native speakers for evidence of change over time. HY vowel tokens are also compared to English vowels produced by the New York-born speakers to investigate the influence of language contact on observed changes. Additionally, the degree to which individual speakers orient towards or away from the Hasidic community is quantified via an ethnographically informed survey to examine its correlation with /u/-fronting, a sound change that is widespread in the non-Hasidic English-speaking community.

The data for this study consist of audio segments extracted from sociolinguistic interviews with fifty-seven New York-born speakers representing three generations; and from recordings of Holocaust testimonies by thirteen survivors from the Transcarpathian region of Eastern Europe, the ancestral homeland of most contemporary Hasidim. The duration and first and second formant frequencies of the vowels were extracted and analyzed statistically. The results show that while the contrast among European-born (first generation) speakers is relatively weak overall, there is a significant increase in both the

durational and qualitative distinctions of the long-short counterparts of the high vowel pairs (/i/ and /u/) between the first and second generations. These vowels continue to diverge in quality across subsequent generations, with the short vowels becoming lower and more centralized in phonetic space. Based on these findings, I hypothesize that the length contrast in the pre-war Yiddish of the Transcarpathian region was changing and possibly on the verge of collapse. In the high vowels, contact with English reversed or inhibited a merger, with a remapping of length differences on a quality plus quantity dimension parallel to American English {/i/-/ɪ/} and {/u/-/ʊ/}. However, contact did not have the same effect on the low vowels, since there was no parallel low vowel contrast with which inherited HY {/aː/-/a/} could be associated.

Furthermore, a cross-linguistic comparison of the HY vs. English vowel systems shows that while the short high vowels of second-generation speakers are more centralized relative to their HY counterparts, younger speakers exhibit increasing convergence of their HY and English vowels. These results are interpreted with reference to models of second language acquisition, emphasizing differences in language input that might result in the acquisition of different systems. Moreover, the patterns uncovered in the cross-linguistic analysis suggest that contact-induced phonetic drift may account for the changes observed in HY. Finally, there is evidence that /u/ is fronting in post-coronal contexts. However, unlike the changes in the short high vowels, this change is not correlated with generation. Rather, statistical modeling shows a significant effect of Hasidic orientation, with outwardly oriented individuals showing a greater tendency for /u/-fronting than those who are maximally oriented towards the Hasidic community.

HY is an organically developing dialect caught between the opposing pressures of a traditionalist religio-cultural ideology that supports it and a majority language that competes with it. This study identifies some of the cognitive forces that may underlie sound change in a minority language under bilingual contact and uncovers locally significant factors that are implicated in the propagation of such change. It also highlights the dynamicity of Hasidic culture and provides linguistic evidence of its interaction with mainstream American culture, thereby presenting an expansive view of the Hasidic community that counters narratives portraying it as anti-progressive and static.

Acknowledgements

They say it takes a village to raise a Ph.D. One of the Yiddish words we have for village, *shtetl*, has acquired a myriad of connotations in its journeys across time, space, and cultures. In the popular imagination, the *shtetl* is located somewhere in Eastern Europe in the pre-World War II era. Not so for me. I grew up in Kiryas Joel, a place we matter-of-factly called "the *shtetl*". That village of my childhood represents a time and place where I felt safe and supported, free and fearless. I left Kiryas Joel almost thirty years ago but looking back, I realize that when I entered the world of academia, the first in my family and possibly in my hometown to do so, I immediately set about recreating that nurturing *shtetl* experience. It is thanks to a network of support that academia became my second home, and I was able to execute this project.

קודם כל קומט זיך א הארציגן דאנק פאר די אלע חסידישע אידיש רעדערס, קרובים, פריינט ,און פרעמדע; פרויען און מענער; קינדער און ערוואקסענע, וואס האבן אוועקגעגעבן פון זייער טייערע צייט זיך צו טרעפן מיט מיר, וואס אן זיי וואלט די פּראיעקט נישט צושטאנד געקומען. מכל־מלמדי השכלתי, פון אלע פון זיי האב איך מיך עפּעס געלערנט און די לעקציעס וועלן מיט מיר פארבלייבן. די שמועסן האבן מיר אויך געגעבן א טיפערע פארשטאנד צו די איבערלעבונגען פון אנדערע, און דאס האט פארשטארקט דעם קשר צווישן מיר און מיין קהילה.

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וואס האבן מיר געגעבן אידיש

און אידישקייט,

און מיר געוויזן וויאזוי צו לעבן

און מצליח זיין.

For my parents

Ruben and Nisi Falkowitz

Who gave me Yiddish

and *yidishkayt,*

and showed me how to live

and succeed.

Chapter 1

Introduction

יעדע מדינה האט א מלאך, א שר הייסט עס, [...] וואס באלאנגט פאר יענע מדינה. טאמער רעדסטו נישט די שפראך פון יענע מדינה וואו די וואוינסט, האט ער נישט קיין שליטה אויף דיר. *But once* דו הייבסט אן רעדן די שפראך פון יענע מדינה, *he's in control*.

'Every nation has a special angel, like a minister, [...] that oversees that country. If you don't speak the language of the country in which you reside, then he has no power over you. But once you start speaking the language of that nation, he's in control.'

Yitzchok (born 1957; interview data)

THE HISTORY OF YIDDISH in America is best related as a tale of two Yiddishes. By far the most well-known of these is the Yiddish that followed the common pattern of contact for minority immigrant languages formalized as the THREE-GENERATION RULE (Fishman, 1972, 1981a; Haugen, 1953), whereby shift towards the host language reaches completion within

three generations.[1] It is this Yiddish that saw a 98% decline in its speaker population in the course of the 20th century (based on U.S. Census data, via Manson, Schroeder, Van Riper, & Ruggles, 2017); whose impending demise became a source of anxiety and defensiveness for scholars and devotees (see e.g., Chazanov, 1989; Fishman, 1981b); and whose status was ultimately relegated to "post vernacular", reflecting its retention primarily as a language of nostalgia (Shandler, 2006a). But there is a lesser-told story of a Yiddish that remarkably evaded the dire fate of its sister dialects. This dissertation focuses on Hasidic Yiddish,[2] the dominant language of everyday life in many Hasidic (ultra-Orthodox) neighborhoods and communities in New York State and the vicinity.[3] The Hasidic Yiddish speaker population has been increasing steadily since the dialect was transplanted to the U.S. by post-Holocaust refugees from Eastern Europe and is currently estimated to number between 135,000 and 300,000 in New York State alone.[4] This growth is due not to ongoing

[1] A shift to the dominant language within three generations has been observed among linguistic minority communities following both past and recent waves of immigration (see e.g., Alba, 2004; Alba, Logan, Lutz, & Stults, 2002; Rumbaut, Massey, & Bean, 2006).

[2] The term Hasidic Yiddish is used in this study to refer to the Yiddish dialect group spoken by a majority of Hasidic Jews worldwide. For historical reasons, I exclude the Yiddish spoken in Lubavitch (Chabad) communities, also Hasidic, which derives from Northeastern Yiddish varieties and differs significantly from the variety originating from the Central Yiddish dialects. The labels 'Hungarian Yiddish' and 'Haredi Satmar Yiddish' have also been applied to this variety. I have chosen to use the term "Hasidic Yiddish" for the sake of parsimony.

[3] While New York has the highest concentration of HY speakers in North America, there are also HY-speaking communities in New Jersey, California, Montreal and Toronto. Across the world, sizable HY-speaking groups are located in Israel, England (London) and Belgium (Antwerp).

[4] The lower end of this estimate is drawn from the 2011-2015 American Community Survey of the U.S. Census Bureau (Manson et al., 2017). Comenetz (2006) offers a population estimate of 135,000 – 140,000 as of 2000, a figure that is certain to have risen significantly, given the high birth rate in the community. Another approximate number can be derived from Biale et al. (2018), based on the estimated 275,000 Hasidim in Greater New York, geographically concentrated in a few neighborhoods in Brooklyn and Upstate New York, who are presumed to be Yiddish speakers. Finally, Fishman (2001) offers ~300,000 as the best estimate of the number of ultra-Orthodox

immigration, as is the case for many minority language communities in the U.S., as linguistic reinforcement via immigration has been essentially precluded by the annihilation of Yiddish-speaking communities in Europe by Nazi Germany. Instead, scholars attribute the successful maintenance of Hasidic Yiddish to demographics combined with an ideology that privileges Yiddish use as a means of ensuring cultural separatism and religious continuity (Fader, 2009; Fishman, 1965; Glinert, 1999; Shandler, 2006b).

When it comes to language, however, maintenance hardly implies stasis. In its new contact environment(s), HY is reportedly exhibiting signs of convergence towards the majority language and divergence from geographically remote varieties (Assouline, 2018b; Belk, Kahn, & Szendroi, 2020a; Krogh, 2016; Nove, 2021a). Characterized by social structures and cultural practices that are conspicuously dissimilar to those of the local population, HY-speaking communities are important sites for investigating patterns of variation and change.[5] The circumstances under which this language was transferred to the U.S. make it an even more rewarding object of study, as the sudden, involuntary dislocation of a language community from its geographical homeland (not to mention the annihilation of the majority of its speakers) is almost certain to result in dramatic shifts in a language, presenting an opportunity to observe accelerated forms of typically-protracted linguistic changes. Finally, unlike some minority diaspora languages currently spoken in New York

Yiddish speakers in the U.S., the vast majority of whom are said to reside in the Greater New York Metropolitan Area.

[5] An analogous example of a (Germanic) minority language in the United states whose retention has been attributed to socio-religious factors is offered in Louden's (2016) book about Pennsylvania Dutch. Louden (2006) makes this analogy explicit and predicts that both Pennsylvania Dutch (among sectarian groups) and Yiddish (among Hasidim) will continue to grow.

whose homeland varieties have not been analyzed in depth (e.g., indigenous languages of Darfur, the Himalayas, and the Caucasus), Yiddish has been relatively well-documented. Thus, a study of Hasidic Yiddish is well positioned to identify linguistic features that are more likely to be maintained and those that are subject to change under language contact. In spite of this, HY was largely overlooked by linguists until recently, arguably as a result of implicit prejudices within the Yiddish scholarly community (Nove, 2018c). As a result, there is an unfortunate dearth of knowledge about HY, and its vowel phonology in particular has received little attention.[6]

Therefore, one important objective of this dissertation is to provide a phonetic description of the vowel systems of New York HY and the pre-war varieties from which it descended. Additionally, this study uses variationist sociolinguistics methods (Labov, 1984; Tagliamonte, 2012b, 2012a) to analyze New York HY vowels, and draws on language contact and bilingualism studies to investigate tendencies in phonetic variation that may lead to cross-generational change. The primary data are drawn from conversational interviews with 57 (bilingual) native HY-speakers of three generations, beginning with the children of immigrants.[7] The vowels produced by these speakers are compared across generations for evidence of change over time by analyzing two of their acoustic properties: vowel spectrum and vowel duration. Vowel spectrum is analyzed using first and second formant frequencies

[6] The past five years have seen a surge in scholarship on Hasidic Yiddish (see e.g., Assouline, 2017, 2018a, 2018b; Belk, Kahn, & Szendroi, 2020a, 2020b, 2020c; Bleaman, 2018, 2020; Nove, 2018b, 2020, 2021c; Sadock & Masor, 2018).

[7] Throughout this dissertation, first-generation (or Gen1) refers to post-Holocaust immigrants to the U.S., second-generation (Gen2) refers to the children of immigrants (the first New York-born generation), and so on. Participants' generation was determined during the interview, based on the demographic information they provided.

(F1 and F2), which reflect approximate phonetic *height* (the lower F1, the higher the vowel), and *backness* (the more back the vowel, the lower F2),[8] as demonstrated, e.g., in classic studies by Peterson and Barney (1952) and Stevens and House (1955), and in the more recent phonetics textbooks, e.g., Ladefoged (2001), Kent & Read (2002), and Pickett (1999). Durational measures, deemed an important identity cue for vowels of similar quality that contrast in terms of length, are compared across vowel classes and speaker groups. Comparisons are also made with vowels of 13 European Yiddish speakers (immigrant Holocaust survivors), 12 of which were drawn from archival recordings in the *USC Shoah Foundation Visual History Archive* (USC VHA). Furthermore, corresponding HY and English vowels produced by the same speakers are examined for bilingual conditioning. Finally, interspeaker variation in the production of /u/ is analyzed in terms of its correlation with Hasidic orientation.

Half a century after Labov (1966) blazed the trail for quantitative studies of language variation and change, Stanford (2016) laments the scarcity of Labovian-influenced research on minority languages and issues a call for sociolinguists to venture beyond their familiar (and overwhelmingly English-speaking) environments in order to test established hypotheses about linguistic variation. Indeed, scholars that have heeded the call for such diversity in variationist research have found that the social factors influencing speech variation are not easily generalizable (see e.g., Nagy, Chociej, & Hoffman, 2014; Nagy & Kochetov, 2013). Moreover, these projects demonstrate that such research programs do not

[8] A better predictor of vowel backness is the distance between F1 and F2: the closer these two values are to each other, the farther back the vowel is.

necessarily require one to "head out for distant field sites" (Stanford, 2016, p. 537). This dissertation adds to the relatively limited research on intragroup variation in minority languages in North America. Despite the target community's location in one of the most well-studied urban environments from a variationist sociolinguistic perspective, it nevertheless meets Stanford's (2016, p. 526) criteria for a "starkly different" society, which, by virtue of its distinctive cultural values, ideologies and social structures can significantly enrich our knowledge of the complex interplay of phonetic variation and social identity.

The current chapter provides context for understanding the circumstances in which Hasidic Yiddish presently functions as a minority language in New York. In §1.1, the transliteration procedures used in this study are explained. Starting with a brief overview of Hasidism, §1.2 then describes the social organization, language ideologies, and language practices of New York HY speakers; and §1.3 traces the linguistic origins of Hasidic Yiddish. Section 1.4, introduces a multivalent approach to Hasidic orientation, modelled on recent studies that have examined the role of ethnic orientation in language variation. Finally, an outline of the remainder of the dissertation is provided in §1.5.

1.1 Notes on transliteration and transcription

In scholarly publications, Yiddish is typically rendered using the YIVO standard for orthography and/or transliteration. The YIVO orthography differs in several ways from the one used by contemporary Hasidim. For example, the former uses diacritics (*nekudes*) to disambiguate between different pronunciations of the letters א (אַ = /a/, אָ = /o/) and י (יי = /ej/, יַ = /aj/), while the latter does not. These contrasts are also made in YIVO

transliteration, i.e., <a> vs. <o> and <ey> vs. <ay>. While the YIVO transliteration system is also often used to *transcribe* Standard Yiddish, it does not represent HY pronunciation as well. This is because the Hasidic Yiddish (HY) phonology contains contrasts that don't exist in the standard dialect, and vice versa. For example, the HY phonemes /oɪ/ (e.g., /voɪn/ 'live') and /oʊ/ (e.g., /froʊ/ 'woman') are represented in the YIVO standard transliteration as <oy>, obscuring the contrast. On the other hand, the YIVO-transliterated words <zun> 'sun' and <zin> 'sense' are both pronounced with the vowel /ɪ/ in HY. This is not a fault of the transliteration system, as the same ambiguities exist in the original Yiddish (including HY) orthography, as well. Nevertheless, this makes it problematic to use YIVO transliteration—most familiar to scholars in Yiddish Studies—to transcribe HY. On the other hand, the International Phonetic Alphabet (IPA) system, which is geared towards transcription, is not widely familiar outside the field of linguistics.

To ensure that the Yiddish in this dissertation is accessible to a broad readership including Hasidim, and that the transliterations reflect the speakers' natural dialects, quoted speech is represented in three ways: 1) HY orthography; 2) modified YIVO transliteration; and 3) English translations. Modifications to the YIVO transliteration system affect only the vowel system, which is crucial for rendering the HY dialect, and adaptations were made only for the most salient differences. The long-short contrast in /i/ and /u/, for example, is not represented, as it was not considered vital and would have resulted in very unnatural-looking renderings. The following modifications were made to the Roman letter system where necessary to reflect the HY pronunciation (YIVO in capital letters → this dissertation): EY → ay; AY → aa; OY → oy/ow; E → e/ey; I/U → i. The full

system used for representing the vowels (transliteration and orthography) is shown in Table 1.1. The first and second columns show the Yiddish and Roman letters used in this dissertation, and the third column presents the corresponding IPA symbol. The YIVO versions of the Yiddish and Roman letters are shown in the two rightmost columns. Rows containing Roman letters used that differ from the YIVO system are shaded in gray. The complete chart (including consonants) can be found in Appendix A.

When quoting Yiddish from written sources, the original orthography is used. For transliterating written sources, the modified system is used only if the source variety is HY. Yiddish names are rendered according to prevalent spelling conventions in the community. HY-speaking readers of this work will likely be most comfortable reading the quoted speech in the HY orthography. Yiddish speakers familiar with the YIVO standard will hopefully understand the transliterated portions, even if the vowels are slightly altered.

Yiddish letter used	Roman letter used	IPA symbol for HY	YIVO Yiddish letter	YIVO Roman letter
(silent) א			(silent) א	
אַ	a	a	אַ	a
אָ	o	ʌ	אָ	o
אָ	u	u / ʊ	אָ	o
ו	i	i / ɪ	ו / ו־	u
ו	u	u / ʊ	ו / ו־	u
וי	oy	ɔɪ	וי	oy
וי	ow	oʊ	וי	oy
י	i	i	י / יִ	i
י	i	ɪ	י / יִ	i
יי	aa	aː	יַ־	ay
יי	ay	aɪ	יי	ey
יי	ay	aɪː*	יַ־	ay
ע	e	ɛ, eɛ	ע	e
ע	ey	eɪ	ע	e

Table 1.1. Transliteration system and orthography used for Yiddish vowels in quoted speech. The first column shows the Roman letter used, the second contains the Yiddish letter used and the third shows the corresponding IPA symbol. The YIVO standard equivalents (Roman and Yiddish letters) are shown in the two right-most columns. Rows containing Roman letter modifications from the YIVO standard are shaded in gray.

1.2 Sociolinguistic context

1.2.1 Hasidism

The Hasidic movement was initiated in the 18th century by Israel the son of Eliezer (~1698-1760), a faith healer in Medzhybizh (presently in Ukraine) who became known as the *Baal Shem Tov* 'Master of the Good Name' or the *Besht*. Rooted in Jewish mysticism and Kabbalistic thought, Hasidism centered on a belief that elements of the divine exist in every corner of the universe and that one can achieve unity with G-d via contemplative prayer and a concentrated effort to connect with those elements. According to these convictions, every human act, however prosaic, is potentially a divine encounter. Hasidism sparked a

* In word-final and vowel hiatus position, e.g., [draɪː] 'three' and [faɪːjər] 'fire'.

religious revival and spread rapidly across Jewish communities in Eastern Europe. At the center of each Hasidic group was the *tsaddik* or *rebbe,* a charismatic leader who interpreted the teachings of the *Baal Shem Tov* and was viewed by his followers as an emissary to G-d on behalf of the people. Over time, what began as a radical, anti-elitist movement evolved into an established form of Orthodox Judaism, with its own canon of texts. In the modern era, a core ideology underlying the Hasidic doctrine is traditionalism. Hasidism is distinguished from other branches of Judaism via a number of devotional and cultural practices, including maintenance of traditional male/female gender roles in communal and family life, as well as a distinctive dress code for men, roughly approximating clothing worn by Jewish males in the 18th century; and for women, based on stringent interpretations of the laws of modesty.[9]

1.2.2 Hasidic Yiddish in New York

Yiddish has been a part of the American linguistic landscape at least since the 19th century, but the story of HY in New York begins with the wave of Hasidic immigrants from Eastern Europe who settled here in the 1940s following World War II. Under the guidance of renowned Hasidic leaders who had survived the Holocaust, these refugees, or *sheayris haplayte* 'surviving remnant', as they referred to themselves, quickly set about reconstructing a sense of home by establishing communal and religious institutions modeled on those of their recently destroyed hometowns. In keeping with an historical separatist and traditionalist ideology, Hasidim created thriving enclave communities in

[9] For an extended history of Hasidism, see Biale et al. (2018) and Wodziński (2018).

New York State, first in the Lower East Side of Manhattan and later in Brooklyn (Williamsburg, Borough Park, Crown Heights), Rockland County (Spring Valley, Monsey, New Square), Long Island, and Orange County (Monroe).[10] Figure 1.1 locates the main Hasidic communities on a map. Currently, New York is home to more than a dozen Hasidic groups, large and small, each united around a spiritual leader or *rebbe* and named after a town or village in pre-war Eastern Europe that played a significant role in the *rebbe's* life (e.g., the site of his first rabbinic post). The most prominent of these groups is Satmar, whose name derives from the Hungarian town *Szatmárnémeti*, presently Satu Mare, Romania, which was the historical headquarters of the movement before the Holocaust.[11]

[10] This temporal-geographic pattern of initial migration to working class sectors of Manhattan (especially lower Manhattan), followed by a move to the outer boroughs and then to the exurbs is common across immigrant minority groups of the same era, including Italians, Irish, and Puerto Ricans.

[11] Detailed sociological accounts of New York Hasidim are offered in Belcove-Shalin (1995) Heilman (1992, 2017), Kranzler (1995), Poll (1962), and Rubin (1972, 1997). Fader (2009) provides an in-depth ethnography of one New York Hasidic group. Wodziński (2018) compares the population sizes of contemporary Hasidic groups.

Figure 1.1. Map of major Hasidic communities in New York State.[12]

1.2.2.1 The first generation

To gain a deeper understanding of the social and linguistic landscape of Hasidic New York, we must look at its roots. In this section, some relevant facts are provided about the first generation, those who shaped the New World Hasidic culture by knitting together strands of the world they had left behind with threads from the new country.

[12] All maps displayed in this dissertation were created using the ggmap package (Kahle & Wickham, 2013) in R software (version 3.5.0, R Core Team 2016).

The immigrant population that formed the basis of the present-day Hasidic community was comprised of World War II refugees. They came predominantly from Hungary, Romania, Czechoslovakia, and Poland. Since very few children or seniors had survived the death camps, this population consisted largely of adults aged ~20-40, the so-called 'middle generation' (Braham, 2000, pp. 253–254). The higher end of this age range was disproportionately male as, in most cases, women arriving at the camps with children in tow were summarily murdered, while young-looking, able-bodied males were more likely to be spared. Survivors from Northern Transylvania (e.g., from Satu Mare, Oradea and Cluj-Napoca—cities that figured prominently in pre-war Hasidic life) were also more likely to be male (2 to 1), as many of them had been in forced labor camps (Hung. *munkaszolgalat* or, as it was commonly referred to by survivors, *munkatábor*) when their families were deported to Auschwitz (Braham, 1977; Gidó, 2011; Stark, 2000).[13] The male to female ratio of survival was different in other Hungarian regions. In the city of Budapest, for example (in Central Hungary), a majority of the survivors (over 63%) were female (Braham, 2000, p. 254; Gidó, 2011). Following the Nazi defeat, refugees typically spent several years in displaced persons camps while waiting to emigrate. There, they lived together with Jews from far-flung European cities and towns. Many survivors met and married their spouses and bore children in these camps.

[13] Stark (2000:101) quotes a 1944 report by Erno Marton, a notable Transylvanian activist, to the American Joint Distribution Committee, the Jewish Agency, and the International Red Cross that mentions this post-war disparity in men vs. women survivors in the region: "Opportunities for family life are completely absent. Men are without women, and most of them cannot even think of finding a wife somewhere else… In Kolosvár there are at least a thousand Jewish men, and at most 20-30 Jewish women. In Ngyvárad there are 50-60 women to 1500 Jewish men. The proportions are the same or worse in other towns of Northern Transylvania".

Thus, if we were to conjure a portrait of a first-generation Hasidic family starting out in New York circa 1948, it might feature a young man, perhaps from Northern Transylvania or Transcarpathia, alongside a young woman raised in a different region (perhaps Budapest, Miskolc, or a more western Hungarian city like Pápa). Between them lie a whole range of religious practices, foodways, and cultural norms. They most likely arrived by ship, with few material possessions, one or two young children, and possibly another baby on the way. On their faces we are likely to see expressions of grim determination as they look forward, never back. If the image were further enhanced to include sound and we could hear the couple conversing, perhaps we would expect their communication to be wholly in Yiddish. In the next section I explain why there's a good chance that it was not.

1.2.2.2 The linguistic soundscape of post-war Hasidic New York

It is a sobering truth that in many cultures, individual facets of cultural memory seldom endure beyond two generations. Parents may share with their children selected vignettes illustrating their personal hardships, heartaches and happiness. Their children, in turn, might relate their own experiences to their children, but rarely do they pass on those of their parents. Thus, while the broad strokes of a cultural narrative may be transmitted, the subtlety concealed in individual stories is often lost. This reality came to me while interviewing second generation speakers for my study. As a member of a New York Hasidic community, I had passively accepted an uncomplicated story about Yiddish language transmission that goes something like this: Following centuries of Yiddish use by their European ancestors, Yiddish-speaking immigrants came to the U.S. after World War II, spoke to their children in their native language, and established schools where Yiddish was

the language of instruction. This is the story Hasidic leaders and educators tell while framing the use of Yiddish as a matter of tradition. It is the story that members of the Hasidic community repeat to each other. And it is a story that has, for the most part, gone unchallenged by linguists studying HY.[14] In this view of uninterrupted transmission, Yiddish was always "safe", i.e., unlikely to undergo shift, according to Fishman's (1991a) typology of language endangerment.

The broad outlines of this account are not inaccurate. However, while eliciting the linguistic biographies of first- and second-generation speakers I interviewed for this study, a more nuanced picture emerged, leading me to question two suppositions upon which this account relies: A) that Yiddish use was ubiquitous among Eastern European Jews in the prewar era; and B) that it was the primary language of most first-generation Hasidic households in New York. Here, I show how both statements oversimply the facts and obscure the linguistic complexity that existed both before and after the war.

A. Most Eastern Europeans Jews spoke Yiddish

Accounts of prewar Yiddish tend to emphasize the millions (10 – 13, by most estimates) that spoke the language prior to World War II, but frequently fail to discuss the extent to which Yiddish was already in decline across Eastern Europe during this era (see however Estraikh, 1999; Komoróczy, 2018; Wodzinski, 2002). In fact, while Poland largely remained a stronghold of Yiddish up until the war, in other Eastern European regions, especially urban

[14] See however, remarks on this topic by Fader (2009, p. 122-123). I am indebted to Kriszta E. Szendroi, whose counter-narrative about language use in the early years first set me on this path of discovery. I also thank Zoë Belk and Eli Benedikt for a stimulating conversation on this topic around my kitchen table.

sectors of present-day Hungary, Slovakia, Romania and Ukraine, Jewish residents were often equally or more fluent in the majority language (usually Hungarian) than in Yiddish, and the majority had shifted away from Yiddish entirely.[15] In the former Austro-Hungarian Empire, including the Transcarpathian and Transylvanian regions from which many of today's Yiddish-speaking Hasidim derive, conditions for Jews had grown increasingly favorable starting in the mid 19th century. This led to an affinity for all things Magyar (Hungarian), including the language (Švorc, 2020). The Hungarian authorities actively encouraged Jewish assimilation in an effort to bolster their majority, especially in the ethnically diverse border regions (Jelinek, 2007). Most historians emphasize the denominational divide in language use during that time period, noting that Yiddish predominated among the ultra-Orthodox (Bányai, 2011b; Jelinek, 2007; Komoróczy, 2018). While religiosity was undeniably a factor in Yiddish maintenance (i.e., there was far more language shift among assimilated Jews), linguistic assimilation trends did not align strictly with the boundaries between these groups. On the institutional level, Orthodox communities in the early 20th century were staking out their positions, religiously, socially and politically, fortifying themselves against the assimilationist trends that had arisen in the West (Germany) but were slowly making their way East (Jelinek, 2007). On the streets, however, these cultural influences could barely be contained. Many children, especially girls, who were raised with Yiddish as the language of the home, encountered Hungarian in school and eventually used it exclusively with their friends. In some strictly Orthodox

[15] Bányai (2011b) reports that approximately 80% of Jews in the Carpathian Basin spoke exclusively or mostly Hungarian in 1910 and 1941.

homes, the use of Yiddish was strongly enforced. In others, Hungarian slowly seeped in and took over. Komoróczy (2018) points out that Transcarpathia marked a boundary—a kind of no man's land—between two ideological extremes: Hasidism, which emanated from the East, and the *Haskalah* (Jewish Enlightenment), which spread from the West (see also Poll, 1962, pp. 12–20). In many Transcarpathian cities and towns, Yiddish became a casualty of this cultural conflict. During this period, the Yiddishist movement also arose,[16] championed by secular, culturally assimilated Jews, which further complicated the language ideologies of Orthodox Jews, who strove to distance themselves from a movement with an agenda that, superficially at least, they shared (see e.g., Kuznitz, 2014; Nove, 2018b).

In a column discussing the linguistic origins of HY, Burko (2021) notes:

> עס ליגט אַ היסטאָרישע איראָניע אינעם פֿאַקט, אַז די אונגאַרישע חסידים רעדן הײַנט מער ייִדיש ווי די אַנדערע גרופּעס — ווײַל אין דער אַלטער היים האָבן אונגאַרישע יידן אָפֿט גערעדט מער אונגאַריש ווי ייִדיש, און אין מערבֿ האָבן אַ טייל אַפֿילו גערעדט דײַטש, אָדער אַ געמישטע ייִדיש־דײַטשע שפּראַך.
>
> *'There is an historical irony in the fact that Hungarian Hasidim speak more Yiddish today than other groups do, because in the old country they tended to speak more Hungarian than Yiddish, and in the West many of them even spoke German, or a mixed Yiddish-German language.'*

Raw census data from the late 19th century and the interwar period provide evidence of linguistic assimilation, but the numbers are difficult to interpret due to lack of consistency in questions, but even more so because of well-known identity and language politics that

[16] Yiddishism is a movement that began in the late 19th century and advocated for the Yiddish language as the core of a non-religious Jewish identity.

led to over- or underreporting of Yiddish as the mother tongue (see e.g., Bányai, 2011b, p. 587; Jelinek, 2007, p. 11–16).[17] A discussion that contends with all these issues is beyond the scope of this dissertation. Instead, I present anecdotal information from the data used in this study to paint a picture of the linguistic circumstances in the regions represented here.

Survivors interviewed by the USC VHA were routinely prompted to talk about their prewar language practices with a version of the question: "What language did you speak at home?" Such testimony might have been useful for understanding the linguistic landscape of the region, however, the sample used in this study contains a self-selection bias toward Yiddish-dominant speakers, given that all the speakers included in this study requested to be interviewed in Yiddish (half a century after the war). That all the survivors who were queried named Yiddish as the language of their childhood home cannot thus be taken as representative of the general population.[18] Their responses are informative, however, as they highlight some additional facts: a) language use was highly gendered, b) the majority language was more often spoken outside the home, c) multilingualism was the norm, and d) language use was impacted by regime change during this period.

Below, three survivors' responses to the language question are quoted. Speakers are referred to by the Yiddish given names they offered during the interview, and their birth year is shown in parentheses.

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[17] States routinely used ethnic and language data for political purposes, e.g., to prove the majority status of the ruling class.

[18] A survey of the USC VHA archive reveals that approximately 6,199 survivors born in (then) Hungary were interviewed in the United States. Of these, 5,887 (95%) elected to be interviewed in English, 185 (3%) in Hungarian, 59 (1%) in Yiddish, and 57 (1%) in other languages (including Russian and Hebrew).

Here is Dina (1913), a female survivor from Rosavlea (Yid. *rezavlia*), Romania:

אין הויז האבן מיר גערעדט נאר אידיש, און אינדרויסן, די עלטערע געשוויסטער האבן גערעדט אונגאריש, ווייל זיי זענען דאך געגאן אין די אונגארישע סקול, אבער איך האב שוין נישט פארכאפט דאס אונגארישע, איך האב גערעדט ראמעניש.

In howz hobn mir geredt nor yidish in indrowsn, di eltere geshvister hobn geredt ungarish vaal zay zenen dokh gegan in di ungarishe school, ober ikh hob shoyn nisht farkhapt dus ungarishe, ikh hob geredt rumeynish

'At home we spoke only Yiddish and outside, the older siblings spoke Hungarian, because they attended the Hungarian school, but I didn't catch on to Hungarian, I spoke Romanian.'

Another response comes from Dovid (1910), a male survivor from Satu Mare (Yid. *satmar*), Romania:

אין שטוב האט מען גערעדט אידיש, נאר אידיש. מיין מאמע עליו השלום, אז זי פלעג רעדן מיט אירע געשוויסטער, האט זי גערעדט אונגאריש אבער נישט מיט'ן ברודער. מיט'ן ברידער האט זי גערעדט אידיש. אזוי אז די מאמע'ס לשון איז געווען אינדערהיים, אין הויז, ריין אידיש.

in shtib hot men geredt yidish, nor yidish. maan mame uleyhashulem, az zi fleg redn mit ire geshvister hot zi geredt ungarish, ober nisht mitn brider. mitn brider hot zi geredt yidish. zoy az di mames lushn iz gevezn inderheym in howz rayn yidish.

'At home Yiddish was spoken, only Yiddish. My mother, of blessed memory, when she spoke with her sisters, she would speak Hungarian, but not with her brother. With her brother she spoke in Yiddish. So, my mother's language at home was pure Yiddish.'

Finally, here is Golda (1925), a female survivor from Miskolc (Yid. *mishkolts*), Hungary:

אין די שולע האט מען געלערנט דייטש [...] און מ׳האט, ס׳איז געווען compulsory, איז געווען צוויי מאל אין די וואך, איך מיין צוויי שעה, האט מען געמוזט לערנען סלאוואקיש, ווייל דאס איז געווען ממש אין סלאוואקיי, אין דער געגנט איז געווען אזוי אביסל דייטשמעריש.

in di shule hot men gelernt daytsh […] in m'hot, s'iz gevezn compulsory iz geveyzn tsvay mul in di vokh, ikh mayn tsvey shu, hot men gemizt lernen slovakish, vaal dus iz geveyzn mamesh in slovakay, in der geygnt iz geveyzn azoy a bisl daytshmerish

'In school we learned German, and there was, it was compulsory, there were two times a week, I mean, two hours, when we had to learn Slovak, because that was virtually in Slovakia and the region was a little Germanized.'

Testimonies from first- and second-generation speakers that were interviewed for this study, which do not contain the language bias mentioned previously, may be more revealing of the diverse language profiles of this generation. Interviewees were queried with a similar question to the one used by the USC VHA interviewers ("What language did you speak at home?"). Additional details were then elicited via follow-up questions, including the dominant language of each parent, the language in which the parents spoke to each other, etc. Below, the responses from three Holocaust survivors, who are identified with pseudonyms, are reported.

Here is a first-generation speaker I call Alti (1928), who was born and raised in Újfehértó (Yid. *ratsfert*), a small town in in the Northern Great Plain region of eastern Hungary, in

response to my question about the language of her childhood home:

אונגאריש, נאר אונגאריש. נאר צו מיין זיידע האט מען נישט געקענט רעדן אונגאריש, נאר אידיש. און ווען זעמיר געגאנגען צום זיידע? זיידע, זיידעקא, גיב מיר חנוכה געלט. זיידעקא, פורים געלט.

ungarish, nor ungarish. Nor tsi maan zayde hot men nisht gekent redn ungarish, nor yidish. in ven zemir gegangen tsum zayde? zayde zaydeko geb mir khanike gelt. zaydeko pirim gelt.

'Hungarian, only Hungarian. The only person we couldn't talk to in Hungarian was my grandfather, only in Yiddish. And when did we visit my grandfather? "Grandpa, grandpa-dear, give me some Hanukah gelt (money), grandpa, Purim gelt (money)".'

When asked how she became so proficient in Yiddish, Alti admitted that she knew *some* Yiddish before the war, but that she only became fluent in the concentration camps, where she was interned along with girls who spoke five or six other languages. Yiddish was the one language they all had in common.

Another immigrant who claimed to have acquired Yiddish after leaving home was Eta (1922), who was born into a prominent rabbinic family in Turda (Yid. *torda*), Romania. Eta noted that her paternal grandmother was from Slovakia and, as a result, her father acquired a western dialect of Yiddish, which he spoke proficiently. Her mother, who was from Turda, spoke Hungarian, as did Eta. A sister three years her junior was fluent in Romanian (she learned it from a midwife who had assisted in her birth and appointed herself as a sort of

guardian of the child), but she herself was not. Eta noted:

> *So, anyway, this is a difference between the two of us, she wanted to speak rumeynish [Romanian], and I did not know how to speak rumeynish.*

About her home language, Eta was resolute:

> *The language at home was Hungarian. Hungarian, Hungarian. My mother never learned any Romanian at all. Nothing, nothing. She spoke a little German, and Hungarian.*

Asked about her mother's knowledge of Yiddish, she replied:

> *She didn't know. She knew a few words, a little Yiddish, but it was not, she didn't use it. Maybe she understood, but she didn't use it.*

After finishing public school in Turda, Eta traveled to Czernowitz, Ukraine to attend an Orthodox Jewish seminary (Bais Yaakov) for girls. There, she acquired German, Yiddish, and Hebrew from her teachers, two of whom were German exiles and two who had grown up in Bukovina, where German was widely spoken.

Eta told me that she attempted to raise her daughters with Yiddish, but as they grew older, they insisted on speaking English and the language gradually fell out of use. (Her daughters did not attend Hasidic schools). Although I told Eta that I wanted to conduct

our interview in Yiddish, except for a few words, phrases, and discourse markers, she spoke to me entirely in English for the duration of our meeting.

Finally, there is Miriam (1925), who was born into a rabbinic family in Košice (Yid. *kashow*), Slovakia. Her remarks, which were interspersed throughout a longer portion of the interview, are paraphrased:

The language in our home was Yiddish. We were a very Hasidic family and we spoke to our parents in Yiddish. But on the street and among sisters and friends, we always spoke Hungarian. Some of my friends, who were less Hasidic, they spoke Hungarian at home, too. In school, we spoke in Hungarian. The boys, however, they spoke Yiddish. Here in the U.S., I frequently spoke to my (only surviving) sister in Hungarian, especially when we spoke about adult topics, and we didn't want the children to understand.

B. Yiddish was the home language of NY Hasidic immigrants

Given the linguistic diversity within which the first-generation was raised, we can infer that *their* children most likely did not grow up in a strictly Yiddish-speaking environment, either. Moreover, in 1956, there was another wave of in-migration of Hungarian-speaking families who had remained in Hungary after the war and escaped during the chaos of the Hungarian revolution.[19] This introduced a new cohort of Hungarian speakers of all ages

[19] An estimated 20,000 – 25,000 Jews fled Hungary during the uprising, two-thirds of them with North America as their final destination (Bányai, 2011a; Hidas, 2007). Study participants all remembered this period. One male respondent (Shimon, born in 1948) claimed that his class nearly doubled in size that year, and told me about a (male) teacher, a recent immigrant, who would chat with other teachers in Hungarian during the break. Another recalled how she learned Hungarian from her newly arrived neighbors.

(including children) into New York Hasidic communities, adding another layer of variation to the mix.

When the topic of language was raised with second-generation participants of this study, it appeared that some had not previously given it much thought. Often, when asked about the language spoken in their homes, speakers would mechanically say, "Yiddish", and be content to leave it at that. It was only with some probing that they would reach into their cache of childhood sense memories and offer a more detailed account. Several participants ultimately acknowledged that the language that came most naturally to one of their parents was not Yiddish, but Hungarian. Here, a sampling of quotes from the children of immigrants are presented.

Hendel (1949) did not hesitate when asked what language her parents spoke. Her father, who was born and raised in Satu Mare, spoke Yiddish (although he also knew Hungarian and Romanian). Her mother, who grew up in Pápa (Yid. *pupa*), a town in the Central Transnubian region of Hungary, most certainly did not.[20]

מיין מאמע האט נישט גערעדט קיין אידיש. זי האט נאר געקענט אונגאריש. כ׳מיין, ז׳האט זיך צוביסלעך אויסגעלערנט פון די קינדער. So מיין מאמע זאגט, למשל, די בחורים [אירע ברידער] האבן יא געקענט אידיש. איר טאטע [אויך]. ווייל אינדערהיים האבן זיי גערעדט אונגאריש. און די בחורים מסתם פון חדר, פון ישיבה [האבן זיי געקענט אידיש].

maan mame hot nisht geredt kaan yidish. zi hot nur gekent ingerish. kh'mayn, z'hot zikh tsibislekh owsgelernt fun de kinder. So maan mame zugt, lemushl, di

[20] I was able to interview Hendel's mother on another day when she visited her daughter and noted that her Yiddish, which is not native-like, is peppered with Hungarian. She confirmed the details of her daughter's account.

bukherim [ire brider] hobn yo gekent yidish. ir tate [owkh]. Vaal inderhaym hobn zey geredt ingerish. in di bukherim mistam fin khayder, fin yeshive [hobn zay gekent yidish].

'My mother did know any Yiddish. She spoke only Hungarian. I mean, she gradually learned it from the children. So, my mother says, for example, that the teenaged boys [her brothers] did know Yiddish. Her father [also]. Because at home, they spoke Hungarian. And the teenaged boys probably knew Yiddish from school.'

Zissy (1951) speaks Hungarian fluently. Her mother is from Vámospércs, a town in Eastern Hungary. Her father was from nearby Olaszliszka (Yid. *liske*), Hungary. When the family immigrated in 1956 (during the Hungarian revolution) Zissy was five years old and spoke only Hungarian. Her father knew Yiddish, but her mother did not.[21] Zissy and her siblings still speak to their mother exclusively in Hungarian. About her mother's Yiddish, she had this to say:

She doesn't [speak Yiddish], she speaks like a גר, my mother. Up until today.

ווי א גיורת רעדט זי. זי רעדט נישט נארמאל אידיש, מיין מאמע.

She doesn't [speak Yiddish], she speaks like a ger, my mother. Up until today. vi a geyoyres redt zi. zi redt nisht normal yidish, mayn mame.

[21] I later interviewed Zissy's mother in her home. It is obvious, when she speaks Yiddish, that it is not her first language, and she uses many nonstandard grammatical forms, for example, *ikh hot gehat* (I have.3SG 'I had'), instead of *ikh hob gehat* (I have.1SG).

'She doesn't [speak Yiddish], she speaks someone who converted to Judaism, my mother. Up until today. Like a convert, she speaks. She doesn't speak Yiddish naturally, my mother.'

She added:

זי האט יא, יא געהאט אסאך friends וואס זענען אלע כמעט, אלע זענען ארויסגעקומען א יאר פריער, צוויי יאר פריער, so ז'האבן אלע גערעדט אונגאריש.

zi hot yo, yo hot gehat asakh friends vus zenen, ale kemat ale zenen arowsgekimen a yur frier, tsvay yur frier, so z'hobn ale geredt ingerish.

'She did have lots of friend that were, almost all of them emigrated a year earlier, two years earlier, so they all spoke Hungarian.'

Frimet's (1948) father was from Senta (Yid. *zenta*), Serbia, and her mother from Sátoraljaújhely (Yid. *ihel*), Hungary. Both knew Yiddish; however, she was very clear about which language each of them favored:

מיין מאמע האט גערעדט אונגאריש מיט אירע friends, מיט אירע neighbors, מיט cousins.
אונגאריש איז געווען זייער, you know, די neighbor, אה, language.
Because all the neighbors knew Hungarian and slipped into Hungarian.
מיין טאטע האט געקענט און פארשטאנען אונגאריש. מיין מאמע האט אים געקענט זאגן [עפעס], but ער, כ'האב פון אים קיינמאל נישט געהערט א אונגארישע ווארט. But ער האט פארשטאנען. מיין מאמע האט, אה, גערעדט זייער אסאך אונגאריש.

maan mame hot geredt ingerish mit ire friends, mit ire neighbors, mit cousins. ingerish iz geven zeyer, you know, di neighbor, uh, language. Because all the neighbors knew Hungarian and slipped into Hungarian. […] maan tate hot gekent in

farshtanen ingerish. maan mame hot im gekent zugn [epes] but er, kh'hob fin im kaynmul nisht gehert a ingerishe vort. But er hot farshtanen. maan mame hot, uh, geredt zayer asakh ingerish.

'My mother spoke Hungarian with her friends, with her neighbors, with cousins. Hungarian was very, you know, the neighborhood language. Because all the neighbors knew Hungarian and slipped into Hungarian. […] My father knew and understood Hungarian. My mother would say [things] to him, but he, I never heard him speak a word of Hungarian. But he understood it. My mother spoke a lot of Hungarian.'

Chana (1953) was among those who at first claimed Yiddish as her home language. When asked how she learned Hungarian, the full picture emerged. Chana's parents (her father from Turka, Ukraine; her mother from Cluj-Napoca [Yid. *kloyzenburg*, Ger. *Klausenburg*, Hun. *Kolozsvár*], Romania), spoke Yiddish to each other, but for the children, growing up, Hungarian was an ever-present, ambient language.

מיין מאמע האט אסאך מאל גערעדט אונגאריש. דע טאטע האט פארשטאנען אונגאריש, ער האט זיך געמוזט אויסלערנען, ווען מ׳האט חתונה, אזוי גייט עס. [...] אונגאריש קען איך ווייל די מאמע מיט אירע שוועסטערס האבן גערעדט, יעדן טאג נאך די ארבעט, ווילאנג מ׳האט געמאכט די סאַפּער [...]. און מ׳האט גערעדט אויפ׳ן טעלעפאן. איי, מ׳האט דאך געארבעט צוזאמען אויכעט א גאנצן טאג, ס׳האט גארנישט צו טון. מ׳האט נישט געטארט אזוי רעדן ביי די ארבעט. און איך בין אלץ געווען נייגעריג, ביז צום היינטיגן טאג [בין איך נייגעריג]. און אזוי גייט עס. יונגע קינדער, ווען ז׳ווילן וויסן... א שפּראך טוט מען סייווי פאר קיינעם נישט אויסלערנען.

maan mame hot asakh mul geredt ingerish. de tate hot farshtanen ingerish, er hot zikh gemizt oyslernen, ven m'hot khasene, azoy gayt es. […] ingerish ken ikh vaal di mame mit ire shvesters hobn geredt, yeydn tog nukh de arbet vilang m'hot gemakht di supper, […] in m'hot geredt ofn telephone. ay m'hot dokh gearbet tsizamen owkhet

a gantsn tug. s'hot gurnisht tsi tin. m'hot nisht geturt azoy redn bay de arbet. un ikh bin alts geven zayer naygerig, biz tsim haantign tug [bin ikh naygerig]. in azoy gayt es. yinge kinder, ven z'viln visn… a shprakh tit men sayvi far kaynem nisht oyslernen.

'My mother often spoke in Hungarian. Father understood Hungarian, he had to learn it. when you get married, that's how it works. […] I know Hungarian because Mother and her sisters spoke, every day after work while they cooked the supper […] they spoke on the telephone. Never mind that they worked together all day, too. It doesn't matter, they weren't really allowed to talk much at work. I was always curious, I still am, and so it goes. When young children want to know something… Language isn't taught, anyway.'

Later, she went a step further, referring to Hungarian as her own mother's "mother tongue":

ווייל unfortunately, זייער מאמע לשון איז אונגאריש. מיין מאמעס מאמע לשון איז אויך אונגאריש. זי טראכט אין אונגאריש, און זי וועט שרייבן אין אונגאריש, און זי וועט ציילן אין אונגאריש. So אזוי גייט עס.

vaal unfortunately, zayer mame lushn iz ingerish. maan mames mame lushn iz owkh ingerish. zi trakht in ingerish, un zi vet shraabn, in ingerish un zi vet tsayln in ingerish. So azoy gayt es

'Because unfortunately, their mother tongue is Hungarian. My mother's mother tongue is also Hungarian. She thinks in Hungarian, and she'll write in Hungarian, and she'll count in Hungarian. And so it goes.'

Most second-generation participants know at least some Hungarian. Usher (1951) was no exception. His parents were both from Hungary, his father from Derecke, his mother

from Püspökladány. His father, he claimed, did not speak Hungarian at home. During the interview, he recounted an incident that occurred when he was a child, in which he overheard a caretaker talking about him in Hungarian to her husband. He explained:

מיין מאמע האט גערעדט אונגאריש, מיט די שוועסטערס האט זי גערעדט [אונגאריש], ממיל א פארשטיי איך, האב איך פארש- האב איך פארשטאנען וואס [name withheld] האט געזאגט.

Maan mame hot geredt ingerish, mit de shvesters [his sisters] hot zi geredt [ingarish], memayle farshtey ikh, hob ikh farsh- hob ikh farshtanen vus [name withheld] hot gezugt.

'My mother spoke Hungarian, with my sisters she spoke in Hungarian, so I understand, I understood, I understood what [name withheld] was saying.'

When I asked him if her mother spoke Yiddish well, he replied:

יא, יא אויך. מיט אונז האט זי גערעדט אידיש, מיט די אינגלעך האט זי גערעדט אידיש. נאר מיט די שוועסטערס האט זי גערעדט אונגאריש [...] נאר אונגאריש. מיט די חבר'טעס אויך, מיט די friends אירע האט זי אלץ גערעדט אונגאריש. ביי אונז אין שטוב האט מען נישט געקענט קיין ענגליש. איך האב מיך אויסגעלערנט ענגליש פון מיין ווייב.

Yo, yo, owkh. mit indz hot zi geredt yidish, mit de yinglekh hot zi geredt yidish. nor mit de shvesters hot zi geredt ingerish, [..] nor ingerish. [...] mit de khavertes owkh, mit de friends ire hot zi alts geredt ingerish. bay indz in shtib hot men nisht gekent kaan english. ikh hob mikh owsgelernt english fin maan vaab.

'Yes, yes, also. She spoke Yiddish to us, to the boys she always spoke in Yiddish. Only with my sisters she spoke in Hungarian, [...] only Hungarian. [...] To her friends

also, she always spoke Hungarian with her friends. We didn't speak English in our home. I learned English from my wife.'

Yitzchok's (1957) mother was from Abaújszántó, Hungary. His father was from Turda, Romania. About them, Yitzchok said:

צווישן זיך [האבן זיי גערעדט] אונגאריש, יא, אבער מיט מיר אידיש. מיין מאמע האט געקענט אביסל ראמעיניש, but ס'איז נישט געווען נוגע. מיין טאטע האט געקענט גוט דייטש, but ס'אויך נישט געווען נוגע.

tsvishn zikh [hobn zey geredt] ingerish, yo, ober mit mir yidish. maan mame hot gekent abisl romeynish, but s'nisht geven negaye. maan tate hot gekent git daytsh, but s'owkh nisht geven negaye.

'To each other [they spoke] Hungarian, yes, but to me Yiddish. My mother knew a little Romanian, but it wasn't relevant. My father was fluent in German, but that wasn't relevant either.'

Finally, there is Ruchel (1948), whose father was from Tiszabercel, a village in Northeastern Hungary, and her mother from Irshava (Yid. *orshava*), Ukraine. Ruchel enumerated the languages her mother spoke (including Czech) and claimed that her mother became more proficient in Hungarian *after* she emigrated, because the women in New York, especially in the factory where she worked, all spoke Hungarian. Her father, on the other hand, "abhorred" the Hungarian language. Consequently, her mother would frequently speak to her father in Hungarian, so that the kids wouldn't understand, and he would reply in Yiddish.

Ruchel was not the only one to report that her father despised Hungarian (another participant also used the verb 'abhorred'). It is common knowledge that men who had been conscripted to forced labor camps, where they were treated horribly by their Hungarian overseers, were badly triggered by the language.[22]

Many third-generation speakers also recalled their grandparents speaking Hungarian, and some reported that their parents knew Hungarian, but didn't really speak it much. One interesting observation came from a third-generation speaker, Luzer (1971):

ס'האט אויסגעקוקט ווי ביי זיי [די זיידעס און באבעס] איז געווען מער נאטירליך צו רעדן, אם, אונגאריש, ווי אונז אפילו ענגליש. פשט אז אונגאריש איז געווען א אנגענומענע שפראך וואס ז'האבן גערעדט אינדערהיים, מיט די עלטערן, מיט דאס. ס'האט אויסגעקוקט וואו אונגאריש איז געווען זייער, נישט קיין first language, but מער ווי א second language. אה, צוויי first languages. אזוי האט עס אויסגעקוקט.

s'hot owsgekikt vi bay zay [di zaydes in babes] iz geveyn mer natirlekh tsi redn, pshat az ingerish iz geveyn a ongenimene shprakh um, ingerish vi indz afile English. vus z'hobn geredt inderhaym, mit de eltern, mit dus. s'hot owsgekikt vi ingerish iz geveyn zayer, nisht kaan first language, but mer vi a second language. uh, tsvay first languages. azoy hot es owsgekikt.

'It seemed that for them [the grandparents], it was more natural to speak Hungarian than it is for us to speak English. Meaning, that Hungarian was an acceptable language, one that they spoke at home, with their parents, and so on. It

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[22] It is worth reflecting on the effect that this extremely negative attitude towards Hungarian must have had on the women for whom it was a first (or only) language. On the one hand, it effectively silenced them (or minimally gave them a linguistic inferiority complex). On the other, it tacitly sanctioned the institutional demands that children be educated and socialized exclusively in Yiddish.

seemed that Hungarian was very, not a first language, but more than a second language. Um, two first languages. That's what it looked like.'

Based on these biographical reports, the language practices in the decades following the war were decidedly mixed. Linguistic pluriformity appears to have been the norm rather than the exception. For many first-generation women, the primary caregivers in Hasidic homes, Hungarian was the dominant language. A subset of these women, especially those who came from European towns and cities where Yiddish had been in decline for quite some time, were heritage or partial speakers of Yiddish. Even in households where both parents spoke Yiddish, their dialects were not necessarily the same.[23] And while many children did acquire Yiddish from their parents, in some cases it was the other way around. In his sociological account of early New York Hasidic life, Poll (1962, p. 30) describes the linguistic environment thus:

> *The adults were educated in Hungary and speak both Hungarian and Yiddish. Hebrew is used only in prayers and studies. Some speak English, but it is not an essential factor in their everyday interaction. The males speak mostly Yiddish, while the females, particularly in gossip, use Hungarian. The children generally speak Yiddish, but English is tolerated and Hungarian is considered "cute".*

This is not the typical scenario of intergenerational transmission, nor are these conditions optimal for long-term language maintenance. In fact, it's easy to imagine an

[23] The role of mixed-dialect marital units in new dialect construction is explored in Stanford (2010).

alternative outcome, in which the second generation acquires Hungarian from their mothers, Yiddish from their fathers, and English in school and on the street. Lacking currency and laden with negative associations, Hungarian is quickly lost, while Yiddish is only partially acquired. English, on the other hand, has staying power by virtue of its novelty and usefulness. In this scenario, it's easy to see how the community could have shifted to English entirely within three generations. In fact, this is precisely what happened in non-Hasidic Orthodox Jewish communities in the U.S. How, then, did Yiddish survive and indeed, come to thrive, in the Hasidic community? In a forthcoming paper (Nove, in preparation), I argue that it was institutional policies, driven by a strong ideology (in which Yiddish is viewed as a sacred language and Hungarian, the language of the oppressor, is resented), that saved Yiddish (i.e., a top-down rather than a bottom-up approach). The purpose of this section, however, is merely to complicate the reductive narrative of direct transmission and highlight the tenuousness of Yiddish in the post-war era, as an accurate portrayal of the setting can be useful for understanding and interpreting patterns of variation and change. Indeed, given this complex linguistic heritage, language change seems almost inevitable.

1.2.2.3 Language Practices

Hasidic children are educated in private schools overseen by the respective group's spiritual leader. These are gender-segregated institutions that follow disparate educational models for girls and boys, shaped by perceived differences in male vs. female obligations regarding

Torah study.[24] Starting at around six years of age, girls are taught via a dual-curriculum that allocates half of the school day to religious studies, taught in Yiddish, and the other half to secular studies, with English as the instructional medium. Yiddish literacy is taught, but minimal emphasis is placed on prescriptive norms. English grammar, on the other hand, is taught extensively from first grade through high school. Thus, the educational program for Hasidic girls supports HY-English bilingualism. This is not the case for boys, whose education centers almost entirely on religious studies (in Yiddish), with only one or two hours of English language instruction per day from age 7 to approximately 13. Moreover, boys are seldom expected to write in either language, and Yiddish prescriptive grammar is not part of the curriculum (Bleaman, 2018). Consequently, the language is developing organically, with boys and girls exhibiting different patterns of language proficiency and use.[25]

1.2.3 Bilingualism, ideology, and dialectology

New York HY speakers are bilingual (with English) for the most part, but HY is acquired prior to English and remains the dominant language in many domains, including the home, religious institutions, and frequently also the workplace.[26] Linguistic anthropologist Ayala

[24] Torah study, or the study of sacred Jewish texts, is believed to be obligatory for Jewish males. Hasidic females are barred from learning the Talmud, but are encouraged to study many other Jewish texts, including Jewish law.

[25] It is not unreasonable to question how these gendered language practices are sustainable in the long term. However, looking back at the prewar era, as evidenced by the testimonies given by UY speakers, it is obvious that a similar pattern existed then, as well, which suggests that this arrangement may indeed be feasible for the long term.

[26] Additionally, some knowledge of liturgical Hebrew and Aramaic is acquired, more so by males than females, via the oral translation of Hebrew and Aramaic texts to Yiddish. However, Modern Hebrew is generally not taught in Hasidic schools, and some groups (most notably Satmar)

Fader, who analyzes language socialization practices among Bobover Hasidim in Borough Park, Brooklyn, explains how the use of Yiddish, along with other cultural practices and a distinctive dress code, is part of the "hyperbolization of Hasidic difference" (Fader, 2009, p. 14). Indeed, the trope of language as both an identity marker and a barrier to secularization is articulated explicitly and often in the socialization of Hasidic children, who are encouraged to emulate their ancestors' tenacity in clinging to a distinctly Jewish language (Fader, 2006, 2009). An oft-repeated *midrash* 'biblical exegesis',[27] widely disseminated via the writings of Akiva Yosef Schlesinger (1837–1922),[28] attributes the redemption of Jewish slaves from Egypt to their refusal to alter their *shem, lushn,* and *malbish* '[Jewish] names, language and dress' (Katz, 1997; see also Bleaman, 2018).

While interviewing speakers for this study, I asked if they considered Yiddish proficiency to be an asset or felt it gave them an advantage. Older speakers were overall more inclined to offer an ideological justification for Yiddish maintenance. Several

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prohibit the study of Modern Hebrew due to their theological and political opposition to Zionism and the modern State of Israel.

[27] Leviticus Rabbah on Emor (section 32): "Rabbi Huna [said] in the name of Bar Kapara: Because of four things, Israel was redeemed from Egypt: because they did not change their names, they did not change their language, they did not speak slander, and not one of them was sexually promiscuous" (translation by Margoliot (1958, p. 747), cited in Fischer (2016, p. 1), who provides a fascinating account of the evolution of this popular midrash).

[28] Schlesinger was a disciple of the Khasam Sofer (Rabbi Moshe Schreiber 1752-1839), a highly influential early 19th century rabbinic leader of Hungarian Orthodoxy. A staunch traditionalist, the Khasam Sofer famously opposed all forms of cultural innovation and encouraged his followers to maintain the Yiddish language.

instinctively evoked the '*shem, lushn, malbish*' trinity. For example, here's Ruchel (1948):

די מעלה פון רעדן אידיש? ס'איז אונזער שפּראַך. מיט אַלעם דאַרף מען זיין אַנדערש, שם, לשון, און מלבוש, גאַנץ פּשוט, ס'איז נישט קיין גרויסער הסבר. אונזער שפּראַך דאַרף זיין אַנדערש, אונזערע נעמען דאַרפן זיין אַנדערש, אונזערע קלייד דאַרפן זיין אַנדערש. און מיט דעם דעמאָנסטרירט מען אַז מ'איז אַן עם הנבחר, מ'איז אַנדערש ווי די פעלקער.

de maale fin redn yidish? s'iz indzer shprakh. mit alem darf men zaan andersh, shem, lushn, in malbish, gants pushet, s'nisht kayn groyser hesber. indzer shprakh darf zaan andersh, indzere neymen darfn zaan andersh, indzere klayder darfn zaan andersh. in mit dem demonstrirt men az m'iz an am hanivkher, m'iz andersh vi de felker.

'The benefit of speaking Yiddish? It's our language. We have to distinguish ourselves in every way, shem, lushn and malbish, it's very simple, it doesn't require a major explanation. Our language needs to be different, our names should be different, our clothing must be different. And that is how we demonstrate that we're a chosen people, we're different from other nations.'

Frimet (1948) also cited this reason, and elaborated on it:

די כח פון שם, לשון און מלבוש איז אַזוי מין גרויס, און אַזוי מין שטאַרק, אונז קען מיר עס נישט צובראָכן. און there is nobody in this world קען זאָגן אַנדערש, ווייל ס'איז אַזאַ גרויסע כח. So, we just have to stick, פאַר דעם וואָס אונז זעמיר געלערנט געוואָרן, אַז דעיס איז געווען דע יסוד פאַר אידישקייט. וואָס האָט מען געהאַט אין מצרים? מ'האָט נאַכנישט געהאַט קיין תורה, און מ'האָט געהאַט אַזאַ מין שלעכטע השפּעה פון די מצריים, there was so much מצרישקייט in everybody [...]. און שם, לשון מלבוש האָט שוין געקענט האַלטן. לשון איז דאָך מוראַ'דיג. ס'איז דע מאַמע שפּראַך. ס'איז, ס'איז, ס'האָט אַ קדושה. ס'האָט אַ קדושה.

de koyekh fin shem lushn in malbish iz azoy min groys, in azoy min shtark, indz kenmir es nisht tsibrekhn. in there is nobody in this world ken zugn andersh, vaal s'iz aza groyse koyekh. So, we just have to stick far dem vus indz zemir gelernt gevorn, az deys iz geven de yesod far yidishkayt. vus hot men gehat in mitsrayim? m'hot nokhnisht gehat kayn toyre, in m'hot gehat aza min shlekhte hashpue fin de mitsriyim, there was so much mitsrishkayt in everybody […]. in shem lushn malbish hot shoyn gekent haltn. lushn iz dokh moyredik. s'iz de mame shprakh. s'iz, s'iz, s'hot a kedishe. s'hot a kedishe.

'The power of shem, lushn, and malbish is so great, and so strong, we can't extinguish it. And there is nobody in this world that can tell you differently, because it's so powerful. So, we just have to stick with what we were taught: that this was the foundation for Judaism. What did they have in Egypt? They did not yet have Torah, and they were under such a terrible influence from the Egyptians, there was so much 'Egyptian-ness' in everybody […]. And shem, lushn, malbish was able to persevere. Language is amazing. It's the mother tongue. It's, it's, it is sacred. It is sacred.

Both women quoted above are educators and presumably accustomed to this type of discourse. But non-educators were just as eloquent. Yitzchok (1957), who has worked in retail most of his life, offered both a practical and a metaphysical reason for speaking Yiddish, the latter of which was unfamiliar to me (and is excerpted in the epigraph to the present chapter):

די מעלה פון קענען אידיש? אם, דעיס האב איך געהערט שוין א דרשה כ'מיין מסתם פופציג יאר צוריק, אז מ'האט גערעדט דעמאלטס זייער שטארק קעגן רעדן ענגליש ווייל דע עולם וואס, וואס קען נישט רעדן אידיש, קענען זיי דאך נישט, אבער דע עולם וואס קען יא, דעיס איז אריינגעקומען אין אידישע הייזער, אז מ'רעדט ענגליש אפילו מ'קען רעדן אידיש, רעדט מען ענגליש. האט מען אסאך, מיין ראש ישיבה שמאול אונסדארפער האט גערעדט דערפון, קלויזענבורגער רבי האט אסאך גערעדט דערפון, אז, אם, צוויי זאכן. קודם כל איינס, די גדולי ישראל רעדן אידיש. כ'רעד נישט די, די

נייערע, ליטווישע וואס רעדן נאר ענגליש. אבער די עלטערע רבנים רעדן אלע אידיש, אפילו ליטווישע. ר׳ משה פיינשטיין, ר׳ יעקב קאמענעצקי, אלץ רעדט נאר אידיש. ר׳ אהרן קאטלער, איך מיין, זיי האבן אלע גערעדט נאר אידיש. So, וויאזוי גייסטו פארשטיין א גדול הדור אז דו קענסט נישט די שפראך? איך מיין, what's the point? פאר א מער רוחניות׳דיגע ענין, דע קלוי זענבורגער רבי פלעגט אלץ זאגן אז דע חתם סופר שרייבט, אז יעדע, יעדע מדינה האט א מלאך, א שר הייסט עס, נישט קיין גוטע מלאך, ס׳א שר וואס באלאנגט פאר יענע מדינה. טאמער רעדסטו נישט די שפראך פון יענע מדינה וואו די וואוינסט, האט ער נישט קיין שליטה אויף דיר. But once דו הייבסט אן רעדן די שפראך פון יענע מדינה, he's in control. דאס איז, יא, דער חתם סופר זאגט דעיס.

de maale fin kenen yidish? Um,

deys hob ikh gehert shoyn a droshe, kh'mayn mistam fiftsik yor tsirik, az m'hot geredt demolts zayer shtark kegn redn english vaal de oylem vos, vos ken nisht redn yidish, kenen zay dokh nisht, ober de oylem vos ken yo, deys iz araangekimen in yidishe haazer az m'redt english, afile m'ken redn yidish, redt men english, hot men asakh, maan rosh yeshive shmiel unzdorfer hot geredt derfin, kloyzenburger rebe hot asakh geredt derfin, az, um, tsvay zakhn. koydem kol ayns, de gedoyle yisroel redn yidish. kh'red nisht de, de nayere, litvishe vos redn nor english. ober de eltere rabonim redn ale yidish. afile litvishe, reb moshe faynshtayn reb yankev kamenetsky, als red nor yidish. reb aron Kotler, ikh mayn, zay hobn ale geredt nor yidish. So, viazoy gaysti farshtayn a godel hador az di kenst nisht de shprakh? ikh mayn what's the point? far mer rokhniusdike inyen, de kloyzenburger rebe fleygt alts zogn az de de khsam soyfer shraabt, az yede, yeyde medine hot a malekh, a sar hayst es, nisht kayn gite malekh, s'a sar vos balangt far yene medine. tomer redsti nisht de shprakh fin yene medine vi di voynst, hot er nisht kayn shlite oyf dir. But once di haybst on tsi redn de shprakh fin yene medine, he's in control. dos iz, yo, der khsam soyfer zogt deys.

The advantage of knowing Yiddish? um, I heard this [at] a lecture, I think probably fifty years ago. There was a lot talk then against speaking English, because the people that don't know Yiddish, they don't know it [what can you do?], but the people that do know it, there was this trend where people are speaking English at home, even if they know Yiddish, they speak English. So, there was a lot of [discussion], the head of my yeshiva, Shmiel Unzdorfer, he spoke about it, the

Klausenburger rabbi talked about it a lot, that, um, two things. First of all, the great leaders of our generation speak Yiddish. I'm not talking about the newer, non-Hasidic ones that speak only English. But the older rabbis all speak Yiddish. Even the non-Hasidic ones, Rabbi Moshe Feinstein, Rabbi Yaakov Kamenetsky, all speak Yiddish. Rabbi Aron Kotler, I mean, they all spoke Yiddish exclusively. So, how are you going to understand a moral authority if you don't know the language? For a more spiritual reason, the Klausenburger rabbi always used to say that the Khasam Soyfer [Rabbi Moshe Sofer] writes, that every nation has a special angel, like a minister, not necessarily a good angel, a minister that oversees that nation. If you don't speak the language of the nation in which you reside, then he has no power over you. But once you start speaking the language of that nation, he's in control. That's, yes, the Khasam Soyfer writes that.

Shamshon (1953) emphasized the cultural significance of maintaining one's traditional language:

דע גרעסטע מעלה איז אז דו גייסט צוריק צו דיין אפשטאמונג, דיין מאמע לשון, ווי מ׳רופט עס Your home language. אם, דאס איז א אפשטאמונג וואס א יעדער איד, אזוי ווי ער איז באצייכנט מיט א בארד, און מיט א קאפל, און מיט ציצית, און מיט זיין קליידונג, האט ער דעם לשון אויבעט. ער האט דע שפראך. דע שפראך איז זיין שפראך. איי, מ׳האט דאך גערעדט אנדערע, אנדערע שפראכן אויבעט? אדער מיינע עלטערן קומען פון א אידישע שפראך, מיינע קינדער ברוך השם רעדן א גוטן אידיש, מיינע אייניקלעך רעדן א גוטן אידיש, און איך האף אז בקרוב, וויפיל זיי רעדן שוין, וועלן די אור־אייניקלעך. So, ס׳האט א, ס׳מיינט זייער אסאך. אונז, אונז האמיר דאך געלערנט אין חדר, אז דעי דריי זאכן וואס מ׳האט זוכה געווען ארויסצוקומען פון מצרים איז געווען, איינס, אז לא שינו את לשונם, מ׳האט נישט געטוישט, ס׳א גרויסע, ס׳א געוואלדיגע זאך, דער, דער על תטוש תורת אמך. You go with, with, with, um, tradition.

Tradition איז די שפראך אידיש.

de greste maale iz az di gayst tsirik tsi daan upshtamung, daan mame lushn, vi m'ruft es. Your home language, um, dus iz a upshtamung vus a yeder yid, azoy vi er er

iz batsaykhnt mit a burd, in mit a kapl, in mit tsitses, in mit zaan klaydung, hot er deym lushn owkhet. er hot de shprakh. de shprakh iz zaan shprakh. ay, m'hot dokh geredt andere, andere shprakhn owkhet? oder maane eltern kimen fin a yidishe shprakh, maane kinder burekh hashem redn a gitn yidish, maane ayniklekh redn a gitn yidish, in ikh hof az bekurev, vifl zay redn shoyn, veln de ir-ayniklekh. So, s'hot a, s'maynt zayer asakh. indz, indz homir dokh gelernt in, in khayder, az de dray zakhn vus m'hot zoykhe geven aroystsikimen fin mitsrayim iz geven, ayns az lo shini es leshoynom, m'hot nisht getowsht. s'a groyse, s'a gevaldige zakh, der, der al titoysh toyras imekhu. You go with, with, with, um, tradition. Tradition iz de shprakh yidish.

'The biggest advantage is that you're going back to your roots, your mother tongue, as it's called. Your home language, um, these are roots shared by all Jews, just as he's distinguished by a beard, and a skullcap, and tzitzit [ritual fringes], and with his clothes, he has the language, also. He has the language. The language belongs to him. And what about the fact that Jews spoke other languages, as well? But my parents came from the Yiddish language, my children, thank God, speak Yiddish well, my grandchildren speak Yiddish well, and I hope that soon, not that they're talking much yet, my grandchildren [will speak Yiddish]. So, it has, it means a lot. We learned in elementary school, that the three reasons why we merited to be released from Egypt were, one, that they did not alter their language, it wasn't changed. It's a big thing, it's a very significant thing, the injunction 'do not forsake your mother's teaching'.[29] You go with tradition. Tradition is the Yiddish language.'

A popular song entitled "Yiddish", released in 2014 by Hasidic singer Dudi Kalish, is both an ode to Yiddish and a directive not to abandon it. The lyrics encapsulate the explicit

[29] a quote from Proverbs 1:8.

Hasidic ideology regarding the language, including a reference to the *shem, lushn, malbish* 'trinity' in the chorus, which goes like this:[30]

> איי, איי, איי, יידיש / מיין קינד דאס בייט נישט / טויש נישט דיין נאמען און דיין לשון און דיין מלבוש / איי, איי, איי, יידיש מיין שפראכעלע יידיש / ביי אונזערע אידעלעך רעדט מען נאר דעם שפראך יידיש
>
> *ay, ay, ay yidish / maan kind dus bayt nisht / towsh nisht daan numen, in daan lushn in daan malbish / ay, ay, ay Yiddish / maan shprakhele yidish / by indzere yidelekh redt men nor dem shprakh yidish*
>
> *'Ay, ay, ay Yiddish / my child don't change it / don't change your name, your language or your clothing / ay, ay, ay Yiddish / my dear language Yiddish / in our Jewish circles we only speak the language Yiddish'*

Younger participants of this study, however, typically had less to say on this topic. When queried whether they perceived Yiddish as an asset, some cited the practical benefits of Yiddish (e.g., as a common or secret language), but the overall attitude seemed to be one of ambivalence. For example, here is Kraindele (2003):

ס'א גוטע זאך צו קענען אידיש ווייל א איד דארף רעדן אידיש. קודם, ווייל מ'קען, למשל, מ'גייט ערגעץ און מ'זעט אידן, אה, ס'איז א שיינע זאך אז מ'זעט אידן וואס רעדן אידיש. און, און איך ווייס נישט, בכלל, למשל, מ'גייט אין א גוי'שע פלאץ און מ'דארף קענען רעדן א אנדערע שפראך ווי זיי, זיי זאלן נישט פארשטיין.

s'a gite zakh tsi kenen yidish vaal a yid darf redn yidish. koydem, vaal m'ken, lemushl, m'geyt ergets un m'zeyt yidn, uh, s'iz a shayne zakh az m'zeyt yidn vus redn

[30] The lyrics to this song can be found at: https://www.jyrics.com/lyrics/yiddish-%D7%99%D7%99%D7%93%D7%99%D7%A9/

yidish. in, in kh'vays nisht, bekhlal, lemushl, m'gayt in a goyishe plats in m'darf kenen redn a andere shprakh vi zay, zay zoln nisht farshtayn.

'It's a good thing to know Yiddish, because a Jewish person should speak Yiddish. First of all, because you can, for example, you go somewhere and you see Jewish people, uh, it's a nice thing to see Jews that speak Yiddish. And, I don't know, in general, for example, you're in a non-Jewish place and you need a different language, so they won't understand.'

Idy (1997) was even more dispassionate:

כ'האב נישט א feeling. דעיס איז מיין language, אזוי בין איך אויפגעוואקסן. נישט as an advantage און נישט, נישט א disadvantage, ווייל איך קען גענוג גוט ענגליש צו מיך קענען דורכקומען ווען איך דארף, but דעיס איז מיין language, אזוי רעד איך.

kh'hob nisht a feeling. deys iz maan language, azoy bin ikh oyfgevaksn. nisht as an advantage un s'iz nisht, nisht a disadvantage, vayl ikh ken genig git english tsi mikh kenen durkhkimen ven ikh darf, but deys iz maan language, azoy red ikh.

'I don't have a feeling [about it]. This is my language, that's how I grew up. [I don't see it as] an advantage nor as a disadvantage, because I know English well enough to make do when I need to, but this is my language, that's how I speak.'

This seeming ambivalence towards Yiddish among the younger generation may reflect universal patterns in age-grading with respect to traditionalism, i.e., a propensity for older people to be more conservative, drawn to the past, and more likely to wax nostalgic about cultural traditions. It is also likely that the education of the older generation included more explicit references to the value of Yiddish, in reaction to the linguistic circumstances of

their upbringing (as discussed in §1.2.2.3). Several older speakers indeed attested that their generation spoke a lot of English growing up—they loved the language and reveled in its novelty—and were constantly reprimanded by teachers for doing so. The younger speakers, conversely, are largely being raised with Yiddish as the default language and, consequently, do not need to be cajoled into speaking it. Thus, they don't give it as much thought.

1.2.3.1 Linguistic purism

Ideologies around minority languages often entail attitudes about linguistic purism. Fader (2009, p. 89) reports that despite efforts in Hasidic girls' schools to promote the exclusive use of (unmixed) Yiddish, Yiddish-English syncretism continues to be the norm in the community. Although I did not solicit direct commentary on it, the concept of language purity frequently came up in the language-focused module of the interview. Some remarks on this topic are summarized here, followed by direct quotes from three speakers, one from each generation, whose thought processes exemplify some of these stances and also contribute to a view of the linguistic circumstances in the community.

As mentioned elsewhere in this chapter, codeswitching is pervasive in this population and English loanwords constitute a sizable portion of the contemporary HY lexicon. Some of these high frequency loans have become integrated to the point that their origins have been completely or partially obscured (e.g., *vok* ← walk, or *drayv* ← drive; see Figure 1.2, below).

Figure 1.2. Advertisement for a driving manual, available in English and Yiddish, which has the word drayvn ('to drive') in the title.

Nearly all the speakers in this study commented on the abundance of English lexical transfers in HY at some point in the interview. Most of the speakers, even those who view Yiddish as sacred and feel strongly about its maintenance, did not seem overly troubled about this state of affairs. Some expressed the view that phonological integration of borrowed words, pronouncing the word 'carriage' as [kɛrɪdʒ], for example, renders them comparable to Yiddish words, which, a few were quick to point out, are mostly derived from another Germanic language. This was certainly the perspective of Yachet (1969), who told me she loves language and considers herself something of an amateur linguist. When I asked her, towards the end of the interview, whether she thinks the people in the community speak Yiddish well, her response was strongly affirmative. In it, she touched on

language mixing unprompted, almost apologetically:

יא, איך האלט אז אונז רעדן א גוטע אידיש, און איך האלט נישט אז אידיש מוז זיין ריין. איך האלט אז ס'איז גענוג אז ס'איז, אם, Yiddishized. איך בין נישט מקפיד אויף יעדע single ווארט זאל זיין אידיש, ס'איז בכלל נישט קיין ענין. ס'איז מער אז אונז האמיר א אייגנארטיגע שפראך. און אז מ'זאגט freezer דער פריזער איז עס הונדערט פראצענט אויסגעהאלטן.

yo, ikh halt az indz redn a gite yidish, in ikh halt nisht az yidish miz zaan rayn. ikh halt az s'iz genig az s'iz, um, yidishized. ikh bin nisht makped oyf yeyde single word zol zaan yidish, s'iz bekhlal nisht kaan inyen. s'iz mer az indz homir a aygnartige shpraakh. in az m'zogt freezer oder [frizər] iz es hindert protsent oysgehaltn.

'Yes, I think that we speak a good Yiddish. And I don't believe that Yiddish needs to be pure. I feel that it's enough that it's, um, Yiddishized. I don't particularly care that every word I say should be Yiddish, it's not a thing. The idea is that we have a distinct language. And if you say freezer or [frizər] it's perfectly acceptable.

To some, language mixing does signal linguistic inferiority on a community-wide level. When I asked where someone might go to hear the 'best Yiddish' being spoken today, the consensus among this sample was that the 'best Yiddish' is to be found among Hasidim in Antwerp, who (allegedly) use fewer borrowed words. A few participants protested that their own dialect was a hybrid, mish-mash of languages unworthy of study. Additionally, I observed a certain level of anxiety among the oldest generation regarding the increased use of English by younger speakers of the language. The youngest speakers, however, even the most traditional among them, displayed no such unease. For example, Simi (2005) was among the few very young speakers who responded positively when I asked her if knowing

Yiddish was an asset, adding:

...וועגן איד, אידיש. כ'האב עס ליב ווייל ס'איז א איד.

...vegn yid, yidish. kh'hob es lib vayl s'iz a yid.

'...because yid ('Jew'), Yiddish. I like [Yiddish] because it's [a sign of] a Jew.'

She also predicted (as most participants did) that her own children and grandchildren will be Yiddish speakers, because, in her words:

מערצעשעם, ווייל כ'גיי זיין strict מיט עס, ווייל כ'האב עס ליב.

mertseshem, vayl kh'gey zayn strict mit es vayl kh'hob es lib

'G-d willing, because I'm going to be strict about it, because I like it.'

However, when asked if her parents ever correct her Yiddish, she told me that, on the contrary, *she* often entreats her *mother* to *avoid* using certain Yiddish words in order to avoid sounding 'old' or 'uncool'. As an example, she volunteered:

איך זאג איר אז זי זאל נישט זאגן 'קייטל', אם necklace, אדער אזעלכע מינע זאכן זאג איך איר.

ikh zog ir az zi zol nisht zogn 'keytl', um, necklace, oder azelkhe mine zakhn zog ikh ir.

'I tell her not to say 'keytl,' [but] necklace, those are the kinds of things I tell her.'

When I asked Frimet (1948), an educator, what language she generally uses when conversing with friends, she lamented that she often "slips into English". She then mused about this for a moment, seemingly puzzled about why it happens:

...ווייל אונזערע עלטערן האבן דאך נישט געקענט ענגליש. וואס איז געווארן? כ'האב נישט קיין גוטע ענטפער.

...vayl indzere eltern hobn dokh nisht gekent english. vos iz gevorn? kh'hob nisht kayn gite entfer.

...because our parents didn't even know English. What happened? I don't have a good answer for that.

Frimet then complimented *my* Yiddish and asked if I generally took care to speak only Yiddish. I told her that I love speaking the language, and that since I've been studying it, I do find myself using fewer English words, especially during interviews. She then shared the following:

מיין טייער קינד, ווען איך האב די ערשטע מאל געהערט אויף כה תאמר איינע פון די רבנים זאגן זיין דרשה, און ער זאגט: 'נע, ביי דעם איז דעיס נישט, אה, ביי דעם איז עס irrelevant.
That was the first English word that I heard.
און זייט דעמאלטס הער איך שוין נאך און נאך און נאך ווערטער אויף ענגליש ביי מענערישע דרשות, און איך בין נתפעל, So .in shock איך, אלס אידישע טיטשער, איך try צו ניצן די אידישע ווארט אלעמאל, אבער כ'האב שוין נישט מורא פון אריינבראקן א ענגלישע ווארט. איך קלער, אז א רב קען עס ניצן, אה, דארף איך אויך נישט, ווייסט, אזוי מצמצם זיין.

maan tayer kind, ven ikh hob de ershte mul gehert oyf koy soymer ayne fin de rabunim zugn zayn drushe, in er zugt, neh, bay deym iz deys nisht, uh, bay deym iz es irrelevant. That was the first English word that I heard. in zaat demolts her ikh shoyn nokh in nokh in nokh verter oyf English bay menerishe droshes. in ikh bin nispoel, in shock. So ikh, alts yidishe teacher, ikh try tsi nitsn de yidishe vort alemol. ober kh'hob shoyn nisht moyre fin araanbrokn a englishe vort. ikh kler az a rov ken es nitsn, uh, darf ikh owkh nisht, veyst, azoy metsamtsem zaan.

'My dear child, the first time I heard, on koy soymer (a telephone 'hotline'), one of the rabbis lecturing, and he says, nah, in this case it's not, in this case it's irrelevant. That was the first English word that I heard [in such a context]. And since then I've been hearing more and more and more English words in lectures given by men. And I'm amazed, in shock. So I, as a teacher of religious subjects, I try to always use the Yiddish word. But I'm no longer afraid of peppering my speech with English words. I figure, if a rabbi can use it, then I don't need to, you know, feel so restricted.

From here, she segued into a brief soliloquy about the instrumental value of proficiency in the language of one's country (in this case, English), bemoaning the general inadequacy of English language instruction for boys, many of whom, she recounted, end up investing time and money to learn the language as adults. I discuss this topic in the following subsection.

1.2.3.2 Language dominance and proficiency

New York Hasidim are typically bilingual; however, as Fader (2009) points out, the English variety spoken in these communities contains numerous influences from Yiddish, including phonological interference, calques, and the integration of words both from Yiddish and *loshn koydesh* ('Hebrew'). On the basis of these distinctions, Fader designates

the English spoken by New York Hasidim as Hasidic English (HE),[31] a subvariety of the Jewish English described by Benor (2010). Following Fader, I refer to the English data analyzed in this dissertation as HE.

While most female speakers interviewed said they have a good command of both languages, many of the young male participants lamented their lack of English proficiency. For adult males, economic rationality often drives a desire to increase their English language competence. Language dominance is, in fact, highly gendered in the community, primarily due to the educational models (described in 1.2.3). Hasidic males tend to be HY-dominant and few self-identify as being completely fluent in English, while females tend to be fluent in both languages. However, it is not uncommon for even HY-dominant speakers to report having a larger range of expression in English due to a more extensive vocabulary. This sentiment is most likely related to the fact that contemporary HY includes a vast number of English loanwords, some of which are ubiquitous in oral communication, but may be perceived as unsuitable in more formal contexts due to their origin. Lexical transfer is prevalent among all groups and appears to be increasing over time. Approximately 30% of the words in the corpus compiled for this study are English. And although age differences in the rate of borrowing have not yet been calculated, the impression is that younger

[31] Fader's (2009) evidence of phonological interference is impressionistic. I concur with her overall assessment about the existence of Hasidic English and adopt the term in this dissertation. However, a thorough comparison of the vowel systems of Hasidic and non-Hasidic New Yorkers awaits further analysis.

speakers are using more English words than their older counterparts, and female speakers are less likely to adapt these to Yiddish phonology.

A further reason for the disparate degrees of bilingualism between the genders is that English enjoys covert prestige among female speakers. Fader (2009) identifies the rise of a uniquely Hasidic femininity, which is religiously stringent but simultaneously fluent in the cultural mores of the secular world. She observes that this traditionalist-modern hybridity is also reflected in increased language mixing (English and Yiddish) and that young Yiddish-speaking girls in the Bobov community gradually shift to English as they get older, reflexively enacting a femininity that is forward-facing albeit rooted in traditional Hasidic ideals. Based on my fieldwork, female adolescents in other Hasidic groups and neighborhoods display a similar preference for English when conversing with each other, although the extent varies by neighborhood and group.

Moreover, an expanding range of cultural production in HY, including music, theater, newspapers, novels and comics for children (Tworek, 2021; Waldman, 2018) is bolstering the language and simultaneously ushering in mainstream cultural influences (for more on this, see §1.4 of this chapter).[32]

These sociocultural circumstances place HY at the center of competing forces: a traditionalist ideology that supports it, and an increasingly innovative outlook that implicitly endorses conformity to the majority language. Against this backdrop, it is hardly surprising that HY is showing evidence of phonetic and morphosyntactic conformity to the

[32] Contemporary Hasidic cultural production is the topic of by Justin Joran Lewis (in Yiddish), entitled "Hasidic Creativity in Yiddish Today", available for viewing at: https://www.youtube.com/watch?v=Cbdt6RoRBXc&ab_channel=CommitteeforYiddish

contact language (Nove, 2017, 2018b), lexical transfer (Krogh, 2015), structural and stylistic change (Assouline, 2018b; Belk, Kahn, & Szendroi, 2020a, accepted-b) and divergence from other Yiddish varieties (Bleaman, 2018).

1.3 The origins of Hasidic Yiddish

Dialectologists recognize three major regional varieties in pre-war Eastern Yiddish: Northeastern Yiddish (NEY) originated in what is currently Lithuania, Belarus, Latvia, northeastern Poland, northern Ukraine, and western Russia; Southeastern Yiddish (SEY) in southeastern Poland, eastern Ukraine and Moldova; and Central Yiddish (CY) in modern-day Poland, eastern Slovakia, eastern Hungary and western Romania. The CY dialect region includes a territory referred to by Yiddish-speakers as the *Unterland* (pronounced [ɪntərland] by its inhabitants and by contemporary HY speakers), which roughly comprises the border area of present-day Slovakia, Hungary, Ukraine, and northwestern Romania extending into the central part of the country (Krogh, 2012; U. Weinreich, 1964). This area (discussed in more detail in Chapter 2 §2.2.2) is shown in Figure 1.2, broadly delineated according to geographical boundaries offered by Krogh and Weinreich. The Unterland is important to the present study, as it is the ancestral homeland of a majority of New York Hasidim, especially those from the Satmar group.[33]

[33] That the Hasidic groups originating in this region are dominant in the world today is an accident of history. In the pre-war era, Poland was home to several of the largest and most influential Hasidic dynasties (e.g., *Aleksander*, *Ger*). Tragically, only a small proportion of these groups survived the Nazi genocide. As the German occupation of the Unterland region took place much later, in 1944, Jews from that area spent less time in the concentration camps and thus had a much higher rate of survival (Fader, 2009; Mintz, 1992).

Figure 1.3. Regional map with the approximate location of the Unterland, broadly defined, outlined and shaded in pink. The delineation is based on geographical boundaries offered by Weinreich (1964) and further described by Krogh (2012).

1.3.1 Unterland Yiddish and contemporary Hasidic Yiddish

In analyzing contemporary HY, linguistic scholars have noted its broad similarity to CY, most noticeably in the vowel system, which includes long and short correlates of the three most peripheral vowels /i, u, a/ (Assouline, 2018b; Krogh, 2012, 2013; Poll, 1965). Some striking, albeit unsurprising, differences exist, as well. For example, HY contains fewer Slavic loans than CY, but more lexical items derived from German and Hungarian.[34] This is obviously a consequence of differences in language contact in the greater CY region (the

[34] Other possible differences that have not been systematically studied include the place of articulation of /r/ (apical rather than uvular), the absence of post-vocalic r-deletion, and the absence of schwa insertion between long, non-low vowels and a following consonant, known as breaking or drawl.

Polish lands) versus the Unterland (formerly part of the Austro-Hungarian Empire). Unfortunately, relatively little is known about pre-war Unterland Yiddish (UY), which was largely neglected by Yiddish scholars. The best reference is a preliminary study conducted by U. Weinreich (1964), based on data collected for the Language and Culture Atlas of Ashkenazic Jewry (LCAAJ). The author emphasizes the "turbulent linguistic history" of the region, a result of mass migration from a variety of dialect regions, shifting political boundaries, and cultural schisms in the late 19th and early 20th centuries (U. Weinreich, 1964, p. 262). He views UY as a mixed dialect with a Western Yiddish substrate, a CY overlay, and a weak but ongoing influence from the West. U. Weinreich also underscores the importance of documenting the Yiddish of this region, especially in light of the growing importance of its derivative, HY. Chapter 4 of this dissertation contains the first known phonetic description of UY vowels.

Contemporary New York Hasidic groups originate in different Eastern European regions and their Yiddish dialects originally reflected these geographical origins. For example, the Yiddish spoken by Bobover Hasidim, whose ancestral roots are in Bobowa, a town in southern Poland, were known for their post-vocalic r-deletion, which is characteristic of that region. There is evidence, however, that such inter-group differences are diminishing, and that New York HY is unifying into a single dialect (Assouline, 2015; Sadock & Masor, 2018). This is most likely due to intense contact and a blurring of boundaries between the groups. Group-specific linguistic features may also be diluted by large influxes of newcomers to the group. This has been the case among Skverer Hasidim, whose group is named after Skvyra (Yid. *skver*), a town in Ukraine, near Kiev. This is the group that

founded the village of New Square, in Rockland County, N.Y. (see map on p. 12). Their Yiddish, derived from SEY, originally had /eɪ/ where CY has /aɪ/ (e.g., [geɪn] 'to go' or [fleɪʃ] 'meat'). This vowel is presently maintained in Hebrew-dominant domains (e.g., during prayer, biblical study, etc.), but in everyday speech, it has shifted to /aɪ/ (Assouline, 2015). The Yiddish spoken by Satmar Hasidim (sometimes referred to as 'Hungarian Hasidim' and their dialect as 'Hungarian Yiddish'), whose roots are in the historical Unterland region, is the most prevalent in the New York area and exerts a strong influence on other varieties due to the group's size, as well as its language ideology, i.e., its explicit emphasis on Yiddish maintenance (Assouline, 2015; Krogh, 2013). Contemporary HY, however, is not straightforwardly UY, either. As Burko (2021) notes:

> כאָטש די אונגערישע חסידים האָבן הײַנט די אויבערהאַנט איבער דער שפּראַך, האָט דאָס נישט געבראַכט קיין גרויסע פֿאַרפֿלייצונג פֿון אונגערישע ווערטער. פֿאַקטיש ניצן זיי זייער ווייניק ווערטער פֿון אונגעריש — און אָן אַ שיעור מער דײַטשמעריזמען. מסתּמא זײַנען צוגעקומען גענוג חסידים פֿון אַנדערע ראַיאָנען, ספּעציעל פֿון גאַליציע, וואָס האָבן געקענט עפּעס דײַטש, אָבער נישט קיין אונגעריש. אַזוי האָט זיך דאָס חסידישע ייִדיש אַנטוויקלט אויפֿן יסוד פֿון עטלעכע אייראָפּעיִשע דיאַלעקטן, און נישט בלויז פֿון אונגעריש ייִדיש. ס'איז אַ קינד מיט אַ סך טאַטעס.

> *'Although the Hungarian Hasidim presently have the upper hand over the language, this has not resulted in an inundation of Hungarian words. In fact, they use very few Hungarian words – and far more German ones. This is most likely due to newcomers from other regions, especially [historical] Galicia, who knew some German but not Hungarian.*[35] *In this way, Hasidic Yiddish has evolved on the basis of several European dialects and not merely from Hungarian Yiddish. It is a child with many fathers.'*

[35] An alternative reason might be the strong negative association towards Hungarian developed during the war, especially by males, as discussed above.

On the other hand, native HY speakers attest to systematic distinctions in the HY spoken in different New York neighborhoods (Borough Park HY, for example, is said to have a very dark /l/ in all phonological contexts), although this variation has not yet been documented.

1.4 Evaluating Hasidic orientation

1.4.1 Language and ethnic/religious identity

This study begins with the premise, established in the field of sociolinguistics, that subtle and minute linguistic differences among speakers and within the speech of a single individual are infused with meaning, and that the import embedded in such variation is part of a mutable system that enables speakers to construct, express, and perform a range of social identities and stances (see e.g., Bucholtz & Hall, 2005; Eckert, 1989, 2002; Mendoza-Denton & Osborne, 2010).

The implications of social identity for language variation and change were recognized at the very conception of the field of variationist sociolinguistics (see e.g., Labov, 1963). In recent years, a number of studies have foregrounded ethnic orientation in their analyses and in doing so, created a heightened awareness of the complexities of identity construction. These studies have highlighted, among other things, the challenges involved in positing aspects of ethnic identity that are generalizable across groups, generations, languages and linguistic variables (Nagy, 2018; Nagy et al., 2014). Furthermore, they have underscored the mutability of ethnic boundaries, showing how resonant features of group identity may change in the course of an individual's lifespan (Fix, 2014) and even in the course of a single conversation (Becker, 2014).

Likewise, several sociolinguistic studies conducted in the U.S. recently demonstrate that linguistic variants can be utilized to index religious affiliation, as well as degrees of participation within a particular religion (see e.g., Baker-Smemoe & Bowie, 2015; Baker-Smemoe & Jones, 2014; Baker & Bowie, 2009; Benor, 2010; Fox, 2010). The linguistic literature, however, provides few guidelines for eliciting, coding or analyzing religious identity, affiliation or heritage. Until recently, most research in this subfield either incorporated religion within other demographic categories (e.g., regional or ethnic identity) or disregarded its potential consequences for language variation. Hary and Wein (2013), in proposing the term *religiolect* for a language variety used by a particular religious group, acknowledge that conflating religion with ethnicity may be justified in Western societies, given Geertz's (1973) famous definition of religion as a "cultural system".[36] Indeed, notable Jewish-language scholars have referred to the varieties associated with particular religious groups as *ethnolects* (e.g., Benor, 2009; Hary, 2003) or *ethnolinguistic repertoires* (Benor, 2010), and Fishman (1997) defines *ethnicity* as "the macro-group 'belongingness' or *identificational dimension of culture,* whether that of individuals or of aggregates per se" [emphasis in original]. For these experts, the academic meaning of the term *ethnicity* is evidently sufficiently broad to subsume religious affiliation. However, this practice has been contested by several linguists over the past few years (see, e.g., Hary & Wein, 2013; Yaeger-Dror, 2014). In the introduction to a special issue of *Language and Communication*

[36] Hary and Wein (2013) argue, however, that the term ethnicity may not be well suited for non-Western religions.

devoted to this topic, Yaeger-Dror (2015) points out that religious affiliation and/or level of religious commitment are important elements of an intersectional identity and argues persuasively against the practice of including these in other demographic categories (e.g., 'race', ethnicity, or nationality).

The modern-day Hasidic identity consists of variably intersecting and intertwined elements of ethnicity, religion, and culture. Embedded within the greater American society and subject to the pressures of the modern era, Hasidism is also a society in flux. An investigation into the correlation between language and Hasidic identity is contingent upon an understanding of the nuances and gradations that the latter entails.

1.4.2 Contemporary Hasidic culture: Truths, myths and stereotypes

From an etic perspective, the Hasidic community appears homogeneous, immutable, and wholly impervious to outside influences; one often hears words like "insular" and "separatist" used as descriptors (see e.g., Belcove-Shalin, 1995; Lewis, 2017; Poll, 1962; Skinazi, 2015; Vaysman, 2010). There's an assumption that Hasidim are inward-looking, neither aware of, nor interested in, the larger society (see e.g., Feuer, 2009; Miller, 2016; Teicher, 2016; "Ultra-orthodox Jews on the rise in UK", 2010). As Deutsch and Casper (2021, p. 15) note in their recent book on race and real estate in Williamsburg:

> *Despite the obvious dynamism of Hasidic Williamsburg since the first Holocaust refugees arrived in the 1940s, the most enduring stereotype of the community has been that its members merely transplanted their way of life intact from the shtetls of eastern Europe to the streets of Brooklyn. As gentrification drew new attention to Williamsburg a half a century later, numerous media accounts persisted in depicting the Hasidic enclave as if it*

> *were a community suspended in amber, one that not only arrived unchanged from eastern Europe but also had remained unaltered in the intervening years.*

Hasidic insiders, too, may envision themselves as part of a religious movement that has not diverged significantly from its eighteenth-century origins (Poll, 1962, p. 35). These notions are understandable given the Hasidic ethos of conformity and traditionalism, and its apparent opposition to innovation. Resistance to change is, to some extent, built into the system, which has members follow a prescribed dress code, adhere to a kosher diet, and educate their children in privately-run, gender-segregated educational institutions (Biale et al., 2018). However, these general tendencies, and the stereotypes associated with them, obscure the dynamic nature of Hasidic culture and the diversity within it.

Contemporary Hasidism is not merely a mode of religious practice, it is a culture. And like all cultures, it is deeply in tune with its environment and reactive to it. There is a Yiddish proverb, *vi es goyisht zikh azoy yidisht/yidlt zikh*, which translates roughly as 'as the outside world goes, so goes the Jewish world'. In fact, the very necessity to contend with modern-day issues (e.g., applying ancient laws to modern technology) renders twenty-first-century Hasidism a modern practice and differentiates it from the Hasidism of yore. A close observation of the community reveals that, rather than standing apart from the world at large, Hasidim are engaging with it. But they are doing so selectively, on their own terms. Some decisions regarding engagement are made by Hasidic authorities, certainly, but most occur on the individual level. Thus, a view of Hasidic culture that focuses narrowly on its cultural isolation is missing an important part of the picture. A better understanding of the community comes from looking at complex patterns of cultural participation, and

analyzing the pores in its boundaries, the specific areas where mainstream culture infiltrates, which may be different for every individual.

Within the Hasidic community, there exists a range of stances and attitudes vis-à-vis secular culture, and many levels of conservatism are represented. On one end of the spectrum are the most inward-facing individuals, those whose ideology aligns completely with the official Hasidic stance. They eschew all forms of modernity, including the use of Internet technology and pride themselves with the label 'old-fashioned'. They are extremely wary of all forms of government intervention in their lives, especially in matters of education. In recent years, there also appears to be a strong overlap between these hardline traditionalists and Hasidic antivaccination activists. But these individuals represent a minority. Most Hasidim, even some of the religious authorities, take a more moderate position regarding innovation and many find ways to integrate some mainstream cultural practices within the parameters of their religiously observant lifestyle. Of course, there are also some on the opposite side of the spectrum, Hasidim who, despite an official ban on the Internet for recreational use, for example, own smartphones or install Wi-Fi in their homes.[37]

Several scholars have underscored the complicated approach to modernity by Hasidim. Fader (2007, 2009), for example, describes a narrative of modernity among Bobover

[37] There is no official prohibition in the Hasidic community against using the Internet for work purposes (*letsoyrekh parnuse*), although Hasidic businesses often install filters on office computers to limit the type and extent of access. Thus, many strictly observant Hasidim use Internet technology on a regular basis, and it is not unusual for parents who don't have Internet connectivity at home to allow their children access to their business computers to shop online, for example.

Hasidim that is couched in cultural tradition and religious practice. The cosmopolitan aspect of this identity is manifested by bourgeois consumption practices that mirror those of mainstream society. An increasing number of Hasidim, for example, are sophisticated world travelers and have amassed a wealth of international and intercultural knowledge. Many take advantage of kosher tours to exotic locations, offered by Jewish-owned companies that have arisen to fill this growing market (see Figure 1.4:A). Event planning (for weddings and other celebrations) and interior design are in high demand in the community. The people who provide these services have their finger on the pulse of mainstream cultural trends and are ushering them into the Hasidic world on a regular basis. In addition to the stylish recipes featured weekly in Orthodox-owned magazines such as *Binah* and *Mishpacha*, Hasidic foodies can also stay on the cutting edge of culinary trends with a subscription to *Fleishigs* magazine, which featured, in a recent issue, a recipe for mojito *hamantashen* (see Figure 1.4:B). Not long after the sourdough craze gripped the nation in 2020, sourdough challah became a standard option on every Hasidic caterer's menu (see Figure 1.4:C). The recent charcuterie trend has also entered the Hasidic world, with charcuterie boards becoming ubiquitous features at *kidayshem* (communal events held after Saturday morning prayers, often sponsored by members who are celebrating a special event, such as the birth of a daughter or the upcoming wedding of a son) and other events (see Figure 1.4:D). And as of summer 2021, kosher consumers can buy mochi with the most stringent certification (see Figure 1.4:E).

Additionally, trends in modern psychology have found their way into the Hasidic world and are playing a large role in the way that Hasidim parent and educate their children; and

increasingly in the way they approach grief, trauma, anxiety, eating disorders and a host of other challenges (see Figure 1.4:F). Hasidic entertainment (music, theater), too, has become extremely sophisticated in recent years and is marked by external influences (Tworek, 2021; link to full lecture in citation). And, as of June 15, 2021, there is an art gallery in Williamsburg, Brooklyn, showcasing the work of Hasidic artists.[38]

Deutsch (2009) emphasizes how in spite of an official ban on Internet technology,[39] many in the community have become sophisticated users of these tools. Biale et al. (2018, pp. 784–785) point to a robust Hasidic presence on social media, online listservs, blogs, chat groups, etc., often with HY as the language medium. There are websites and apps where one can get their news, health information, the latest Jewish music videos, and a *dvar torah* ('talk on topics relating to the weekly Torah portion') to recite at the Shabbos table, all in Yiddish, and all in one place (see Figure 1.4:G).[40] In addition to the countless private Whatsapp and Telegram groups through which people send each other all the latest memes and video clips, there are also accounts to which one can subscribe to hear the latest in Hasidic music, news and politics. Commercial advertising, mostly disseminated on

[38] More information is available on shtetlartgallery.com

[39] Most Hasidic groups have regulations regarding the use of Internet technology. Hasidic schools typically require parents enrolling their children to sign a document attesting that the children will not have access to the Internet. In May 2012, a group called *Ichud HaKehillos LeTohar HaMachane* 'Union of Communities for the Purity of the Camp' organized a massive rally in Citi Field, New York to convince the public of the dangers of Internet technology (for a description of this event see Grynbaum, 2012; for more on the prohibition and use of Internet in Hasidic communities see Biale et al. 2018:783-787).

[40] See, for example, www.yiddishevinkel.com and www.yiddish24.com, both of which are also available as apps.

WhatsApp statuses, is exploding,[41] and Hasidic influencers are paid to post these on their statuses.

There are many more avenues for exposure, even for those who maintain a highly traditional lifestyle: A health condition may motivate a person to delve into the scientific literature or explore alternative forms of medicine. Members may venture outside the community for fitness or civic commitments. Some are drawn to public libraries by a love of reading and others pursue professional degrees in order to get promoted at work. Work circumstances may also necessitate online access, travel and daily interaction with members of the outgroup.

In short, the Hasidic universe is adapting to American culture and expanding in tandem with it. Part of this adaptation is a youth culture, which is religiously stringent, yet follows the model of youth cultures everywhere in rejecting, at least partially, their parents' behavior. They may value conformity on an ideological level, but they don't always want to be told what to do. Hasidic youth have cultivated their own distinctive vocabulary[42] and musical preferences, both of which push the envelope slightly in terms of cultural appropriateness.[43]

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[41] Some samples can be found at: https://www.dropbox.com/sh/7ljs2thy4c5l4wi/AAARBBzNdb2N6kZnsxI2zwHVa?dl=0

[42] Many examples of recent slang can be found in a post (in Yiddish), published on kaveshtiebel.com: https://www.kaveshtiebel.com/viewtopic.php?f=10&t=14538

[43] Examples of both abound in the music of Hasidic singer Ari Samet, produced under the record label Budka Studios. The song *tsiflutsht*, for example, which can be found on YouTube, contains numerous slang words and idioms mostly familiar to young Hasidim: https://www.youtube.com/watch?v=bSFBnumrayc&ab_channel=AriSamet

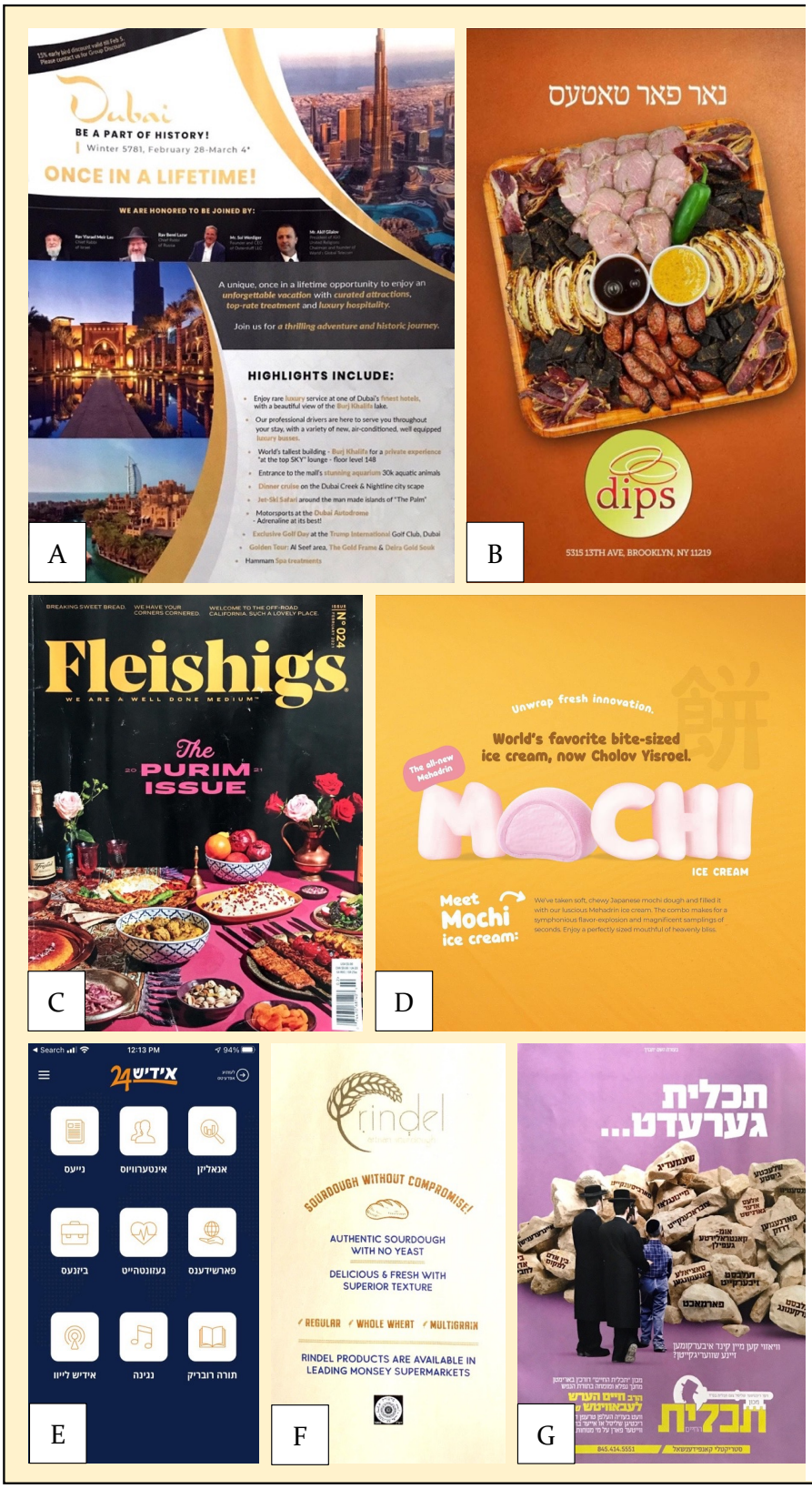

Figure 1.4.

A: Advertisement for a tour to Dubai with kosher food and Jewish entertainment.

B: Advertisement by a catering and take-out food establishment for charcuterie boards. The copy 'nor far tates' (a slang term derived from infantile speech whose literal meaning is 'only for dads') is used to underscore that this is food for the sophisticated palate (foodies).

C: Cover of Fleishigs magazine, whose self-described mission is to "take[s] kosher to unexpected new heights to reach and inspire the discerning chef, the food obsessed, and the budding gourmand in us all". The term 'fleishigs' is Yiddish for 'prepared with meat products'.

D: Advertisement introducing cholov Yisroel ('Jewish milk,' milk under Jewish supervision) mochi.

E: Screenshot of topic menu on the Yiddish24 app.

F: Advertisement for sourdough challah.

G: Advertisement for a therapy program for adolescent boys focusing on psychological and social

However, cultural trends are not moving in a single direction only. The conservative end of the spectrum is well-represented, and opportunities for religious self-betterment abound. There are 'kosher' cell phones available to those who don't want up-to-date features (including texting), 'kosher' cameras that are not Wi-Fi enabled (see Figure 1.5:A & B), and organizations that provide filtering services for computers and other devices (Figure 1.5:C). Local weekly publications have running lists of hundreds of Torah study groups that meet daily and opportunities to sponsor such groups are often promoted (Figure 1.5:D). In addition to these, one can listen to lectures in real-time (Figure 1.5:E), on the phone (on hotlines), stream them online, or buy preloaded mp3 players with hundreds of thousands of files. Millions of dollars are raised annually for a variety of causes via in-person charity events and crowdfunding campaigns online (see Figure 1.5:F). There are organizations that will, for a very small fee, alter women's apparel to make them more modest. And so on.

Figure 1.5. A: Advertisement for a sale on 'kosher' cell phones. B: Advertisement for 'kosher' (non-Internet-enabled) cameras. C: Advertisement for Internet filtering that ran before the High Holy Days. D: Advertisement for a fundraising event for Pupa, a Hasidic group, hosted on the crowdsourcing app charidy.com (whose founder is Hasidic). E: Announcement about a live hook-up for a lecture on raising Jewish children. F: Request to help sponsor a quorum of learned men, who will learn Torah at the gravesite of a saint on the anniversary of his death. In return, the learners will say prayers on the sponsors' behalf.

It is not difficult to envision how this array of potential mainstream influences and intersections leads to a Hasidic orientation that is itself multifaceted, fluid and contextually

variable, both on a macro and micro scale.[44] Thus, any analysis that focuses on Hasidic identity must acknowledge its multivalence. Hasidic culture cannot be viewed as monolithic, nor can individual members be neatly sorted according to discrete categories. In assessing Hasidic orientation, I therefore follow sociolinguists who have taken a nuanced approach to ethnic orientation. Hasidic alignment is not viewed here as dichotomous, but rather as experienced along a spectrum of highly insular/orienting toward the Hasidic system on one end, and highly integrated/orienting towards mainstream culture on the other. To reflect the distinctive nature of Hasidic identity and to capture the cultural elements that are relevant for this group, an ethnographically informed survey was designed to assess Hasidic orientation. The questionnaire, described in detail in Chapter 3, §3.1.2.2, was implemented to assign a score to each speaker, intended to capture a range of cultural consumption habits and reflect the extent to which s/he orients toward or away from the Hasidic cultural system.

In investigating the relationship between language and social identity in minority groups, it is incumbent upon scholars to identify the hierarchies and systems that do not necessarily fit into familiar Western social categories (Nagy & Meyerhoff, 2008; Stanford, 2016). Moreover, complex lived experience is not easily reduced to a statistical factor, as evidenced by the wide range of methods that have been employed to measure and study it (see e.g., Eckert, 1989; Hoffman, & Walker, 2010; Mendoza-Denton, 2008; Nagy et al., 2014;

[44] There is, in fact, a growing polarization within the community, as the two ends of the spectrum move ideologically farther apart. This may lead to linguistic schismogenesis, defined as "a process of differentiation in the norms of individual behavior resulting from cumulative interaction between individuals" (Bateson, 1958, p. 175).

Newlin-Łukowicz, 2015a). However, such difficulty ought not to deter us from pursuing a deeper understanding of the myriad ways in which language and identity are intertwined.

1.5 Structure of the dissertation

This dissertation is organized so that the main narrative of the study, phonetic change in HY vowel contrast over time, is presented in the first five chapters. Chapters 6 and 7 are intended as stand-alone sections, each pulling on a particular thread that emerges from the primary study. The content of each chapter is outlined below.

In the present introductory chapter, the sociolinguistic context of HY was depicted, exposing its vibrancy as well as its vulnerability. Chapter 2 focuses on the variables of this study (the vowels /i, ɪ, u, ʊ, aː, a/), describing their historical development and reviewing some of the literature that motivate their selection and the methods for analyzing them. Additionally, some of the pertinent causal factors for sound change are reviewed and the acoustic correlates of phonetic contrast in vowels are explained. This chapter also reviews the research questions and hypotheses guiding this study. Chapter 3 introduces the corpora from which the data for this study were sourced: The Unterland Yiddish corpus and the New York Hasidic Yiddish corpus. Details are provided on recruitment and interview procedures, and on the design of the Hasidic orientation survey. In addition, the impact of the researcher's positionality on the research project is explored. Finally, the methods used to extract sound segments, measure their formant frequencies, and compare them statistically are described. In Chapter 4, the vowel inventories of Unterland and New York Hasidic Yiddish are described and schematized, using the acoustic properties of the vocalic

segments. The main findings of the acoustic analysis, evidence of change over time in the target vowels, are presented in Chapter 5 and their implications are discussed. Chapter 6 explores one possible reason for the sound change observed: systemic phonological convergence due to (bilingual) contact with English. In this chapter, the HY and HE vowels elicited during a wordlist reading task are compared. The results are interpreted using models of second language acquisition. Chapter 7 homes in on one variable, the vowel /u/, and uses the Hasidic orientation score to interpret and predict patterns of change in this vowel. Chapter 8 demonstrates how the research questions were addressed and describes some of the broader implications of the study. Some limitations of the study are also considered and directions for future research are suggested.

Chapter 2

The variables

אלס קינד האט מען מיר גערופן הערש. ביז טויזנט ניין הונדערט פערציג, ווען די אונגארן זענען אריינגעקומען. דענסטמאל בין איך געוואויר געווארן איז איך הייס *Hugo*.

'As a child I was called Hersh. Until 1940, when the Hungarians came in. Then I learned that my name is Hugo.'

Hersh (born 1919; archival data)

CHAPTER 1 PROVIDED A BACKDROP for this acoustic study of Hasidic Yiddish (HY) vowels by offering selected details about the sociohistorical and sociocultural context of HY in New York, highlighting the forces that support and threaten its vitality, and which potentially impact its continued development in the United States. The present chapter begins with a list of the research questions guiding this study, then goes on to describe the variables and lay the groundwork for an analysis of phonetic contrast. In §2.1, the historical development of each of the vowel pairs is briefly reviewed. In §2.2, two language-related causal factors that have been cited to explain the historical vocalic changes, one intrinsic and one

extrinsic, are reviewed. These are supplemented by a discussion of several extra-linguistic factors (social, geopolitical, and ideological) that may bear on the outcome of the study. In this section, the historical Unterland region is also discussed in some detail, in order to motivate a proposal to view Unterland Yiddish as a distinct dialect. Section 2.3 introduces the parameters of phonetic contrast in vowels that are relevant to this study (quality and duration) and provides an overview of some theories that can help interpret the results. In §2.4, hypotheses regarding the research questions are reviewed.

The main focus of this study are six contrasting vowels in HY: the short and long peripheral vowels /i/, /u/, and /a/. This dissertation addresses the following five research questions related to these vowels:

1. What are the acoustic correlates of the putative length distinction in Unterland and New York Hasidic Yiddish long-short vowels?
2. Is there evidence of spectral and/or durational change between the long-short correlates of the three vowel pairs across the four generational groups?
3. Are observed sound changes independent of each other or interpretable as a single phonological process?
4. Is there evidence that bilingualism, i.e., cross-linguistic (L1-L2) influence, has conditioned these changes?
5. To what extent are patterns in phonetic variation correlated with (i) the social structures and ideologies specific to the Hasidic community, and (ii) identities and practices of speakers relative to these structures and ideologies?

2.1 Historical development of Central Yiddish peripheral vowels

The six HY vowels analyzed in this dissertation were inherited from Unterland Yiddish (UY), the pre-war dialect spoken in the border area of present-day Slovakia, Hungary, Ukraine, and northwestern Romania, which, in turn, inherited them from Central Yiddish (CY), the (older) Yiddish dialect spoken in Poland and Western Galicia.[1] Unlike the two other Eastern Yiddish dialects (Northeastern Yiddish [NEY] and Southeastern Yiddish [SEY]), CY retained a length contrast in its vowel system (U. Weinreich, 1963). Thus, the six vowels described here are reflexes of three CY long-short vowel pairs: {/iː/, /i/}, {/uː/, /u/}, and {/aː/, /a/}.[2] In the following sections, the historical development of each of these pairs is traced.[3]

2.1.1 High front vowels

Among the vowel pairs that are the focus of this study, the long-short distinction in the high front vowels /iː/ and /i/ is historically the oldest, its provenance dating back to Middle High German (MHG). In Proto-Eastern Yiddish (PEY), as in MHG, the two vowels in this pair form four distinct classes (Beider, 2015; M. Weinreich, 2008). The direct inheritance of these vowels, from MHG to CY, is shown in Table 2.1, along with sample words from MHG, their CY pronunciations, and their English translation.

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[1] Once the Kingdom of Galicia, this historical region (Yid. *galitsye*), which straddled the border of present-day Poland and Ukraine, was part of the Polish-Lithuanian and the Austro-Hungarian Empires before its dissolution in 1918, following World War I.

[2] Some regions of CY also had a contrast in /oː/ vs. /o/, e.g., [oːs] 'no more' vs. [os] 'letter of the alphabet'. In other CY areas, including the Unterland, the long variant is a diphthong: /oʊ/.

[3] Explanations of the historical processes are simplified here for the sake of concision.

MHG		PEY		CY	MHG word	CY pron.	Gloss
*ie / (lengthened)[4] *i	>	*iː	>	iː	*schief*	[ʃiːf]	sloping
*uo / (lengthened) *u	>	*uː			*vuoz*	[fiːs]	foot
*i	>	*i	>	i	*bilde*	[bild]	image
*u	>	*u			*sunne*	[zin]	sun

Table 2.1. Inheritance of CY high front vowels {/iː/, /i/} from Middle High German, with sample MHG words, their CY pronunciations, and English gloss.

In the two southern dialects CY and SEY, PEY *uː and *u fronted and subsequently unrounded sometime before the 17th century. The result of this was a merger of /iː/ and /uː/ (*uː > *yː > iː) and of /i/ and /u/ (*u > *y > i), so that, for example, [fuːs] 'foot' became [fiːs], and [zun] 'sun' became [zin] in CY. An additional source of lexical items in the /iː/ category are words with historically short vowels preceding rhotic consonants, where /r/ (or /ʁ/) induces lengthening of the vowel (e.g., [tiːr] 'door') (Birnbaum, 1954; Weiss, 1971).

2.1.2 High back vowels

The long-short correlates of the HY high back vowel pair are both reflexes of MHG /aː/, which entered into Yiddish as /ɔː/ (e.g., MHG *klâr* 'clear') (M. Weinreich, 2008). Around the turn of the 18th century (Beider, 2010), /ɔː/ raised to /uː/ (e.g., [kluːr] 'clear' < [klɔːr]), filling the gap left by the fronting of /uː, u/ (described above).[5] A more recent conditioned shortening of CY /uː/, sometimes referred to as Birnbaum's law, was triggered by postvocalic labial and velar consonants, giving rise to another long-short vowel pair (e.g., [tuːl] 'valley', but [tʊg] 'day') (Birnbaum, 1934, 1979; Jacobs, 1990; Katz, 1982; M. Weinreich,

[4] In Proto-Yiddish, Middle High German short vowels in open syllables were lengthened (Beider, 2015; M. Weinreich, 2008).

[5] In the Northern dialects, where /u/ did not undergo fronting, this vowel, variably described as /ɔ/ or /o/, remained in its Mid position.

2008). Consequently, long and short high back rounded vowels in CY are largely in complementary distribution, except when preceding a labio-dental consonant. Thus, there is [ʃtruf] 'punish' and [ruv] 'religious authority', but also [ʃlʊf] 'sleep.' This conditioned split may have subsequently been phonologized. Indeed, Herzog (1965), Jacobs (1990), Katz (1982) and M. Weinreich (2008) treat the length distinction in the /u/ pair as phonemic, even as they note the complementary distribution and admit to the absence of minimal pairs. Jacobs (1990: 70) calls uː-u split "the birth of a phoneme", citing the rare occurrences of /u/ before coronal consonants due to recent borrowings from German and Polish (e.g., German *schmutzig* > CY [ʃmutsik] 'dirty', and Polish *krolik* > CY [krulik] 'rabbit'). Beider (2015; personal communication), however, disputes the phonemic status of short /u/ and posits only /uː/ for the CY dialects.

2.1.3 Low vowels

While the HY short low vowel /a/ has not diverged from its MHG source (e.g., MHG *hant* 'hand', CY [hant]), its long counterpart is a more recent addition to the vowel system: In CY, a long-short contrast resurfaced in CY via the monophthongization of /aɪ/ (a reflex of MHG *î*, e.g., *mîn* 'my', and the Proto Yiddish diphthong *əɪ) to /aː/ (e.g., [haːnt] 'today' < [haynt]), except in word-final position and before hiatus, where /aɪ/ became /aːɪ/ (e.g., [draːɪ] 'three' and [shtaːjər] 'tax') (Beider, 2015; M. Weinreich, 2008; on the quality of word-final CY /aɪ/, see Prilutski, 1920; S. Weiss, 1971). This shift occurred only in regions where contrastive length had survived, and it filled the space left by historical /aː/ (which earlier had raised to /oː/ and then /uː/). As with /i/, prerhotic /a/ is elongated, becoming part of the long vowel class (e.g., [daːr] 'thin') (M. Weinreich, 2008). Additionally, German

loanwords with /aː/ that entered Yiddish after the major vowel shifts described here (e.g., [baːn] from German *Bahn* 'train'), became part of this word class, as well (Birnbaum, 1954; Weiss, 1971).

2.1.4 Timeline of vocalic change

Table 2.2 shows the chronology of vocalic changes, synthesized from the sources cited above, from PEY to CY, where lower numbers historically precede higher numbers; and Figure 2.1 shows these changes on a vowel quadrilateral, with color coding and numbering to indicate the order of processes.

1	*uː	>	*yː	fronting
	*u	>	*y	
2	*yː	>	iː	unrounding
	*y	>	i	
3	*oː	>	uː	raising
4	*aɪ	>	aː	monophthongization
5	*uː	>	u / __ C [-lingual] or [+dorsal]	shortening

Table 2.2. Chronology of vocalic sound change from Proto-Eastern Yiddish to Central Yiddish.

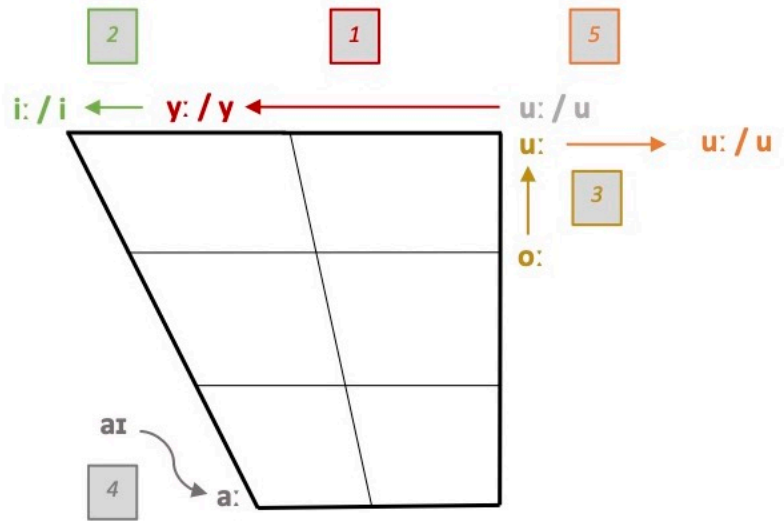

Figure 2.1. Schema of vocalic sound change from Proto-Southern Yiddish to Central Yiddish, color coded and numbered to show chronology.

2.1.5 Central Yiddish breaking and drawl

Jacobs (1990, 1993, 2005) describes a phonological rule in CY affecting long high vowels preceding tautosyllabic uvular fricatives /χ/and /ʁ/ (which have also been transcribed as /x/ and /ɣ/). In these contexts, an epenthetic schwa [ə] or a schwa-like vowel occurs between the vowel and the coda consonant, resulting in falling diphthongs. Thus, we get [biːəχ] < [biːχ] 'book', and [juːəʁ] < [juːʁ] 'year'. Jacobs calls this process BREAKING and contends that it is obligatory in CY. A more general version of this rule, which Jacobs labels DRAWL, inserts a schwa after long, high vowels in closed syllables, yielding [buːəd] < [buːd] 'bath' and [ʃtuːət] < [ʃtuːt] 'town', and occurs more frequently in phrase-final position. However, whereas BREAKING applies before both simple and complex codas, DRAWL is triggered only by simple codas. Hence: [fuːʁst] > [fuːəʁst] 'drive-2.PRES.SG,' but /buːd-st/ >

[buːdst] 'bathe-2.PRES.SG., *[buːədst]. Within the greater CY range, the realization of the rhotic consonant varied regionally between the apical [r] and the uvular [ʁ]. Jacobs does not specify whether BREAKING is expected to apply obligatorily only in regions with uvular [ʁ], but the formulation of the rule suggests this to be the case. Jacobs uses a rule-based framework to derive these two schwa-insertion rules and proposes that they are motivated by a phonological avoidance of syllable overlength, i.e., trimoraic syllables.

Garellek (2020) points out several inconsistencies in Jacobs' (1993; 2005) explanation for BREAKING and DRAWL, noting, for example, that trimoraic syllables with low vowel nuclei (e.g., [raːχ] 'rich') are permissible. As an alternative, Garellek offers a phonetic account for schwa-insertion in CY, contending that these two alleged phonological rules are part of a unitary process in which epenthetic schwa arises out of the acoustic transitions between certain articulatory gestures. The author argues that schwa-insertion is a gradient (not categorical) process and the greater the separation between the two articulatory gestures (where the constriction for the consonant begins *after* that of the vowel) the more likely it is for an intrusive vowel to occur; hence the higher frequency of schwa-insertion in phrase-final position, where speech gestures typically take more time to achieve their target positions and there is less gestural overlap.

2.2 Causal factors of language change

A basic fact about languages is that they are virtually guaranteed to change over time. And like every other evolutionary tale, the story of language development begins with variation: The repertoire of any given generation of speakers is almost certain to include novel

linguistic features that diverge or are absent from those of the previous generation, and which appear variably in the speech of individuals and language communities. The field of sociolinguistics is founded upon the observation that language change is driven by such inherent heterogeneity (U. Weinreich, Labov, & Herzog, 1968). This section highlights several of the causal forces that may bear upon the outcome of the present study.

2.2.1 Extrinsically vs. intrinsically driven change

Linguists often account for language change by citing either intrinsic conditioning factors, i.e., those caused by an internal reorganization of the linguistic system; extrinsic causes, i.e., intervening circumstances such as language contact that disrupt the natural development of a language by introducing features, etc.; or a combination of both. Intrinsically-driven changes are often gradual, while extrinsic changes can be relatively abrupt, especially when they result from catastrophic events, such as dislocation, mass migration, and invasion (Labov, 1994; Martinet, 1955). Here, two theories about the historical vocalic changes described above, one intrinsic and one extrinsic, are summarized.[6] Before doing so, it is useful to reiterate a caveat issued by Thomason (2020), that the complexity of language change processes requires the consideration of multiple causality. Rarely, if ever, is an account of language change complete without attention to both internal and external mechanisms. Rather than appealing to either internal or external

[6] Fishman (1991b) sees a partiality towards external explanations regarding the development of Yiddish. He argues that this is a result of a biased view of minority languages as vulnerable and unduly prone to outside influences, compared to majority languages, whose changes are more frequently attributed to internal causes.

causes (a false dichotomy, according to Thomason), all possible factors should be taken into account, as the most likely scenario is one that implicates them all.

Following Herzog (1965), Jacobs (1990) explicates the historical development of CY vowels by applying the principle of economy (introduced by Martinet, 1952, 1955), which is the expectation for language systems to reuse contrastive properties. That is, there is an assumption that a language system will favor phonemes that share features with others in its inventory and disfavor phonemes with unique properties. Such partiality leads to the most efficient utilization of linguistic features. A corollary of the principle is the tendency for symmetry in a language system. Jacobs (1990) describes the raising of /ɔː/ to /uː/, the monophthongization of /aɪ/ > /aː/, and the shortening of /uː/ (preceding velar and labial consonants) in the southern Yiddish dialects as parts of a pull chain process triggered by the fronting of historical {/uː/, /u/}. The latter sound change, he argues, resulted in a lack of symmetry in the phonological system. Specifically, it created a system that utilized the feature [+high] for front vowels but not back ones. After /ɔː/ raising reestablished the front/back vowel equilibrium for height, monophthongization of /aɪ/ and splitting of /u/ restored long-short symmetry to all the peripheral vowels. This theory emphasizes an interrelationship between seemingly distinct diachronic processes and leads to a prediction that future changes to one of these vowels (e.g., a long-short vowel merger) will trigger changes to the others.

Early in their seminal monograph on language contact, Thomason and Kaufman (1988, p. 4) assert:

> *...the history of a language is a function of the history of its speakers, and not an independent phenomenon that can be thoroughly studied without reference to the social context in which it is embedded.*

U. Weinreich demonstrates how an approach that draws on language contact and is informed by relevant historical and sociological information can explicate dialectal divergence. In his seminal paper "Four Riddles of Bilingual Dialectology", U. Weinreich (1963) tackles the differential development of four features in the main Eastern Yiddish dialects, among them the retention or loss of phonemic length in stressed vowels. The author begins by motivating an appeal to language contact to account for the differences, but then proceeds to illustrate the inadequacy of a superficial comparison of each dialect with its coterritorial languages by feature. For example, he shows that while bilingual influence from Romanian and Ukrainian might explain the loss of length in SEY, it falls short in the case of Northeastern Yiddish (NEY) in contact with Lithuanian and Latvian. Furthermore, although German, Hungarian and Czech-Slovak phonologies might have supported length in CY, Polish, which lost phonemic length around the year 1500, would have had the opposite effect. U. Weinreich resolves these conundrums by drawing on the history of Jewish migration. He explains that early Jewish migrants from German-speaking territories would have retained length while in contact with Old Polish and Silesian (spoken by German colonists in Polish towns), only to lose it as they moved northward into the Grand Duchy of Lithuania (NEY). After Polish lost its length distinction, a constant influx

of migrants from Germany, Bohemia and Moravia, speaking dialects with well-established length contrasts, would have prevented loss of the feature despite bilingual contact. In the Unterland region, CY-speakers would likely have had contact with Hungarian, which has a length contrast, rather than Romanian or Ukrainian, which do not.

2.2.2 *Extra-linguistic factors: Social, ideological, and geopolitical dimensions*

A major contribution of the Labovian tradition of sociolinguistics is the use of quantitative methods to measure linguistic variation, thus confirming the proposition that synchronic variability in language is systematic ('orderly heterogeneity') (U. Weinreich et al., 1968, p. 100). Moreover, when the distributional patterns of variants are analyzed, extra-linguistic correlates, often related to social dynamics and ideologies particular to the speech community, consistently emerge. One important premise is that linguistic variants that naturally propagate among speakers can become imbued with social meaning. The precise meanings they take on often influences the course of their proliferation and ultimately determines the direction of language change. Some non-linguistic factors of potential relevance to the target community of this study are reviewed below.

2.2.2.1 Gender effects

When gender is modeled as an independent factor in language variation studies, two distributional arrangements commonly emerge. The first is a tendency for female speakers to be more innovative than males, i.e., quicker to adopt novel linguistic features, especially those that exist below the level of consciousness. The second trend shows females favoring more prestigious forms, that is, forms with higher social valuation (Labov, 1990a). An

important caveat, however, is that these studies disproportionately focus on secular, Western, English-speaking societies, which have similar social structures and gender roles. It is not at all clear that such patterns hold in societies that are differently organized, with dissimilar cultural values. To account for this, a number of sociolinguistic studies have argued in favor of viewing gender in less reductive ways, i.e., as reflective of particular behaviors, roles and/or identities that are locally established and meaningful in particular social contexts (Cheshire, 1987; Eckert, 1989, 2000; Mendoza-Denton, 2008; Nichols, 1986). Considering the Hasidic proscription against mixed-gender socialization, the lack of coeducational schools, and differences in language dominance and use between males and females, gender differences are anticipated in this study. For example, because female HY speakers acquire English somewhat earlier than males, receive educational instruction in English for part of the school day, and are more likely to reach proficiency in English and be balanced bilinguals, the prediction is that their vowels will exhibit more English-like patterns. Indeed, this is what Bleaman (2018) found when investigating the release bursts of word-initial stops produced by 10 female and 10 male HY speakers. Bleaman reports longer, i.e., more English-like, release bursts among females than males, whose word-initial stops pattern more similarly to European Yiddish speakers. Such an outcome is in line with the view of women at the forefront of change. The gender effect in the Hasidic community, however, cannot be attributable solely to gender, as it is confounded by other potentially significant aspects, including language dominance and use. Thus, gender effects in this study need to be carefully evaluated and interpreted via reference to other related factors.

2.2.2.2 Language ideologies

The concept of indexicality, first introduced by Silverstein (1976, 2003), helps explain, at least in part, the relationship between language and culture, by elucidating how small linguistic elements become associated with socially salient cultural attributes. According to Silverstein, at the lowest level (1st order indexicality), a linguistic form marks a speaker as competent in the use of a feature common among a particular sociodemographic group. At the second level, the use of the same linguistic form becomes associated with a socially recognized group and comes to signal group membership. At the next higher level, the linguistic form takes on the imagined attributes of the group itself and is seen as symbolic of that group, to the extent that it can be used as a stylistic tool. For Silverstein, the action (i.e., the construction of meaning) takes place in the spaces between these layers or levels (n + 1); and the process, which can continue to the *n*th degree, is what makes language open to ideological valuation, marking particular dialects or features, for example, as prestigious or non-prestigious. These ideologies, which often underlie the selection of variants by individual speakers, thus influence the speed and/or direction of proliferation (accelerating some changes and impeding others), ultimately influence the outcome of linguistic change.

Given the cultural diversity in the Hasidic community (described in §1.4.2), it is conceivable that particular linguistic variants diffuse more rapidly among speakers on the more traditionalist or progressive end of the spectrum, for example, which eventually lead them to become associated with traditionalism or progressivism. This possibility is explored in Chapter 7.

2.2.2.3 Geopolitical factors

In the past two decades, a number of social scientific studies have focused on geographical border regions, recognizing them as incredibly valuable sites for investigating identity construction and negotiation. Sociolinguists too have contributed to this new field of borderland studies, focusing their investigative lens on speakers' sense of place, and how allegiance to a place (real or symbolic) and identification with its public image can impact the proliferation of linguistic variants (see e.g., Baker-Smemoe & Jones, 2014; Beal, 2010; Llamas, 2007; Llamas, Watt, & Johnson, 2009). For example, Beal (2010) highlights the socio-psychological effects of changes in local administrative boundaries in the UK, which resulted in towns being moved into different counties, and counties being incorporated into new administrative units. Some of these changes were resisted by locals resentful of the association with counties and units whose public image (e.g., 'blue collar', 'working class') did not fit their sense of self. The restructuring also created a generational divide between the perceptions and identities of those who were born before and after the changes took effect, which in turn led to deviations in the use of linguistic variants by speakers to align or distance themselves from these new identities. In the introduction to a volume dedicated to language on the boundaries, Llamas and Watt (2014, p. 2) write:

> *There can be few geographical areas better suited to the investigation of how language relates to identity. The linkage between how one talks, writes or signs and how one is labelled – or chooses to be labelled – is nowhere more obvious than in these liminal zones. The linguistic afterimage of arbitrary political boundaries may persist long after the divide has vanished, and*

> *sometimes bundles of dialect heteroglosses are practically all that remains to show that the political boundary ever existed.*

The borderland approach is relevant when examining the Yiddish of emigrants from the historical Unterland region. This cohort was born at an important juncture, right around the period in which the Treaty of Trianon, which formally ended World War I, was signed (on June 4, 1920). As the terms of the treaty stipulated, Transcarpathian territories were assigned to the Czechoslovak Republic, while North Transylvania went to the Kingdom of Romania. This arrangement placed new political borders between members of extended families and subjected citizens to novel language policies. Moreover, the boundaries continued to fluctuate for the next two decades. In 1940, under pressure from Germany and Italy, Romania ceded Northern Transylvania to Hungary, which maintained domination over the region until it was occupied by Nazi Germany in 1944. Another Unterland territory, Carpathian Ruthenia, achieved independent status in 1939, following the breakup of the Second Czechoslovak Republic. One year later Hungary forcefully reclaimed it, maintaining power until the end of World War II.

The sociolinguistic borderland studies cited above underscore the extent to which such circumstances might have shaped the language of this generation. Below, a detailed description of the historical Unterland region is provided, followed by a summary of the sociohistorical factors that potentially impacted the Yiddish dialect spoken in that area. This dialect, which has not been fully analyzed, is often simply conflated with CY (see, however, Sadock & Masor, 2018). I propose that the circumstances summarized in these two sections, in conjunction with hypothesized differences between UY and CY, warrant

viewing UY as a distinct dialect (or an *interdialect*, à la Trudgill [1986], Britain [2017]), whose features need to be thoroughly investigated rather than taken for granted. Phonological features of CY that may be absent or differ from UY are r-deletion and uvular vs. apical /r/ (Krogh, 2012; Sadock & Masor, 2018), word-final devoicing (which has not yet been investigated), and vowel breaking/drawl (briefly analyzed in Chapter 4). Additionally, the analysis in Chapter 4 reveals an unexpectedly weak durational contrast in the peripheral vowels.

The historical Unterland region

The story of contemporary HY begins in the ancestral homeland of the immigrant generation. The *Unterland*, situated right where the boundaries of modern-day Slovakia, Hungary, Ukraine, and Romania converge, was so named in opposition to the *Oyberland,* the territory immediately to the west. These binary terms, which overlap semantically with Hungarian *Alföld* (Lowland) and *Felföld* (Highland), reflect an important cultural division between the populations of these two territories (U. Weinreich, 1964), which was evident in every aspect of pre-war Jewish life, including its foodways, religious rituals, selection of religious texts and the manner in which they were studied, liturgical Hebrew pronunciation, dress codes, and languages/dialects spoken.[7] As with most such divisions, the farthest ends are most distinguishable, but the separation becomes less clearly

[7] The designation *oyberlender* is still used among contemporary Hasidim to refer to descendants of people from the Oyberland, who, while largely integrated into the mainstream (Unterland) Hasidic society, still follow some distinct religious and cultural practices. Some of these practices have also been maintained, to various degrees, in modern-day Hasidic groups whose roots are in the Oyberland (e.g., *Vien*, *Nitra*, *Mattersdorf, Tzelem*), e.g., following a slightly different *nusekh* 'liturgy' for certain prayers.

delineated closer to the center. Figure 2.2 depicts the historical Unterland region nestled in the arm of the Carpathian Mountains, as demarcated by U. Weinreich (1964) and Krogh (2012), in geographical opposition to the approximate region known as the Oyberland.

Figure 2.2. The historical Oyberland (yellow) and Unterland (pink) regions, based on demarcations by U. Weinreich (1964) and Krogh (2012).

Compared to other Jewish settlements in Eastern Europe, the Unterland communities were relatively new—mass Jewish migration to this region began in the 19th century when large numbers of émigrés from the North (Galicia) and the East (Moravia) crossed the Carpathian Mountains to settle there. Other migrants came from the West, from Bohemia and Moravia (the Czech lands). These origin countries represent three main Yiddish dialect families: Central, Southeastern and Western Yiddish, an admixture that left obvious traces on the Yiddish spoken in the region (U. Weinreich, 1964). There is ample evidence in the

sociolinguistic literature highlighting the impact of such geographic mobility on linguistic behavior. For example, migrants might introduce linguistic features from their homeland into their new environments (Gabriel & Kireva, 2014); or become early adopters of innovative forms (Schleef, Meyerhoff, & Clark, 2011; Urbatsch, 2015). Moreover, while many Unterland settlers maintained contact with religious figures and family members in their home countries,[8] the natural barrier formed by the Carpathian Mountains to the North and the East made such interaction cumbersome and most likely contributed to the conditions for new dialect formation in this region.

Furthermore, as mentioned above, the political boundaries of this expanse during the period of Jewish settlement and leading up to the second world war were continuously in flux, affecting not only trans-continental communication, but also the economic conditions and local identities of Jews in the region (Švorc, 2020). Švorc describes, for example, how the logging industry, upon which the livelihoods of numerous Transylvanian and Subcarpathian Jews depended, was negatively impacted by the reassignment of formerly Hungarian territories to Czechoslovakia and Romania in 1980-1920. The new political boundaries bisected all existing timber-floating routes, leaving thousands of Jewish families without a source of income and leading to unspeakable poverty in the region. They also disrupted inhabitants' sense of place, leading to crises of identity and rifts between Jews and the local (non-Hungarian) population. Having benefitted from Hungarian laws that favored Jewish interests for decades, Magyarized (Hungarian-assimilated) Jews, loath to

[8] Based on survivor testimonies and first-hand reports from people interviewed for this study.

lose their status as Hungarian citizens, agitated against political reassignment during the transitional period and even welcomed the Hungarian Red Army during the brief period of revolution (in 1919) in towns like Košice (Yid. *kashow*) and Michalovce (Yid. *mikhalevits*), Slovakia. There are also reports in which Jews in the Carpathian region passively resisted the new Czechoslovakian regime by refusing to speak the new official language, Slovak (Švorc, 2020, pp. 84–85). When the power dynamics shifted in favor of Czechoslovakia, newly-emboldened Ruthenians and Slovaks, who had long held minority status in the Austro-Hungarian Empire, took revenge against the perceived disloyalty of Jews by looting Jewish stores (Švorc, 2020, p. 77). In this new political climate, locally prominent Jews who were not fluent in Slovak lost their status and political clout (Švorc, 2020, p. 89). Changes in language policy also created language rifts within families, leading to circumstances in which children were educated in different languages than their parents and sometimes older siblings (see Chapter 1, §1.2.2.2 for survivors' testimonies on this topic).

The purpose of the present description was to foreground the liminality of this region and highlight the ways in which its geography and shifting historic boundaries impacted UY speakers' local identities, economic opportunities, relationships, language experiences, and linguistic ideologies. All of these, along with the competing religious ideologies of assimilation vs. traditional Hasidism (described in Chapter 1 §1.1.1.2), most likely shaped their Yiddish dialect.

2.3 Phonetic contrast in vowels

Determining the acoustic correlates of the putative length distinction in Unterland and New York Hasidic Yiddish necessitates an understanding of quality vs. quantity dimensions of the vowel space. These are introduced and explained in the present section.

Vocalic segments in many languages are categorized by the way they contrast with each other in quality and quantity. *Quality* refers to the vowel's resonance or timbre, which is primarily determined by the size and shape of the pharyngeal-oral tract, which, in turn, is based on the following articulatory aspects of production: 1) the height and configuration of the tongue; 2) the part of the tongue utilized; 3) the degree of tension in the tongue and lips; and 4) the position of the lips. These features are thus used to refer to the different vowels in a language's inventory abstractly (phonological features):

6. tongue height and configuration: close or high [+high]; mid [-high, -low]; and open or low [+low]
7. tongue segment: front [-back]; central; and back [+back][9]
8. tension: tense vs. lax
9. lip rounding: round [+round] and unrounded [-round]

Acoustically, vowel quality is largely correlated with the frequencies of the first and second formants of the vowel spectrum (see e.g., Stevens & House, 1955), although formant dynamics and fundamental frequency (F0) have also been shown to play a role (Hillenbrand, 2013; van Dommelen, 1993).

[9] Alternatively, the designations 'Advanced and Retracted Tongue Root (ATR/RTR)' are sometimes used for this feature.

Quantity refers to the way that qualitatively similar vocalic segments differ from each other in duration. This temporal dimension is referred to in abstract, phonological terms as vowel length, and the vowel systems of many languages are said to possess this feature. Languages that have been described with phonological long-short distinctions in their vowel systems include Thai, Japanese, Finnish, Czech, Norwegian, German, Swedish, and Dutch. At least the first five of these reportedly have a true length distinction, that is, long-short vowels are said to be distinguishable primarily by their relative duration (see e.g., Abramson, 2001; Behne, Moxness, & Nyland, 1996; Lehiste, 2003).

Far from being mutually exclusive, however, quality and quantity typically interact in complex ways to contribute simultaneously to vocalic contrast (see e.g., Abramson & Ren, 1990; R. Weiss, 1974). The long-short vowel pairs in most length distinguishing languages, including, for example, German, Swedish, and Dutch, also differ from each other in (tongue) height and tension (tense-lax) (Lehiste, 1970). A recent study focusing on Czech vowels found that even in this alleged quantity language, vowel spectrum plays a significant role in distinguishing between the long-short correlates of vowel pairs (Podlipský, Chládková, & Šimáčková, 2019). Conversely, although English speakers rely on vowel quality more than on duration in vowel identification (Hillenbrand, Clark, & Houde, 2000), durational difference is an inherent feature in tense vs. lax vowels (Crystal & House, 1988; House, 1961). For example, in similar environments, /i/ is typically 35-34% longer than /ɪ/ (Peterson & Lehiste, 1960; Fourakis, 1991).

On the perceptual side, c*ue weighting* (e.g., Francis, Kaganovich, & Driscoll-Huber, 2008; Holt & Lotto, 2006) refers to the relative attention listeners pay to the acoustic

parameters of a particular sound, and the magnitude of their contributions to sound identification. These parameters differ across languages and dialects, and within languages, across phonemes. For example, in the Czech study cited above, Podlipský, Chládková & Šimáčková (2019) found cross-dialectal differences in Moravian vs. Bohemian Czech speakers' reliance on spectrum vs. duration. In German, spectrum is the dominant cue in all long-short pairs except {/aː/, /a/} (R. Weiss, 1974).

There is some disagreement among scholars as to whether length is an independent feature in vowel pairs that are qualitatively distinct (i.e., produced with different vocal tract configurations) such as English {/i/, /ɪ/} or German {iː/, /ɪ/}. Hockett (1955, p. 31), Chomsky and Halle (1968, pp. 324–325), and Perkell (1969, p. 64) view durational differences in such pairs as redundant, a corollary of the time needed to achieve articulatory targets. Other scholars, including Delattre (1962) and House (1961), contend that vowel duration is learned, and not solely attributable to articulatory factors. Delattre (1962) notes that vowel duration in modern English is a remnant of the Middle English length feature (/iː/, /i/), which gradually shifted to a contrast in tenseness (/i/, /ɪ/) (see also Lehiste, 1970). Delattre (1962, p. 1143) asserts that durational differences "are controlled independently of other differences", cautioning that the notion that quantity differences are *caused* by qualitative ones is "badly misleading" (p. 1143). A number of phonetic studies support this view. For example, Nooteboom and Slis (1972) recorded three Dutch speakers reading 3-syllable nonce words containing all Dutch vowels in /p/- environments (pVpVpVp: for example, the nonce word for /a/ was *papapap*) and report consistent durational differences between the long vs. short vowel series in all syllables. They conclude that "the degree of length is

systematically present as a factor underlying the control of vowel duration, even where its influence is so weak that it has no perceptual results" (p. 106).

The precise ratios between long and short vowels vary considerably across and within languages. Table 2.3 shows a sampling of mean long-short ratios reported for a variety of languages. In these references, most of the values are derived from original studies, while some are based on previously published material. Additionally, the methodology used to obtain these values varies widely. Thus, these ratios should be viewed as approximations. For consistency, the ratios are presented here in L/S format (mean long vowel duration divided by mean duration of short vowel) regardless of how they appear in the original source. Durational values reported separately for different groups, (e.g., adults vs. children, men vs. women, mono- vs. multilinguals) and contexts (e.g., mono vs. multisyllables) are averaged to obtain a single ratio. Where only a mean of all long-short vowels is available, it is shown in parentheses. The details of each study are not discussed.

Language	**L/S ratio**			**Source**
	/i/	/u/	/a/	
English	1.59	1.48		(Crystal & House, 1988)
Swedish			(1.53)	(Elert, 1964), cited in (Hadding-Koch & Abramson, 1964)
Dutch			1.61	(Nooteboom & Slis, 1972)
Norwegian	2		1.75	(Behne et al., 1996)
Czech	1.29	1.6	1.79	(Podlipský, Skarnitzl, & Volín, 2009)
NS German	1.79	1.86	2.04	(Piroth, Skupinski, & Pompino-Marschall, 2015)
Thai	3.0	1.72	1.76	(Abramson & Ren, 1990)
Finnish	1.94	2.08	1.83	(Meister & Werner, 2006)
Estonian	3.58	2.26	2.83	(Meister & Werner, 2006)

Table 2.3. Estimated mean ratio of long vs. short vowels in a variety of languages.

The ratios reported here range widely, from 1.29 to 3.58, with a slight trend toward smaller durational ratios in languages whose long-short vowels are known to exhibit

greater spectral differences. Podlipský, Chládková & Šimáčková (2019, p. EL356) also find this pattern within the Czech vowel system, i.e., the vowel pairs that are spectrally most distinct also have the smallest ratios. They speculate that this correlation is not coincidental, suggesting that "reliance on spectrum [...] reduces the need for speakers to maintain a clear durational differentiation".

Abramson and Ren (1990) suggest that contrastive features and cue weightings can shift over time, e.g., that the spectral patterns of vowels previously distinguished by duration may diverge to the point where quality becomes the dominant perceptual cue for phoneme identification. They draw this conclusion from a perceptual experiment of long-short vowel contrasts in Central Thai, which points to relative duration as the primary distinguishing cue but shows a significantly later category boundary for (lengthened) short vowels, suggesting that spectral differences play a role in these sound categories, as well. The authors speculate about the trajectory of diachronic change that might result from such subtle differences (p. 90):

> *...we might imagine that over a long period of transmitting a quantity language from generation to generation, speakers may come to produce steady-state long vowels with articulatory settings slightly different from those of the short counterparts, giving each member of a minimal pairs something of a phonetic life of its own. This may happen faster in some parts of the vowel system than others. [...] In such situations, we are probably observing a potential for a diachronic shift from length to quality.*

Abramson and Ren cite a study by Hadding-Koch and Abramson (1964) focusing on Swedish vowels, which finds that whereas long-short /a/ and /o/ are identifiable solely by

length, spectral differences seem to bear the main communicative load in long-short /u/. They hypothesize that the qualitative distinction in the latter pair is a relatively recent development.[10]

Research also shows that cue weighting in a second language (L2) can shift for individual speakers during the natural acquisition process or as a result of experimental intervention (Francis & Nusbaum, 2002; V. L. Hazan & Boulakia, 1993; Kondaurova & Francis, 2010; MacKain, Best, & Strange, 1981; Yamada & Tohkura, 1992); and that cue weighting in a speaker's first language (L1) can be influenced through experience with non-standard input. For example, Idemaru and Holt (2011) report subtle alterations in the way that English speakers use fundamental frequency (F0) as a cue for voicing immediately following exposure to stimuli in which the naturally occurring patterns of F0 and voice onset timing had been manipulated. Finally, Dimitrieva (2019) investigates how vowel and glottal pulsing durations are used by Russian speakers of English living in the U.S. to identify stop voicing. She reports evidence of L2 influence on L1, specifically, an increased reliance on vowel duration relative to glottal pulsing duration in Russian mode. To summarize, the research indicates not only that cue weighting varies across languages and vowel categories, but that it can change for individual speakers as a result of language input in L1 and L2.

[10] Shifts from quality to quantity have also been reported (see e.g., Warren (2018) on emergent length contrasts in New Zealand English).

2.3.1 Unterland and New York Hasidic Yiddish peripheral vowels

As discussed above, CY has been described as a quantity language. However, the precise acoustic parameters of this contrast are unknown, as this dialect has not been subjected to instrumental analyses. CY short high vowels have been transcribed as [ɪ] and [ʊ] in contrast to long vowels [i:], [u:] (Birnbaum 2016), suggesting at least some spectral divergence between the long-short vowels in these pairs. Even less is known about UY, a dialect that has received only glancing attention from Yiddish linguists. Among the few remarks about its vowel system is one by U. Weinreich (1964), who notes a maximally high, front short /i/, which he transcribes narrowly as [i] (vs. [ɪ]).[11] Given the dialect mixing in this region, along with its relative geographical isolation and perpetually shifting political borders, substantial structural differences between CY and UY should not be ruled out. The literature cited above supports the likelihood that the nature of the historical length contrast in UY vowels may have been significantly altered in the century between the early days of mass migration and World War II.

2.4 Hypotheses

With respect to the research question about the acoustic correlates of the length contrast in UY, in a preliminary analysis focusing on the peripheral vowels of three UY speakers (a subset of the sample used in this study) (Nove, 2020), I observed minimal spectral variance

[11] See also the study by Sadock and Masor (2018), which looks for differences between the Yiddish of modern-day Bobov and mainstream (Unterland) Hasidim, which derive, respectively, from Central and Unterland Yiddish; and Weiss (1971) on the distribution of long vs. short /a/ in the Transcarpathian region.

between the long and short correlates in each pair, and suggested, tentatively, that duration is the dominant cue for vowel distinction in these pairs. However, a fair amount of variability is also present between the three speakers, with one speaker exhibiting more centralized realizations of the short high vowels than the other two. On the basis of this initial evidence, the working hypothesis for this study regarding UY was that the durational difference between the long-short vowels is robust, and inter-speaker variability may be related to post-war language contact (e.g., with Modern Hebrew for speakers who resettled in Israel vs. English in the U.S.).

In another pilot study analyzing wordlist data collected from three generations of New York HY speakers (Nove, 2018a), I found evidence of a significant qualitative distinction in the high vowels (which I refer to as {/i/, /ɪ/} and {/u/, /ʊ/} in HY) and a minimal durational difference in {/aː/, /a/}. Based on this, the hypothesis was that the historical length difference which existed in UY has given way to a qualitative distinction similar to the English tense-lax distinction e.g., in <*seat*> vs. <*sit*> and <*suit*> vs. <*soot*>. Such change should be evident in cross-generational acoustic comparisons, where the /ɪ/ and /ʊ/ of first-generation (European-born, immigrant), and possibly also second-generation speakers, will exhibit the lowest F1 values, while their F2 values will be low for /ɪ/ and relatively high for /ʊ/. Durational differences are expected between the long and short vowels of all three pairs for all generations. However, if the prediction about changing vowel quality is borne out, a reduction in these differences across generations is possible, with vowel spectrum supplanting duration as the dominant identity cue.

If hypotheses about qualitative change in the high vowels are supported, the regularity with which the change occurs in /ɪ/ and /ʊ/, in spite of their different provenance and phonemic status, would suggest a single change affecting this vowel class ([+high] [-long]). I provide evidence of systematicity in these changes in a recent study (Nove, 2018a), in which speakers with a higher Euclidean distance (ED) between short-long /i/ also exhibit higher ED for the long-short /u/ and vice versa. On the surface, such an outcome supports a theory of contact-induced change, with the patterns of contrast in HY high vowels becoming more similar to their English counterparts, and the /a/ pair, which lacks an equivalent in American English, remaining unaffected. The exceptionality of /a/ is particularly noteworthy if, in the fairly recent history of the language {/a/, /aː/} had patterned with the high dyads in change, i.e., had respected systemic symmetry (see §2.1.3, above.) The intense nature of the bilingual contact in this community makes this a likely outcome, as well (Thomason, 2003).

On the question about cross-linguistic conditioning of the changes mentioned above, based on a comparative study based on a subset of the HY and HE wordlist data analyzed in this dissertation (Nove, 2021c), I report apparent time change between second and third generation HY speakers in two areas: 1) spectral overlap of /ɪ/ and /ʊ/ in the two languages; and 2) relative advancement of HE vs. HY /u/. Specifically, HY and HE lax high vowels are qualitatively distinct for the oldest generation but show greater convergence in the younger generations. Additionally, while the /u/ of this population is substantially more retracted than the mainstream population, third and fourth generation speakers have significantly

more fronted realizations of HE vs. HY /u/. Both of these may be indicative of L2 influence on L1.

Finally, this project examines patterns of language variation across individuals variably engaged in traditionalist vs. progressive practices in the community. Considering the ideologies regarding language maintenance in the Hasidic community (Bleaman, 2018; Fader, 2007, 2009), and taking into account the community's complicated relationship with English in particular and with mainstream culture in general (Biale et al., 2018; Deutsch, 2009; Fader, 2009), there is an expectation that individual speakers who, through their rhetoric, lifestyle choices and social alliances, demonstrate a traditionalist orientation, will exhibit less English-like patterns than those who are more outward-looking, e.g., more positively oriented toward material and/or secular culture.

Chapter 3

Methodology

יעצט בין איך מורא'דיג וויכטיג. איך בין דא אויף א *interview*, וועסט
האבן אידיש נחת פון מיר ווען דו וועסט מיך זען. איך *specify* אידיש
וועגן ס'האט צו טון מיט אידיש. איך זיץ דא אויף מיין *couch* מיט א
interviewer, מיין *friend* איז דא לעבן מיר און זי מאכט מיר א
interview. זי האט עפעס א גאנצע, איך ווייס נישט וואס, איך האב
נישט קיין אנונג. מ'גייט עפעס *analyzen* מיין אידיש מיט מיין *speech*.

'I'm extremely important now. I'm here doing an interview, you would be proud of me [yidish nakhes 'Jewish pride'] if you'd see me now. I specify 'yidish' because it's related to Yiddish. I'm sitting on my couch with an interviewer, my friend is next to me and she's interviewing me. She is doing something, I'm not exactly sure what, I have no clue. They're going to analyze my Yiddish and my speech.'

Mindy (born 1973; on the phone during an interview)

CHAPTER 2 DISCUSSED the historical development of the variables and outlined the research questions that guide this study. To reiterate, the central inquiry concerns the long-short peripheral vowel pairs: This study evaluates the extent of divergence, in both quality and

duration, in apparent time and investigates the role of language contact in these phonetic changes. In order to quantitatively assess such change, a database of recorded speech is necessary. Moreover, a comparative analysis of vowel quality such as the one undertaken here is contingent upon obtaining accurate formant measures. This chapter provides information about the ways in which the database was constructed and manipulated to facilitate precise and probative phonetic analyses. Details about the data and metadata, methods applied, and tools and software utilized are given, in order to allow for evaluation and reproducibility of the results.

This chapter is divided into three main parts. The first (§3.1), describes the compilation of the two subcorpora, the New York Hasidic Yiddish corpus (NYHYC) and the Unterland Yiddish corpus (UYC). This section includes information about archival sampling (for the UYC) and fieldwork methods (for the NYHYC), including participant recruitment, recording equipment, interview procedures and administration of a Hasidic orientation survey. In §3.2, the complicated position of an interviewer who is both a member and an observer of the target speech community is considered. The third part (§3.3) provides details about the procedures employed for data processing, including the methods used for annotation, forced alignment, vowel extraction, and formant measurement. Finally, the composition of the corpus is summarized in §3.3.6.

3.1 Building the corpus

Yiddish has been studied extensively relative to many other minority languages. Yet, it remains what is known in the field of Natural Language Processing (NLP) as a low-resource

language, due to the absence of annotated corpora. Thanks to several ambitious projects undertaken in the decades following World War II, thousands of hours of recordings exist of prewar European Yiddish.[1] However, most of these have not been transcribed, and even where annotations exist, they are not time aligned. Thus, an enormous amount of processing is required before existing recordings can be utilized for linguistic analysis. The situation is even bleaker for contemporary spoken Yiddish. To my knowledge, the only publicly available corpus of spoken Hasidic Yiddish is the one compiled by Newman (2015) and hosted on TalkBank. This collection consists of short, transcribed monologues (less than a minute to approximately 7.5 minutes in length) by 27 speakers recorded in the field. A wonderful contribution to contemporary Yiddish scholarship, this corpus does not yield nearly enough data for an adequate phonetic description of the language. The first step towards a phonetic description of Yiddish vowels was thus to build a corpus of spoken Yiddish from which these sound segments could be extracted.

The primary aim of this endeavor was to compile naturalistic data that reflect, to the extent that this is possible in the given context, the way people in contemporary New York Hasidic communities speak. This was accomplished via face-to-face conversations modeled

[1] The largest repository of spoken Yiddish is the Language and Culture Atlas of Ashkenazic Jewry (LCAAJ), which is based on dialectological interviews conducted between 1959 and 1972 and comprises 5,755 hours of recordings. The speakers, most of them Holocaust survivors, represent the Yiddish spoken in 603 cities and towns of Central and Eastern Europe. The survey-type interviews are guided by thousands of questions designed to elicit regional language features. Originally recorded on VHS tapes, many of these audio files have been digitized and are available online through Columbia University, where they are housed (https://findingaids.library.columbia.edu/ead/nnc-rb/ldpd_4079907/dsc/9). However, these recordings are not adequate for acoustic analysis due to low signal-to-noise ratio (below 9 dB). Moreover, while LCAAJ fieldnotes have recently been made available as images, the audio files do not include audio-aligned transcriptions.

on the sociolinguistic interview, which was introduced and honed by Labov and has become standard practice in the field of variationist sociolinguistics (Labov, 1972b, 1984; Tagliamonte, 2012a). Such interviews are typically guided by sequential sets of questions, or modules, each focusing on a different topic, with a series of brief follow-up questions nested beneath the main queries. To mitigate the observer's effects, i.e., the phenomenon whereby the act of being observed by a linguist heightens speakers' consciousness of their speech, Labov (2013) suggests broaching topics that potentially elicit strong emotions. One example is the well-known "danger of death" question ("Have you ever been in a situation where you thought you might be killed, where you said to yourself, 'This is it'?"). Questions about injustice or unfairness, Labov writes, can evoke strong feelings, as well ("Were you ever accused of something you didn't do?"). Such questions were incorporated into the interview module. Additionally, a list of Yiddish words was compiled to elicit specific vowels in a variety of phonological contexts. The wordlist task is intended to represent a more careful speech style, as it draws the speaker's attention to the words. To enable cross-linguistic comparisons, an English wordlist component was included as well.

The protocol described above was used with New York HY-speakers born after World War II. Obtaining a representative sample of first generation (European immigrant) speakers in this way posed a severe demographic challenge because this is an aging and dwindling population (most living Holocaust survivors are nanogenerians). To overcome this, a corpus of archival recordings resembling sociolinguistic interviews was compiled, representing the prewar variety of Yiddish from which New York HY derives. The following

sections describe the process of building the two subcorpora that comprise the larger corpus upon which the present study is based.

3.1.1 The Unterland Yiddish corpus

The Unterland Yiddish corpus (UYC) was compiled using the first hour of twelve interviews with Holocaust survivors from the historical Unterland region in Europe. These are testimonies video-recorded during the 1990s by the USC Shoah Foundation and cataloged in its online Visual History Archive (VHA; available at vhaonline.usc.edu),[2] in which survivors relate their oral histories spontaneously, with minimal prompting by an interviewer. The testimonies are approximately two hours long on average, and cover a broad range of topics, typically starting with the speakers' recollections of life in prewar Europe before moving on to their war experiences, which were frequently horrific. The emotionally fraught nature of the content may alleviate the speaker's self-consciousness about being recorded, resulting in more natural, less performative speech than one typically encounters in a formal setting. These testimonies thus meet the essential criteria of the sociolinguistic interview, as described above. Moreover, there is some evidence suggesting that speakers revert to their childhood dialects when talking about past events (Hay & Foulkes, 2016). Therefore, although these recordings were made about a half a century after the war, they might be representing older forms of speech.

The VHA is indexed by, among other things, the geographical locations mentioned in the interview. Filtering options include language in which the interview is conducted.

[2] The USC Shoah Foundation project was founded and sponsored by Steven Spielberg.

Using the filtering and search functions, approximately 50 interviews, conducted in Yiddish, with survivors from the Unterland region were identified. From these, six male and six female survivors who grew up in the Unterland "heartland", in cities or towns known for their sizable Jewish (and Hasidic) presence before the war, e.g., Satu Mare (Yid. *satmar*), Romania, Sighetu Marmației (Yid. *siget*), Romania, Miskolc (Yid. *mishkolts*), Hungary, were selected. The video-recorded testimonies were converted to monophonic WAV files with a sampling rate of 48 or 44.1 kHz and a bit rate of 16. Details about further processing of the corpus are given in §3.3. To this 12-hour corpus of archival recordings, a 1.5-hour interview I conducted with a 92-year-old woman, a Holocaust survivor born in Hungary, referred to by the pseudonym 'Alti', was added. Survivors recorded by the VHA are referred to by the Yiddish given names they provided during their interview. Table 3.1 lists the testimonies included in this corpus by VHA-assigned interview codes (where available), along with basic biographical information. Figure 3.1 maps the speakers in this corpus by the geographical locations where they were born or raised, while the rectangle in Figure 3.2 locates the area shown in Figure 3.1 within the European continent.

Code	Speaker	Sex	Born (Age)	Raised	Lives	Interviewer
	Alti	F	1928 (92)	Ujfeherto, Hungary	Brooklyn, USA	C. R. Nove
14899	Dina	F	1913 (83)	Rozavlea, Romania	Brooklyn, USA	N. Rappaport
38280	Faiga	F	1922 (75)	Tyachiv, Ukraine	Melbourne, Australia	B. Tait
7175	Frida	F	1925 (70)	Berehove, Ukraine	Ashdod, Israel	Y. Perry
50793	Gitta	F	1916 (80)	Tyachiv, Ukraine	Brooklyn, USA	N. Rappaport
32751	Golda	F	1925 (72)	Miskolc, Hungary	Melbourne, Australia	C. Isakow
36154	Rivka	F	1914 (83)	Sighetu, Romania	Rehovot, Israel	Y. Perry
27737	Avrom-Borech	M	1917 (79)	Satu Mare, Romania	Tel Aviv, Israel	Y. Perry
20435	Dovid	M	1910 (86)	Satu Mare, Romania	Brooklyn, USA	F. Carmelly
26782	Hersh	M	1919 (78)	Uzhorod, Ukraine	Tel Aviv, Israel	Z. K.Gil-Ad
47019	Meyir-Mano	M	1906 (92)	Satu Mare, Romania	Moshav Bnaya, Israel	Y. Perry
38082	Shlome-Kalmen	M	1926 (71)	Kolochava, Ukraine	Brooklyn, USA	N. Rappaport
13639	Yosef	M	1924 (72)	Satu Mare, Romania	Miami Beach, USA	M. Lieblich

Table 3.1. Holocaust testimonies sampled from the USC Shoah Foundation Visual History Archive (USC VHA), plus one interview I conducted in 2020. Code refers to the unique interview codes assigned by the USC VHA. Age (in parentheses) refers to age at the time of the interview.

Figure 3.1. Map showing the birth towns of the speakers in the Unterland Yiddish Corpus.

Figure 3.2. Map of Europe with orange rectangle showing the location of the area enlarged in Figure 3.1 (above).

3.1.2 The New York Hasidic Yiddish corpus

The New York HY corpus (NYHYC) consists of approximately 56 hours of conversational Yiddish by 49 speakers from New York State, ranging in age from 12 to 72 and representing three generations from immigration. Forty-seven of the 49 speakers were also recorded reading a list of HY and English words (one of these speakers did not complete the English wordlist task, however). An additional 8 speakers in the same age range contributed only wordlist data but did not complete the sociolinguistic interview. All the participants were born in Hasidic communities and raised by HY-speaking parents, acquired HY as their first language, and attended Hasidic schools. Moreover, all but two speakers grew up in New

York State.[3] An additional criterion for participation was that the speakers trace their ancestry at least in part (minimally through one parent, grandparent or great parent) to the historical Unterland region of Eastern Europe. Five of the speakers had disaffiliated from the Hasidic community at the time of the interview. These individuals were raised Hasidic but opted out of traditional Hasidic orthopraxy. Two speakers are currently members of Orthodox Jewish, but not Hasidic, communities. Chapter 7, §7.2 discusses the possible effects of peripheral identities resulting from such voluntary lifestyle changes.

Early studies of language variation and change (Labov, 1963, 1966, 1972a) introduced the apparent-time construct, the hypothesis that other social and linguistic factors being equal, differences in language use across generations reflect changes that occur over time. That is, the speech of older speakers can be viewed as reflective of earlier forms of the language, while the language of younger speakers is representative of recent forms. Under this assumption, and with a sufficiently broad sample, directions of language change can be inferred through analyses of synchronic speech. Countless studies have demonstrated the utility and validity of this method and it has become a foundational feature of sociolinguistic research (G. Bailey, Wikle, Tillery, & Sand, 1991).

Speaker age in apparent-time studies is typically treated as a continuous variable. Here, time is operationalized as a categorical variable, in generational units. The decision to do so is motivated by a number of factors, specific to the community and the research questions guiding this study. First, New York HY has a clearly delineated beginning,

[3] The two speakers not raised in New York grew up in Hasidic communities in Quebec, Canada, moved to New York before the age of twenty-one, and have been living here for twenty years or more.

corresponding to a catastrophic event (the Nazi genocide) and the subsequent arrival of Holocaust refugees to the U.S.; and the goal of this study is to detect incipient change, potentially initiated or accelerated by this new contact environment. As most of the immigrants were of childbearing age (~20 – 40) upon arrival, and since cultural norms continue to promote early reproduction, the age of HY-speakers largely corresponds to their generational distance from the Holocaust, which is a very salient notion in the community (most HY-speakers can say without thinking how many generations removed they are from the Holocaust). Furthermore, early language experiences, including learning input, vary considerably across at least the oldest first generations, and these are potentially correlated with HY production.[4] To adequately capture the unique sociolinguistic circumstance of each speaker cohort, generation is used as the measure for analyzing change over time, coded by the speakers' actual distance from the (first) immigrant generation, based on the demographic information they provided: Children of immigrants are classified as second generation (or Gen2), and so on.

Gender was coded as binary (male or female) according to the speaker's presentation at the time of the interview. A variety of demographic details were elicited and recorded (including the Hasidic neighborhood where the speaker was raised, schools attended, home language, language dominance, parents' language, location where parents were raised), although not all these variables were included in the final analysis.

[4] For example, first-generation (immigrant) speakers were multilingual, but only acquired English as adults, if at all. The second generation learned Yiddish from their UY parents and English from non-Yiddish speakers (e.g., teachers). Third-generation speakers acquired both languages from HY-dominant bilinguals. Finally, increasing use of Internet technology and the consequent cultural diffusion potentially influences the language of the youngest generations.

To protect the privacy of individuals, participants are referred to by pseudonyms, which were randomly assigned from a pool of names that are common for the age group. Any pseudonym on the list that matched the actual name of a speaker interviewed for this study was not used within that speaker's generational group. Throughout the dissertation, whenever a speaker is mentioned, the pseudonym is following by the speaker's generation and birth year in parentheses, separated by a colon. For example, a 2nd generation male speaker with the pseudonym Shamshon, who was born in 1953, is referred to as: Shamshon (2:1953).

3.1.2.1 Recruiting speakers

Recruitment began in June of 2017. As a member of a Hasidic community, my social network consists primarily of HY-speaking individuals who meet the criteria for the study. I thus began recruiting participants from my own circles, typically at family or communal events. For this reason, the sample is skewed towards individuals living in Kiryas Joel and Rockland County and, to some extent, towards people affiliated with the Satmar Hasidic group.[5] This lack of balance in in the sample precludes comparisons between Hasidic neighborhoods and groups.[6] The interviewing process tapered off after March 2018 and

[5] I was raised in Kiryas Joel, New York and have lived in Monsey, New York for twenty-three years. My family and my husband's family are both affiliated with the Satmar group.

[6] Whether or not there are linguistic differences between New York Hasidic groups is an open question (see Sadock and Masor 2018 for a preliminary assessment). If such differences exist, the Hasidic Yiddish represented in this dissertation should be considered 'Satmar' or 'Satmar-adjacent'. New York HY speakers have the distinct impression that people in different Hasidic neighborhoods speak differently. This topic came up frequently during interviews, sometimes without my prompting. For example, one speaker (Chaim), who was born and raised in Williamsburg, Brooklyn, and still resides there, claimed to speak like someone who is from Borough Park. When asked how people from Borough Park speak, he mentioned a darker /l/, as

resumed in August of 2019, continuing until the coronavirus pandemic hit New York, in March of 2020.

The project was described to prospective participants as "an investigation of the Yiddish of today and how it is changing over time" (in Yiddish: *de haantige Yiddish in viazoy es towsht zikh mit de tsaat*), but no details were given regarding the specific aspects of language that were of interest in the study. After each encounter, participants were encouraged to recommend someone in their social network who might be agreeable to being interviewed, as well. Copies of a printed letter containing a brief description of the project (in Yiddish) were distributed for people to forward to their friends and family. The letter contained my contact information, but only rarely did people reach out me on their own. Instead, I would obtain the phone numbers of these individuals and call them after the recommender had already initiated contact and told them something about the project, and had reported back to me that they were amenable to being contacted. Sometimes the recommender took a more active role and set up the meeting. On two occasions, the recommender was present either for the beginning or for the entirety of the interview.

Interviewees received modest compensation for their participation: A $10 gift card (redeemable at a local store) for participants aged 7 – 12; a $25 gift card for participants aged 13 – 17; and $25 in cash for participants aged 18 and over. The compensation was given at the end of the meeting, even if the speaker opted to terminate the interview early.[7]

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well as more English borrowing. The dark /l/ has been a salient feature of Borough Park HY for decades now (it is how my peers and I used to imitate Borough Park speech when we were kids).

[7] Funding for interview stipends was generously provided by the Graduate Center's Doctoral Student Research Grant (2016-2017 and 2018-2019).

3.1.2.2 Procedures

The interviews took place at a quiet location selected by the participant. Most people chose to be interviewed in their own homes, but some elected to come to mine. One interview was conducted in a participant's place of business and two were recorded at the Graduate Center, CUNY (in Manhattan). Interviews consisted of a semi-structured conversation and a wordlist reading task. Starting in November of 2019, I also asked participants to complete a survey about Hasidic orientation. The average interview duration was 1.5 hours, with the longest one lasting for more than three hours and the shortest for approximately twenty-five minutes.[8]

Upon encountering strangers, Hasidim will typically initiate conversation in English rather than assume that their interlocutor is proficient in Yiddish. This is especially true in situations where one speaker is not obviously Hasidic and among females, who are likely to use English in conversation with friends and acquaintances anyway (as described in §1.2.3). For this reason, a point was made to speak to the interviewee in HY immediately upon meeting them in order to set the tone for the interview. During the conversation, if the speaker reverted to English, an attempt was made to gently nudge them back to HY by employing HY backchanneling (verbal feedback e.g., *yo* 'yes,' *avade* 'of course,' *ikh farshtay* 'I understand', *interesant* 'interesting'). Only rarely were speakers prompted explicitly to speak in HY.

[8] This was a spontaneous interview: I met the speaker as I was leaving the home of another interviewee and she invited me into her home. When I told her what I was doing, she agreed to be interviewed, but about twenty minutes into the interview, her children came indoors, and the noise level became too high to continue.

The first five minutes of the interview were spent giving a brief overview of the study, addressing participants' questions or concerns, and obtaining written consent. Only then did I turn on my digital recording device, a ZOOM H4N, and ask the speaker to clip the Audio-Technica (AT899) flat response, omnidirectional condenser lavalier microphone to their shirt, 6 – 7 inches below the mouth (on the speaker's sternum). The recordings were made in WAV format, with a sample frequency 44.1 kHz and a bit rate of 16. Due to a device malfunction,[9] seven of the interviews were recorded using the recorder's built-in microphone.

Task 1: Interview

The conversational portion of the interviews, designed to elicit natural speech, were loosely structured upon modules (sets of questions and follow-ups) that were prepared in advance. However, both at the outset and during the interview, tangential shifting was encouraged, that is, speakers were given ample opportunity to introduce and elaborate on any topic they desired. The first module focused on the speaker's European ancestry. This set of questions was used to verify that the speaker meets the criteria detailed in §3.1.2, to classify the speaker by generation, and to gather additional demographic information.

[9] A glitch in the recorder's software initially caused it to revert to internal microphone after it was set to record using the external microphone. This problem went unnoticed for quite some time. As a rule, I tried to position the recorder as far away as possible from the speaker in an effort keep it out of sight. Unfortunately, this meant that the quality of some of the early interviews, which were inadvertently recorded using the built-in microphone, were not sufficient for acoustic analysis and had to be discarded. Seven of the interviews recorded in this method were of sufficient quality due to their proximity to the speaker and were retained and used in this study.

The rest of the modules covered a wide range of topics, including childhood experience, social life (past and present), marriage, child raising, and travel. Participants were also queried about their experiences with discrimination, memories of tragic (age-appropriate) national and regional events (e.g., 9/11 and Hurricane Sandy), and prompted to recount any near-death, or dangerous experiences. Any line of questioning that appeared to cause the participant discomfort was subtly abandoned. As a result, the content of the interviews in the corpus varies considerably. The subject of language was broached only at the end, in order to avoid directing speakers' attention to language forms. The modules that guided the interviews are shown in Appendix B.

Task 2: Wordlists

In order to elicit specific words and minimal pairs that illustrate the phonetic contrast in the variables, a wordlist reading task was administered following the open-ended conversation.[10] Here, participants were asked to repeat a Yiddish carrier sentence,[11]

[10] The motivation for including a wordlist task was to enable a pilot study to test early hypotheses, as transcribing and processing the wordlist data is considerably less time consuming than doing the same with the interview data. A report of the pilot study served as my second qualifying paper for this program. The wordlist data also have the advantage of targeting minimal pairs that don't frequently come up in conversation (e.g., [ʃif] 'diagonal] vs. [ʃɪf] 'ship'). Finally, since the interviews were conducted in HY, the wordlist task, which included both a Yiddish and English component, enabled a bilingual comparison between the vowel systems of these two languages in the community.

[11] The carrier sentence for the first ten interviews was *yetst zug* ___ *nokhamul* 'now say ___ again.' The final word was then changed to *shoyn* 'already', upon the suggestion of a participant who noted that replacing the trisyllabic word *nokhamul* with *shoyn* would speed up the process considerably. Although this change admittedly alters the local phonetic environment (*n* vs. *ʃ*), a study by Luce and Charles-Luce (1985) that examined the effect on vowel duration of the segment immediately following CVC target words found no significant effect from vowel vs. consonant (voiceless stops or fricatives).

inserting a different Yiddish word with each repetition. The stimuli (target words) were presented orthographically via digital flash cards (on a tablet), in pseudo-randomized order. A cue card with the carrier sentence was visible to the speaker as the stimuli were presented. Finally, the above procedure was repeated for a list of English words. Because of the nature of the task, this dataset represents careful (as opposed to natural) speech.

Yiddish and English stimuli for the wordlist task included at least 10 monosyllabic (CVC) content words for each of the 6 vowels relevant to this study (see complete list in Appendix C).[12] Priority for words to include in the list was given to minimal pairs, wherever those were available (e.g., *bas* [bas] 'daughter' and *bays* [baːs] 'bite'; and *hut* [hɪt] 'hat' and *hit* [hiːt] 'protect). An attempt was also made to select words whose coda consonants were balanced for voicing (+/-), manner (obstruents, nasals, laterals and rhotics) and place (non-lingual, coronal and dorsal). Since long-short /u/ is a conditioned split, tokens with these vowels could not be minimal pairs, nor could they be balanced by final consonant place.

Task 3: Hasidic Orientation Survey

Operationalizing Hasidic Orientation

Chapter 1 §1.4 introduces the notion of Hasidic orientation—defined as a Hasidic individual's stance vis-à-vis Hasidic religious and cultural practices—as a potential

[12] A number of words were added after the initial round because of issues that were detected during elicitation, for example, several words on the original list turned out to be unfamiliar to many younger speakers (e.g., *nug* 'suck' and *tsuk* 'draft') and one or two words that possess heteronyms were regularly eliciting the non-targeted pronunciation (e.g.,דאך which represents both [daχ] 'ceiling' and [dʌχ] 'still'; and האב which can be read as [hʊb] 'possessions' or [hʌb] 'have').

predictor of HY variability. In strategizing about how to operationalize this concept, I adopted as a guiding principle a quote attributed to the economist Frank Knight: "If you can't measure a thing, measure it anyway". If Hasidic orientation was at all quantifiable, the goal was to determine how it can be done. This portion of the project should thus be considered exploratory, a first attempt that will hopefully be honed, in future studies, through trial, error and input from other experts.

The first step was to come up with a list of possible areas where cultural diffusion is likely to occur, that is, to list the domains of Hasidic life where mainstream culture is more likely to seep in. Using information gleaned from my own ethnographic observations and those reported in the literature (Fader, 2009), ten areas were identified, shown below. (For a more extensive discussion of this concept, see §1.4).

Domains of cultural diffusion:

1. piety / religious stringency / tradition
2. spirituality / self-betterment
3. technology and Internet use
4. cosmopolitanism / materialism / consumerism
5. social interaction / social networks
6. family centeredness
7. *au courant*-ness / intellectuality / curiosity
8. entertainment
9. language use / language dominance
10. identification with / trust of mainstream American society

Because values associated with these domains are central to Hasidic people's religious and cultural identity, their sense of self-worth and how they wish to be perceived by others, an

indirect approach seemed most appropriate. Additionally, investigations focusing on the link between linguistic and cultural practices are generally more revealing than participants' reports about attitudes. Therefore, instead of questioning people about their attitudes explicitly, I decided to focus on everyday behaviors and practices that are attendant on these views, and which reflect an individual's stance on a variety of relevant issues. Moreover, on the issue of religious practice, even such an indirect tactic is likely to put people on the defensive. Internet technology is another delicate topic, since many who use it are reluctant to discuss it, fearing institutional scrutiny or censure.[13] Both of these subjects thus needed to be broached with care.

Following scholars who had used questionnaire-type instruments to gauge ethnic, religious and/or place orientation along a spectrum (e.g., Carmichael, 2017; Hoffman, & Walker, 2010; Nagy et al., 2014; Newlin-Łukowicz, 2016; Wong, 2013), the Hasidic orientation survey was created as an experimental method of measuring an individual's level of entrenchment in the Hasidic vs. mainstream culture. Ideally, the survey would capture a range of differences within and across each domain, reflecting an understanding of Hasidic orientation as multidimensional, i.e., that a person who is very conservative in one area of Hasidic life can be outward facing in another, and that these influences can be additive. Additionally, because religious and cultural practices are highly gendered, different versions of the survey were produced for men vs. women. Finally, a shorter version of the survey was designed specifically for minors and/or unmarried Hasidim living with

[13] Acceptance at some Hasidic schools, for example, may be contingent on a parental commitment to maintain an internet-free environment at home.

their parents. This is because while living at home, children and young adults generally have less agency regarding some of the practices targeted in the questionnaire (e.g., use of technology). Moreover, some of the items on the survey are not relevant to minors (e.g., child-rearing practices).

The Hasidic orientation survey (HOS)

The HOS was generated and administered using Qualtrics software (https://www.qualtrics.com). It consists of a total of five parts, three of which were completed by the participants, plus two parts that were filled in after the interview, based on the recording and field notes. The complete survey along with a translation is shown in Appendix D.

Part I consists of one overarching question: *beerekh vi oft tisti di folgende zakhn?* ('Approximately how often do you do the following?') with instructions to omit items that are not relevant. The question was followed by 32 items, each of which require a response along a four-point Likert scale that ranges from *zayer oft (aynmul a vokh oder mer)* ('very often [once a week or more]') to *kaynmul* ('never'). Examples of items (translated to English here) include, "listen to a religious lecture (*shiur*) in Yiddish," "use a smartphone", and "socialize with people who are not Jewish." This part is subdivided into four sections, each containing eight items, so that participants can see the question and the scale options as they read each item. Eight of the items in this section are completely or partially different for male vs. female respondents, and the survey for young adults contained only 23 items. Figure 3.3 shows a screenshot of one subsection from this part.

בערך ווי אפט טוסטו די פאלגענדע זאכן? (אויב א געוויסע שאלה איז דיר נישט שייך, דאן לאז עס אויס)

	זייער אפט (איינמאל א וואך אדער מער)	נישט אפט (איינמאל א חודש אדער מער)	זעלטן (עטליכע מאל א יאר אדער ווייניגער)	קיינמאל
אויסהערן א שיעור אדער דרשה אויף אידיש (פערזענליך אדער דורך 'סי־די', mp3, טעלעפאן 'האטליין', א.ד.ג.)	○	○	○	○
אויסהערן א שיעור אדער דרשה אויף ענגליש (פערזענליך אדער דורכ'ן טעלעפאן)	○	○	○	○
לייענען א צייטונג אדער מאגאזין וואס איז געשריבן אויף אידיש	○	○	○	○
לייענען א אידישע צייטונג אדער מאגאזין וואס איז געשריבן אויף ענגליש	○	○	○	○
לייענען א נישט־אידישע צייטונג אדער מאגאזין	○	○	○	○
קוקן א ווידיא וואס איז נישט ארויסגעגעבן דורך א איד	○	○	○	○
עסן אין א רעסטאראנט מיט אנדערע ערוואקסענע	○	○	○	○
צאמשטעלן געלט פאר צדקה (אליין אדער מיט אנדערע)	○	○	○	○

Figure 3.3. Screenshot of Part I section I of the Hasidic orientation survey for adult male respondents.

Part II is structured similarly to Part I. Here the primary question is *beerekh vi oft esti oder trinksti di folgende zakhn?* ('Approximately how often do you eat or drink the following?') and the items are foods or beverages, ranging from very traditional foods, like chicken soup, gefilte fish and herring, to more trendy foods, such as kale or sous vide meat. The list also contains three filler items ("pizza", "chocolate chip cookies", and "greek

yogurt") that are not scored. The list of food items is organized in a pseudorandomized order and appears on a single page (i.e., one section). In this part, the second to last point on the scale is "seldom or never", and the final option is "I don't know what this is". This part was identical in all the versions of the survey. The idea here is to treat food as a proxy for traditionalism vs. participation in more modern cultural trends. Figure 3.4 shows a screenshot of part II.

בערך ווי אפט עסטו (אדער טרינקסטו) די פאלגענדע זאכן? (אויב דו ווייסט נישט וואס דאס איז, פיל אריין די ברירה 'איך ווייס נישט וואס דאס איז')

	זייער אפט (איינמאל א וואך אדער מער)	נישט אפט (איינמאל א חודש אדער מער)	זעלטן (למשל איינמאל א יאר) אדער קיינמאל	איך ווייס נישט וואס דאס איז
געפילטע פיש	○	○	○	○
לאַטע latte	○	○	○	○
סושי sushi	○	○	○	○
פערפל	○	○	○	○
זויערטייג (sourdough) ברויט	○	○	○	○
פיצא (pizza)	○	○	○	○
צימעס	○	○	○	○
גאלארעטא (גאלע)	○	○	○	○
קעיל kale	○	○	○	○
טשיקן זופ	○	○	○	○
סאָ וויד פלייש sous vide meat	○	○	○	○
טשאָקאָלאָד טשיפ קוקיס	○	○	○	○
פרעצל (pretzel) חלה	○	○	○	○
טאַקאָס (tacos)	○	○	○	○
הערינג	○	○	○	○
גריק (greek) יאגורט	○	○	○	○
צענומענע פלייש (pulled beef)	○	○	○	○

Figure 3.4. Screenshot of Part II of the Hasidic orientation survey

Part III is subdivided into two sections, each of which contains a list of adjectives, most of them HY, with a handful of English ones. Respondents are instructed to drag each word into a designated box if the word describes them exactly, into another box if the word

describes them somewhat, and into a third box if the descriptor does not apply to them at all. The survey administered to female respondents contained different adjectives in this section than the one administered to males. See Figure 3.5 for a screenshot of the first section of Part III.

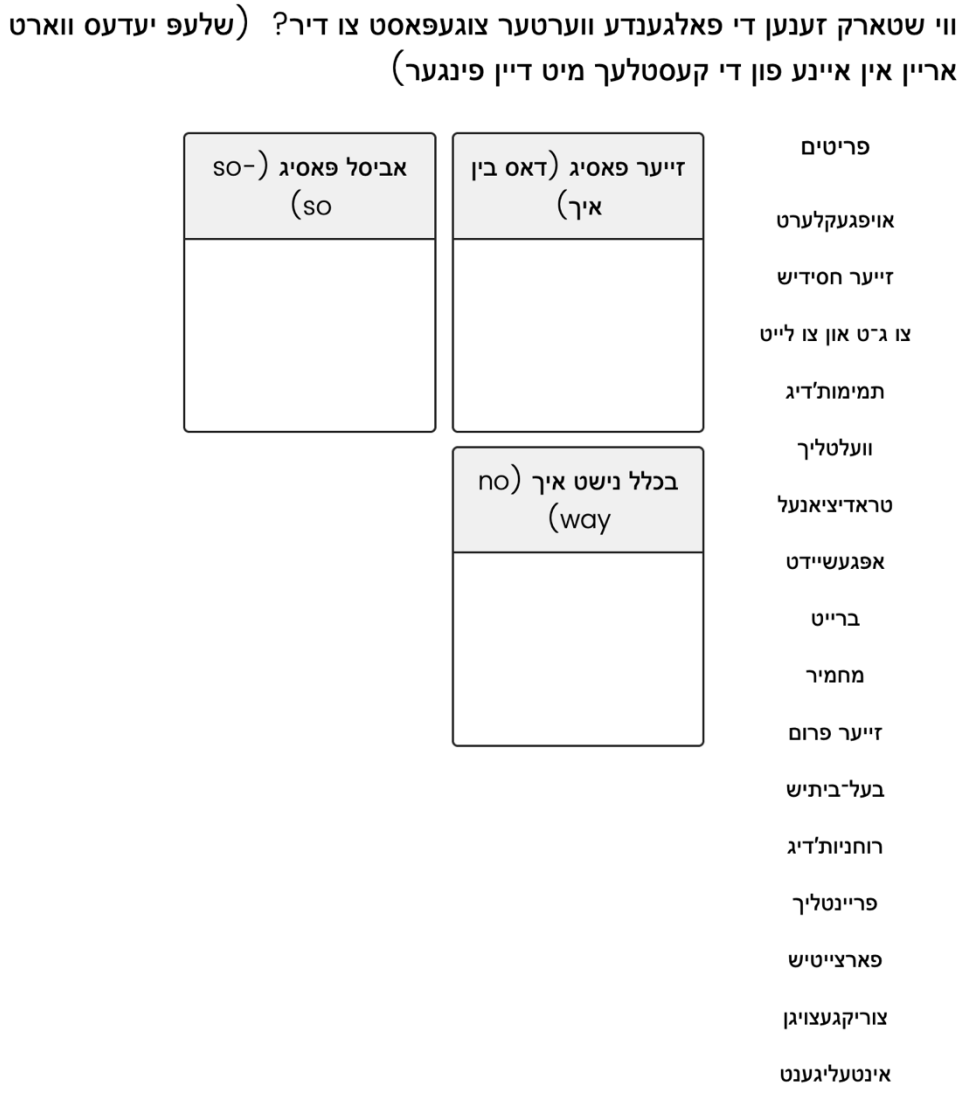

Figure 3.5. Screenshot of Part III, section I of the Hasidic orientation survey for adult males

Part IV consists of 18 closed-ended questions (both primary and follow-up) selected from the conversational portion of the interview module. This section was not visible on the survey when it was administered to participants in person.[14] Instead, this section was completed after the meeting had ended, from either my interview notes or from the recordings. An effort was made to get responses to all the questions contained in this section, however, as mentioned in §3.1.2.2, not all the questions were covered during every interview and speakers were free to skip any question they preferred not to answer. Moreover, not all questions were relevant to every participant, for example, questions related to child-raising were obviously not presented to speakers who did not have children. Thus, there is a fair amount of missing data in this section.

Part V, too, was completed by me after the interview was finalized and was not visible to participants. This section consists of two questions, one categorizing the geographical location in which the speaker currently resides ("Hasidic neighborhood", "recently-developed Jewish neighborhood," or "non-Jewish neighborhood") based on information the speaker provided during the interview; the other relating to how closely the speaker hews to the traditional Hasidic dress code ("completely", "somewhat," or "not at all"). The response to the latter question centers on four distinct criteria (three for young adults) for men and women and is based on my visual assessment at the time of the meeting. The criteria for men focus on facial hair (sidelocks and beard) and color and style of the individual's apparel (Hasidic men typically wear black dress pants and a white button-down

[14] Participants who completed the survey remotely after the interview were able to view and complete this section.

shirt). For women, the focus is on type of headcovering (e.g., wig vs. scarf vs. none), and the extent to which the speaker's clothing covers their collarbone, elbows and knees (the parameters upon which contemporary standards of modesty are based). Since Hasidic dress code is possibly the most important aspect of religious presentation in this community, the goal of this section is to capture differences in religiosity without direct inquiry. Moreover, mode of dressing is oftentimes the first thing people change when they exit the Hasidic community. Thus, the questions contained in this section allow for differentiation between those who are currently Hasidic, and those who have left.

Administering the survey

Starting in November of 2019, HOS was added as a final task to the sociolinguistic interviews. Sixteen participants who were interviewed prior to November 2019 completed the survey remotely.[15] In total, 38 of the 50 people represented in the corpus (including some speakers who only fulfilled the wordlist tasks) completed this task. Of the Gen2 participants, only three were administered the HOS, for two reasons: 1) Most Gen2 speakers were interviewed prior to 11/2019 and few of these speakers had the access and/or technological skills to complete the survey remotely; and 2) Asking older (non-relative) participants to complete the HOS would have been a breach of *derekh erets* ('deference' or 'respectfulness'): the questions on the survey would seem arbitrary and perhaps a bit odd to participants, who are not aware of its purpose. When it was administered to younger informants, I explained that it was an experimental attempt to see how a person's lifestyle

[15] I was able to send the survey only to those who have internet access and had offered their contact information.

correlates with the way they speak and asked them to approach it playfully and not overthink it. It would not have been appropriate to do this for older participants given politeness community norms.

For the most part, people reacted positively to the survey. Most said it was interesting and that they enjoyed completing it. A handful of speakers, most of them male, complained that it felt a bit too invasive. The lone woman who displayed a negative reaction said, in jest, "I don't trust you with this information", but proceeded to complete it anyway. One participant gave me detailed feedback along with suggestions for items to be included in a future version.

Scoring the survey

The scoring system for items in the first two parts is on a scale of 0 (non-Hasidic-oriented behavior) to 1.5 or 3. In Part III, 0.5 points is added for each Hasidic-oriented adjective selected as self-descriptive and 0.25 points for each Hasidic-oriented adjective chosen by the participant as somewhat descriptive. For each Hasidic-oriented adjective that is deemed non-descriptive and for each non-Hasidic-oriented adjective selected as descriptive, 0.5 points are subtracted. Part IV is like Parts I & II, however, on several items a negative score is possible. In Part V, no points are added for living in a Hasidic neighborhood, but 4 points are subtracted for residing outside of one. Finally, hewing to the Hasidic dress code earns a respondent 4 points, adhering to it only somewhat contributes nothing, and not at all deducts 16 points. These values were determined following extensive consultation with members of the community, including those who completed a pilot round of the survey (described in Chapter 7), individually and in small

groups. During these conversations, the discussion centered on how the practices described in the survey reflect on a Hasidic member's stance. The points and scales were set based on a consensus of those consulted.

To reconcile the scores of the HOS for adults and minors/young adults, the raw scores of each group were max normalized according to the highest possible score for each group's survey (adults: 179, minors: 127). Then, all the scores were again max normalized based on the highest (max normalized) score in the dataset (0.7), so that the scores now ranged from 14 – 100.

Relevant demographic information for NYHYC speakers is shown in Table 3.2, along with the interview tasks each participant completed and their HOS scores, if the survey was completed.

Gen	Speaker	Gend	Born (Age)	Raised	Year Rec.	Int.	YID WL	ENG WL	HOS
2	Brandel	F	1948 (69)	Brooklyn	2017	√	√	√	68
2	Chana	F	1953 (65)	Brooklyn	2017	√	√	√	X
2	Esther	F	1947 (70)	Brooklyn	2017	√	√	√	X
2	Frimet	F	1948 (72)	Brooklyn	2020	√	X	X	X
2	Hendel	F	1949 (68)	Brooklyn	2017	√	√	√	X
2	Ruchel	F	1948 (69)	Brooklyn	2017	√	√	√	X
2	Yocheved	F	1964 (56)	Brooklyn	2020	√	√	√	X
2	Zissy	F	1951 (69)	Brooklyn	2020	√	√	√	X
2	Arye	M	1964 (56)	Brooklyn	2020	√	√	√	X
2	Lipa	M	1950 (70)	Brooklyn	2020	√	√	√	X
2	Nechemia	M	1966 (54)	Brooklyn	2020	√	√	√	82
2	Shamshon	M	1953 (64)	Brooklyn	2017	√	√	√	X
2	Shimon	M	1948 (69)	Brooklyn	2017	√	√	√	86
2	Usher	M	1951 (69)	Brooklyn	2020	√	√	√	X
2	Yitzchok	M	1957 (60)	Montreal	2017	√	√	√	X
3	Bashy	F	1974 (43)	Rockland	2020	√	√	√	71
3	Chumy	F	2007 (13)	Brooklyn	2020	X	√	√	67
3	Etty	F	1978 (42)	KJ	2020	√	√	√	79
3	Leahle	F	1986 (33)	KJ	2019	√	√	√	92
3	Libby	F	1973 (46)	KJ	2019	√	√	√	27
3	Mindy	F	1973 (46)	KJ	2020	√	√	√	83
3	Peri	F	1978 (39)	KJ	2017	X	√	√	58
3	Pessy	F	1982 (35)	Rockland	2017	√	√	√	64
3	Raizy	F	1988 (29)	KJ	2020	√	√	√	42
3	Tzirel	F	1976 (41)	Montreal	2017	√	√	X	X
3	Tzurty	F	1985 (34)	Brooklyn	2020	√	√	√	14
3	Yachet	F	1969 (48)	Rockland	2017	√	√	√	64
3	Alter	M	1980 (38)	KJ	2018	√	√	√	43
3	Chesky	M	1997 (23)	Rockland	2020	√	√	√	72
3	Chune	M	1980 (37)	KJ	2017	√	√	√	29
3	Frayim	M	1974 (45)	KJ	2020	√	√	√	19
3	Leibish	M	1979 (41)	Brooklyn	2020	√	X	X	59
3	Luzer	M	1971 (49)	Brooklyn	2020	√	√	√	44
3	Sender	M	1979 (38)	KJ	2017	√	√	√	47
3*	Simcha	M	1983 (34)	Brooklyn	2017	√	√	√	61
3	Zalmen	M	1971 (47)	Brooklyn	2019	X	√	√	66
4	Brocha	F	1997 (23)	Rockland	2020	√	√	√	65
4	Charny	F	2006 (11)	Rockland	2017	X	√	√	X
4	Hindy	F	1998 (21)	Brooklyn	2019	X	√	√	48
4	Idy	F	1997 (20)	KJ	2017	√	√	√	X
4	Kraindele	F	2003 (14)	Rockland	2017	X	√	√	X
4	Malky	F	2005 (12)	KJ	2017	√	√	√	X
4	Shaindy	F	1992 (25)	KJ	2017	√	√	√	23
4	Shevy	F	1999 (20)	Rockland	2020	√	√	√	57
4	Simi	F	2005 (13)	Rockland	2017	√	√	√	X
4	Temi	F	2003 (14)	KJ	2017	√	√	√	X
4	Zeldy	F	1993 (24)	Rockland	2017	X	√	√	44
4	Chaim	M	1991 (29)	Brooklyn	2020	√	√	√	24
4	Chili	M	1995 (25)	Rockland	2020	√	√	√	42
4	Kalmen	M	1993 (27)	KJ	2020	√	√	√	65
4	Moishy	M	2003 (16)	Rockland	2020	√	√	√	74

4	Moti	M	1995 (24)	Rockland	2019	X	√	X	46
4*	Rafoel	M	1993 (24)	Rockland	2017	√	√	√	16
4	Shauly	M	2004 (16)	Rockland	2020	√	√	√	57
4	Volvi	M	1996 (21)	Rockland	2017	√	√	√	72
4	Yanky	M	2004 (16)	Rockland	2020	√	√	√	100
4	Zevi	M	1996 (21)	Rockland	2017	√	√	√	16

Table 3.2. Demographic profiles of the speakers in the NY Hasidic Yiddish corpus: Generation (Gen), pseudonym, gender, birth year with age in parentheses, location raised (KJ = Kiryas Joel), year recorded, tasks completed: interview, YID wordlist, ENG wordlist, HOS score (where available)

3.2 Positionality: On the inside looking in

Sociolinguists may be in pursuit of linguistic data that reflect the way people talk when they're not being observed, but common sense and research remind us that such a goal is largely elusive. Sociolinguistic actors rarely find a prearranged recorded conversation 'natural', especially if they are conversing with a stranger. Even when the two parties in a sociolinguistic interview are well acquainted, the recording equipment serves as a visible reminder that an unusual speech event is taking place. Speech samples elicited in this way are potentially conditioned by a host of variables too numerous to list here (see e.g., G. Bailey & Tillery, 1999; Cukor-Avila & Bailey, 2001; Rickford & McNair-Knox, 1994; Wol & Wolfson, 1976), but which surely include the social dynamics between the interlocutors. Thus, the data collector is inextricably bound up with the data she collects, even before the results are interpreted. While it may be impossible to identify, let alone prevent, the inevitable speech adjustments made during such a communicative event, a reflection on

* These speakers' parents each belonged to a different generation, placing the speaker in a 'half generation' category. For simplicity, they were categorized by the generational group that aligned more closely with their ages.

the researcher's positionality and relationship to the target community can provide some transparency when evaluating the data, methods and analyses.

As a member of the Hasidic community with a wide network of family and friends, and as someone who has taught in a Hasidic (Satmar) girls' school for many years, I am known to many in the community and recognized as someone who shares their values and practices. This afforded me a level of access that is not generally available to outsiders, but by no means did it render such access automatic. In fact, I experienced some trials during data collection that may be unique to insiders. Below, I describe some ways that my status as an observer may have affected data collection.

3.2.1 Challenges in the field

A deep-rooted sensitivity to cultural norms and an unwillingness to cross any of its boundaries made me reluctant to contact prospective male participants for recruitment directly. Instead, I resorted to intermediaries, who didn't always follow up or explain my goals accurately. This made the process more lengthy, difficult and cumbersome. Additionally, although participants were ensured confidentiality, it is very likely that some people were nevertheless concerned about anonymity given my extensive social network within the Hasidic realm. It is more difficult, after all, to maintain privacy in a tight-knit community and it is not thus unusual for members to take more liberties and speak more freely to outsiders.

Additionally, in the Hasidic community, people rarely pursue degrees in higher education,[16] let alone doctorates. Thus, Hasidim are not familiar with the academic process and the entire endeavor is often viewed with suspicion.[17] Moreover, linguistics is not a well-known discipline, even in the mainstream population. Finally, Hasidim tend to take a very pragmatic view of scientific endeavors. Thus, my academic choices were often questioned and sometimes criticized overtly. This is rarely a problem for outsiders, where anticipated cultural difference means that life and career choices are not questioned.

Furthermore, because of my status, meetings tended to be less formal, and this meant that some people were comfortable multitasking and tending to other matters during our scheduled time. Sometimes this led to conditions where recordings were not as clear (especially if people were moving around) and where less speech was elicited in a given amount of time.

Moreover, sociolinguists are trained to ask brief questions and speak as little as possible (Labov, 1972b; Tagliamonte, 2012a). Such unbalanced conversations, however, are highly unnatural among Hasidim, whose speech style is very much at the extreme end of that described by Tannen (1981). Tannen notes that for Jewish New Yorkers, talking over each

[16] In recent years, however, some private educational institutions have developed higher education programs that cater to the preferences and needs of Orthodox Jews. The ability to study in such environments has made a degree more obtainable for Hasidic Jews and pursuing a degree for the purpose of a promotion at work has been somewhat normalized. The motivation for doing this, however, is usually pragmatic (e.g., for a pay raise). For a discussion of the recent rising trend in higher education among Israeli women, see Avugos and Zach (2021).

[17] Schulman (2016, p. 19) attests to this in the account of her fieldwork in a New York Hasidic community, noting that her status a (religious) woman made her scholarly ideals even more problematic to her informants, who wondered "why I was pursuing a higher degree, rather than getting married and raising a family".

other is not a sign of rudeness but of engagement. A conversation among peers where there's no overlap, or worse, where one party is often silent, is marked. Even though interviewees were aware of the objective to gather Yiddish data, it proved difficult, for both parties, to maintain this dialogistic asymmetry. Such dynamics are far less likely to play out when the interviewer is not a member of the community.

Finally, conversations with older and younger speakers were constrained by the styles that are typically employed in intergenerational contexts in this culture. Interviews with my contemporaries (third generation) tended to be the most spontaneous. People shared freely and appeared the most at ease. Older speakers (second generation) spoke to me in a more didactic, parental manner. Younger speakers (fourth generation) tended to be more reserved with me. Some appeared a bit ill at ease and were less talkative. Getting them to speak at length required more effort.

3.2.2 Insider advantages

Although the issues mentioned above are framed as liabilities, it's not difficult to see how most of them can also be viewed as distinct advantages. Although the recruitment process was not seamless, my insider status most likely afforded me greater access with comparatively less effort than an outsider can achieve. Furthermore, the sample is highly representative of the speech community. This is not a given, as the sampling methods employed by researchers from outside culturally-isolated communities often inevitably result in an overrepresentation of people who have exited the community or are less

ensconced in it.[18] For example, Bleaman (2018), who recruited most of the Hasidic informants for his dissertation study online, admits that his sample skews towards more 'open-minded' individuals, the types of people who have internet access and are willing to engage with someone from outside the community.[19] The fact that most of the speakers in my sample are prototypical Hasidim whose social networks do not extend beyond the community is undoubtedly attributable to my insider status.

Moreover, as mentioned above, it is well known that speakers adapt to their interlocutors in numerous ways. Researchers are often unaware of the linguistic modifications resulting from their presence. Benor (2004a), however, observed such shifts on several occasions, and cites them as outcomes of the 'observer's paradox'. My insider status, combined with the relative informality of the sociolinguistic setting, means that the speech sample is likely to be more reflective of the vernacular. The topics discussed during the interviews are typical for conversations among Hasidic insiders. In such a familiar context, it's easier for participants to be distracted from the purpose of the interview, which weakens the observer effect. The intergenerational patterns that emerged, too, reflect the

[18] This is true in journalism and popular media as well, where stories about the Hasidic community are overwhelmingly based on the accounts or experiences of those who are not part of it. A recent article in *Atlantic* (Green, 2021) highlights this point: "With a few notable exceptions, secular society's understanding of Hasidim is shaped by the accounts of people who have left it. Popular television shows such as *Unorthodox* portray the community as oppressive and harsh, filtered through the perspective of those who could not or did not want to subsume their identity into collective religious life".

[19] While I had no reason to assume, a priori, that the HY of those presently affiliated with the community are different, in terms of language, from those who have left, I believed it was an important factor to consider. My sample includes several formerly Hasidic people who are only marginally affiliated with the community and a handful who left it entirely. The analysis presented in Chapter 7 of this dissertation show that community status can play a role in linguistic variation.

way members of the community actually speak to each other. Moreover, the deferential speech style socially appropriate for second-generation speakers accords with the ideal stance of a sociolinguistic interviewer, according to Labov (1984), which is nonauthoritative. Furthermore, the modicum of self-disclosure that I contributed undoubtedly helped set the tone for the conversation, fostering trust and a positive rapport.[20]

Additionally, people who have written about the unique challenges associated with ethnographic research in Hasidic communities often cite the learning curve for fitting in, e.g., figuring out the nuances of appropriate attire, adapting one's speech to the local dialect, navigating social norms, and presenting one Jewish identity (see e.g., Belcove-Shalin, 1995; Berger-Sofer, 1979; Fader, 2009; Koskoff, 2000; R. Rosenfelder, 2003; Schulman, 2016). The fact that I could conduct my research in my customary apparel, speaking in my natural dialect, facilitated these tasks.

Finally, as a member of the Hasidic community, the element of participant observation, which, for outsiders, requires so much time and personal sacrifice, is present by default. As soon as my study of HY began, my daily interactions in the community became infused with multiple layers of meaning. The research question accompanied me to weddings, holiday events, *shiva* calls, etc. In these environments, away from recording devices, conversation flows freely and naturally. Here it is possible to observe new and variable

[20] An additional benefit of my conversational input is that interviewees' follow-up questions and reactions sometimes contained language forms that are difficult to elicit in sociolinguistic interviews, e.g., the use of 2nd person plural pronouns (e.g., *so, ven zenen eynk ahaymgekimen?* 'So, when did you arrive home?'). These data enabled me to analyze morphosyntactic innovation, a topic I discuss in Nove (2021b).

language forms, topics of conversation, lifestyle trends, etc. Indeed, the HOS is informed by a depth and scope of knowledge accumulated during such informal interactions.

3.2.3 Other issues

In Orthodox Jewish practice there are laws associated with a concept known as *yichud* 'seclusion' in Hebrew (*yikhed* in Yiddish), which broadly prohibit a man and a woman who are not consanguineous from spending time together in a private, secluded space that other people are unlikely to enter.[21] When inviting male speakers to my home, I did so while my husband was around (but not in the same room). When male speakers were interviewed in their homes, their mothers or wives were in the house, as well. In three cases I interviewed a husband and wife conjointly. When I was invited to a participant's office, he ensured that the door leading to the public area remained slightly ajar throughout the interview. As a member of the community, people expected sensitivity to these laws, both on their behalf and on my own. It is telling that only rarely did someone mention *yichud* explicitly or question me about the precise circumstances prior to the interview. This plausibly reflected trust on the part of the participants that I would keep these protocols in mind and do the proper thing.

[21] The prohibition extends to all but the following relations: husband/wife, mother/son, father/daughter, grandfather/granddaughter, grandmother/grandson, great-grandfather/great-granddaughter, and great-grandmother/great-grandson. There is a great deal of nuance to this law and people who anticipate finding themselves in circumstances where these laws might apply, e.g., during travel or for work, frequently consult their rabbis to discuss what is permissible and how to conduct themselves.

3.3 Processing the corpus

3.3.1 Transcription

Audio files were converted from stereo to mono in Praat (Boersma & Weenink, 2018) and imported into ELAN ("ELAN (Version 6.0)," 2020), where they were manually segmented into utterances, or breath groups, and transcribed using the YIVO standard transliteration system.[22] For the vowels in the wordlist data, a slightly different system, shown in Table 3.3, was used.

Transliteration	Vowel (IPA)	Example
ii	i	*hiit* 'protect'
i	ɪ	*hit* 'hat'
uu	u	*shtruuf* 'punish'
u	ʊ	*shluf* 'sleep'
aa	aː	*haant* 'today'
a	a	*hant* 'hand'

Table 3.3. Transliteration system used for wordlist data.

This system was inherited from an earlier phase in the project and has the advantage of not relying on the alignment technology to distinguish between long and short high vowels. Since the wordlist data includes a number of minimal pairs for {/i/, /ɪ/}, this is important. Additionally, it allowed for the removal of tokens in the /aɪ/ class that were pronounced as [aɪ] (which occurred quite frequently, since the speakers were reading these words out of context) rather than the targeted [aː].

[22] Interviews in the UYC were transcribed by Ben Sadock and those in the NYHYC were transcribed by me. Some wordlist data were transcribed by paid research assistants and some were transcribed by me. Transcription costs were covered by the Endangered Language Initiative and a Doctoral Research grant (Graduate Center, CUNY).

The annotated ELAN files were saved as Praat TextGrid files. Next, unique words in the corpus were compiled and added to a pronunciation dictionary, where each entry was mapped to a pronunciation key using a modified version of the Arpabet system (see modified system in Appendix A). For vowels, numbers indicate primary, secondary and no stress (1, 2 and 0, respectively). A small section of the pronunciation dictionary is shown in Figure 3.6. Dictionary entries were also coded for language (YID, ENG and OTHER) and word type (content vs. function). Words containing morphology from more than one language (e.g., *arayn+ge+checkt* 'checked in' or *ge+pusht* 'pushed') were coded based on the morpheme that receives primary stress (e.g., YID for *ARAYN+ge+checkt* and ENG for *ge+PUSHT*). Names were coded according to their pronunciation (e.g., the surname "Adler" was coded as YID when pronounced [adlər] and ENG when produced as [ædlɚ]). Function words were also coded for lexical category (part of speech).

ARAYNGENEYT	AA2	R	AX1	NG	G	EX0	N	AY2	T			
ARAYNGENUMEN	AA2	R	AX1	NG	G	EH2	N	IH2	M	EN		
ARAYNGEPAKT	AA2	R	AX1	NG	G	EX0	P	AA2	K	T		
ARAYNGEREDT	AA2	R	AX1	NG	G	EX0	R	EH2	D	T		
ARAYNGEREKHNT	AA2	R	AX1	NG	G	EX0	R	EH2	KH	EN	T	
ARAYNGERINEN	AA2	R	AX1	NG	G	EX0	R	IH2	N	EX0	N	
ARAYNGERISN	AA2	R	AX1	NG	G	EX0	R	IH2	S	EN		
ARAYNGERUFN	AA2	R	AX1	NG	G	EX0	R	IY2	F	EN		
ARAYNGERUKT	AA2	R	AX1	NG	G	EX0	R	IH2	K	T		
ARAYNGESHIKT	AA2	R	AX1	NG	G	EX0	SH	IH2	K	T		
ARAYNGESHLEPT	AA2	R	AX1	NG	G	EX0	SH	L	EH2	P	T	
ARAYNGESHMOLTSN	AA2	R	AX1	NG	G	EX0	SH	M	OA2	OL	TS	EN
ARAYNGESHMUEST	AA2	R	AX1	NG	G	EX0	SH	M	IY2	S	T	
ARAYNGESHNITN	AA2	R	AX1	NG	G	EX0	SH	N	IH2	T	EN	
ARAYNGESHRIBN	AA2	R	AX1	NG	G	EX0	SH	R	IH2	B	EN	
ARAYNGESHTELT	AA2	R	AX1	NG	G	EX0	SH	T	EH2	OL	T	
ARAYNGESHTUPT	AA2	R	AX1	NG	G	EX0	SH	T	IH2	P	T	
ARAYNGETANTSN	AA2	R	AX1	NG	G	EX0	T	AA2	N	TS	EN	

Figure 3.6. Sample section of Yiddish pronunciation dictionary illustrating the use of a modified Arpabet system to map pronunciation (2020)

3.3.2 Alignment

The train and align function in Montreal Forced Aligner (MFA) (McAuliffe, Socolof, Mihuc, Wagner, & Sonderegger, 2017) was used to create time boundaries for each word and sound

segment on separate tiers.[23] Training was done using the audio from both corpora simultaneously, approximately 70 hours in total. HE wordlist data were aligned using the acoustic model and accompanying dictionary available on the MFA website, which was trained on 982.3 hours of audio by 2,484 speakers from the LibriSpeech corpus and uses the Arpabet system. The output was spot checked to ensure that the alignment was accurate, but no manual corrections were made.

Accuracy in durational measures relies on how precisely phone boundaries are marked. In comparing the output of the four most popularly used forced aligners, Gonzalez, Grama and Travis (2020) found that the following phonological environment is the site of more boundary-marking errors than is the preceding context. Indeed, while reviewing the aligned files, I observed that boundaries between vowels and sonorant segments were set closer to the vowel midpoint than expected, that is, the aligner assigned relatively more of the periodicity in the signal to the following segment than to the vowel. This was especially obvious for following lateral and rhotics, which are notoriously hard to distinguish from vowels in the best of conditions, as their properties tend to be distributed across several local segments (Peterson & Lehiste, 1960; West, 1999). My observations were also supported by the results of linear mixed models with duration as the dependent variable, which

[23] The Montreal Forced Aligner trains an acoustic model and aligns annotated audio files by using a Hidden Markov Model-Gaussian Mixture Model (HMM-GMM) technique. Training is accomplished in three phases or passes: In the monophone pass, each phone is modelled without reference to phonological context. In the triphone pass, the preceding and following segment of each phone is considered. Finally, the speaker-adapted triphone pass analyzes interspeaker differences in how phones are produced and calculates an fMLLR transformation of the sound for each speaker. A recent study by Gonzalez, Grama and Travis (2020) comparing available tools for speech alignment shows that MFA-produced phone boundaries are most similar to those produced by humans, and rates MFA as superior to other tools reviewed.

showed significant shortening effects for following laterals and rhotics, which is unexpected. While the MFA has been shown to perform comparably or better than other popular aligners (Gonzalez et al., 2020), a certain amount of error is expected when automated methods are employed. Unsystematic errors are not expected to have a significant impact on aggregated data (Strelluf, 2019). Thus, while the alignment issue mentioned above may affect the absolute durational values for the values, it should not impact the ratios between long and short /i/. However, segmentation that consistently underestimates the duration of tokens with following sonorant consonants are problematic for comparing temporal contrast in the /u/ pair, whose split was conditioned by following consonant. Because of its distribution, long /u/ is coextensive with following coronals, which includes all laterals and rhotics. Furthermore, upon inspection of the data, it emerged that the long /a/ dataset contains 37% more prelateral tokens than the short dataset, and so is likely to be disproportionately impacted by segmentation discrepancies caused by laterals relative to the short vowel. Therefore, for the analyses of vowel duration, all prelateral and prerhotic tokens of long-short /u/ and all prelateral tokens of /a/ were excluded. The ratios of sonorants vs. obstruents within and across vowel pairs are not expected to differ significantly across generational groups, and thus should not impact the main results for that social factor.

Corpus-based analyses have a distinct advantage when it comes to quantifying linguistic variation and change. A limitation of this approach, however, is the loss of control over the micro elements involved in the study. While the technology that enables the researcher to process large amounts of data is becoming increasingly more sophisticated, they are almost

certain to also introduce some error. With all this in mind, when interpreting the results of this and other acoustic-based studies, we would do well to heed the caveat issued by Foulkes et al. (2018, p. 3):

> *"[…] under normal circumstances, there is no objective 'ground truth' when it comes to acoustic analysis. That is, there is no inscrutably 'correct' frequency value or duration measurement. Acoustic analysis is rarely fully straightforward even on the most carefully controlled and articulated material. […] acoustic analysis should be regarded as yielding* ***estimates*** *of the quantitative measures at stake rather than inscrutable facts. Those estimates are inevitably sensitive to the technical quality of the material under analysis, and also to decisions made by the analyst in terms of where and how to measure". (emphasis in original)*

3.3.3 Grouping speakers by frequency range

As mentioned earlier, to compare vowel quality across groups, the formant values of each token must be measured precisely. Individual speakers have inherently different frequency ranges and Praat settings are sensitive to these. The parameters must thus be carefully selected to ensure that the correct formants are tracked. Minute changes in the procedures used for formant extraction can lead to different results, which is one reason that research reproducibility in sociolinguistics is especially challenging (see Foulkes et al. [2018] for a discussion of some related challenges associated with corpus-based research). The procedures described here were chosen to allow for the most accurate measurements, and documented to provide transparency for the purpose of replication.

Prior to vowel extraction, an ideal maximum frequency range was identified for measuring the first and second formants of each speaker's vowels.[24] This was done by opening a segment of annotated audio from each speaker in Praat. Whenever available, wordlist data was used for this task. With Praat's formant tracking turned on, the spectrograms of about a dozen tokens of each of the vowels /i, u, a/ were visually scrutinized while adjusting the formant maxima and keeping the number of formants constant at 5.5. High peripheral vowels are most sensitive to these settings. Typically, tracking for /i/, which has a high F2, is improved with a higher maximum frequency. However, due to the low F2 of /u/, which, in this community, is sometimes so low that it seems to merge with F1, the setting that is ideal for /i/ often causes Praat's formant tracker, which uses linear predictive coding (LPC), to miss the F2 and select F3 as the second formant.

By examining enough tokens of each of these vowels, the low and high maximum frequencies for each speaker that were conducive to the most accurate tracking of all vowel formants were able to be identified.[25] These ranges were further modified by subtracting up to 500 Hz from the low cutoff (with 4000 as the minimum) and ramping up the high

[24] Formants are high-energy frequency peaks in a sound spectrum, measured in hertz (Hz), that correspond to resonances in the vocal tract and reflect the quality of the vowel. The frequencies at which these resonances occur differ according to the size and shape of a speaker's vocal tract. The acoustic realization of vowels thus varies by anatomy, leading to systematic differences between speakers of different ages and sexes.

[25] I am grateful to Thomas Kettig for describing the procedures he used for identifying by-speaker optimal frequency ranges. The technique I used is adapted from the one he described to me.

cutoff by up to 1000 Hz (not to exceed 8000).[26] After making these adjustments, each speaker had a low-high maximum frequency range of 2500 or 3000 Hz. Using this information, speakers were binned into five groups based on their optimal frequency ranges. The ranges for each group are shown in Appendix E.

3.3.4 Extracting and measuring formants

To extract and measure vowel formants, I used Fast Track (FT) (Barreda, 2021a), a new Praat plugin tool that automatically conducts multiple (8 to 24) formant analyses every 2 milliseconds using a range of maximum frequencies and looking for 5.5 formants within each range. A regression analysis then selects the best measures based on smoothness of the formant trajectories. The user can accept selected measurements or override them by choosing different candidate measures. The measurements can then be binned by median or mean into up to 11 chunks for analysis. The number of chunks can be increased or decreased without rerunning the tracking function, as FT saves the values extracted at every time point and will reaggregate them upon request. Another advantage is that FT leaves a paper trail of the LPC settings used: extensive documentation and images generated at different steps of the process allows for transparency and reproducibility. Finally, unlike some existing tools for formant extraction (e.g., FAVE-extract), FT is not language specific, making it invaluable for studies of minority languages.

[26] These modifications were implemented after lots of trial and error with vowel formant tracking using Fast Track (Barreda 2021). Tracking of /u/ was improved with lowering the range and tracking of /i/ was improved with increasing the range for each speaker.

Prior to tracking, the FT function 'Extract vowels with TextGrids' (in the 'Tools' folder) was run to extract all annotated primary stressed vowels in the corpora, by group. FT generates a spreadsheet containing information about each segment (e.g., word, duration, and preceding and followings sounds) as part of the extraction process. Vowels that are less than 3 milliseconds long are automatically excluded from the analysis.

Next, the 'Track folder' function was run on each group's folder to track the formants, entering the optimal lowest and highest analysis frequencies determined for each group. The number of steps (i.e., number of analyses to be conducted) was set to the maximum (24) and the number of bins to 5, using the median. During the trial-and-error runs, the setting that generates images comparing the analyses and showing the selected candidates ("winners") was used. Figure 3.7 is a sample comparative image generated by FT of the vowel in the word [kɪk] 'look' produced by speaker Shamshon (2:1953), showing formant selection at all 24 steps. The optimal maximum frequency range identified for this speaker was 4000-6500. In step 1 (maximum frequency 4000 Hz), the LPC algorithm picks up on some noise below the second formant and mistakenly tracks that as F2. As the maximum frequency is increased, the tracking becomes more precise. A thicker outline around the image for Step 10 indicates that FT has selected this as the "winner" on the basis of a regression analysis identifying the smoothest formant lines. The step number and maximum frequency used in the analysis (4,978 Hz) is provided above the image. This image indeed matches the expected formant structure for [ɪ] for this speaker. In Figure 3.8, the winning image is shown in isolation, with the maximum frequency used for extraction (4978 Hz) shown on top.

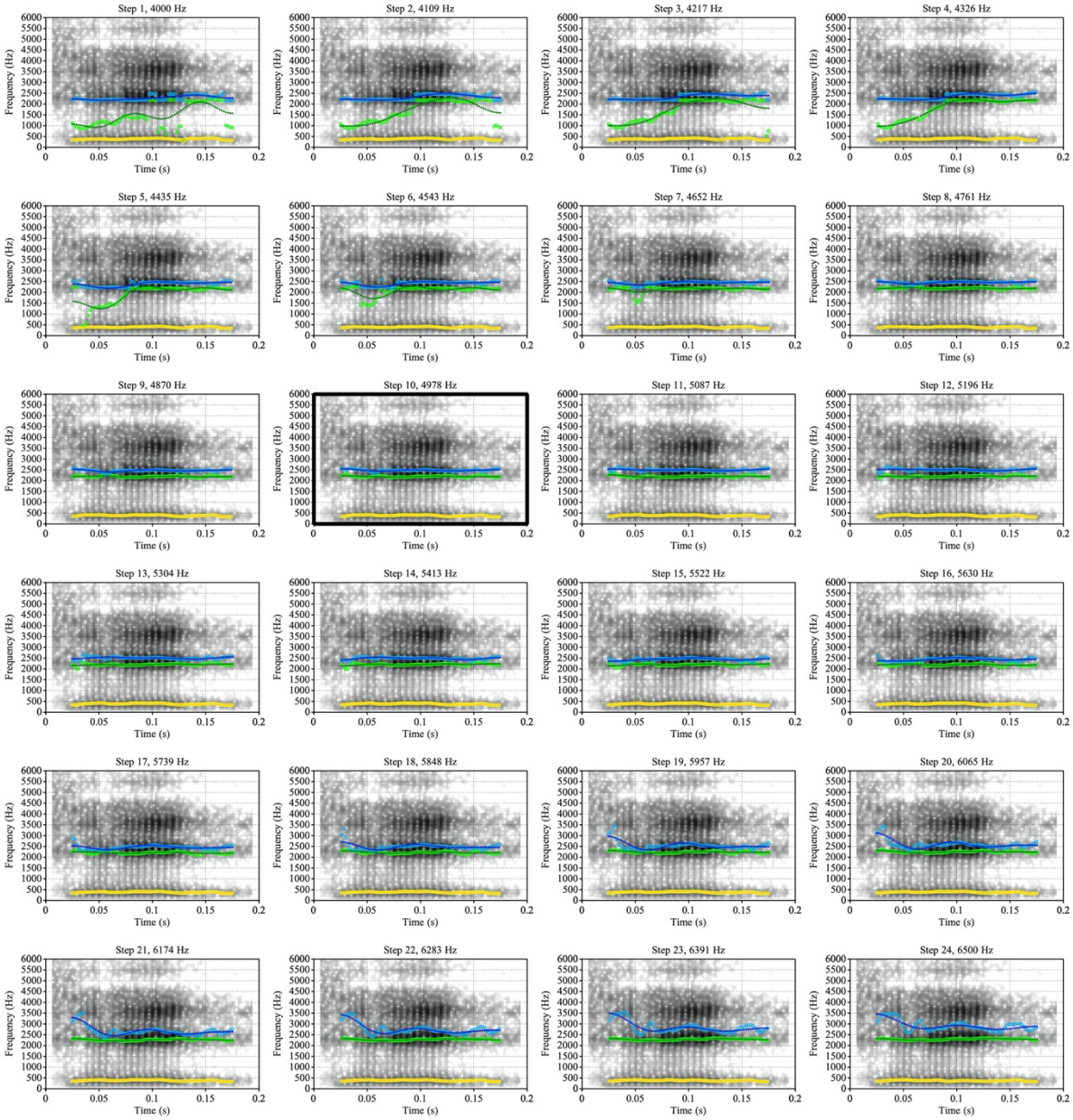

Figure 3.7. Comparative image generated by Fast Track of the vowel in the word [kɪk] 'look' produced by speaker Shamshon (2:1953), with frequency (0-6000 Hz) on the y-axis and time on the x-axis. The thick outline around the Step 10 image identifies it as the "winning" setting.

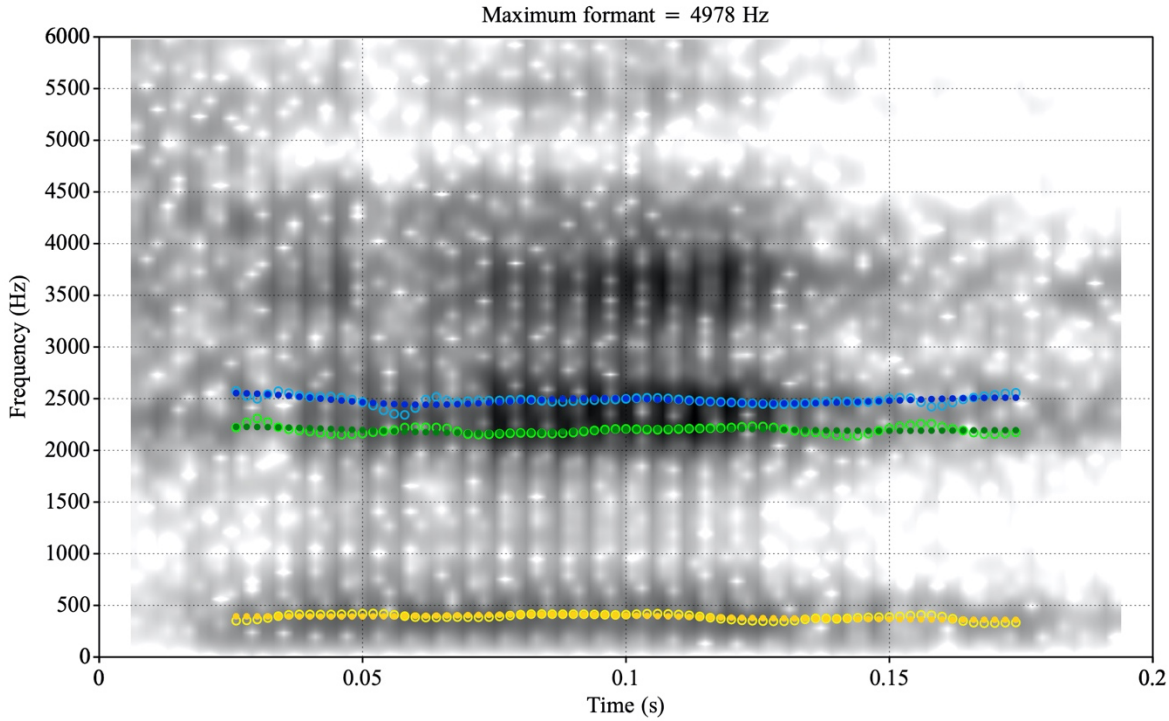

Figure 3.8. Winning image generated by Fast Track of the vowel in the word [kɪk] 'look' produced by speaker Shamshon (2:1953), with time on the y-axis and frequency (in Hz) on the x-axis. The maximum formant frequency (4978) is shown on top.

Early tracking attempts yielded many errors in the selection of the best candidate for the first and second formants of [i] and [u] tokens. An examination of the images generated by FT showed that most of the problems were caused by selection of the wrong candidates. Increasing the frequency range (as described in the previous section) eliminated most, but not all, of these errors. To address remaining errors, a FT option that allows the user to specify upper and lower formant limits for specific vowels was implemented. These user-assigned formant boundaries are consulted during the selection process, so that instead of considering only the smoothness of the formant trajectory, the smoothest analysis *that does not violate the limits imposed by the user* is selected. If there is no analysis that falls within the constraints, the initial analysis remains unchanged. Appendix F shows the

formant boundaries utilized for tracking the vowels. Implementing formant boundaries significantly reduced the number of badly tracked tokens and yielded very good results. The output (including the winning images) was spot-checked for accuracy. Remaining problems seemed mostly to result from poor quality audio signal (lack of periodicity, etc.). Cases where the wrong formant was tracked represented less than 1%, and these typically resulted in values that were so irregular that they would almost certainly pattern as extreme outliers. These irregular/outlier tokens were removed during outlier elimination. After plotting and examining several batches of the data visually, and having determined, on the basis of this visual examination, that the procedures appeared to be effective, comparative images of all the steps (such as the one shown in Figure 3.7) were no longer generated, as this is a very time intensive process that vastly prolongs the duration of the tracking. Winning images (such as the one shown in Figure 3.8) were, however, generated for all the vowels analyzed, so as to have visual documentation of the formants that were recorded.

3.3.5 Preparing the data

3.3.5.1 Aggregating the data

The FT output files for each group were imported to R (R Core Team, 2021), where they were aggregated and merged with the spreadsheet created during extraction. This spreadsheet contains the duration of each segment, as well as contextual information such as the word in which it appears and the preceding and following sounds.[27]

[27] As of April 23, 2021, there is an R package, FastTrackR that enables FT users to interact with the output in R (Barreda 2021)

Monophthongs differ from diphthongs in that the former are expected to have a single articulatory target, while the latter begin as one vowel and end as another. Thus, monophthongs typically have less variance in their formants over time than diphthongs and are often analyzed using formant measures drawn from the midpoint or the steady state of the vowel. Since the research questions for this study concern monophthongs, the middle chunk (third bin) of the first three formants were selected for the analysis. However, all five points were utilized in the phonetic description of diphthongs in Chapter 4.

New columns were added for preceding and following context, based on the voicing, manner, and place of articulation of the preceding and following segments (e.g., voiceless labial obstruent for /p/). The dictionary file, which contains information about the part of speech and the number of segments and syllables in each word, was added to the data files at this point, as was the demographic information of the speakers.

3.3.5.2 Filtering the data

Vowel tokens extracted from non-Yiddish or English words were filtered out of the dataset. Partial words (resulting from false starts or self-repair) were removed, as well. The by-speaker results were then examined visually to detect any systematic discrepancies in tracking. Function words were plotted and the categories that displayed a strong tendency for reduction were removed.[28] These included articles/determiners, WH-question words, high-frequency prepositions, conjunctions and copulas; all pronouns, and auxiliary verbs

[28] Umeda (1975) notes that acoustic differences between function and content words are continuous rather than categorical. In his study, only short, weak function words with the greatest tendency for reduction were removed.

with postverbal /l/ (see complete list in Appendix G). English function words included on the FAVE-align default list of 'stop words' were excluded, as well (I. Rosenfelder et al., 2014).

To examine tokens with outlying formant frequencies by speaker, the data were first grouped by speaker, vowel and language. Then, the find_outliers() function in the joeyr (Stanley, 2020) package was run. This function calculates mahalanobis distance iteratively, that is, outlying data points are eliminated individually and the mahalanobis distance is recalculated each time a point is removed until the 5% most extreme outliers have been identified. The tokens deemed to be outliers are coded as TRUE. The tagged output was plotted and examined for patterns that would warrant further investigation. For example, it was discovered that the word *nukhdeym* 'after' is pronounced variably as [nʊχdn] and [nɔχdəm], and so these were systematically removed from the dataset. Some labeling errors caused by the aligner were identified here, as well. However, spot checks of the output based on these plots revealed that, for the most part, outlying values resulted from one or both formants being improperly tracked due to some idiosyncrasy in the production or an issue with the signal quality (e.g., too much noise).

To systematically remove tokens with outlying formant values, mahalanobis distance (MD) was again calculated by vowel class and language, this time for the entire dataset (in aggregate, not by speaker) using the tidy_mahalanobis() function in the joeyr (Stanley, 2020) package in R (an implementation of mahalanobis()), and tokens with a MD that exceeded two standard deviations from the mean were removed.

3.3.5.3 Normalizing the data

The purpose of vowel normalization is to adapt the formant measurements of multiple speakers to a single framework, eliminating phonetic variances caused by anatomical/physiological differences in the vocal tract, while leaving intact distinctions in vowel quality related to language-specific sound patterns and social factors. A variety of procedures have been developed over the years to accomplish this goal of reducing phonetic dispersion, many explicitly in pursuit of a system that resembles or is consistent with how humans perceive speech sounds (for a review, see Adank, Smits, & van Hout, 2004; Barreda, 2020, 2021b; Yang, 2021). An important study by Rathcke et al. (2017) reveals that some normalization procedures can mitigate artificial deviations in F1 and F2 values generated by the Praat-implemented LPC-algorithm that are caused by technical issues, namely, the type of spectral tilt sometimes seen in archival recordings and poor signal-to-noise ratios resulting from background noise during recording. Rathcke and her colleagues caution against using the Watt and Fabricius (2009) technique on corpora containing recordings made with different equipment, as this method appears to increase artificial skewing of the data (with peripheral vowels showing the greatest susceptibility to such distortion). Furthermore, Barreda and Nearey (2018) demonstrate that the Lobanov (1971) normalization method, popular among sociophoneticians in recent years, obscures relevant socially-derived differences. More recently, Barreda (2021b) uses perception experiments to illustrate this, arguing persuasively in favor of log-mean normalization procedures, which scale all formants in equal proportion (formant-extrinsic), when the goal is to preserve meaningful phonetic differences. Barreda also demonstrates that the

methods devised by Lobanov (1971) and Watt and Fabricius (2009), in which independent scaling factors are used to normalize each formant (formant-intrinsic), erase potentially important phonetic differences that speakers can perceive. In light of these findings, I elected to use the log-mean normalization method employed by Labov, Ash and Boberg (2006) in the *Atlas of North American English,* often referred to simply as the Labov or ANAE method.[29] This technique is a slightly modified version of one proposed by Nearey (1978). The main modification is that the Labov/ANAE method expresses formants as deviations from a constant (a logarithmic grand mean, *G*, of all the values in the dataset) instead of from zero, so that the output values are more similar to Hertz, making them more interpretable. After grouping the data by language and by speaker, the Labov/ANAE method was applied to all midpoint measures using the norm_anae() function in the joeyr package (Stanley, 2020) in R (R Core Team, 2021), which enables easy implementation without workflow disruption.[30]

[29] The following description of the Labov/ANAE method is provided by the NORM Vowel Normalization and Plotting Suite (Thomas & Kendall, 2007): "A logarithmic grand mean, *G*, is calculated from the geometric mean of the natural log of the F_1 and F_2 values of all vowels for all speakers. A logarithmic mean value, *S*, is then calculated for each speaker by taking the natural log of the F_1 and F_2 values for all of that speaker's vowels. The anti-log of the difference, *G* - *S*, is taken for *F*, the scaling factor for that speaker. Each individual's formant values are then multiplied by the scaling factor *F* to obtain her or his normalized values".

[30] When implementing the function, I overrode the default use of the Telsur *G* (the logarithmic grand mean from the dataset used by Labov and his colleagues), opting instead to use the mean from my dataset, which is automatically calculated when the function is used.

3.3.6 Composition of the corpus: summary

In total, the conversational portions of the interviews with NY speakers (NYHYC) amount to 56 hours. After adding the wordlist data, the corpus contains 353,793 words. Adding the 13 hours of data from first generation speakers (UYC: 12 hours of archival recordings, plus 1.5 hours I recorded) brings the total to just under 70 hours, 437,249 words. From these, 383,929 vowel tokens were extracted and measured, 203,367 belonging to the subset analyzed in this dissertation {/i, ɪ, u, ʊ, aː, a/}. After filtering (see §3.3.5.2, above), 100,779 vowel tokens, 79,779 from Yiddish/HY words, remained for the analysis. Table 3.4 shows, for HY vowels, the by-speaker range (minimum and maximum), mean number of tokens analyzed per speaker, and the total analyzed from each task for each vowel category. Note that the column displaying the low end of the range (minimum) represents tokens from speakers who did not complete the interview task (and who thus have the smallest datasets). Table 3.5 shows the by-speaker range and mean, and the total number of tokens extracted and analyzed from the HE wordlist data.

Vowel	Min	Max	Mean	Wordlist	Interview
aː	12	332	129	769	8283
a	9	1298	357	718	24261
i	12	425	139	866	8864
ɪ	13	736	277	827	18541
u	9	406	131	721	8444
ʊ	7	330	107	565	6920

Table 3.4. Minimum, maximum and mean number of Hasidic Yiddish tokens analyzed per speaker (N = 70) and total analyzed from each vowel set for each vowel.

Vowel	Min	Max	Mean	Total (Wordlist)
a	8	14	11	584
i	8	13	10	547
ɪ	9	14	11	590
u	7	16	10	556
ʊ	8	12	10	521

Table 3.5. Minimum, maximum and mean number of tokens analyzed per speaker (N = 55) and the total from each vowel category analyzed from the Hasidic English wordlist dataset.

Data Visualization

Plots were created using the ggplot2 package (Wickham, 2016) and maps with the ggmap package (Kahle & Wickham, 2013), in R software (version 3.5.0, R Core Team 2016))

3.4 Statistical modeling

In this section, I describe the statistical methods used to compare the acoustic properties of the vowel across different groups in Chapters 5, 6, and 7.

3.4.1 Pillai scores

In recent years, a number of statistical measures have been proposed to measure the degree of vowel overlap. One popular method is the Pillai score (or the Pillai-Bartlett trace), first applied to vowel overlap by Hay Warren & Drager (2006) and elaborated on by Nycz and Hall-Lew (2013). A recent paper by Kelley and Tucker (2020) finds that it is more effective than alternative methods that have been recommended for quantifying the extent of acoustic similarity of vowels.

A Pillai score is the output of a multivariate analysis of variance (MANOVA) model, into which F1 and F2 values are entered as dependent variables. The Pillai score measures

overlap by comparing the size and shape of vowel clusters. The scores range from 0 to 1, with 0 signifying complete overlap between two clusters and 1 indicating no overlap at all. Since it is based on a MANOVA, it is also possible, when comparing the distributions of vowel pairs, to enter a variety of fixed effects into the model. A measure of statistical significance (p-value) is also generated for each Pillai statistic, signifying whether the difference between the clusters is statistically significant. Unlike some methods, e.g., Euclidean distance, Pillai scores do not measure distance per se. Nor are they interpretable in terms of directionality (i.e., the scores do not reflect the relative position of each vowel in acoustic space). Moreover, they cannot account for random effects, e.g., a skewness in the cluster caused by a particular lexical item. What they do provide is a robust measure of difference, which can be further explored using other methods.

In Chapters 5 and 6, the Pillai score is used to quantify overlap in each of the three vowel pairs within and across languages (HY and English). In addition to the dependent variables (the normalized F1 and F2 values of each vowel token), the preceding and following context (silence, vowel, or consonant, coded for voice, manner, and place of articulation) as well as the log-transformed duration of the vowel token, are included in the models as fixed effects.

3.4.2 Linear Mixed-Effects Models

To confirm cross-generational differences in vowel quality and length while also accounting for possible random effects, multiple linear mixed-effects models (LMMs) were fit for all three vowel dyads using the lmer() function from the *lme4* package (Bates, Mäechler, Bolker, & Walker, 2013) in R (R Core Team, 2021). The Satterthwaite

approximation in the *lmerTest* package (Kuznetsova, Brockhoff, & Christensen, 2017) was used to calculate all *p*-values.

To infer variation and change in quality, two quality models (QM) were generated for each vowel pair, one with *F1* and the other with *F2* as the independent variable. In the duration models (DM), vowel duration was used as the independent variable. Each model also included the following variables and interactions as fixed effects (the QM did not include number of segments in the word and the DM did not include duration as covariates):

Fixed effects and interactions:

1. Interaction: Vowel × Generation
2. Interaction: Vowel × Gender
3. Task (levels: interview vs. wordlist)
4. Duration of vowel (decadic logarithm, in seconds) (QM only)
5. Number of Segments in the word (DM only)
6. Preceding Segment (silence, vowel or consonant coded for voice, manner, and place of articulation)
7. Following Segment (silence, vowel or consonant coded for voice, manner, and place of articulation)

Random intercepts:

1. Speaker
2. Word

In the QM, Vowel × Generation is intended to test the prediction that the distinctiveness of the short and long counterparts of the high vowels are increasing in apparent time (i.e., that the lax vowels of younger generations are more open or centralized). Such a change

would raise the F1 of the high vowels. Laxer [ɪ] would also manifest in lower F2 values, while laxer [ʊ] would show an increase in F2. The interaction of Vowel × Gender is designed to investigate if there is variability across gender groups in the way these vowel pairs pattern qualitatively relative to each other, i.e., to see if male or female speakers display a tendency for more or less distinctiveness across the tense-lax vowels.

In the DM, the interaction of Vowel × Generation helps assess the durational distinction between the long and short vowel in each pair and looks for differences in the temporal distinctiveness across the generational groups, while the interaction of Vowel × Gender explores variability in durational distinction across the gender groups to see if gendered community practices lead to language differences. Task is included as a fixed effect to control for differences in vowel production during the wordlist vs. interview tasks (representing careful vs. formal speech styles) (see e.g., Harris & Umeda [1974] on the correlation between vowel duration and speech mode). In the QM, Duration controls for qualitative differences in short vs. long vowels, e.g., when reduced vowels fail to reach their targets. In the DM, the inclusion of Number of Segments is motivated by studies that have identified an inverse relationship between nucleus duration and the number of consonants in both the onset and the coda: As the number of preceding and/or following segments increases, the duration of the vowel decreases (see review in Fowler, 1983). This phenomenon is often attributed to isochrony, i.e., the tendency for languages to divide time rhythmically into equal units (syllables, morae or intervals between stressed syllables).

Finally, the last two variables (Preceding and Following Segment) are included to control for coarticulatory consonant effects on vowel spectrum and length. For vowel

spectrum, the vowel trajectory, and sometimes the target, can be impacted during the repositioning of the vocal apparatus from the preceding consonant to the vowel, and from the vowel to the following consonant (see e.g., Hillenbrand & Nearey, 1997). Additionally, phonetic analyses of vowel duration provide robust support for the influence of consonant environment on syllable nuclei, particularly on short vowels. While both preceding and following segments have been shown to play a role in vowel quality, duration appears to be primarily influenced by the following segment (Peterson & Lehiste, 1960). Finally, random intercepts were included for speaker, to account for individual deviances in quality or duration; and for word, to control for random lexical effects.

Chapter 4

Phonetic description of the vowel systems

ס׳האבן [דארט] געוואוינט דריי ערליי נאציאנען, איך וועל אנהייבן ביי די
אידן: אידן, דאן האבן געוואוינט אוקראינער, האצאלן האט מען זיי
גערופן, און אונגאַרישע נאציאן. אזוי אז מ׳האט גערעדט דריי שפּראכן:
אידיש, אונגאַריש, און קליין רוסיש, אזוי ווי מ׳רעדט אין אוקראינע. און
איך האב די אלע דריי שפּראכן געקענט.

'Three different ethnicities lived [in the region], I'll start with the Jews: Jews, then there were Ukrainians, they were called Hutsuls, and ethnic Hungarians. So that three languages were spoken in the region: Yiddish, Hungarian, and Little Russian, like they speak in Ukraine. And I knew all three of these languages.'

Dovid (born 1910; archival data)

THE PREVIOUS CHAPTER specified the methods used to compile the corpus and extract the acoustic measurements, summarized the composition of the corpus, and described the statistical methods used in the main analyses. The present chapter provides phonetic descriptions of Unterland and New York Hasidic Yiddish vowel systems, based on the recorded data in the two sub corpora: The Unterland Yiddish corpus (UYC) and New York

Hasidic Yiddish corpus (NYHYC). This phonetic description fills an important gap in the linguistic literature: to date, no acoustic phonetic description of vowels in either of these Yiddish varieties has been carried out.

Yiddish vowels are the most central and salient features distinguishing the different dialects.[1] Appropriately, they have been the subject of numerous phonological studies since the genesis of Yiddish linguistics (see e.g., Herzog, 1965; Jacobs, 1990; Katz, 1993; M. Weinreich, 1973). Remarkably, to my knowledge, the only extant instrumental analysis of Yiddish vowels is by Kleine (1998, 2008), and it is based not on a natural variety, but on Standard Yiddish, a dialect created/shaped in the early twentieth century by linguists and language planners at YIVO (*Yidisher visnshaftlekher institut* 'Institute for Jewish Research'). Given the long history of scholarly interest in Yiddish and the sheer number of languages that have been analyzed acoustically in the past half a century, this is an unfortunate lacuna. Moreover, the HY vowel system has heretofore never been described, which is perhaps not so surprising in light of the historical stigmatization of HY (Nove, 2018c). The descriptions of UY and NYHY provided below, along with the analyses in the subsequent sections, are thus intended to fill these gaps, and to serve as a baseline for examining phonetic change in post-war Yiddish over time. They can also be utilized and adapted as pedagogical tools in Yiddish language classrooms and on online applications.[2]

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[1] Differences in consonantal features have also been described between and within the main Yiddish dialects, including the presence vs. absence of word-final devoicing (Jacobs, 2005; U. Weinreich, 1963), uvular vs. non-uvular rhotic articulation (R. D. King & Beach, 1998), /l/ palatalization (U. Weinreich, 1958b), merger of /s/ and /ʃ/ (sibilant confusion) (U. Weinreich, 1952), and loss of phonemic /h/ (U. Weinreich, 1963).

[2] On April 6 of this year, a beta version of the first Yiddish course on Duolingo was released (release information and some details about the development of the course can be found in a post

In the following section, the (primary) stressed monophthongs of Unterland and New York Hasidic Yiddish are mapped using mean normalized F1 and F2 values of vowel tokens extracted from the UYC and the NYHYC, and the trajectories of diphthongs are plotted using median F1 and F2 values (in Hertz) from the five temporal points in each vowel. To avoid repetition, vowel duration, which is analyzed in the following chapter, is not discussed in detail in this section.

4.1 Acoustic characteristics of Unterland Yiddish vowels

In his exploratory paper on Transcarpathian Yiddish, U. Weinreich (1964, p. 246) labels the Unterland (the area south of the Carpathian mountain range) "*terra incognita*" to Yiddish linguistic scholarship. Very little has been written about UY, a subregion of this territory, and its vowel system has not been described. U. Weinreich (p. 258) characterizes UY as "a profound and haphazard mixture of WTCp [West Transcarpathian] and CY dialects", noting, for its stressed vowels, only the maximally high, front quality of short /i/ (which he transcribes narrowly as [i], in contrast with CY [ɪ]), and a tendency for prerhotic /ɔɪ/ to

on the Duolingo forum: https://forum.duolingo.com/comment/47756743/YIDDISH-DEFINITE-RELEASE-DATE-4-6-2021-It-will-be-released-on-April-6th-from-Jewish-insider). The program uses YIVO orthography but teaches HY pronunciation and some HY grammatical forms. Users' reactions to this dialect, which, incidentally, can form the topic for another paper focusing on Yiddish language ideologies, included many questions (some of which came directly to my email inbox) regarding the vocalic features specific to HY, such as the long-short contrasts, the diphthong /oʊ/ and monopthongization of the vowel /aɪ/. The phonetic description of HY provided here can be extremely useful to people who are encountering this dialect for the first time and/or are attempting to acquire it. Historically, HY has not been taught in Yiddish language courses outside of the Hasidic community. If the Duolingo approach becomes a trend in Yiddish language teaching, the need for pedagogical tools based upon HY will greatly expand. This description can form the basis of much-needed language teaching materials.

become /u/ (e.g., [gəburn] 'born', [gəfrurn] 'frozen'). There is a basic assumption among Yiddish linguists that the UY vowel system is identical to the CY one (see, however, Sadock & Masor, 2018), however, U. Weinreich's impression about the relative tenseness of short /i/ suggests that, at least phonetically, some discrepancies exist. The following description of UY vowels necessarily begins with the CY vowel inventory, then proceeds to a phonetic description based on the UYC data.

The CY stressed vowel system consists of eight monophthongs: /iː, i, uː, u, ɛ, ɔ,[3] aː, a/; and four diphthongs: /eɪ, oʊ,[4] ɔɪ, aɪ/. The vowels /uː/ and /u/ are treated as distinct phonemes in most of the literature on CY, however, Beider (2015; personal communication) omits the short version from its phonemic inventory, contending that [u] is merely an allophonic variant of /uː/. In the present description, where the focus is acoustic phonetic properties of phonological categories, /u/ is distinguished from /uː/, though I do not take a stand on whether the distinction is contrastive or allophonic.

Figure 4.1 shows a schematic representation of CY stressed vowels (in IPA), as described in the literature (Birnbaum 1923, 1979; Herzog 1964; Weinreich 1973; Katz 1993; Jacobs 1990; Beider 2015).[5] In Table 4.1, the HY orthographical representation and the StY equivalent (YIVO transliteration) are presented alongside each vowel. Additionally, a number is provided for each phoneme, corresponding to the diaphonemic system devised by M.

[3] The vowel /ɔ/ is represented variably as /o/ in the literature.

[4] In CY, /oʊ/ alternates regionally with /oː/.

[5] Birnbaum (1979) represents short /i/ and /u/ phonetically with the IPA symbols [ɪ] and [ʊ].

Weinreich (1960), amended by Katz (1993), and recoded by Herzog (1965).[6] These numbers are offered merely as a referential aid to readers familiar with the scholarship on the historical development of Yiddish vowels; lack of familiarity with this system will not impact comprehension of the material presented. As mentioned in the previous chapter, wherever an individual speaker is referred to in the corpus, their pseudonym is used, followed by the speaker's generation and birth year in parentheses, separated by a colon.

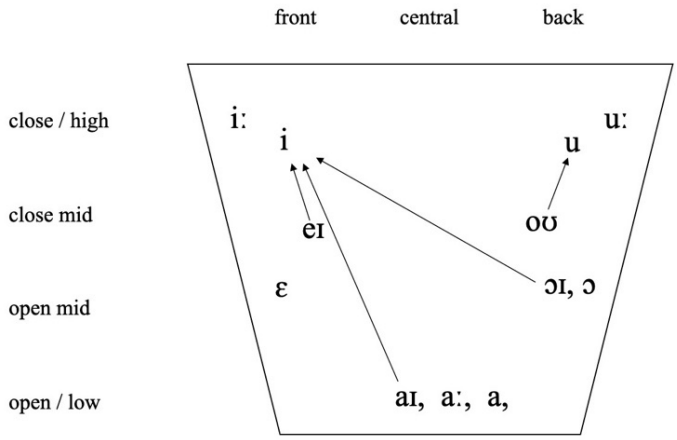

Figure 4.1. The approximate locations of the Hasidic Yiddish stressed vowel phonemes in a two-dimensional F1 ~ F2 vowel space.

[6] The diaphonemic system relates the vowels in Yiddish dialects to each other and traces them to their common Proto-Yiddish ancestors.

Vowel (IPA)	HY orthography	StY	Vowel number
a	א	a	11
aː	ײ	ay	34 (11 before /ɹ/)
aɪ	ײ	ey	22, 24 (34 word-finally and before hiatus)
eɛ	ע	e	25 (before /ɹ/)
eɪ	ע	e	25
ɛ	ע	e	21
iː	ו / י	i / u	32, 52
i	ו / י	i / u	31, 51
ɔ	א	o	41
oʊ	וי	oy	54
ɔɪ	וי	oy	42, 44
uː	א	o	12
u	א	o	12 (before velar and labial consonants)

Table 4.1. CY vowels in IPA, along with their Hasidic Yiddish orthographical representation, Standard Yiddish transliterated equivalents, and the vowel number assigned by the prevailing classification system for Yiddish vowels.

Moving now to the acoustic features of UY, the mean duration (in milliseconds), F0, and normalized F1 and F2 values of the vowel tokens extracted from UYC are summarized in Table 4.2. Figure 4.2 shows the eight monophthongs [iː], [i], [uː], [u], [ɛ], [ɔ], [aː], and [a] in the acoustic vowel plane. Note that to avoid artefactual effects caused by the automatic segmentation process (as discussed in Chapter 3 §3.3.2), the durational measures for [uː], [u] were taken from a subset of the data from which prelateral and prerhotic tokens were excluded; and the durational measures for [aː], and [a] were calculated without prelateral tokens.

Vowel (IPA)	Dur (ms)	Fo	F1	F2
iː	109	175	377	2259
i	79	180	434	2077
uː	138	175	403	1016
u	80	179	441	1142
ɛ	96	172	607	1785
ɔ	99	161	617	1232
aː	149	155	781	1454
a	113	163	782	1439

Table 4.2. Mean duration (in milliseconds), F0, normalized F1 and F2 values and vowel number for all stressed monophthongs extracted from the Unterland Yiddish corpus.

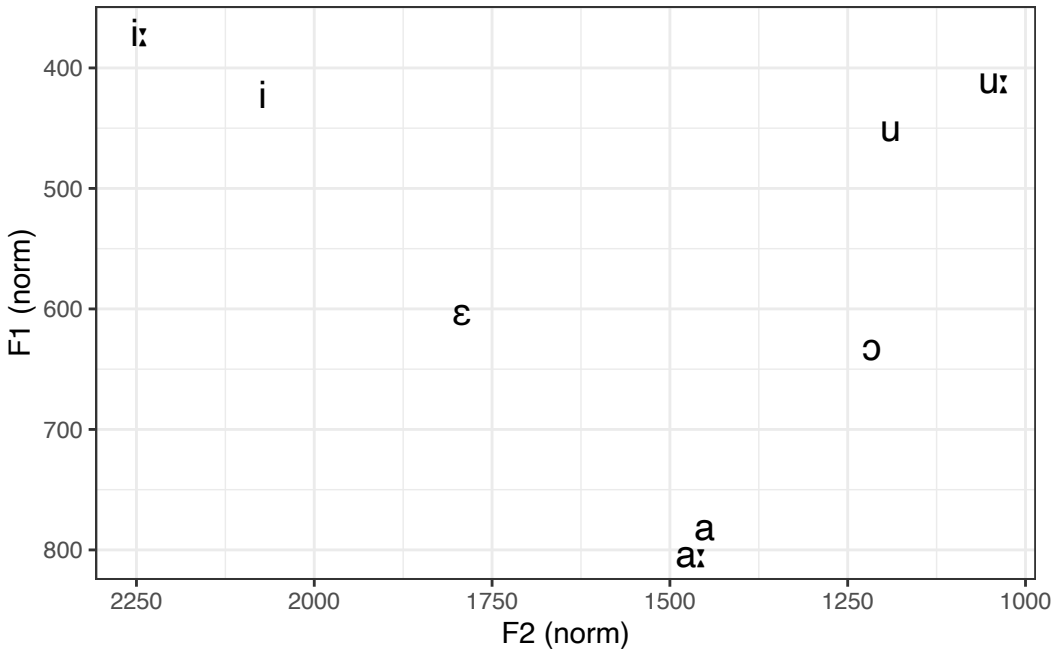

Figure 4.2. Eight Unterland Yiddish stressed monophthongs plotted by mean normalized F1 and F2 values of vowel tokens extracted from the Unterland Yiddish corpus (N = 26,095).

Considering vowel duration, which is analyzed in detail in Chapter 5, the long high vowels [iː] and [uː] are, on average, 27% and 42% longer than their short correlates, respectively, while [aː] is 24% longer than [a]. The temporal differences between the long-short vowels are surprisingly small when compared to other languages with length contrasts in their vowel systems (see Chapter 2 §2.3 for a review of length contrast and

sample ratios found in other quantity languages). The implications of this are discussed in Chapter 5.

Looking at Figure 4.3, we see vowels [aː] and [a] overlapping almost completely in phonetic space. Additionally, the respective distances between vowels [uː] and [u] and vowels [iː] and [i] are shorter than those between other monophthongs, suggesting duration as an important perceptual cue. These observations, too, will be examined in detail in the subsequent sections of this chapter. For vowel [ɔ], the relatively high F2 mean may be indicative of minimal lip rounding during production: lip rounding in back vowels elongates the oral cavity and is typically reflected in lower F2 (and sometimes F3) values. For comparison, the mean F0 and raw (non-normalized) formant frequencies are presented below (Table 4.1), separately for male and females speakers, along with the means of the same features reported by Hillenbrand et al. (1995) and Peterson and Barney (1952) for the same vowel in (Midwestern) American English (e.g., the vowel in *thought*). Note that the F2 means of the UY vowels are significantly higher than the English values.

		male speakers				**female speakers**			
Vowel	Data	F0	F1	F2	F3	F0	F1	F2	F3
/ɔ/	UY (this study)	118	581	1229	2573	188	713	1353	2876
	HD	121	652	997	2538	210	781	1136	2824
	PB	129	570	840	2410	216	590	920	2710

Table 4.3. Mean fundamental and formant frequencies of Unterland Yiddish and American English vowel /ɔ/ for male and female speakers. Unterland Yiddish means are from this study. English means are from Hillenbrand et al. (1995) (HD) and Peterson and Barney (1952) (PB).

In Figure 4.3, all vowels (including diphthongs) are plotted in acoustic space by mean normalized formant frequency values, with a line connecting the vowel points, outlining the vowel space. The vowel [ɔɪ], whose midpoint falls in the center of the vowel space, is

not linked to the rest of the vowels. While analyzing the diphthongs, it was observed that the vowel /eɪ/ becomes a falling instead of a rising diphthong (i.e., the mouth is more open at the offset than the at the onset) in prerhotic contexts (e.g., *ersht* 'first'; *shver* 'hard'; and *hern* 'to hear'). To capture this phonetic distinction, these tokens were labeled [eɛ] and plotted separately. Note the near-perfect triangularity of the UY vowel space.

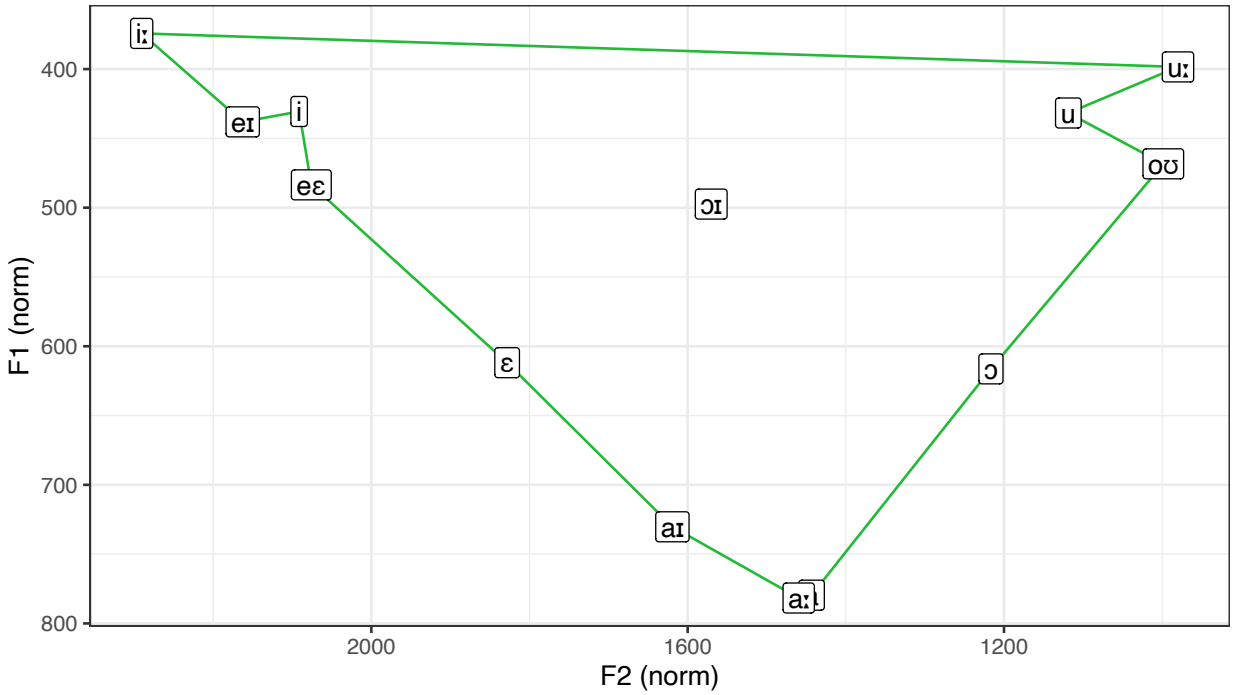

Figure 4.3. Outline of the Unterland Yiddish vowel space from mean normalized F1 and F2 values of all stressed vowels.

As previously discussed, the normalized values shown in the first part of this section are based on median formant frequency values taken from the third of five temporal segments (40 – 60%) of the vowel. These values are understandably less meaningful for diphthongs, which are inherently dynamic. To illustrate the dynamicity of diphthongs, Figure 4.5 shows a visual representation of all the stressed vowels using the raw (non-normalized) values (in

Hz), faceted by speaker gender. Monophthongs are plotted using the means of the median F1 and F2 values, taken from the third temporal portion of each vowel only, while for diphthongs, the full trajectories (median F1 and F2 values taken at all five points) are shown. Here we see overlap in the onset of [eɪ] and [eɛ], with the offset of [eɪ] rising to [i] while the offset of [eɛ] falls toward [ɛ]. In the back vowels, we observe that the onset of [ɔɪ] is significantly higher (lower F1) than the steady state of the more open monophthong [ɔ].

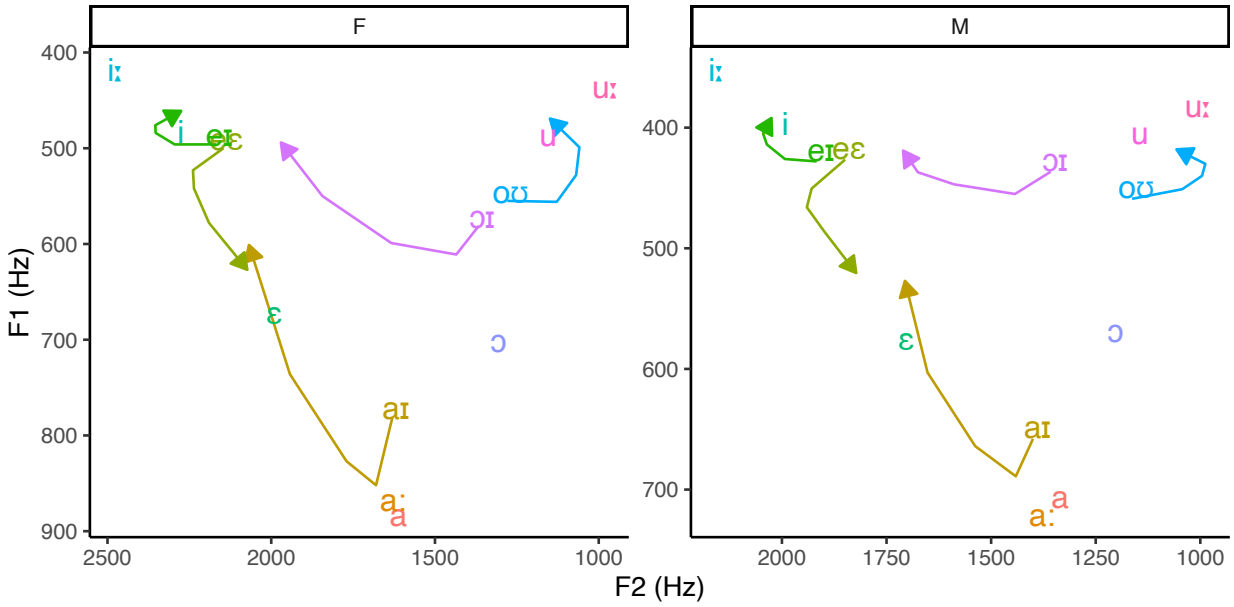

Figure 4.4. All vowel tokens produced by 7 female (N = 19,269) and 6 male (N = 19,481) native Unterland Yiddish speakers plotted with F2 on the x-axis and F1 on the y-axis. Monophthongs are plotted using the mean value extracted from the middle temporal portion (40-60%) of the vowel. For diphthongs, the means of all five portions are plotted, with lines. The vowel symbol is shown at the onset and an arrow at the end of each trajectory.

Finally, Figure 4.5 and Figure 4.6 show spectrogram-style plots of all vowels (with time along the x-axis and formant frequency (in Hz) along the y-axis, similar to the way sounds are visualized in Praat), generated from the means of F1 and F2 at all five time points,

separately for women and men. In the diphthongs, the longest and most obvious changes in quality appear in both the F1 and F2 of [ɔɪ] and [aɪ].

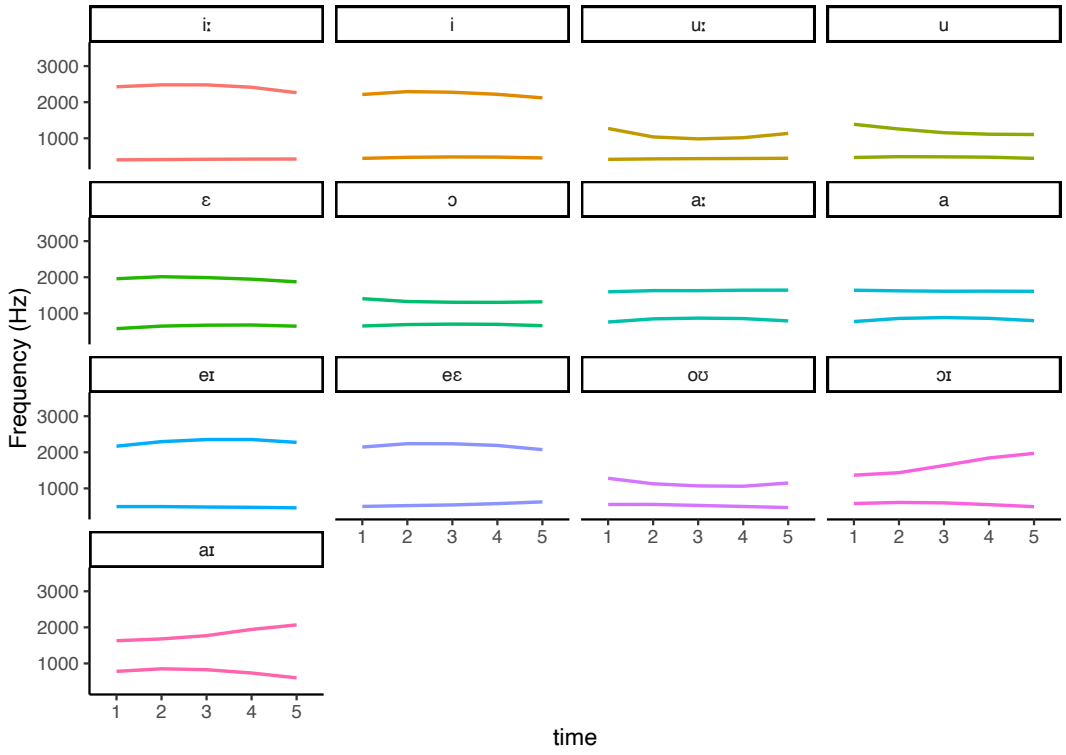

Figure 4.5. Spectrogram-style plots, with time on the x-axis and formant frequency on the y-axis, showing F1 and F2 trajectories of nine vowel phones, created from median frequency values (Hz) taken at 5 temporal points in the vowel tokens (N = 19,269) produced by 7 female Unterland Yiddish speakers.

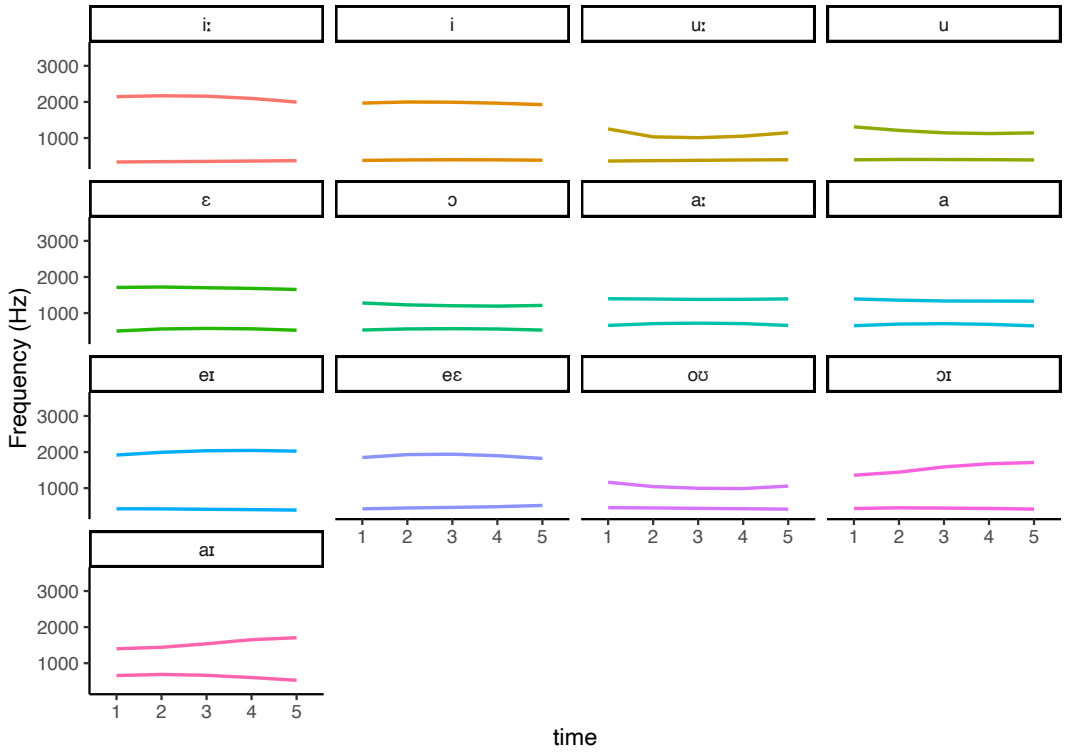

Figure 4.6. Spectrogram-style plots, with time on the x-axis and formant frequency on the y-axis, showing F1 and F2 trajectories of nine vowel phones, created from median frequency values (Hz) taken at 5 temporal points in the vowel tokens (N = 19,481) produced by 6 male Unterland Yiddish speakers.

4.1.1 Ruling out vowel breaking and drawl in Unterland Yiddish

As described in Chapter 2 (§2.1.5), Jacobs (1990, 1993, 2005) describes a phonological process, posited to be obligatory in CY, in which an epenthetic schwa [ə] appears between long, high vowels (or non-low diphthongs with a high offglide) and a following tautosyllabic dorsal fricative consonant, resulting in falling diphthongs (e.g., [biːəχ] from [biːχ] 'book' and [buːəʁd] from [buːʁd] 'beard'; discussed in Chapter 2 §2.1.5). Acoustically, this would manifest as a long drop (after [iː]) or rise (after [uː]) of F2 into the expected second formant range for [ə], typically below 1800 Hz (Garellek, 2020; personal

communication).[7] To illustrate, Figure 4.7 shows a spectrogram of the word [biːəχ] produced by a native CY speaker,[8] with clearly discernable breaking, i.e., a downglide that starts around mid-vowel and ends at approximately 1335 Hz.

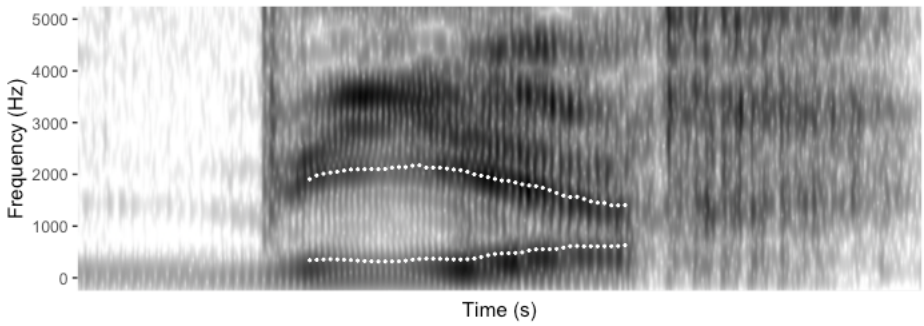

Figure 4.7. Spectrogram of word [biːəχ] produced by a native Central Yiddish speaker Eliezer Butman

Unsurprisingly, given the dearth of research on UY, the breaking phenomenon was never examined in this dialect. Since two of the variables examined in the present study, /iː/ and /uː/, are theoretically subject to this phonological process, and since the cross-generational analyses conducted for this study rely on formant measures taken at the vowel midpoint (under the assumption that it represents a steady state in the vowel), it is important to ascertain whether breaking is a feature of UY. If it is, the midpoint measurements may not be stable and thus not comparable to those of NYHY, which, based on my native familiarity and impressions, does not exhibit vowel breaking.

[7] Jacobs asserts that the quality of the inserted schwa in these contexts tends to be lower, closer to [ɛ] or [ɔ].

[8] The recording is from an audiobook entitled *Di nakht un der tog* 'The night and the day' by Avrom-Moshe Fuks, which is available for download free of charge on the Yiddish Book Center's website. The reader, Eliezer Butman (1910–1992), was born and raised in Radzyń Podlaski, Poland, and relocated to Canada following W.W. II. I learned of this recording from Garellek (2020), who samples audio by the same speaker.

In the subdialects on which Jacobs focuses, two consonants can trigger breaking, [χ] and [ʁ].[9] However, it is known that in a number of CY regions, the rhotic consonant was produced in the alveolar/apical position, as [r].[10] Since UY, or at least the speakers sampled in this study, have apical /r/, the breaking rule, as formulated by Jacobs, would apply only before [χ]. However, Jacobs also describes a more general version of breaking, called drawl, which extends the schwa-insertion rule to tautosyllabic coronal consonants (e.g., [nuːz] 'nose' becoming [nuːəz], [ʃtuːt] 'city' becoming [ʃtuːət], [buːd] 'bath' becoming [buːəd], and so on). Drawl, according to Jacobs, is optional. It is affected by speech style and rate and is more likely to occur in phrase-final position. Although Jacobs doesn't specify apical [r] as a trigger for drawl, it follows from his description that this is another potential context for schwa intrusion. However, it is important to point out that these are dialect descriptions and are not based on acoustic analysis.

My impression when listening to the speakers in this corpus was that breaking and drawl appear infrequently in their speech and that, if present, they are typically at the end of a phrase.[11] Several dozen vowel tokens of /iː/ and /uː/ in contexts where breaking or drawl is expected were randomly selected for closer impressionistic and visual analysis. While most of the tokens did not have auditorily discernible epenthetic schwas, a schwa-like

[9] In words with a following [ʁ], a secondary process of r-deletion in these dialects results in [buːəd] from [buːʁd] 'beard'.

[10] Burko (n.d.) illustrates the unsystematic distribution of apical vs. uvular /r/ across Yiddish dialects

[11] This supports Garellek's (2020) contention that breaking and drawl are both correlates of phrase-final lengthening, and the epenthetic schwa is a phonetic manifestation of a longer vowel-to-coda transition (as discussed in §2.1.5).

quality was sometimes perceptible. For example, speaker Shlomo-Kalmen (1:1926) utters the word [biːχ] twice in the interview segment analyzed. In the first instance, which appears in sentence-medial position (Figure 4.8; left), the vowel is relatively stable throughout, with a short transition occurring at the end of the vowel, consistent with what is expected for a non-diphthongized [iː] in pre-uvular position. In the second utterance, which precedes a brief pause (Figure 4.8; right), there is a rise in F1 to 460 Hz and a drop in F2 to 1630 Hz. However, the drop in the second formant begins after the 40-60% temporal mark. Another example of the same word produced by speaker Hersh (1:1919) is shown in Figure 4.9. F1 rises slightly to 460 Hz and F2 falls to 1500 Hz. Here too, however, the vowel is stable through the center portion. Neither of these examples replicate the long downgliding in F2 visible in the spectrogram from the recording of the CY speaker (Figure 4.7, above).

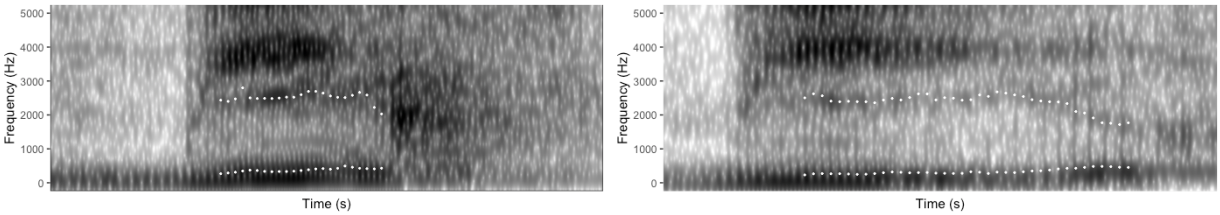

Figure 4.8. Spectrograms of two observations of the word [biːχ] 'book' produced by native Unterland Yiddish speaker Hersh (1:1919).

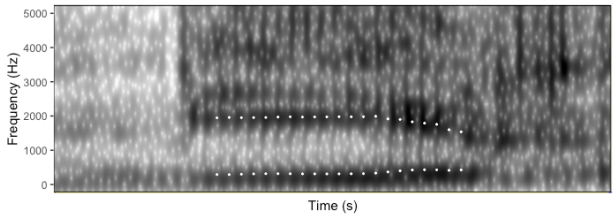

Figure 4.9. Spectrograms of the word [biːχ] 'book' produced in sentence-medial position by native Unterland Yiddish speaker Shlome-Kalmen (1:1926).

Given the amount of data analyzed for each vowel class and the relative infrequency of breaking or drawl, the existing instances of downgliding are unlikely to significantly affect the outcome when the data are analyzed in aggregate. To demonstrate this further, spectrogram-style plots are presented, showing the 0 to 5000 frequency range (the standard window size in Praat) of all monosyllabic words in the contexts most likely to show breaking or drawl, separately for male and female speakers: Figure 4.10 and Figure 4.12 plot [iː] and [uː], respectively, before [r]; and Figure 4.11 shows [iː] before [χ] (tautosyllabic [χ] is unattested after [uː] due to the conditioning of the historical long-short split). Note that while a slight drop in F2 is evident in [iː], the trajectory is short and the temporal midpoint of the vowel appears relatively stable. In [uː], there is no significant rise in F2. Next, images were compared with the same plots generated from NYHYC data (not shown here) and no salient differences were observed. Finally, several audio samples were shared with a phonetician who has studied CY breaking and drawl (Garellek 2020; personal communication), who agreed with my judgement on the presence or absence of breaking/drawl in these tokens. Having ruled out the presence in UY of the breaking/drawl that has been described as systematic for CY, we turn now to a phonetic description of NYHY.

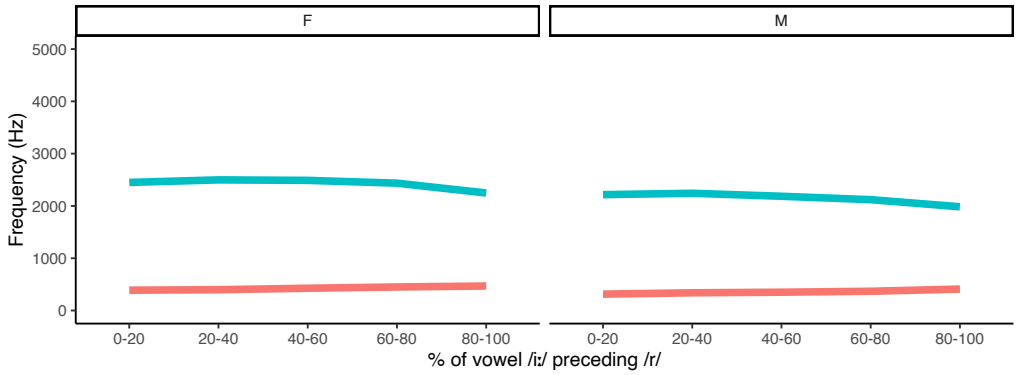

Figure 4.10. Monosyllabic tokens of vowel [iː] preceding [r] for female (left, N = 66) and male speakers (right, N = 79).

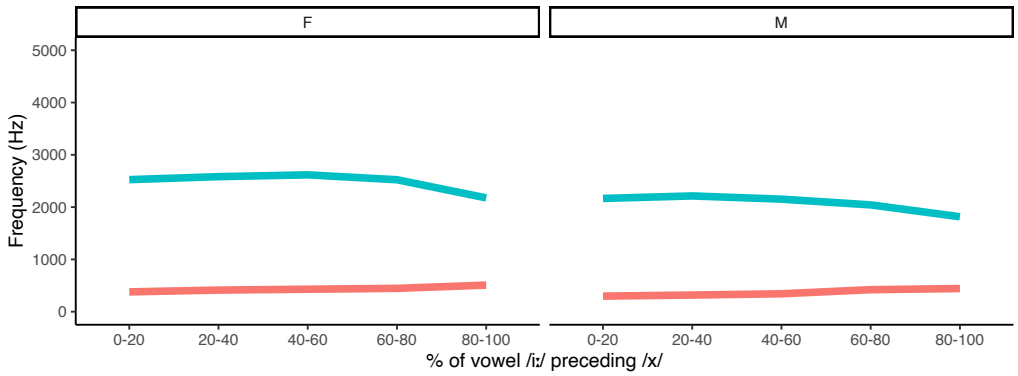

Figure 4.11. Monosyllabic tokens of vowel [iː] preceding [χ] for female (left, N = 18) and male speakers (right, N = 16).

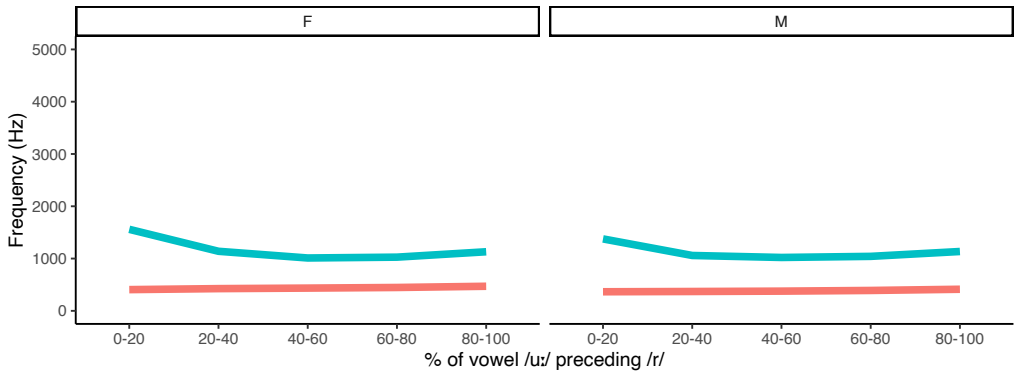

Figure 4.12. Monosyllabic tokens of vowel [uː] preceding [r] for female (left, N = 127) and male speakers (right, N = 149).

4.2 Acoustic characteristics of New York Hasidic Yiddish vowels

This section provides a phonetic overview of NYHY vowels in stressed position based on impressionistic and acoustic analyses. A survey of the corpus data confirms the presence of all UY vocalic contrasts. However, as subsequent sections in this chapter will demonstrate, the spectral shapes of some of these vowels have shifted slightly, leading to disparities in the acoustic correlates of NYHY vowels and those of the input dialect. In the absence of phonological descriptions of NYHY, the data are taken as the starting point for the present description, and the vowels are labeled according to their phonetic markers.

The stressed vowel system of NYHY, like that of UY (Table 4.1), consists of eight monophthongs: /i, ɪ, u, ʊ, ɛ, ʌ, aː, a/ and four diphthongs: /eɪ, oʊ, ɔɪ, aɪ/. These can be classified into four degrees of openness (height) on the basis of F1: close (high), close mid, open mid and open (low); and three degrees of backness according to F2: front, central and back. A basic schematic of the vowel inventory is shown in Figure 4.13. Table 4.4 lists all NYHY stressed vowels, along with their orthographical representations, StY equivalents (in YIVO transliteration), and their diaphonemic numbers (explained on page 159, footnote 6).

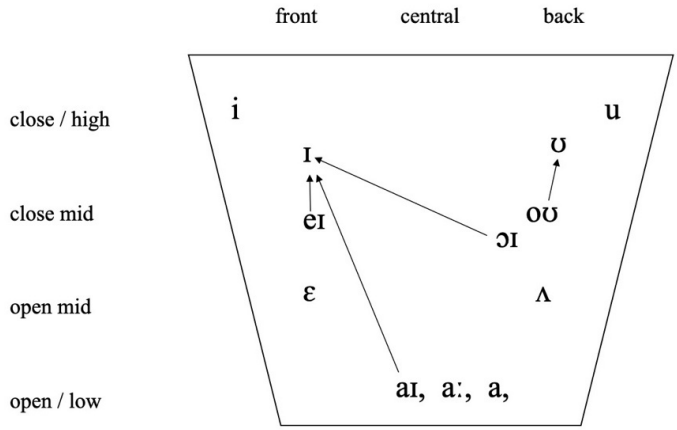

Figure 4.13. Inventory of NY Hasidic Yiddish vowels in stressed position

Vowel (IPA)	**HY orthography**	**StY**	**Vowel number**
a	א	a	11
aː	ײ	ay	34 (11 before /r/)
aɪ	ײ	ey	22, 24 (34 word-finally and before hiatus)
eɛ	ע	e	25 (before /r/)
eɪ	ע	e	25
ɛ	ע	e	21
i	י / ו	i / u	32, 52
ɪ	י / ו	i / u	31, 51
ʌ	א	o	41
oʊ	וי	oy	54
ɔɪ	וי	oy	42, 44
u	א	o	12
ʊ	א	o	12 (before velar and labial consonants)

Table 4.4. List of NY Hasidic Yiddish stressed vowels with Hasidic Yiddish orthography, Standard Yiddish transliteration equivalents and diaphonemic number.

In Table 4.5, the basic acoustic features of NYHY monophthongs, including duration (in milliseconds), Fo, and first and second formant frequencies, are summarized. Note that the contrast in the NYHY high vowels is represented here as a tense-lax distinction ([i] vs. [ɪ] and [u] vs [ʊ]) rather than a length difference, as is described for CY, on the basis of their

relative positions in phonetic space. These are illustrated in Figure 4.14, which plots the data points (F1 and F2) of all peripheral vowels [i, u, aː] (N = 61,391), and their lax/short counterparts. Square labels show the location of formant means of all monophthongs, while ellipses surrounding peripheral vowel pairs denote 68% confidence in the means. While some overlap is clearly visible in the distributions of [i] vs. [ɪ] and [u] vs. [ʊ] (likely due to the amount of variability in the production of these vowels), the distances between the means of the vowels in each pair suggest significant differences in quality.

The vowel classified as /ʌ/ is a reflex of CY /ɔ/; however, no evidence was found of lip rounding in this vowel, either impressionistically or in the F2/F3 values. Moreover, a comparison of HY [ʌ] with the HE [ʌ] and [ɔ] produced by the same speakers shows phonetic overlap with HE [ʌ] (see Figure 4.15). Mean F1/F2/F3 of this vowel was also compared to American English (AmE) [ʌ] and [ɔ] using values reported by data from Hillenbrand et al. (1995) (HD) and Peterson and Barney (1952) (PB) (see Table 4.6 and Figure 4.16, below). In the F2, NYHY [ʌ] patterns similarly to AmE [ʌ]. For the F1, NYHY [ʌ] is slightly higher than HD [ɔ] but significantly lower than PB [ɔ] among female speakers and occupies a similar position as PB [ɔ] in male speakers.

Regarding duration, NYHY high vowels [i] and [u] are 32% and 42% percent longer than their short correlates, respectively, while [aː] is 26% longer than [a]. Here too, duration for [u] and [ʊ] was calculated without prelateral and prerhotic tokens; and prelateral tokens were excluded from durational measures for [aː] and [a].

Vowel (IPA)	Dur (ms)	F0	F1	F2
i	96	156	405	2214
ɪ	65	160	466	1933
u	116	157	424	1063
ʊ	67	158	474	1217
ɛ	78	154	604	1695
ʌ	104	148	637	1285
aː	119	146	734	1382
a	88	149	733	1382

Table 4.5. Mean duration (in milliseconds), F0, and (normalized) F1 and F2 of NYHY monophthongs extracted from the NY Hasidic Yiddish corpus.

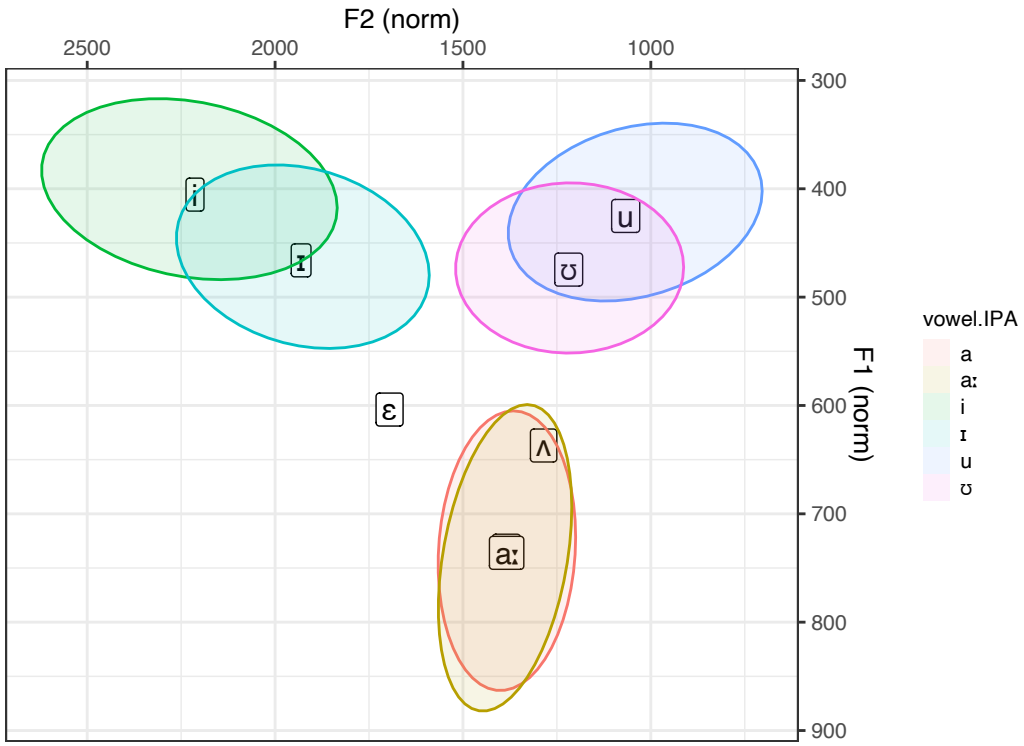

Figure 4.14. Peripheral vowel tokens and their short/lax counterparts from the NY Hasidic Yiddish (N = 91,148) plotted by mean normalized F1 and F2 values, with labels indicating location of the means of all monophthongs and ellipses showing 68% confidence in the mean of 6 peripheral vowels pairs only.

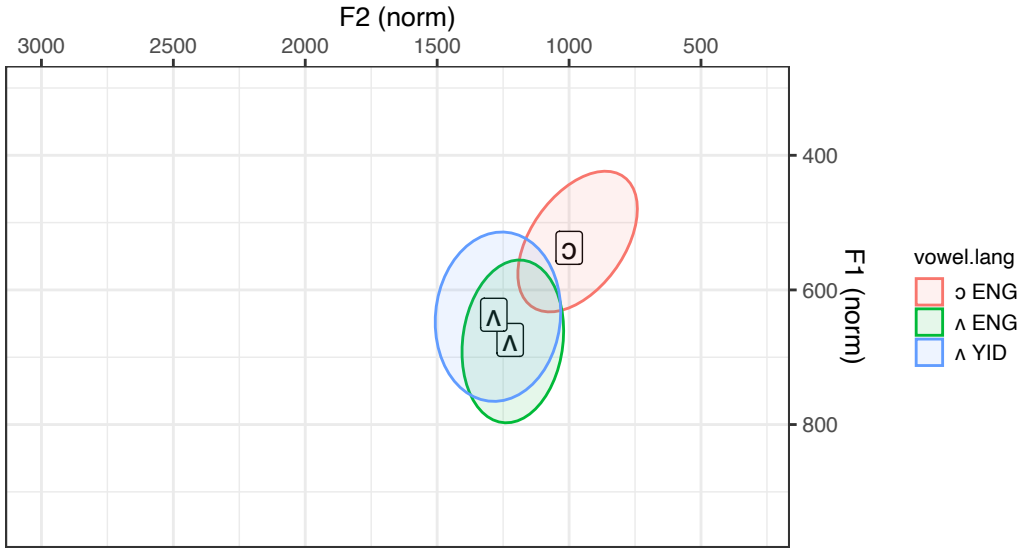

Figure 4.15. All tokens of NY Hasidic Yiddish /ʌ/ and Hasidic English /ɔ/ and /ʌ/ produced by NY Hasidic speakers (N = 21,085), plotted by F2 on the x-axis and F1 on the y-axis. Ellipses showing 68% of confidence in the mean are colored and filled by vowel + language

			male speakers				female speakers			
Vowel	Data	Language	F0	F1	F2	F3	F0	F1	F2	F3
/ɔ/	HD	AmE	121	652	997	2538	210	781	1136	2824
	PB	AmE	129	570	840	2410	216	590	920	2710
/ʌ/	NYHYC	HY	117	574	1212	2554	186	711	1346	2866
	HD	AmE	133	623	1200	2550	218	753	1426	2933
	PB	AmE	130	640	1190	2390	221	760	1400	2780

Table 4.6. Summary of acoustic features (F0, F1, F2, and F3, in Hertz) of vowels [ɔ] and [ʌ] of adult male and female speakers from Hillenbrand et al. (1995: HD; N = 695) and Peterson and Barney (1952: PB; N = 760), and NY Hasidic Yiddish [ʌ] tokens from the present study (N = 11,783), filled in gray.

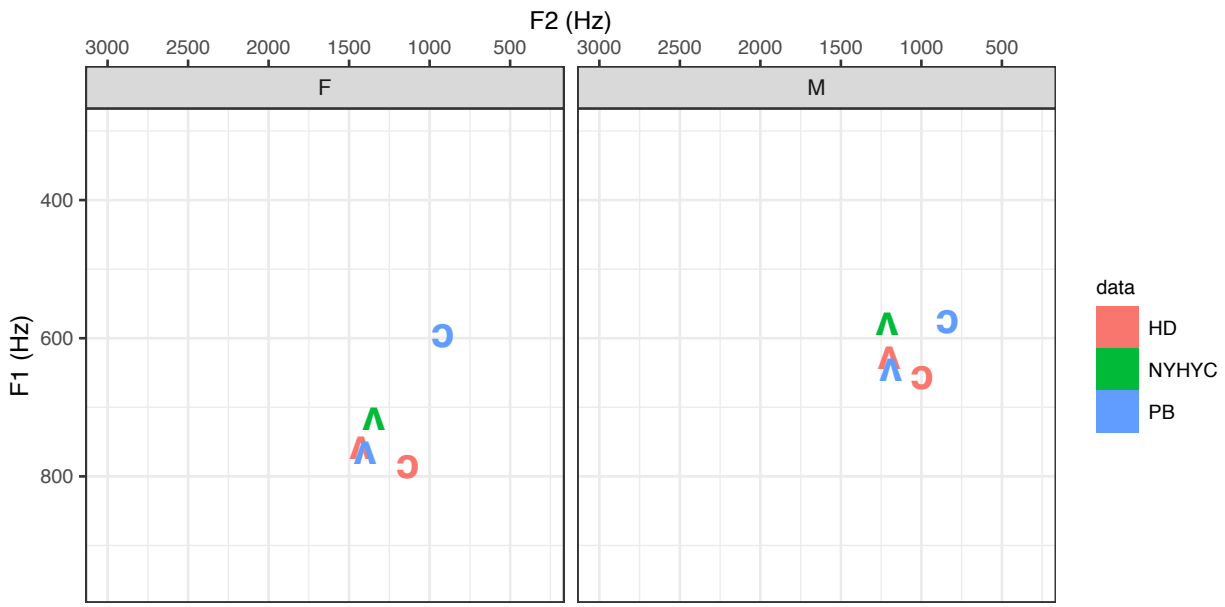

Figure 4.16. F1 ~ F2 plots for adult female and male speakers showing mean values of [ʌ] and [ɔ] reported by Hillenbrand et al. (1995: HD, in pink), Peterson and Barney (1952: PB, in blue); and of NY Hasidic Yiddish [ʌ] using data from the present study (in green).

Figure 4.17 plots the eight monophthongs in acoustic space. In Figure 4.18, both the monophthongs and diphthongs are plotted from normalized midpoint values, with a line connecting the vowel points, outlining the vowel polygon. The vowel [ɔɪ], whose midpoint falls in the center of the vowel space, is left unattached. Here, [ɪ] and [ʊ] are creating indentations in the otherwise triangular vowel space. The dimensions of the NYHY vowel space (both height and width) are also smaller than that of UY. Note that in both of these figures (4.17 and 4.18) the /aː/ and /a/ symbols are superimposed on each other due to their overlap in phonetic space.

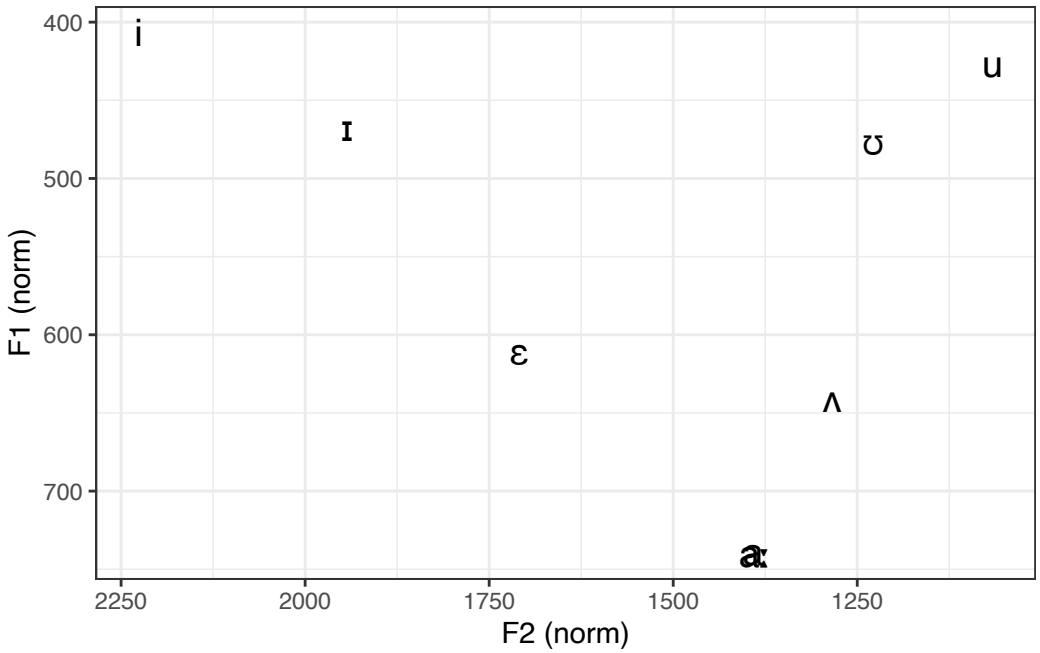

Figure 4.17. NY Hasidic Yiddish stressed monophthongs plotted on the acoustic plane by mean normalized F1 and F2 values (N = 91,148).

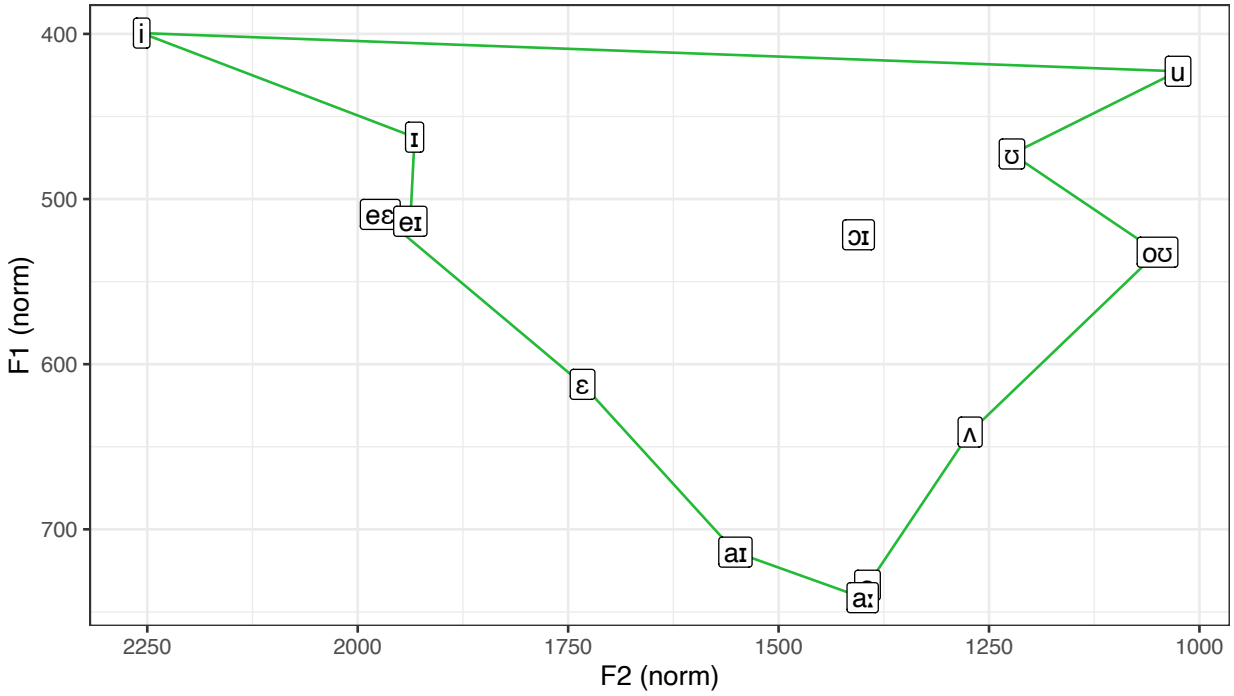

Figure 4.18. Outline of the NY Hasidic Yiddish vowel space, as measured by normalized means of all stressed vowels.

In Figure 4.19, all monophthongs are once again mapped in phonetic space using means of the median F1 and F2 values (in Hz), taken from the third temporal portion of each vowel, while the full trajectories (median F1 and F2 values taken at all five points) are plotted for the diphthongs. The plots are faceted by speaker gender, with female speakers on the left and male speakers on the right. In both groups, we can observe that the onset of [eɛ] is higher on the F1 plane than onset of [eɪ] (in UY these are overlapping in both groups). The offglides of these are in opposing directions, [eɪ] glide upwards, [eɛ] glides downwards and the end point of each vowel is at the height of the other's onset. Furthermore, the offset of [eɛ] is shorter than in UY, and its endpoint turns back instead of pointing downward, as it does in UY. Finally, in Figure 4.20 and Figure 4.21, the F1 and F2 trajectories of all vowels are shown using spectrogram-style plots, separately for female and male speakers.

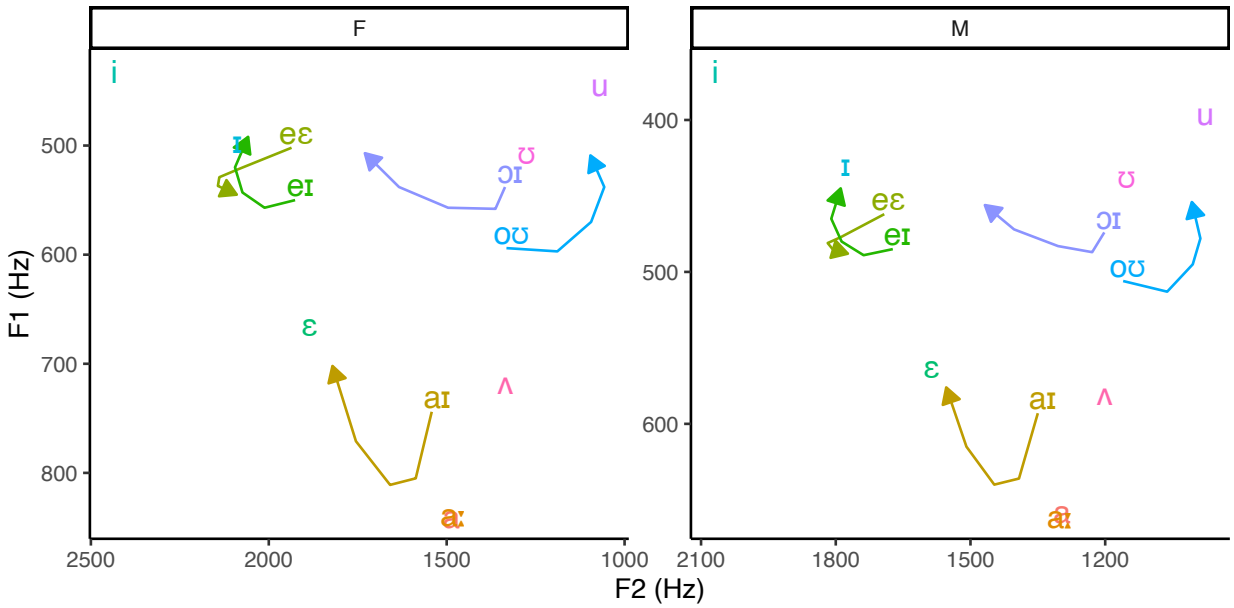

Figure 4.19. All vowel tokens produced by 31 female (N = 59,366) and 26 male (N = 75,627) native NY Hasidic Yiddish speakers plotted with F2 on the x-axis and F1 on the y-axis. Monophthongs are plotted using the mean value extracted from the middle temporal portion (40-60%) of the vowel. For diphthongs, the means of all five portions are plotted, with lines. The vowel symbol is shown at the onset and an arrow at the end of each trajectory.

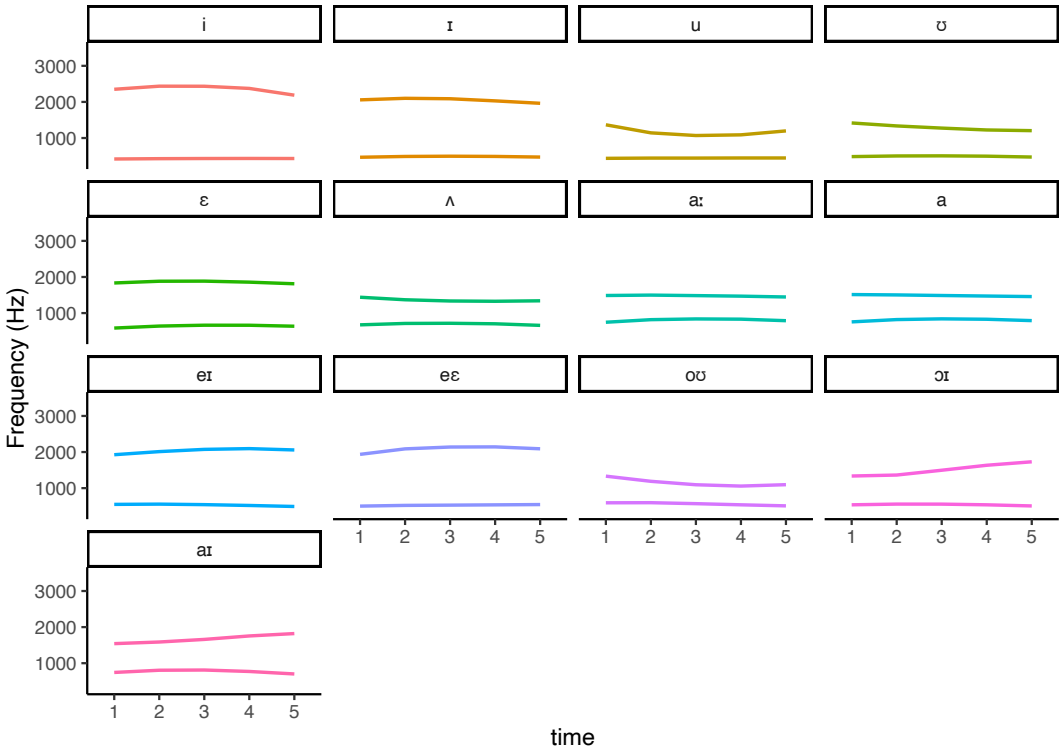

Figure 4.20. Spectrogram-style plots showing F1 and F2 trajectories of nine vowel phones, generated from median frequency values (Hz) taken at 5 temporal points in the vowel tokens (N = 59,366) produced by 31 female NY Hasidic Yiddish speakers.

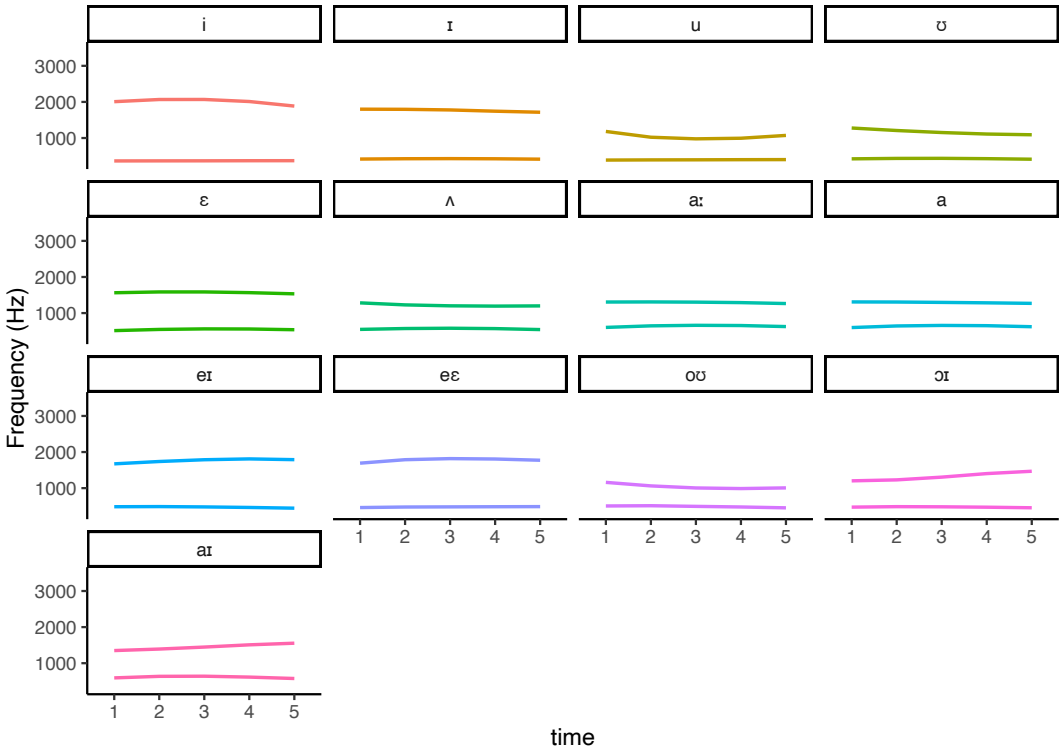

Figure 4.21. Spectrogram-style plots showing F1 and F2 trajectories of nine vowel phones, generated from median frequency values (Hz) taken at 5 temporal points in the vowel tokens (N = 75,627) produced by 26 female NY Hasidic Yiddish speakers.

4.2.1 Comparing bilingual vowel systems

Bilingual Hasidic New Yorkers share the majority of their vowel categories: Seven HY monophthongal vowel categories have a structural equivalent in North American English. In addition, English /æ/, /ɚ/, and /ɔ/ appear frequently in the speech of this community, which contains a considerable amount of codeswitching and numerous English loanwords (approximately 30% of the NYHYC consists of English words). In Figure 4.22, the means of the entire vocalic inventory of stressed monophthongs is displayed, faceted by language. Notable cross-linguistic differences include the lower realizations of HE lax vowels ([ɪ], [ʊ], [ɛ], [ʌ]) except [a] and the more advanced position of the HE long/short high back vowels

([u] and [ʊ]. Some of these between-language dissimilarities are discussed in Chapters 6 and 7.

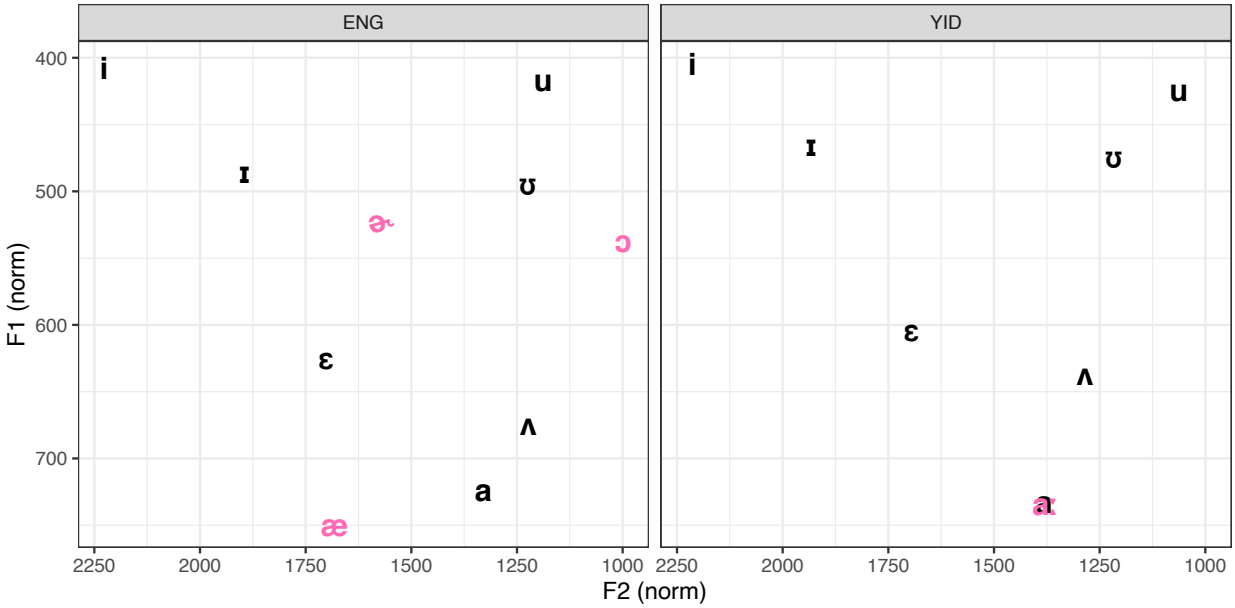

Figure 4.22. Bilingual speakers' inventory of stressed monophthongs, faceted by language (Hasidic English in left pane, Hasidic Yiddish in right pane), with phonemes not shared by both languages in pink.

Summary

The current chapter presented the complete inventories of UY and NYHY vowels and described the spectral and temporal qualities of the phonemes based on their acoustic characteristic. A definitive finding that emerged from this analysis is the absence of systematic vowel breaking and drawl in UY. One surprising outcome lies in the durational ratios of the UY long vs. short vowels, especially for the /i/ and /a/ pairs, which are comparatively small for a length-distinguishing system. Consider that the minimum long/short ratio for the quantity languages reviewed in Chapter 2 §2.3 is 1.5, while the /i/ and /a/ pairs in UY have a long/short ratio of 1.38 and 1.32, respectively. Such a marginal

temporal difference is especially unexpected in the low vowel pair, which exhibits minimal spectral difference.

The subsequent chapters of the dissertation will focus exclusively on the three peripheral vowel pairs /i/, /u/, and /a/, comparing their quality and duration across four generations of speakers (Chapter 5); assessing the similarity/difference of the acoustic parameters of HY vs. HE vowels of New York speakers (Chapter 6); and investigating the effects of Hasidic orientation on the advancement of /u/ (Chapter 7).

Chapter 5

Phonetic contrast results

מיידלעך אין סקול רעדן נאך אלס אזויווי מיין שוועסטער האט גערעדט אלץ מיידל, און מיין זון רעדט ווי א אינגל האט גערעדט אין חדר. 'האקן שטיקער' איז א עכטע אינגלישע ווארט, און די ווארט '*whatever*' איז א עכטע מיידלישע ווארט. און אזוי גייט עס בלייבן ביז משיח וועט קומען.

'Girls in school still speak the same way my sister spoke as a girl, and my son speaks like a boy spoke in khayder ('elementary school'). 'hakn shtiker' (idiomatic for 'to be fully immersed in something') is a real boyish word and the word 'whatever' is a real girlish word. And that's how it will be until the coming of the Messiah.'

Simcha (born 1983; interview data)

IN THE PREVIOUS CHAPTER, the vowel inventories of Unterland Yiddish (UY) and New York Hasidic Yiddish (HY) were charted using acoustic information from recorded data. The current chapter reports on the outcome of statistical analyses comparing the spectral qualities and durational properties of the long and short correlates of three vowels /i, u, a/, across four generations of speakers.

To conduct the analyses, the two subcorpora were aggregated and are hereafter referred to in the singular ("the corpus"). For the sake of consistency, all vowels are classified according to the IPA symbols used for NYHY the previous chapter (§4.1) from this point forward. That is, the long-short correlates of the high front vowels are referred to as /i/ and /ɪ/ and those of the high back vowels as /u/ and /ʊ/. For clarity, these vowels are listed in Table 5.1 by the IPA symbols utilized from here on (in bold). The symbols used for UY in section 4.1 are also shown, along with the orthographic representation, StY transliteration equivalents, and diaphonemic vowel numbers. UY vowels that were described differently in section 4.1 are enclosed in parentheses to highlight their modified representation. Additionally, for simplicity (and because HY is the main focus of this dissertation), both UY and NYHY will be referred to as HY from here on (despite the fact that not all the UY speakers are Hasidic).

HY vowel	**Corresponding IPA symbol in UY description**	**HY orthography**	**StY equivalent**	**Vowel number**
a	a	א	a	11
a:	a:	ײ	ay	34 (11 before /r/)
i	(i:)	י / ו	i or u	32, 52
ɪ	(i)	י / ו	i or u	31, 51
u	(u:)	א	o	12
ʊ	(u)	א	o	12 (before velar and labial consonants)

Table 5.1. Peripheral vowels (long and short) analyzed in this chapter in IPA, along with the corresponding symbols used in the phonetic description of Unterland Yiddish, orthographical representations, Standard Yiddish transliteration equivalents and diaphoneme vowel number.

The main hypothesis for this section is that speakers in the younger generations would have more centralized realizations of [ɪ] and [ʊ] and thus greater phonetic distance between the long-short correlates of their high vowels. Additionally, the male speakers in each group

are predicted to be more conservative than female speakers with respect to these changes, based on gender differences in language dominance and proficiency. With respect to duration, the expectation is that the long-short ratios of the vowel pairs diminish as spectrum becomes the dominant cue for vowel identification.

The results are presented in two main parts, one focusing on vowel quality (§5.1) and the other on vowel duration (§5.2). In each of these sections, the data is first displayed visually, then the statistical methods are described. Next, the results are displayed in three subdivisions, one for each vowel pair. In §5.3, the findings about both quality and duration are discussed, along with their implications.

5.1 Vowel quality

5.1.1 Visualizing the data

This section begins with a visual display (F2 ~ F1 plots) showing the location of the means of the six vowels [i, ɪ], [u, ʊ], and [aː, a], on the acoustic plane, calculated separately for each generational group (Figure 5.1). Next, the normalized F1 and F2 values of all vowel tokens are plotted in individual facets for each group, with symbols representing location of the means and ellipses enclosing two standard deviations (Figure 5.2). The number of tokens plotted for each vowel class, by generation, are displayed in Table 5.2.

These plots reveal several changes: Figure 5.1 illustrates that the high long vowels [i] and [u] of the three younger generations are slightly lower and more centralized than that of Gen1. More strikingly, in both high vowel pairs, the short counterpart appears to be gradually drifting farther away from the tense vowel, and closer to the center of the vowel

space (Figure 5.2). Additionally, Gen1 exhibits less variability in the production of [i], specifically in F2, but more variability in [ʊ], mostly in the F1, than the other three generational groups. The youngest two generational groups (Gen3 and Gen4) show the most variability in [u]. The vowels [aː] and [a] overlap similarly in all four generations (Figures 5.1, 5.2), although their exact location varies slightly across speaker group.

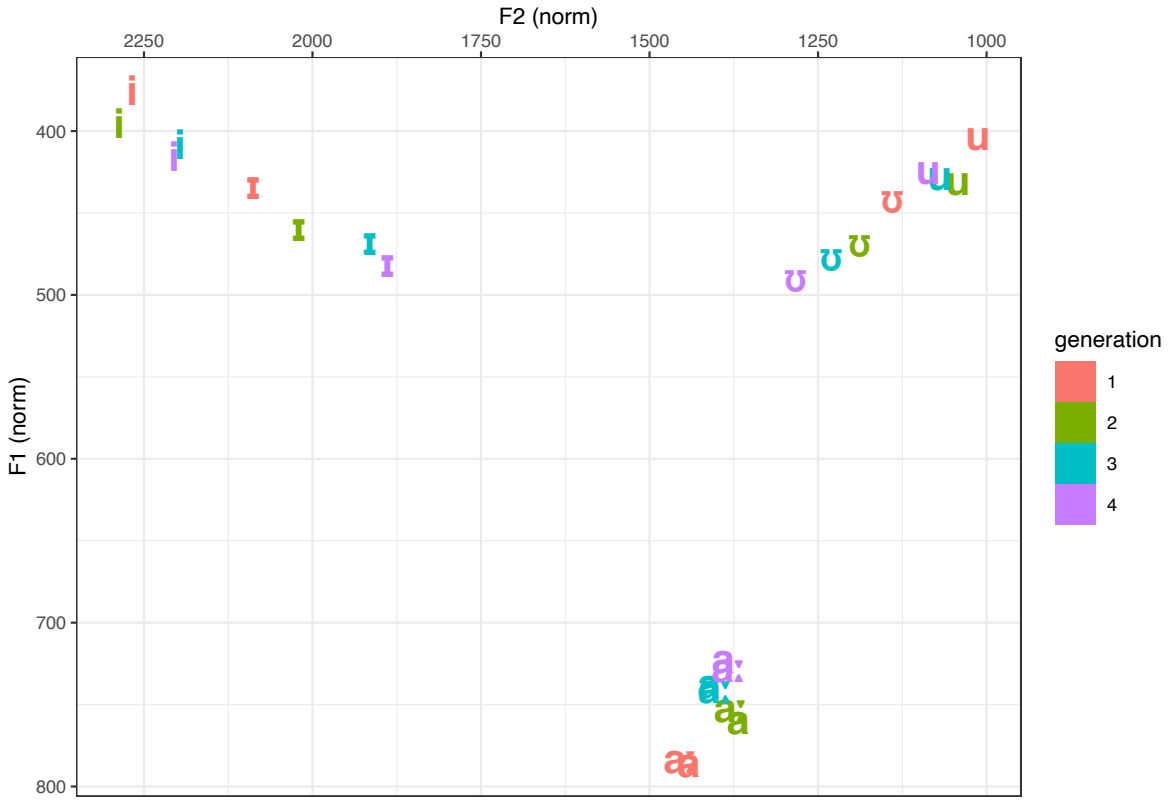

Figure 5.1. Mean normalized formant values of Hasidic Yiddish peripheral vowels (N = 79,833), with F2 on the x-axis and F1 on the y-axis, grouped by generation.

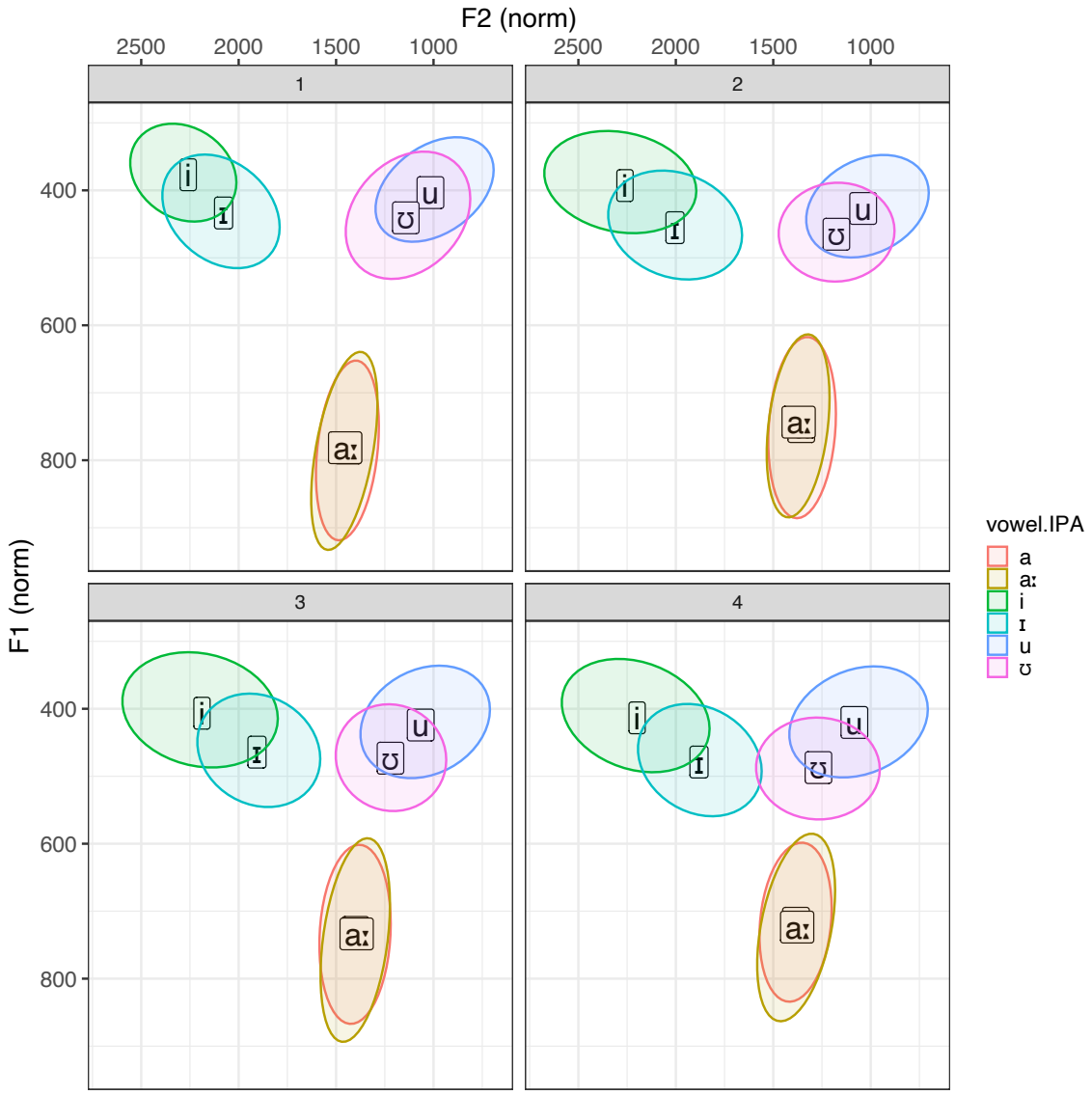

Figure 5.2. All tokens of Hasidic Yiddish peripheral vowels (N = 79,833) plotted by F2 on the x-axis and F1 on the y-axis. Square labels containing IPA symbols represent the location of the vowel means and ellipses show 68% confidence in the mean.

Generation	aː	a	i	ɪ	u	ʊ
1	1857	5689	2443	4323	1585	1917
2	2272	5872	2209	5039	2469	2080
3	2855	7222	2738	5784	2766	1978
4	2172	6272	2384	4151	2271	1485

Table 5.2. Number of tokens extracted from each generation by vowel class (IPA).

In examining the overlap in the high vowels for each speaker individually, a fair amount of variability was detected within the generational groups. To home in and visualize both ends of the overlap spectrum, two speakers were selected for closer inspection (based on by-speaker Pillai scores), one to represent the high overlap range and one to demonstrate the high distinctiveness range. Figure 5.3 plots the peripheral vowels of Alti (1:1928) on the left panel and Volvi (4:1996) on the right. Note that while the means of Alti's high long-short vowel are proximate and their distributions overlap almost completely, Volvi's high vowels occupy distinct positions on the phonetic plane and the mean for each class falls outside the confidence interval of its pair. The number of tokens extracted for each vowel by speaker is shown in Table 5.3.

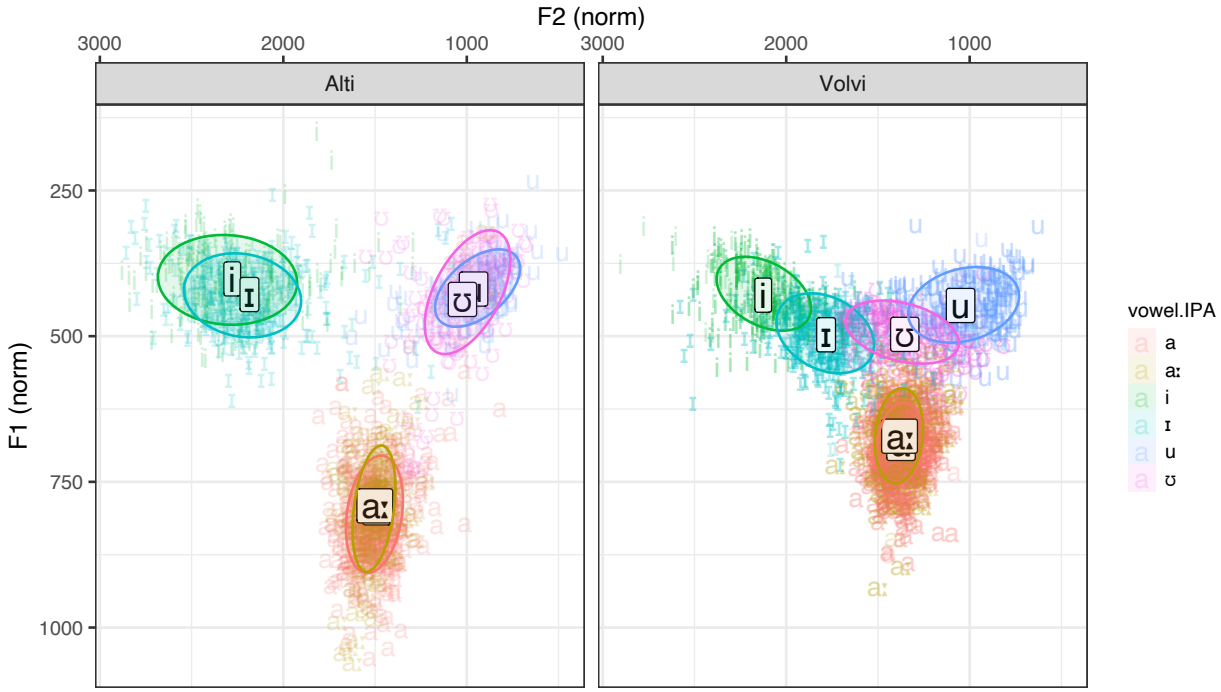

Figure 5.3. Vowel tokens (N = 5070) of two speakers, plotted by F2 on the x-axis and F1 on the y-axis. Square labels with IPA symbols represent the location of the vowel means and ellipses show 68% confidence in the mean.

Speaker	**aː**	**a**	**i**	**ɪ**	**u**	**ʊ**
Alti	164	519	192	366	129	170
Volvi	338	1302	426	732	404	328

Table 5.3. Number of tokens extracted from two speakers, by vowel class (IPA).

In the subsequent sections, the cross-generational differences in overlap are analyzed using statistical measures.

5.1.2 Statistical modeling

5.1.2.1 High front vowels: [i] vs. [ɪ]

This dataset consists of 9,774 tokens of /i/ and 19,297 tokens of /ɪ/, for a total of 29,071 observations, extracted from 2,338 unique words. The ten most common words for /i/ are:

vi ('how', 'to what extent'), *lib* ('like'), *tin* ('do'), *yidn* ('Jews'), *brider* ('brother'), *getin* ('did'), *fir* ('four'), *yid* ('Jew'), *yeshive* ('Orthodox Jewish seminary'), *ahin* ('there'), and *shtib* ('room' or 'home'). For /ɪ/ the highest frequency words are: *yidish* ('Jewish'), *kinder* ('children'), *gekimen* ('came'), *abisl* ('a little'), *git* ('good'), *kimt* ('comes'), *gevist* ('knew'), *biz* ('until'), *kimen* ('come'), and *afile* ('even' or 'even though'). An average of 416 tokens were extracted per speaker and 7,267 per generation.[1]

Recall the hypothesis that the tense vs. lax vowel in the high vowel pairs are diverging over time, across generations. As the vowel plots above have shown, it is not merely the short vowels that are moving; tense vowels too are lowering and centering. Therefore, the statistical measures utilized in this section are designed to capture cross-generational differences in the distinctiveness between the vowels in each pair, rather than merely tracking the movement of individual vowels.

Pillai scores

To analyze differences in the quality of [i] vs. [ɪ], we first look at Pillai scores (Table 5.4), which were calculated by generation using normalized F1 and F2 values as the dependent variables, with (decadic log-transformed) duration, and the preceding and following sound (coded for voice, place, and manner) as independent variables (as described in §3.4.1). In interpreting these Pillai scores, recall that 0 indicates complete overlap between two vowel clusters and 1 implies no overlap at all. The scores for this dataset reflect an increasing

[1] The range of tokens extracted from each speaker is 25 – 1,158 (the lower end is from speakers who completed only the wordlist task), with a standard deviation of 238.38. The mean by generational group is 7,267.75, with a standard deviation of 887.36.

difference in the distribution of the vowels in apparent time, i.e., across generations, with Gen1 (Pillai = 0.24) exhibiting the lowest Pillai score (signifying the least distinctiveness across the vowel pair) and Gen4 (Pillai = 0.38) the largest score. The *p*-values show that the differences are statistically significant.

Generation	Pillai	*p-value*
1	0.22	<0.001
2	0.30	<0.001
3	0.31	<0.001
4	0.38	<0.001

Table 5.4. Pillai scores of [i] vs. [ɪ] by generation.

Linear mixed models

Next, we look at the output of the LMMs for F1 and F2 of both [i] and [ɪ] (combined in Table 5.5), with cells containing the relevant significant interactions shaded in grey.[2] The fixed effect directly related to the main research question is Vowel × Generation: a statistically significant interaction for a generational group is predicted by a change in the distinctiveness (vs. similarity) of the long vs. short vowel from Gen1 (the reference level) to that group. Specifically, a positive estimate for the F1 for a particular group corresponds to short vowels that appear lower in phonetic space relative to the long vowels for that group, and a negative F2 corresponds to greater retraction or centering of the short vowel.

[2] R call for the LMMs: F1 ~ Vowel * Generation + Task + Vowel * Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|speaker) + (1|Word); F2 ~ Vowel * Generation + Task + Vowel * Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|Speaker) + (1|Word). The level in Preceding and Following Segment labeled 'unknown' is for tokens in which the target vowel is positioned word-initially or word-finally, and the preceding or following sound was either not transcribed or was not identified during automatic alignment. These may be out of vocabulary words, but more often they are non-speech sounds (e.g., throat clearing, laughter, etc.).

Additionally, Vowel × Gender predicts whether the qualitative difference between the two vowels is significantly different for male vs. female speakers. Other significant effects, included as control predictors in the model, are not discussed here for the sake of brevity.

As predicted, the results show a significant separation of the tense vs. lax vowels between Gen1 and all the younger generations (F1: Gen2 β=8.22, SE=2.17, t(26298)=3.78, p<.001; Gen3 β=10.07, SE=2.14, t(25700)=5.71, p<.001; Gen4 β=17.89, SE=2.28, t(26041.86)=7.86, p<.001; F2: Gen2 β=-65.43, SE=8.56, t(26879)=-7.65, p=.001; Gen3 β=-119.45, SE=8.56, t(26464)=-14.20, p<.001; Gen4 β=-146.25, SE=8.96, t(26766)=-16.33, p<.001). Post-hoc pairwise comparisons of the interaction (with Tukey-adjusted p-values) using the emmeans package in R (Lenth, 2021) reveal that the difference (i - ɪ) in F1 is also significant between Gen3 and Gen4 (β=7.83, SE=1.97, t(28838)= 3.96, p=.004); and in F2 across all generations (Gen2 – Gen3: β=-54, SE=7.75, t(28965)=-6.96, p<.001; Gen3 – Gen4 β=-26.8, SE=7.71, t(28704)=-3.47, p=.002). Additionally, the lax vowels of male speakers are significantly more closed (i.e., more conservative) than those of female speakers, as indicated by the negative coefficient in the interaction of vowel and gender for F1 (β=-4.14, SE=1.44, t(28498.66)=-2.87, p=.004). In the F2 model, the gender effect is not significant.

	F1 (norm)				F2 (norm)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	362.44	8.20	44.22	**<0.001**	1609.94	31.62	50.91	**<0.001**
Vowel [ɪ]	57.50	2.34	24.60	**<0.001**	-190.28	9.62	-19.78	**<0.001**
GENERATION (vs. 1)								
2	17.86	8.36	2.14	**0.033**	-14.64	31.41	-0.47	0.641
3	27.56	7.84	3.52	**<0.001**	-43.80	29.48	-1.49	0.137
4	41.62	7.89	5.28	**<0.001**	-25.86	29.68	-0.87	0.384
Task [wordlist]	-11.47	3.33	-3.44	**0.001**	46.74	13.98	3.34	**0.001**
Gender [M]	-10.00	5.35	-1.87	0.062	41.90	20.11	2.08	**0.037**
Log_{10}(Duration)	13.64	1.96	6.98	**<0.001**	294.21	7.66	38.39	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	22.83	3.41	6.70	**<0.001**	45.69	14.13	3.23	**0.001**
dorsal	149.93	55.44	2.70	**0.007**	212.27	215.97	0.98	0.326
labial	19.61	3.24	6.05	**<0.001**	43.33	13.83	3.13	**0.002**
glide: dorsal	-33.48	4.83	-6.93	**<0.001**	231.39	20.94	11.05	**<0.001**
liquid: dorsal	-4.51	16.09	-0.28	0.779	-59.58	63.59	-0.94	0.349
voiced obstruents								
coronal	-4.67	3.29	-1.42	0.156	-18.21	14.04	-1.30	0.195
dorsal	-13.82	5.33	-2.59	**0.010**	122.00	22.94	5.32	**<0.001**
labial	-8.11	3.16	-2.56	**0.010**	3.05	13.49	0.23	0.821
voiceless obstruents								
coronal	-6.17	2.35	-2.62	**0.009**	3.46	9.95	0.35	0.728
dorsal	-3.30	3.25	-1.02	0.310	108.62	13.78	7.89	**<0.001**
labial	-3.54	3.42	-1.04	0.300	-12.17	14.57	-0.84	0.403
laryngeal	0.02	4.81	0.00	0.996	107.37	20.53	5.23	**<0.001**
vowel	-0.01	5.33	-0.00	0.999	73.24	21.51	3.40	**0.001**
SILENCE	10.97	10.08	1.09	0.277	104.97	39.60	2.65	**0.008**
[unknown]	-8.31	4.11	-2.02	**0.043**	106.41	16.53	6.44	**<0.001**
FOLLOWING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	24.15	3.31	7.31	**<0.001**	68.10	14.01	4.86	**<0.001**
dorsal	5.27	4.39	1.20	0.230	197.89	18.82	10.52	**<0.001**
labial	24.03	3.58	6.71	**<0.001**	-2.37	15.00	-0.16	0.874
glide: dorsal	-3.91	4.82	-0.81	0.417	178.55	20.12	8.87	**<0.001**
liquid: dorsal	3.33	4.61	0.72	0.470	-152.35	19.90	-7.66	**<0.001**
voiced obstruents								
coronal	-11.14	3.41	-3.27	**0.001**	-3.37	14.30	-0.24	0.814
dorsal	-25.49	4.05	-6.29	**<0.001**	190.46	17.15	11.10	**<0.001**
labial	-16.89	3.56	-4.75	**<0.001**	23.96	14.92	1.61	0.108
voiceless obstruents								
coronal	-18.46	2.92	-6.31	**<0.001**	-6.92	12.34	-0.56	0.575
dorsal	-17.22	3.48	-4.95	**<0.001**	123.08	14.74	8.35	**<0.001**
labial	-10.17	4.21	-2.42	**0.016**	-5.54	17.85	-0.31	0.756
laryngeal	24.21	7.83	3.09	**0.002**	104.92	31.01	3.38	**0.001**
vowel	15.08	4.03	3.74	**<0.001**	61.21	16.25	3.77	**<0.001**

[unknown]	-27.36	4.62	-5.93	**<0.001**	87.75	18.51	4.74	**<0.001**
Vowel [ɪ] * Gen [2]	8.22	2.17	3.78	**<0.001**	-65.43	8.56	-7.65	**<0.001**
Vowel [ɪ] * Gen [3]	10.07	2.14	4.71	**<0.001**	-119.45	8.41	-14.20	**<0.001**
Vowel [ɪ] * Gen [4]	17.89	2.28	7.86	**<0.001**	-146.25	8.96	-16.33	**<0.001**
Vowel [ɪ] * Gender [M]	-4.14	1.44	-2.87	**0.004**	4.95	5.65	0.88	0.381
Random Effects								
σ^2	2795.08				40606.36			
τ_{00}	459.50 word				7896.37 word			
	474.48 speaker				7528.69 speaker			
ICC	0.25				0.28			
N	70 speaker				70 speaker			
	2311 word				2311 word			
Observations	28601				28601			
Marginal R^2 / Conditional R^2	0.314 / 0.486				0.372 / 0.545			

Table 5.5. Results of linear mixed model for F1 and F2 of the high vowels [i] and [ɪ].

Other effects

There is a significant effect from Task: vowels produced during the wordlist task are overall more peripheral (lower F1 and higher F2) than those extracted from the interviews. This is expected, given that these sounds were produced in a context that promotes more careful speech.

Estimated Model Means

To enable visualization of these results, the estimated marginal means (EMM) of F1 and F2 were extracted from each model, by Vowel (i vs. ɪ) intersecting with generation and with gender (respectively), using the emmeans package in R (Lenth, 2021). EMMs (also known as least-squares means) represent the predicted means for each level of a variable when other variables are held constant. The results are averaged over task and preceding and following segment. In Figure 5.5, the EMMs are mapped on F1 ~ F2 plots, grouped by generation and faceted by speaker gender. Dashed lines connect the long and short vowel

estimates, and annotations provide the Euclidean distances (ED) between the EMMs of the long vs. lax short. They reflect, in addition to the increasing phonetic distance between the tense-lax vowels, a lowering (F1) and retracting (F2) in *both* vowels across the generational groups.

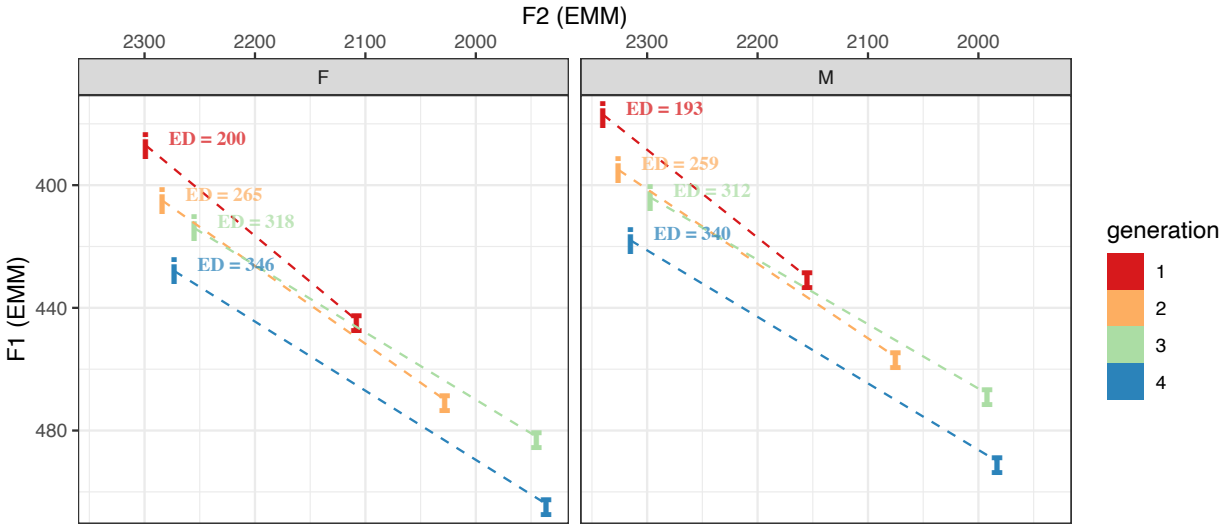

Figure 5.4. Estimated model means of [i] vs. [ɪ] plotted with F2 on the x-axis and F1 on the y-axis, faceted by gender. Means are grouped by generation, with dashed lines connecting the tense and lax vowels and annotations providing the Euclidean distances between the pair for each group.

5.1.2.2 High back vowels: [u] vs. [ʊ]

The dataset for the high back vowels consists of 9,091 tokens of /u/ and 7,460 tokens of /ʊ/, for a total of 16,551 observations, extracted from 1,121 unique words. The ten most common words for /u/ are: *du* ('here'), *yur* ('year), *gurnisht* ('nothing'), *un* ('without'), *mul* ('time(s)'), *amul* ('sometimes'), *pur* ('pair'), *lemushl* ('for example'), *yisrul* ('Yisroel [a name or a reference to the Jewish nation]'), and *gefurn* ('drove' or 'traveled'). For /ʊ/ the highest frequency words are: *gezugt* ('said'), *zugn* ('say'), *zugt* ('says'), *tug* ('day'), *farvus* ('why'), *ungehoybn* ('started'), *ungekimen* ('arrived'), *numen* ('name'), *milkhume* ('war'), and *bukher*

('adolescent male'). An average of 236 tokens were extracted per speaker and 4,138 per generation.[3]

Pillai scores

Here we examine the Pillai scores (Table 5.6), calculated by generation, with normalized F1 and F2 values as the dependent variables; and (decadic log-transformed) duration, task, and preceding and following segment as independent variables. As with the high front vowels, the smallest scores (signifying the least pairwise distinctiveness) belong to Gen1 (Pillai = 0.16), with incremental increases by generation, and *p*-values that suggest statistically significant differences. Additionally, while the Gen1 Pillai score for this pair is lower than that of the high front vowel pair, Gen4 has the same score for both pairs (0.38), suggesting a growing symmetry in the phonetic relationship between the high vowel pairs over time.

Generation	**Pillai**	***p-value***
1	0.16	<0.001
2	0.22	<0.001
3	0.24	<0.001
4	0.38	<0.001

Table 5.6. Pillai scores of [u] vs. [ʊ] by generation

Linear mixed models

Next, we look at the output of the LMMs for the high back vowel pair (Table 5.6). In this model, positive F1 estimates (Vowel × Generation) for a generational group indicate lower

[3] The range of tokens extracted from each speaker is 16 – 732 (the lower end is from speakers who completed only the wordlist task), with a standard deviation of 151.85. The mean by generational group is 4,137.75 with a standard deviation of 601.82.

[ʊ] relative to [u] for that group, and positive F2 values reflect more centering or advancement of the short vowel.

The interaction between vowel and generation predicts a significant increase in F1 (indicating more open short vowels) between Gen1 and generations 3 and 4 (Gen3 β=9.66, SE=2.83, t(15688)=3.41, p=.001; Gen4 β=29.45, SE=3.03, t(15791)=9.71, p<.001). Post-hoc pairwise comparison shows that the difference between Gen3 and Gen4 is also significant (Gen3 – Gen4 β=19.75, SE=2.64, t(16427)= 7.48, p<.001). For F2, the model reveals an increase (i.e., more fronting) between Gen1 and the youngest generation (Gen4 β=38.40, SE=8.82, t(15211)=4.35, p<.001). As with the high front vowels, these results point to increasing divergence between long vowels and their associated short vowels over time, albeit in a more incremental fashion, and with more separation in height than in advancement. Finally, Vowel × Gender is significant in the F1 model (β=-16.53, SE=1.90, t(16410)=-8.71, p<.001), indicating less separation in height among male speakers than among females.

	F1 (norm)				F2 (norm)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	416.33	8.59	48.46	**<0.001**	1808.09	28.88	62.60	**<0.001**
Vowel [ʊ]	44.91	3.73	12.03	**<0.001**	51.73	10.43	4.96	**<0.001**
GENERATION (vs. 1)								
2	25.13	7.79	3.23	**0.001**	6.07	29.54	0.21	0.837
3	25.37	7.34	3.46	**0.001**	38.99	27.73	1.41	0.160
4	22.10	7.42	2.98	**0.003**	75.79	27.92	2.71	**0.007**
Task [wordlist]	-15.89	4.72	-3.37	**0.001**	-15.42	12.38	-1.25	0.213
Gender [M]	5.97	5.00	1.19	0.233	49.46	18.89	2.62	**0.009**
Log_{10}(Duration)	-6.83	2.32	-2.94	**0.003**	-391.55	6.77	-57.85	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	18.24	3.97	4.59	**<0.001**	4.16	11.08	0.38	0.707
dorsal	78.71	23.74	3.32	**0.001**	125.53	69.42	1.81	0.071
labial	3.32	5.40	0.62	0.539	-148.64	14.78	-10.05	**<0.001**
glide: dorsal	-22.99	7.09	-3.24	**0.001**	121.33	19.32	6.28	**<0.001**
liquid: dorsal	-33.45	12.36	-2.71	**0.007**	-97.73	35.90	-2.72	**0.006**
SILENCE	5.85	10.80	0.54	0.588	-80.86	31.33	-2.58	**0.010**
[unknown]	-15.23	4.26	-3.58	**<0.001**	-56.67	12.11	-4.68	**<0.001**
vowel	11.76	5.32	2.21	**0.027**	-42.08	15.24	-2.76	**0.006**
voiced obstruents								
coronal	-4.62	5.08	-0.91	0.362	85.86	14.00	6.13	**<0.001**
dorsal	-24.29	7.93	-3.07	**0.002**	-112.90	21.81	-5.18	**<0.001**
labial	-10.71	4.64	-2.31	**0.021**	-149.21	12.69	-11.76	**<0.001**
voiceless obstruents								
coronal	-4.63	3.34	-1.39	0.165	16.82	9.22	1.82	0.068
dorsal	-2.37	4.01	-0.59	0.555	-156.83	11.23	-13.97	**<0.001**
labial	-5.71	5.18	-1.10	0.270	-162.16	14.07	-11.52	**<0.001**
laryngeal	16.13	12.25	1.32	0.188	-139.17	33.64	-4.14	**<0.001**
FOLLOWING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	7.73	4.53	1.71	0.088	-25.83	12.44	-2.08	**0.038**
dorsal	-5.80	6.16	-0.94	0.346	-90.70	16.78	-5.40	**<0.001**
labial	15.32	5.50	2.79	**0.005**	-71.53	15.37	-4.65	**<0.001**
glide: dorsal	16.69	9.05	1.84	0.065	3.80	26.23	0.14	0.885
glide: labial	11.52	7.77	1.48	0.138	-0.99	21.77	-0.05	0.964
liquid: dorsal	0.26	7.00	0.04	0.971	-88.87	18.70	-4.75	**<0.001**
[unknown]	4.71	4.39	1.07	0.283	-31.53	12.32	-2.56	**0.011**
vowel	32.39	4.37	7.42	**<0.001**	-61.13	12.27	-4.98	**<0.001**
voiced obstruents								
coronal	-11.91	4.73	-2.52	**0.012**	103.18	13.24	7.79	**<0.001**
dorsal	-8.86	4.96	-1.79	0.074	-44.66	13.69	-3.26	**0.001**
labial	4.95	5.04	0.98	0.327	-37.79	14.05	-2.69	**0.007**
voiceless obstruents								
coronal	-16.78	4.10	-4.09	**<0.001**	80.19	11.23	7.14	**<0.001**
dorsal	22.71	4.83	4.70	**<0.001**	-27.93	13.35	-2.09	**0.036**

labial	-4.68	4.57	-1.02	0.306	-46.45	12.66	-3.67	**<0.001**
laryngeal	8.03	7.68	1.05	0.296	-82.54	22.15	-3.73	**<0.001**
Vowel [ʊ] * Gen [2]	-1.25	2.81	-0.45	0.656	-10.92	8.17	-1.34	0.181
Vowel [ʊ] * Gen [3]	9.66	2.83	3.41	**0.001**	-5.63	8.23	-0.68	0.494
Vowel [ʊ] * Gen [4]	29.45	3.03	9.71	**<0.001**	38.40	8.82	4.35	**<0.001**
Vowel [ʊ] * Gender [M]	-16.53	1.90	-8.71	**<0.001**	-2.37	5.53	-0.43	0.668
Random Effects								
σ^2	3219.26				27352.67			
τ_{00}	560.46 word				3302.41 word			
	409.91 speaker				6193.99 speaker			
ICC	0.23				0.26			
N	70 speaker				70 speaker			
	1123 word				1123 word			
Observations	16491				16491			
Marginal R^2 / Conditional R^2	0.179 / 0.369				0.410 / 0.562			

Table 5.7. Results of linear mixed model for F1 and F2 of the high vowels [u] and [ʊ].

Other effects

The F1 model revealed a main effect for wordlist vs. conversational speech, but the effect of Task is not significant in the F2. Duration shows a significant negative correlation for both formants, which is expected based on research showing that longer duration in this vowel is often associated with a more peripheral quality (Stevens, 1959).

Estimated Model Means (EMMs)

The estimated marginal means (EMM) of F1 and F2 were once again extracted from each model, by vowel (long vs. short) intersecting with generation and with gender (respectively). These were mapped onto F1 ~ F2 plots, grouped by generation and faceted by speaker gender (Figure 5.5). Dashed lines connect the long and short vowel estimates, and annotations provide the ED between the tense vs. lax EMMs. Here we see an

incremental decrease in the F1 and increase in the F2 across generations for both vowels, but both are greater for the short vowel.

In examining these estimates, we observe that the phonetic distinctiveness of the long vs. short vowels appears to shrink between Gen1 and Gen2, before increasing in Gen3 and Gen4. The most conspicuous movement, however, is the dramatic lowering of both vowels that occurs between the oldest two generations. Among male speakers, Gen2 [u] overlaps with the [ʊ] of Gen1. For Gen1 female speakers, too, [ʊ] is phonetically closer to [u] of the younger speakers than it is to their [ʊ]. The tense [u] continues to advance over time, i.e., we observe an increase in F2 between the second and fourth generations, but remains relatively stable in the F1 following the initial drop. The fronting of [u] explains the lack of significance in F2 in the vowel-generation interaction between Gen1 and the two middle generations in the LMM: Although the lax vowels of these groups are indeed advancing, the concurrent fronting of the tense vowel means that the two are not drifting apart to the same extent in this direction. (The fronting of [u] is further examined in Chapter 7). Across the gender groups, the EDs of male speakers are consistently smaller than those of their female counterparts.

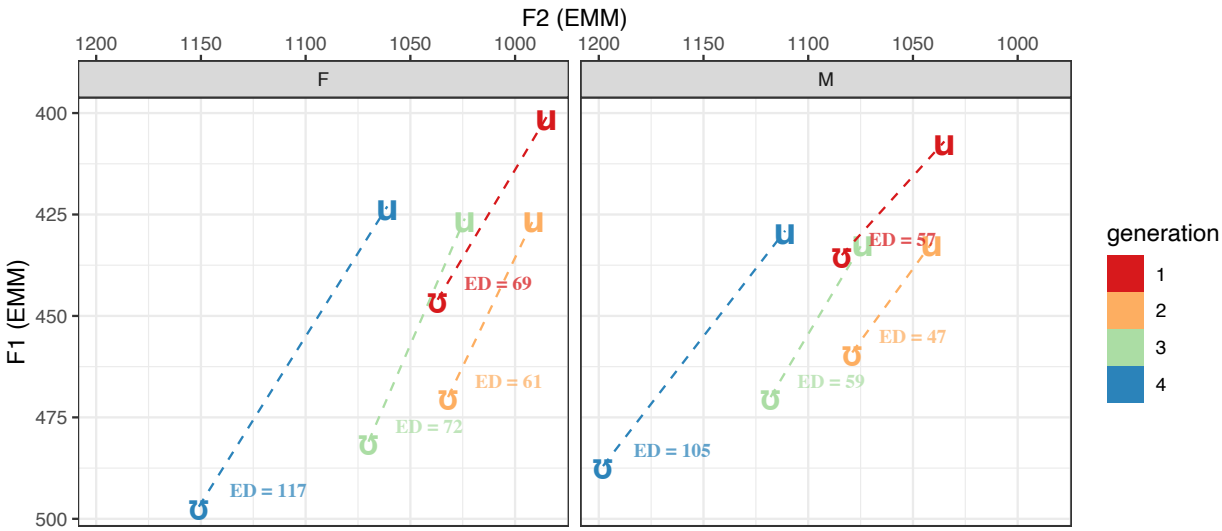

Figure 5.5. Estimated model means of [u] vs. [ʊ] plotted with F2 on the x-axis and F1 on the y-axis, faceted by gender. Means are grouped by generation, with dashed lines connecting the tense and lax vowels and annotations providing the Euclidean distances between the pair for each group.

Lowering of [ʊ]

The LMM for the vowel pair (reported above) estimates phonetic distinctiveness. Looking at the plot of the vowel estimates (Figure 5.5), we see that the short vowel has lowered dramatically between Gen1 and Gen2, however, due to the concurrent lowering of [u], the ED does not increase between those groups. To capture the lowering of [ʊ] independent of the movement in [u], a separate LMM was fit for this vowel.[4] The results, which are shown in Appendix H, show a significant increase in F1 between Gen1 and Gen2 (β=26.73, SE=9.84, t(52.63)=2.72, p<.01).

[4] F1 ~ Generation + Task + Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|Speaker) + (1|Word); F2 ~ Generation + Task + Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|Speaker) + (1|Word).

5.1.2.3 Low vowels: [aː] vs. [a]

The dataset of low vowels consists of 9,156 tokens of /aː/ and 25,055 tokens of /a/, for a total of 34,211 observations, extracted from 1,923 unique words. The ten most common words for /aː/ are: *zaan* ('be'), *vaal* ('because'), *haant* ('today'), *araan* ('in'), *maane* ('mine'), *tsaat* ('time'), *daan* ('yours'), *shpraakh* ('language'), *zaat* ('side'), and *maase* ('story'). For /a/ the highest frequency words are: *gehat* ('had'), *mame* ('mother'), *zakhn* ('things'), *ale* ('all'), *asakh* ('a lot'), *zakh* ('thing'), *tate* ('father'), *gegangen* ('went'), *darf* ('need'), and *andere* ('other'). An average of 483 tokens were extracted per speaker and 8,553 per generation.[5]

Pillai scores

Pillai scores are shown in Table 5.8, calculated by generation, with normalized F1 and F2 values as the dependent variables; and (decadic log-transformed) duration, and the preceding and following segment as independent variables. A striking difference between the Pillai scores of this pair and those of the high vowels is that the values are extremely low (close to zero), indicating that the distinction between these vowels is miniscule and likely not perceptible. Also missing is the positive correlation between the Pillai scores and the generation that was observed in the high vowel pairs. In fact, the pattern is somewhat reversed, i.e., the youngest two generations exhibit the lowest scores.

[5] The range of tokens extracted from each speaker is 21 – 1,640 (the lower end is from speakers who completed only the wordlist task), with a standard deviation of 302.37. The mean by generational group is 8,552.75, with a standard deviation of 1,082.56.

Generation	Pillai	p-value
1	0.0033	<0.001
2	0.0041	<0.001
3	0.0008	0.0221
4	0.0014	0.0024

Table 5.8. Pillai scores of [aː] vs. [a] by generation

Linear mixed models

Next, we turn to the LMM output for the low vowel pair (Table 5.9). For the dataset overall, the difference between [a] vs. [aː] is significant only in the F2. As for distinctiveness across generations (Vowel × Generation), the model shows an increase in height (F1) between Gen1 and Gen2 (β=6.84, SE=3.37, t(30548)=-2.02, p=.042), leading to slightly more separation. Post-hoc pairwise comparisons of the contrast show that Gen2 also differs significantly from Gen3, in the opposite direction, i.e., *less* separation (Gen2 – Gen3 β=-12.043, SE= 2.96, t(34111=-4.07, p=.003). In other words, [a] diverges slightly from [aː] in Gen2, but then reverses direction. It is important to note, however, that the F1 differences observed across the generations are extremely small (<8 Hz) and most likely imperceptible.[6] In the F2, a decrease in divergence (higher values) is observed between the reference generation (1) and the youngest two generations (3 and 4) (Gen3 β=26.31, SE=4.13, t(32888)=6.37, p<.001; Gen4 β=29.14, SE=4.38, t(32991)=6.66, p<.001). That is, the two older generations pattern similarly (more separation) and are significantly different from the two younger ones (which have less separation). Moreover, these patterns in distinctiveness vary significantly between the gender groups: Male speakers are shown to have, overall, smaller

[6] There is some evidence in the literature suggesting that listeners are less sensitive to subtle formant changes in low vowels as compared to high or mid vowels (Hawks, 1994). Thus, the subtle F1 differences observed, even if statistically significant, may not be perceptible.

estimates of both formants (F1: β-4.74, SE=2.22, t(34053=-2.13, p<**.033**; F2: β=-14.76, SE=2.79, t(34079)=-5.29). For the F1, the gender difference, like the generational difference, is very small. The difference in the F2, however, leads to greater distinctiveness between the two vowels.

	F1 (norm)				F2 (norm)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	503.60	13.89	36.27	**<0.001**	1434.78	22.93	62.57	**<0.001**
Vowel [a]	-1.31	3.75	-0.35	0.727	-45.46	5.52	-8.23	**<0.001**
GENERATION (vs. 1)								
2	-21.67	14.89	-1.45	0.146	-63.41	26.04	-2.44	**0.015**
3	-9.65	13.95	-0.69	0.489	-51.19	24.33	-2.10	**0.035**
4	-30.66	14.04	-2.18	**0.029**	-38.57	24.41	-1.58	0.114
Task [wordlist]	12.31	4.31	2.85	**0.004**	10.14	6.27	1.62	0.106
Gender [M]	-43.64	9.52	-4.59	**<0.001**	6.32	16.57	0.38	0.703
Log_{10}(Duration)	153.38	2.81	54.63	**<0.001**	23.61	3.54	6.66	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	4.94	3.95	1.25	0.211	7.71	5.52	1.40	0.162
dorsal	80.24	87.42	0.92	0.359	-90.95	108.81	-0.84	0.403
labial	-8.95	4.23	-2.12	**0.034**	-62.67	6.64	-9.43	**<0.001**
glide: dorsal	-2.05	8.86	-0.23	0.817	85.19	12.92	6.59	**<0.001**
glide: labial	-104.46	46.01	-2.27	**0.023**	-4.68	61.98	-0.08	0.940
liquid: dorsal	-27.93	15.93	-1.75	0.080	-79.40	20.28	-3.91	**<0.001**
voiced obstruents								
coronal	-20.83	4.28	-4.86	**<0.001**	16.48	6.57	2.51	**0.012**
dorsal	-9.69	6.32	-1.53	0.125	65.51	9.82	6.67	**<0.001**
labial	-11.13	4.17	-2.67	**0.008**	-42.64	6.56	-6.50	**<0.001**
voiceless obstruents								
coronal	-5.56	3.55	-1.56	0.118	7.02	5.19	1.35	0.176
dorsal	11.37	4.37	2.60	**0.009**	-5.60	6.33	-0.89	0.376
labial	-12.07	5.51	-2.19	**0.028**	-40.05	8.33	-4.81	**<0.001**
laryngeal	34.47	5.78	5.96	**<0.001**	10.47	9.50	1.10	0.270
vowel	13.42	4.37	3.07	**0.002**	28.07	5.89	4.77	**<0.001**
SILENCE	42.60	10.35	4.11	**<0.001**	7.82	13.12	0.60	0.551
[unknown]	21.64	4.26	5.09	**<0.001**	5.67	5.75	0.99	0.324
FOLLOWING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	-9.16	3.95	-2.32	**0.020**	-5.49	6.38	-0.86	0.390
dorsal	6.07	5.34	1.14	0.255	22.31	8.36	2.67	**0.008**
labial	-10.01	5.50	-1.82	0.069	-41.87	8.66	-4.84	**<0.001**
glide: dorsal	38.13	28.53	1.34	0.181	84.81	49.26	1.72	0.085
liquid: dorsal	-33.92	5.37	-6.32	**<0.001**	-126.91	8.83	-14.37	**<0.001**
voiced obstruents								
coronal	-23.88	6.09	-3.92	**<0.001**	-11.20	9.63	-1.16	0.245
dorsal	-21.28	11.80	-1.80	0.071	22.52	18.34	1.23	0.219
labial	-8.94	5.42	-1.65	0.099	-35.27	8.78	-4.02	**<0.001**
voiceless obstruents								
coronal	-15.76	3.95	-3.99	**<0.001**	2.93	6.39	0.46	0.647
dorsal	17.58	4.29	4.10	**<0.001**	54.70	6.98	7.84	**<0.001**
labial	-2.86	8.03	-0.36	0.722	-37.23	12.14	-3.07	**0.002**
vowel	-3.86	24.85	-0.16	0.877	-19.58	35.48	-0.55	0.581

[unknown]	-68.41	17.50	-3.91	**<0.001**	-26.29	26.18	-1.00	0.315
Vowel [a] * Gen [2]	6.84	3.37	2.03	**0.042**	2.30	4.27	0.54	0.590
Vowel [a] * Gen [3]	-5.20	3.25	-1.60	0.110	26.31	4.13	6.37	**<0.001**
Vowel [a] * Gen [4]	-0.47	3.45	-0.14	0.891	29.14	4.38	6.66	**<0.001**
Vowel [a] * Gender [M]	-4.74	2.22	-2.13	**0.033**	-14.76	2.79	-5.29	**<0.001**
Random Effects								
σ^2	7583.41				11742.02			
τ_{00}	545.96 word				2373.51 word			
	1484.04 speaker				4625.63 speaker			
ICC	0.21				0.37			
N	70 speaker				70 speaker			
	1923 word				1923 word			
Observations	34211				34211			
Marginal R^2 / Conditional R^2	0.202 / 0.371				0.183 / 0.488			

Table 5.9. Results of linear mixed model for F1 and F2 the low vowels [aː] and [a].

Other effects

The effect of Task is significant in the F1 model, with higher values observed for wordlist vs. conversational data. The positive correlation of Duration with F1 aligns with studies showing a tendency for open vowels to be inherently longer than close vowels, possibly because relatively more time is needed to get the jaw into position (see e.g., Behne et al., 1996; Crystal & House, 1988).

Estimated Model Means (EMMs)

The estimated marginal means (EMM) of F1 and F2, extracted from each model by vowel (long vs. short) intersecting with generation and gender (respectively), are plotted on the phonetic plane, faceted by generation (columns) and gender (rows) (Figure 5.6). Dashed lines join the long and short vowel estimates, and annotations above the long vowels show the ED between them.

The plots show both vowels raising and moving closer together on the F2 after Gen1, however, for Gen3 and Gen4 male speakers, [aː] movement is slightly delayed, resulting in more separation (higher ED) between the two vowels relative to female speakers.

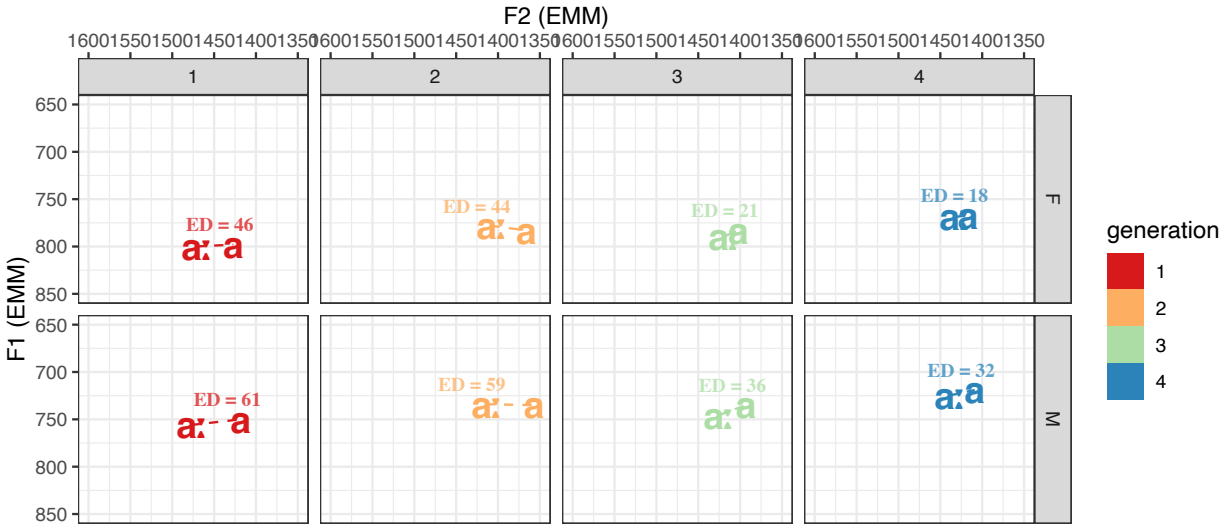

Figure 5.6. Estimated model means of [aː] vs. [a] plotted with F2 on the x-axis and F1 on the y-axis, faceted by generation (columns) and gender (rows), with dashed lines connecting the tense and lax vowels and annotations providing the Euclidean distances between the pair for each group.

5.1.3 Summary: Vowel quality

In this section, cross-generational divergence of long vs. short vowels was investigated using Pillai scores and LMMs. For the high front vowels [i, ɪ], the output of the statistical tests reflects an increasing spectral difference (separation on the phonetic plane) of the long and short vowel in apparent time. EMMs extracted from the models reveal some incremental lowering of the long vowels in phonetic space and, to a larger extent, a concurrent lowering and centering of the short vowels. For the high back vowels, [u, ʊ], the analyses similarly show increasing qualitative distinctiveness over time, however, the movement of the long vowels patterns somewhat differently. Unlike the incremental

lowering seen in the front vowels, there is a dramatic drop in [u] following the first generation, after which this vowel gradually advances on the F2. The short vowels are moving towards the center, but due to the concomitant fronting of [u], the increasing distinction between the long and short vowels in the F2 only reaches significance between Gen3 and Gen4. However, a LMM fit to F1 of [ʊ] shows a significant increase (signifying lowering in phonetic space) between Gen1 and Gen2. The low vowels [aː, a], on the other hand, exhibit a different pattern. Both vowels are raising and, mostly as a result of [aː] retraction, are moving closer together on the F2. In all three vowel pairs, male speakers exhibit more conservative patterns: Less divergence in the high vowels and more separation in the low ones.

5.1.3.1 Cross-speaker covariation

In considering the various sound changes observed in these vowels, the question arises whether there is a single underlying mechanism driving them. One way to investigate this is to consider coherence, or the extent to which these vocalic innovations are similarly distributed (see e.g., Becker, 2016; Guy, 2013; Guy & Hinskens, 2016; Tamminga, 2019). To do this, we look at patterns in cross-speaker correlation: If a pattern emerges where the same speakers are, for example, lowering both [ɪ] and [ʊ], this may suggest a single abstract process targeting a natural class, namely high tense-lax pairs.

To pursue this enquiry, the LMMs were run individually for each vowel (instead of by vowel pairs),[7] and by-speaker random intercepts were extracted. Next, scatterplots were created and correlation coefficients (ρ, method: Spearman) were calculated for all possible pairwise combinations (including F1 vs. F2 within vowel categories, F1 and F2 values within vowel pairs, F1 and F2 values of front vs. back and high vs. low vowels). Comparisons with correlation coefficients > 0.5 and a p-value of <0.05 are shown in Figure 5.7, below.

The most robust cross-speaker correlations are found within the vowel pairs, the strongest of these is [aː, a], depicted in the first row in Figure 5.7, which appear to be moving in concert along both formants (F1 ρ=0.87, F2 ρ=0.88). Somewhat weaker are the correlations between [i, ɪ] for the F1 (lowering: ρ=0.51) and [u, ʊ] for the F2 (fronting: ρ=0.75). These results are interpreted as reflecting processes of change affecting these three vowel pairs as classes of sounds: backing of [aː, a], and lowering of [i, ɪ] and [ʊ, u]. Noteworthy here is that a process of fronting also appears to apply to both [ʊ, u] together.

A second pattern observable in the analysis of covariation is a correlation in lowering (F1) for lax and tense pairs respectively ([ɪ] vs. [ʊ]: ρ=0.73, ([i] vs. [u]: ρ=0.63). These are taken to reflect an additional process of change targeting lax high vowels as a class, yielding more centralized realizations for both. A question that arises from the perspective of these results, is why such a change should apply to high vowels [ɪ, ʊ] but not to the short low vowel [a]. I return to this question in the following chapter.

[7] R call for the LMMs: F1 ~ Generation + Task + Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|Speaker) + (1|Word); F2 ~ Generation + Task + Gender + Log_{10}(Duration) + Preceding Segment + Following Segment + (1|Speaker) + (1|Word)).

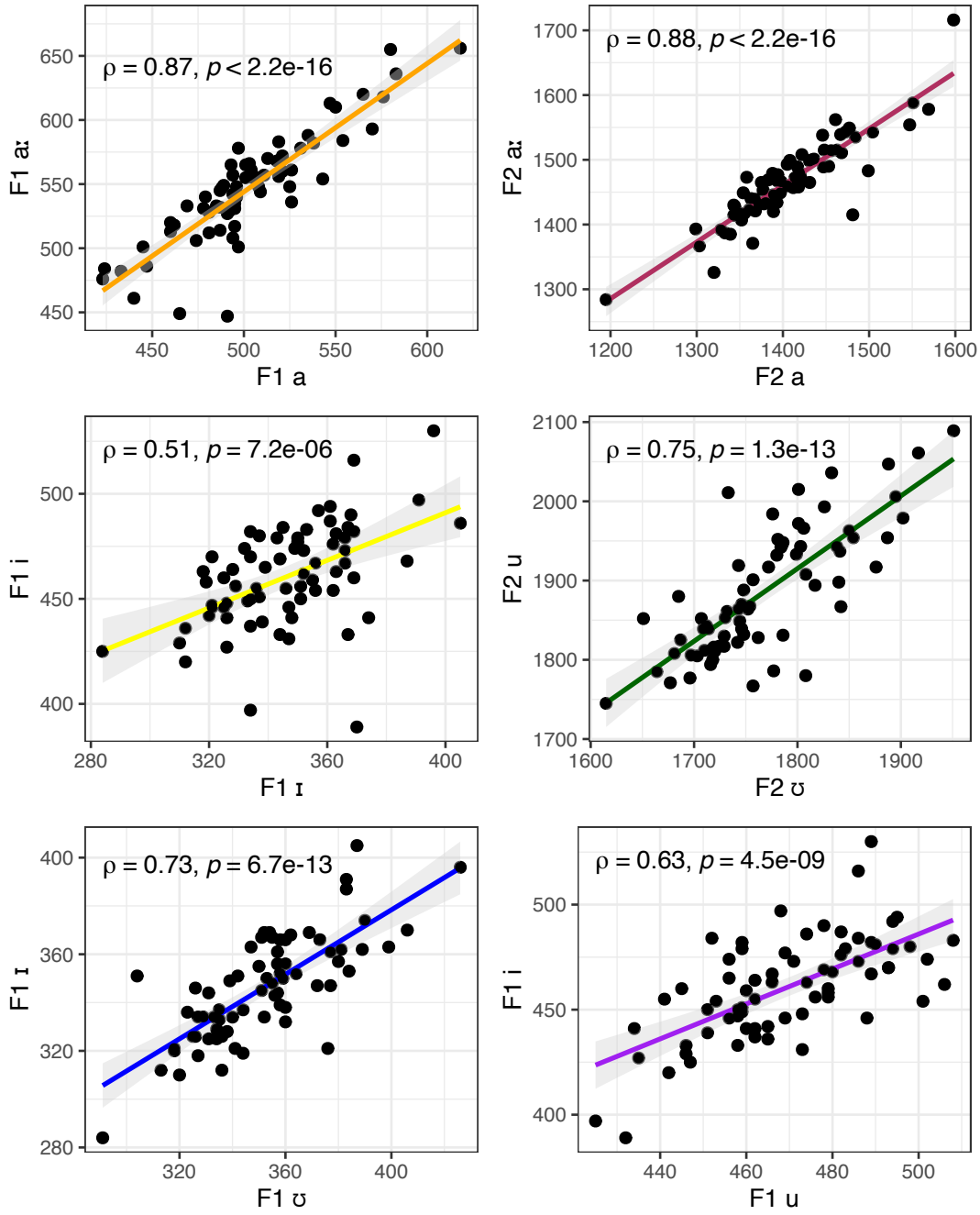

Figure 5.7. By-speaker random intercepts by F1 and F2 of within-pair long vs. short vowels (top four plots) and F1 of front vs. back vowels (bottom two plots), with correlation coefficients (method: Pearson) and p-values.

5.2 Vowel duration

This section presents the results of analyses focusing on vowel duration. The data are first exhibited visually, in aggregate, by vowel category. Next, the results of the LMMs are displayed separately for each vowel pair.

5.2.1 Visualizing the Data

To assess variation and change in the duration of HY vowels, we begin by looking at the average durations of all observations. Note that prerhotic (n = 2,745) and prelateral (n = 1,422) tokens of [u, ʊ] and prelateral (n = 5,422) observations of [aː, a] were removed for this portion of the analysis, for reasons explained in Chapter 3 §3.3.2, bringing the number of tokens analyzed for duration to 70,244.

Table 5.10 shows mean duration for each vowel. Additionally, the ratios between the vowels in each pair, calculated by dividing the mean duration of the long vowel (L) by the mean duration of the short vowel (S) (and referred to as the L/S ratio), are shown in the column on the right. While it is immediately apparent that all long vowels differ in length from their short correlates, the L/S ratios vary strongly across the pairs. Surprisingly, [aː] vs. [a], which are spectrally the least distinct, have the lowest ratio, i.e., the weakest temporal contrast. The durational medians and quartiles are visualized in a Figure 5.8.

Vowel	N	Dur (ms)	SD	Std. Error	CI	L/S ratio
i	9774	99	62.62	0.63	1.24	1.46
ɪ	19297	68	35.88	0.26	0.51	
u	5097	120	77.8	1.09	2.14	1.70
ʊ	7287	70	39.3	0.46	0.9	
aː	7585	125	63.46	0.73	1.43	1.33
a	21204	94	46.62	0.32	0.63	

Table 5.10. Mean duration (in milliseconds) by vowel for all observations (N = 70,244) with standard deviations, standard error, and confidence intervals.

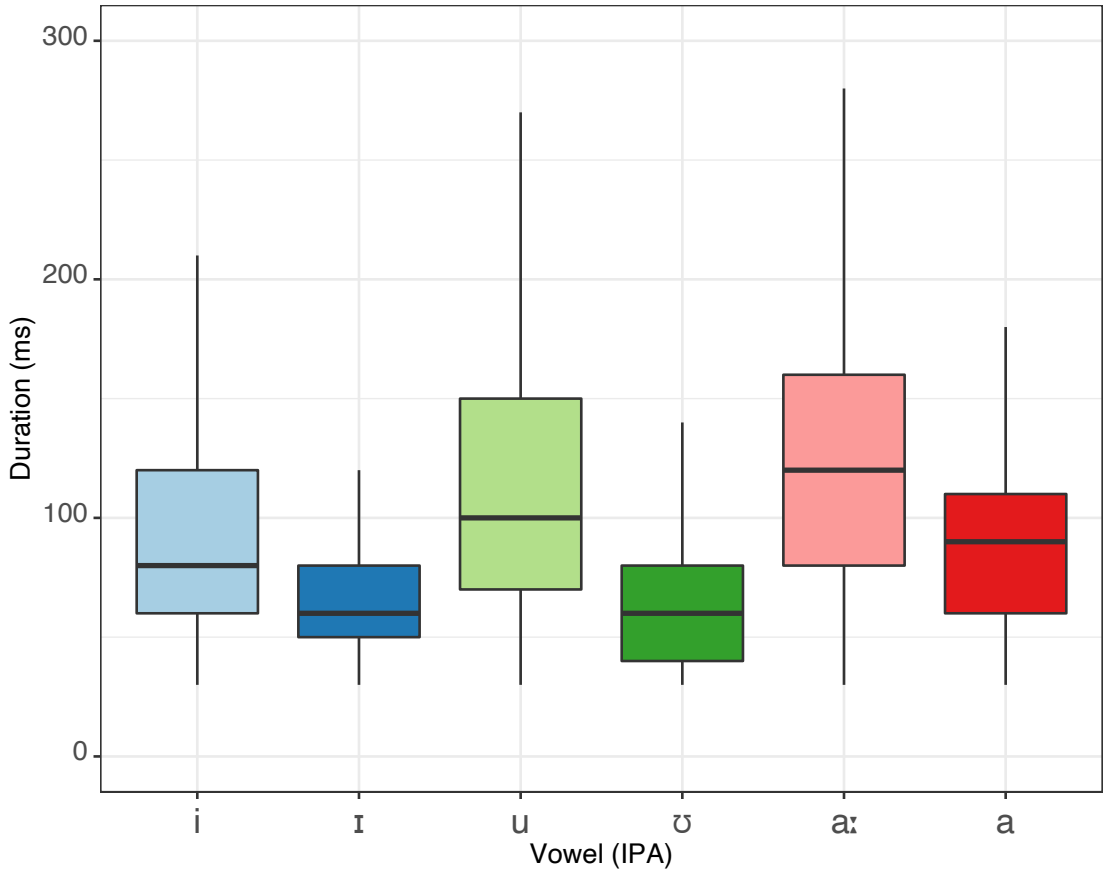

Figure 5.8. Boxplot showing duration (in milliseconds) for all tokens (N = 70,244), by vowel category.

Next, the durational means, calculated separately for each generational group are visualized in a bar plot (Figure 5.9), with the difference (in milliseconds) annotated above

the short vowel bar. We note first an incremental decrease in *both* vowels across all generations. This may be due to speech rate differences resulting from the inherently dissimilar speech styles of the two datasets. Recall that Gen1 data comes from professionally recorded Holocaust testimonies, while the data for the younger generations come audio recordings of informal conversations. The formality of the context for the former may have prompted Gen1 speakers to speak more slowly. Differences in speech rate may also be related to speaker age more generally: Research has shown an association between speaker age and slower speech (see, e.g., Horton, Spieler, & Shriberg, 2010).

Focusing in on the oldest and the youngest generations (Gen1 and Gen4), we see that all durational *differences* also appear to have decreased over time. This decrease is incremental except for an escalation in Gen2 [i, ɪ] and [aː, a], after which they fall again. Finally, in Gen2 – Gen4, the durational differences are either identical or nearly so in [i, ɪ] and [aː, a] and remain consistently higher in [u, ʊ].

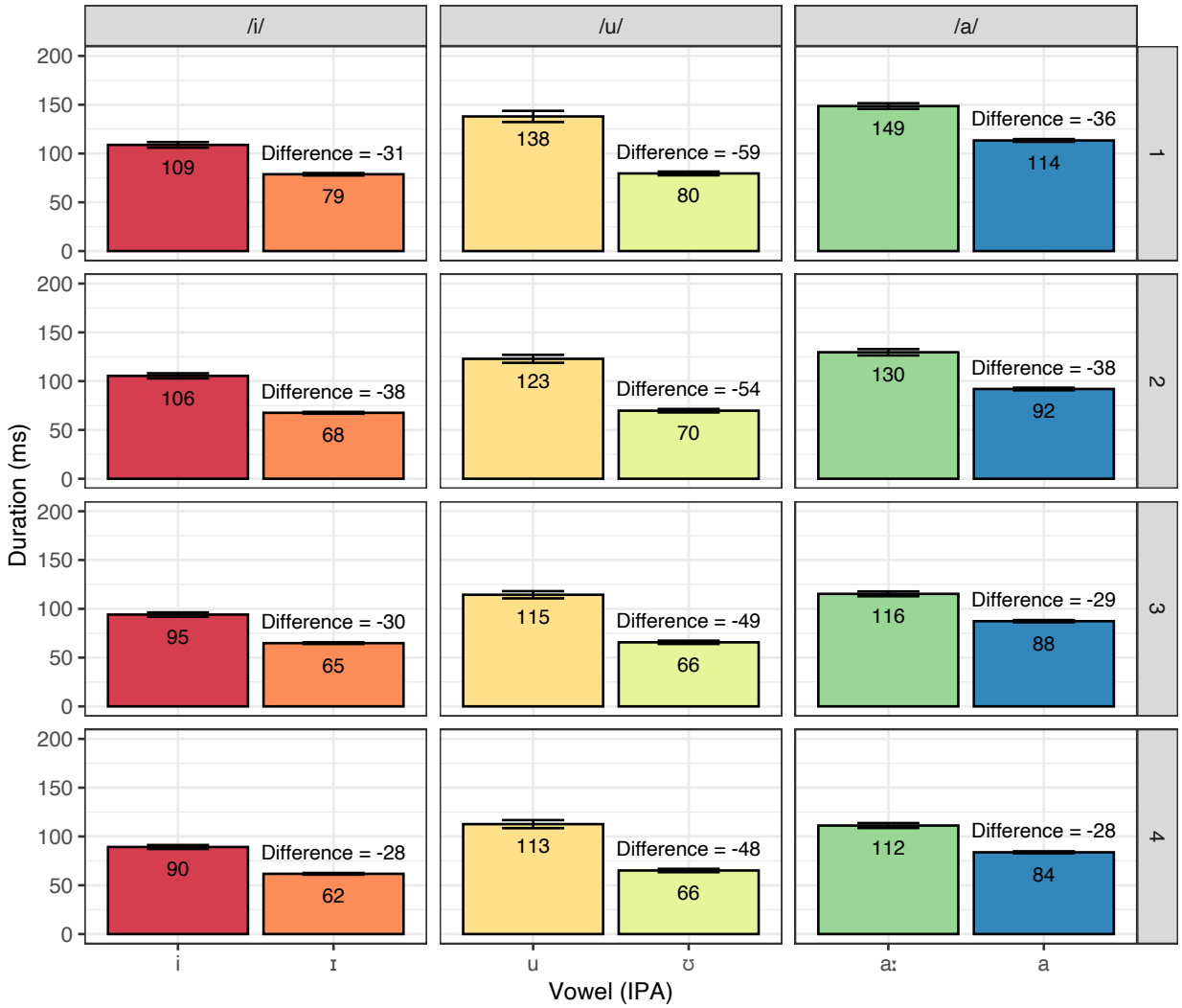

Figure 5.9. Mean duration faceted by vowel pair (columns) and by generation (rows), with 95% confidence interval standard error bars. Annotations on the bars provide mean duration for each vowel and the durational differences between the vowels in each pair are shown above the short vowel bar.

5.2.2 *Statistical modeling*

In this section, we examine the output of the linear mixed models (LMMs) for (decadic log-transformed) duration, for each vowel pair.[8] The fixed effect that relates to the research

[8] R call for the LMMs for duration: Log_{10}(Duration) ~ Vowel * Generation + Task + Vowel * Gender + Number of Segments + Preceding Segment + Following Segment + (1|Speaker) + (1|Word).

question regarding vowel duration is Vowel × Generation: a statistically significant interaction for a generational group predicts a change in temporal contrast between the tense vs. lax vowel from Gen1 (which is the reference group) to that group. Specifically, a **negative** estimate for a particular group indicates an **increase** in the (log-transformed) durational difference between the two vowels (shorter lax vowels relative to the tense vowels than the reference group Gen1), and vice versa. The Vowel × Gender interaction estimates durational differences for male vs. female speakers.

As in the section on vowel quality, estimated model means (EMMs) were extracted from each LMM, and are presented as graphs in order to illustrate and compare significant differences. Finally, pairwise comparisons of EMMs are provided in table format.

5.2.2.1 High front vowels: [i] vs. [ɪ]

Linear mixed model

The intercept in the LMM for the high front vowel pair shows a significant difference in the duration of [i] vs. [ɪ] (Table 5.11). Additionally, the overall decrease in duration (for both vowels) observed in the raw data (Figure 5.9) is shown to be significant starting at Gen3. For Vowel × Generation, a significant increase in the durational difference of [i] vs. [ɪ] is observed between Gen1 and Gen2 (Gen2 β=-0.06, SE=0.01, t(28144)=-8.82, p<.001). Post-hoc pairwise comparisons of the contrast (with Tukey-adjusted p-values) reveals that the durational distinction for Gen3 is larger than Gen1, but smaller than Gen2 (Gen2 – Gen3 β=0.02, SE=0.00, t(28926)= 3.12, p<.01). The difference between Gen3 and Gen4, however,

is not significant. Additionally, male speakers are shown to have greater durational differences than females (M β=-0.01, SE=0.00, t(28960)=-3.41, p<.001).

	Duration (ms)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	2.11	0.02	103.11	**<0.001**
Vowel [ɪ]	-0.08	0.01	-11.07	**<0.001**
GENERATION (vs. 1)				
2	-0.01	0.02	-0.74	0.461
3	-0.05	0.02	-2.75	**0.006**
4	-0.09	0.02	-4.47	**<0.001**
Task [wordlist]	0.09	0.01	7.73	**<0.001**
Gender [M]	-0.01	0.01	-0.51	0.608
Number of Segments	-0.01	0.00	-10.63	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)				
nasals				
coronal	0.01	0.01	1.07	0.283
dorsal	0.37	0.16	2.25	**0.025**
labial	-0.00	0.01	-0.22	0.830
glide: dorsal	-0.07	0.02	-4.23	**<0.001**
liquid: dorsal	0.04	0.05	0.83	0.409
SILENCE	0.17	0.03	5.69	**<0.001**
[unknown]	0.17	0.01	13.65	**<0.001**
vowel	-0.01	0.02	-0.33	0.742
voiced obstruents				
coronal	0.04	0.01	3.95	**<0.001**
dorsal	-0.01	0.02	-0.75	0.454
labial	0.01	0.01	0.56	0.576
voiceless obstruents				
coronal	-0.01	0.01	-0.89	0.373
dorsal	-0.02	0.01	-1.70	0.089
labial	-0.02	0.01	-1.43	0.152
laryngeal	-0.00	0.02	-0.12	0.906
FOLLOWING SEGMENT (vs. liquid: coronal)				
nasals				
coronal	-0.08	0.01	-7.58	**<0.001**
dorsal	-0.06	0.02	-3.88	**<0.001**
labial	-0.12	0.01	-10.38	**<0.001**
glide: dorsal	-0.23	0.02	-14.60	**<0.001**
liquid: dorsal	-0.04	0.02	-2.74	**0.006**
[unknown]	0.33	0.01	22.94	**<0.001**
vowel	-0.05	0.01	-3.89	**<0.001**
voiced obstruents				
coronal	-0.06	0.01	-5.28	**<0.001**
dorsal	-0.09	0.01	-6.58	**<0.001**
labial	-0.02	0.01	-1.67	0.095

voiceless obstruents				
coronal	-0.01	0.01	-0.80	0.424
dorsal	-0.06	0.01	-4.73	**<0.001**
labial	-0.01	0.01	-0.69	0.488
laryngeal	-0.07	0.02	-2.83	**0.005**
Vowel [ɪ] * Generation [2]	-0.06	0.01	-8.82	**<0.001**
Vowel [ɪ] * Generation [3]	-0.04	0.01	-6.15	**<0.001**
Vowel [ɪ] * Generation [4]	-0.04	0.01	-5.11	**<0.001**
Vowel [ɪ] * Gender [M]	-0.01	0.00	-3.41	**0.001**
Random Effects				
σ^2	0.03			
$\tau_{00\ word}$	0.01			
$\tau_{00\ speaker}$	0.00			
ICC	0.27			
$N_{speaker}$	70			
N_{word}	2334			
Observations	29071			
Marginal R^2 / Conditional R^2	0.262 / 0.458			

Table 5.11. Results of linear mixed model assessing durational distinction for the high vowels [i] versus [ɪ].

Other effects

There is a negative correlation between vowel duration and the number of segments in the word, which is expected, given well-established correlational patterns between vowel duration and the number of consonants in the syllable onset/coda (Barnwell, 1971; Fowler, 1983; Lehiste, 1970; Lindblom & Karin, 1973). Observations extracted from the wordlist data are generally longer than those extracted from conversational speech. This too is anticipated given studies showing similar temporal correlations with speech mode (words in carrier sentences vs. running speech) (see e.g., Harris & Umeda, 1974).

Estimated Model Means (EMMs)

The EMMs for duration (back-transformed to milliseconds from decadic log scale), by vowel, generation, and gender, were extracted and plotted, with duration (EMM) on the y-

axis and vowel on the x-axis, grouped by generation and faceted by gender (Figure 5.10). Here, a difference in the slope of the line is observable between the two oldest generations (1 and 2), signifying an increase in temporal contrast between the vowels over time. Also visible, albeit somewhat less conspicuous, is a difference in slope between Gen2 and Gen3. The lines of the two youngest generations (3 and 4) appear identical. Comparing the gender groups, we see that the long-short durational ratios are consistently higher among male speakers in each generational group. EMMs for each vowel are also shown in contrast in Table 5.12, for each generational group. The *p*-values (confidence level: 0.95) indicate significant differences in duration for long vs. short vowels in each group.

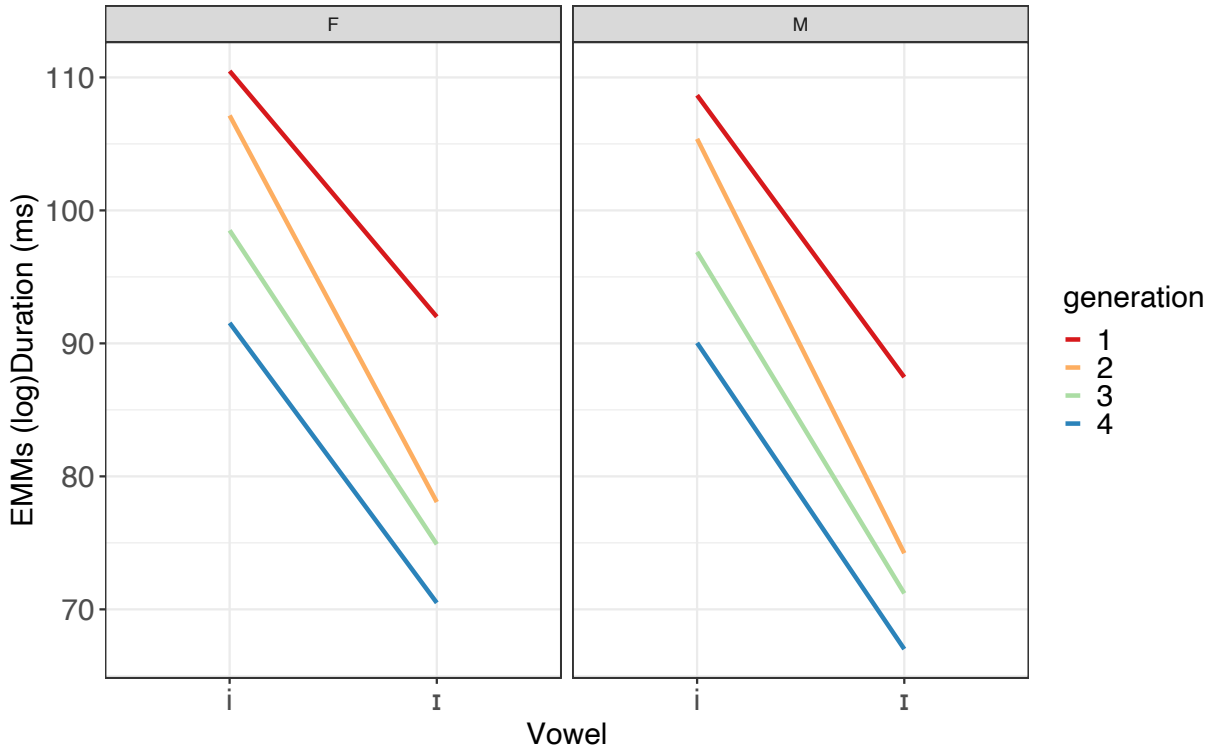

Figure 5.10. Estimated marginal means of duration LMM for [i] vs. [ɪ] plotted with vowel on the x-axis and duration (back-transformed from decadic log) on the y-axis, faceted by gender (rows), with lines connecting the vowels.

Contrast	Generation	Estimate	SE	df	t-ratio	p-value
i ~ ɪ	1	19.86	1.92	167.59	10.35	<0.001
i ~ ɪ	2	30.14	2.01	188.38	14.97	<0.001
i ~ ɪ	3	24.67	1.73	266.25	14.24	<0.001
i ~ ɪ	4	22.06	1.66	277.9	13.29	<0.001

Table 5.12. Pairwise comparison of estimated model means for log-transformed duration [i] vs, [ɪ], by generation. Results are averaged over Gender, Preceding Segment, and Following Segment. Degrees-of-freedom method: Satterthwaite. Confidence level used: 0.95. Results are given in milliseconds.

5.2.2.2 High back vowels: [u] vs. [ʊ]

After removing prelateral and prerhotic tokens of [u] from this dataset, the ten most common words are: *du* ('here'), *un* ('without'), *lemushl* ('for example'), *shtut* ('city' or 'town'), *shu* ('hour'), *ruv* ('rabbi'), *khadushem* ('months'), *brut* ('roast'), *mus* ('dimensions'), and *gruz* ('grass').[9] Table 5.13 displays the results of the LMM of duration for the high back vowel. Here too, the intercept shows a significant difference in the duration of the long vs. the short vowel for the group overall. The interaction of vowel and generation predicts a significant increase in durational difference between Gen1 and the three younger generations, but no significant difference among the latter (Gen2 [vs. 1] β=-0.03, SE=0.01, t(11730)=-2.64, p<.01). The interaction of gender by generation is not significant.

Duration (ms)				
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	2.11	0.03	78.60	**<0.001**
Vowel [ʊ]	-0.08	0.01	-5.41	**<0.001**
GENERATION (vs. 1)				
2	-0.03	0.02	-1.56	0.118
3	-0.07	0.02	-3.20	**0.001**
4	-0.09	0.02	-4.15	**<0.001**
Task [wordlist]	0.10	0.02	6.10	**<0.001**
Gender [M]	-0.01	0.01	-0.56	0.578
Number of Segments	-0.01	0.00	-5.10	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)				

[9] Note: the last three words in this list are from the word list.

nasals				
coronal	0.06	0.01	4.62	**<0.001**
dorsal	0.20	0.08	2.55	**0.011**
labial	0.08	0.02	4.22	**<0.001**
glide: dorsal	-0.05	0.03	-1.72	0.086
liquid: dorsal	0.13	0.04	3.03	**0.002**
SILENCE	0.20	0.03	5.64	**<0.001**
[unknown]	0.20	0.01	14.03	**<0.001**
vowel	0.06	0.02	3.29	**0.001**
voiced obstruents				
coronal	-0.03	0.02	-1.63	0.102
dorsal	0.03	0.03	1.14	0.256
labial	0.03	0.02	1.81	0.070
voiceless obstruents				
coronal	0.01	0.01	1.08	0.278
dorsal	0.01	0.01	0.95	0.342
labial	0.04	0.02	1.81	0.070
laryngeal	0.04	0.05	0.76	0.447
FOLLOWING SEGMENT (vs. nasal: coronal)				
nasals				
dorsal	-0.12	0.02	-6.25	**<0.001**
labial	-0.14	0.02	-7.45	**<0.001**
glide: dorsal	-0.18	0.03	-6.18	**<0.001**
glide: labial	-0.19	0.03	-7.28	**<0.001**
[unknown]	0.24	0.01	16.58	**<0.001**
vowel	-0.03	0.01	-1.95	0.051
voiced obstruents				
coronal	0.02	0.02	1.15	0.252
dorsal	-0.11	0.02	-6.79	**<0.001**
labial	-0.03	0.02	-1.79	0.074
voiceless obstruents				
coronal	-0.04	0.01	-2.64	**0.008**
dorsal	-0.11	0.02	-6.60	**<0.001**
labial	-0.09	0.02	-5.80	**<0.001**
laryngeal	-0.08	0.03	-3.08	**0.002**
Vowel [ʊ] * Generation [2]	-0.03	0.01	-2.66	**0.008**
Vowel [ʊ] * Generation [3]	-0.04	0.01	-3.15	**0.002**
Vowel [ʊ] * Generation [4]	-0.03	0.01	-2.63	**0.008**
Vowel [ʊ] * Gender [M]	-0.00	0.01	-0.05	0.960
Random Effects				
σ^2	0.03			
$\tau_{00\ word}$	0.00			
$\tau_{00\ speaker}$	0.00			
ICC	0.18			
$N_{speaker}$	70			
N_{word}	872			
Observations	12384			

Marginal R^2 / Conditional R^2	0.359 / 0.477

Table 5.13. Results of linear mixed model assessing durational distinction for the high vowels [u] versus [ʊ] (excludes tokens preceding lateral and rhotic consonants).

Other effects

Like the previous DM for [i, ɪ], this model too shows a negative correlation between Number of Segments and vowel duration, and a significant effect of Task (long vowels in wordlist vs. conversational).

Estimated Model Means (EMMs)

The differences described above are visualized in Figure 5.11, which plots duration (EMM) on the y-axis, by vowel. The gender groups are not plotted separately here since a gender effect is not observed for this vowel pair. Looking at the lines connecting the vowels, the slopes of the younger generations (2, 3, and 4) are visibly steeper than that of Gen1.

In Table 5.14, EMMs for the long vs. short vowels are shown in contrast, with *p*-values (confidence level: 0.95) signifying significant durational differences.

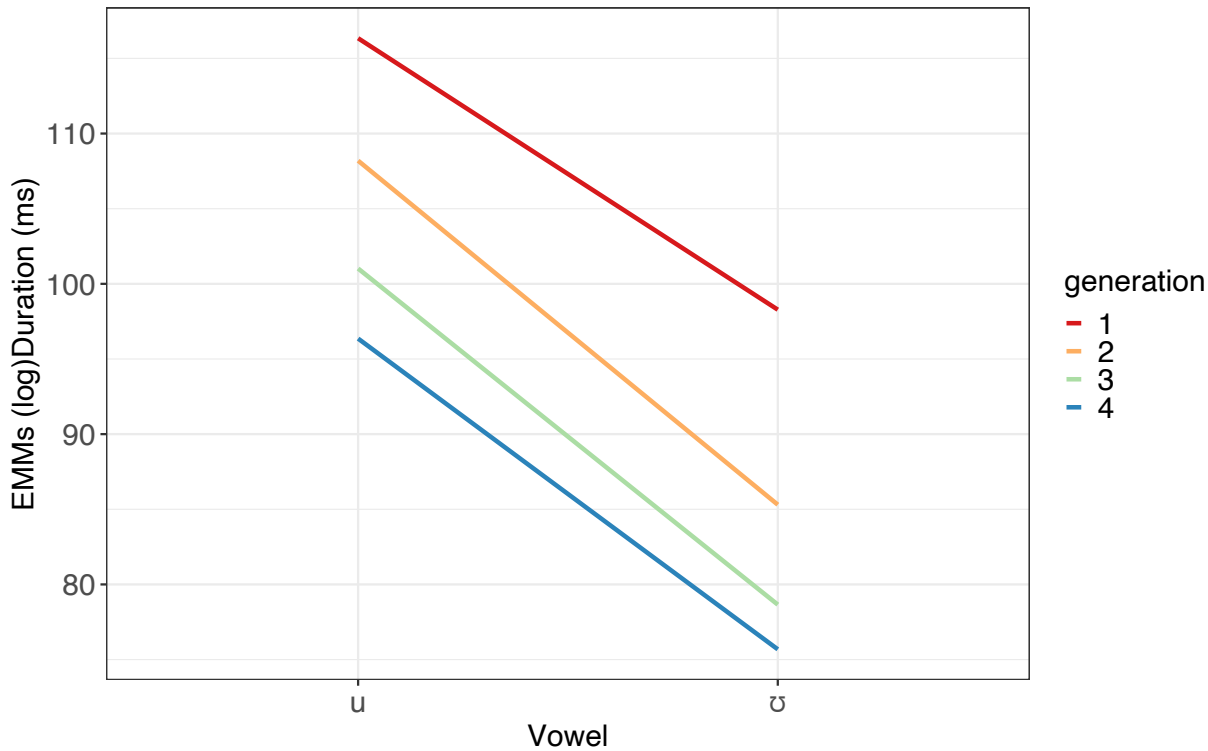

Figure 5.11. Estimated marginal means of duration LMM for [u] vs. [ʊ] plotted with vowel on the x-axis and (log-transformed) duration on the y-axis, with lines connecting the vowels.

Contrast	Generation	Estimate	SE	df	t-ratio	p-value
u ~ ʊ	1	18.06	3.59	136.3	5.03	<0.001
u ~ ʊ	2	22.89	3.08	151.08	7.44	<0.001
u ~ ʊ	3	22.36	2.83	204.84	7.9	<0.001
u ~ ʊ	4	20.68	2.85	229.71	7.27	<0.001

Table 5.14. Pairwise comparison of estimated model means for log-transformed Duration [i] vs, [ɪ], by Generation; Results are averaged over Gender, Preceding Segment, and Following Segment. Degrees-of-freedom method: Satterthwaite. Confidence level used: 0.95. Results are given in milliseconds.

5.2.2.3 Low vowels [aː] vs. [a]

The results of the LMM for duration for the low vowels [aː] and [a] are shown in Table 5.15. In addition to a significant difference in the duration of the long vs. short vowels (Intercept), there is also a significant decrease in the durational distinction between Gen1

and Gen3, as shown by the positive coefficients in Vowel × Generation (Gen3 [vs. 1] β=0.02, SE=0.01, t(27980)=2.84, p<.01). No differences are observed between the two oldest (1 and 2) and the two youngest (3 and 4) generations. Additionally, a greater temporal contrast is projected for male versus female speakers (β=-0.01, SE=0.00, t(28670)=-3.23, p=.001).

Duration (ms)				
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	2.21	0.02	93.30	**<0.001**
Vowel [a]	-0.14	0.01	-14.59	**<0.001**
GENERATION (vs. 1)				
2	-0.09	0.02	-3.85	**<0.001**
3	-0.14	0.02	-6.51	**<0.001**
4	-0.17	0.02	-8.12	**<0.001**
Task [wordlist]	0.11	0.01	10.64	**<0.001**
Gender [M]	-0.01	0.01	-0.43	0.667
Number of Segments	-0.00	0.00	-2.06	**0.040**
PRECEDING CONTEXT (vs. liquid: coronal)				
nasals				
coronal	0.02	0.01	1.86	0.063
labial	0.01	0.01	0.92	0.358
glide: dorsal	0.00	0.02	0.07	0.946
glide: labial	0.14	0.10	1.49	0.136
liquid: dorsal	0.06	0.04	1.57	0.117
SILENCE	0.12	0.03	3.87	**<0.001**
[unknown]	0.14	0.01	11.97	**<0.001**
vowel	0.05	0.01	4.67	**<0.001**
voiced obstruents				
coronal	0.01	0.01	1.22	0.222
dorsal	0.01	0.02	0.37	0.712
labial	0.04	0.01	3.43	**0.001**
voiceless obstruents				
coronal	0.01	0.01	1.01	0.313
dorsal	-0.02	0.01	-1.25	0.210
labial	0.03	0.02	2.26	**0.024**
laryngeal	-0.02	0.02	-1.35	0.178
FOLLOWING CONTEXT (vs. liquid: coronal)				
nasals				
coronal	-0.07	0.01	-5.51	**<0.001**
dorsal	-0.11	0.02	-7.04	**<0.001**
labial	-0.07	0.02	-4.37	**<0.001**
glide: dorsal	0.08	0.08	0.92	0.359
[unknown]	0.24	0.04	5.63	**<0.001**
vowel	0.09	0.06	1.59	0.113
voiced obstruents				

coronal	0.04	0.02	2.64	**0.008**
dorsal	0.08	0.03	2.53	**0.011**
labial	-0.01	0.02	-0.86	0.392
voiceless obstruents				
coronal	0.04	0.01	3.34	**0.001**
dorsal	-0.01	0.01	-0.72	0.469
labial	0.02	0.02	0.75	0.451
Vowel [a] * Generation [2]	-0.00	0.01	-0.20	0.839
Vowel [a] * Generation [3]	0.02	0.01	2.84	**0.005**
Vowel [a] * Generation [4]	0.03	0.01	4.33	**<0.001**
Vowel [a] * Gender [M]	-0.01	0.00	-3.23	**0.001**
Random Effects				
σ^2	0.03			
$\tau_{00\ word}$	0.01			
$\tau_{00\ speaker}$	0.00			
ICC	0.29			
$N_{speaker}$	70			
N_{word}	1726			
Observations	28789			
Marginal R^2 / Conditional R^2	0.191 / 0.422			

Table 5.15. Results of linear mixed model assessing durational distinction for the low vowels [aː] versus [a] (excludes tokens preceding lateral consonants).

Other effects

As with the other vowels, a negative correlation is observed between vowel duration and Number of Segments and wordlist vowels are overall longer than conversational vowels.

Estimated Model Means (EMMs)

In Figure 5.12, cross-generational temporal contrasts can be visualized by examining the lines connecting the durational EMM of each vowel, faceted by gender. A difference in slope is evident between the two oldest (1 and 2) and the two youngest (3 and 4) generations, in this case demonstrating a decrease in durational difference between the vowels. As with [u, ʊ], male speakers exhibit higher long-short durational ratios, as evidenced by the steeper slopes. Pairwise comparisons of the EMMs are shown in Table

5.16, by generation. The *p*-values once again confirm that the durational differences between the long and short vowels are significant within each speaker group. The oldest generation has the highest estimated difference, while in the subsequent generations the difference is incrementally reduced.

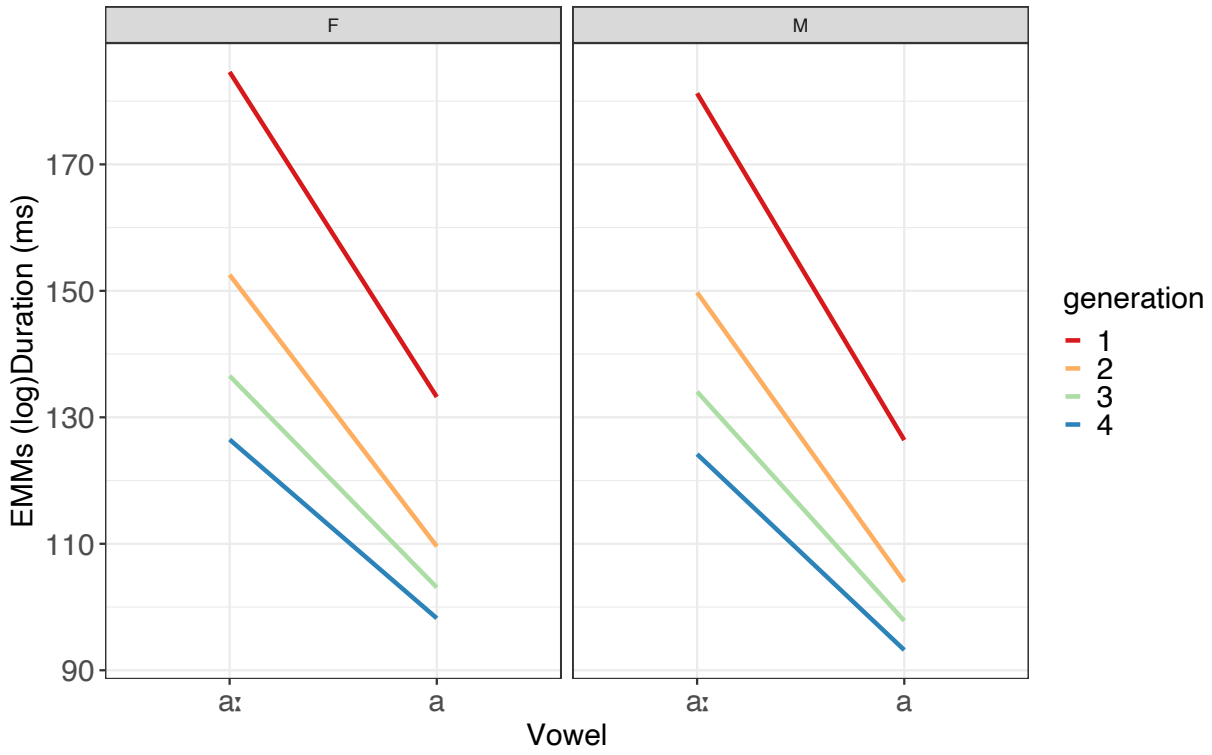

Figure 5.12. Estimated marginal means of duration LMM for [aː] vs. [a] plotted with vowel on the x-axis and (log-transformed) duration on the y-axis, faceted by gender (rows), with lines connecting the vowels.

Contrast	Generation	Estimate	SE	df	t-ratio	p-value
aː ~ a	1	53.16	4.36	147.66	12.20	<0.001
aː ~ a	2	44.39	3.56	166.70	12.48	<0.001
aː ~ a	3	34.87	2.99	224.62	11.68	<0.001
aː ~ a	4	29.65	2.81	233.27	10.54	<0.001

Table 5.16. Pairwise comparison of estimated model means for log-transformed duration [aː] vs. [a], by generation; Results are averaged over Gender, Preceding Segment, and Following Segment. Degrees-of-freedom method: Satterthwaite. Confidence level used: 0.95. Results are given in milliseconds.

5.2.3 Summary: Vowel duration

Statistical analyses of durational distinction between long and short vowels demonstrate a different pattern for the high vs. the low vowels. In both high vowel pairs, the difference between the long and short vowels increases between the first and second generations. In [i, ɪ], the durational distinction corrects somewhat i.e., it decreases, between Gen2 and Gen3, but remains significantly greater than Gen1. The youngest two generations (3 and 4), however, do not differ in terms of duration. The [u, ʊ] pair shows a similar increase in durational distinction, significant only between Gen1 and Gen2, with no change thereafter. In [aː, a], the pattern of change is reversed: here there is a *reduction* in the durational difference between Gen2 and Gen3. The gender effect, significant only for [i, ɪ] and [aː, a], also varies between the high and the low pair. In [aː, a], the male speakers are more conservative (against the direction of change), but they appear more innovative in [i, ɪ]. This seeming discrepancy is explained in the next section.

5.3 Discussion: Quality and duration

This chapter reported the statistical findings of instrumental analyses investigating the acoustic correlates of the contrast in HY long-short peripheral vowel pairs. Pillai scores and LMMs point to cross-generational change in the phonetic proximity of long vs. short high front and back vowels. Specifically, short high vowels become lower and more centralized relative to their long counterparts in apparent time. For the high front vowel [ɪ], this change is evident in the speech of the first New York-born population (Gen2) and in the youngest generation (Gen4), suggesting that it is ongoing. Further, there is an increase in the

durational distinction in the high long-short vowels. For [i, ɪ], this occurs in parallel with the spectral change (Gen2). The centering of [u, ʊ], however, surfaces one generation later, in the speech of Gen3. This is also the time period during which changes to the low vowels, which follow a reverse pattern of increasing spectral and durational similarity, emerge. The timeline of vocalic sound change is shown by speaker birth year in Figure 5.13 (note the missing generation, 1928 – 1948, representing children killed during the war).

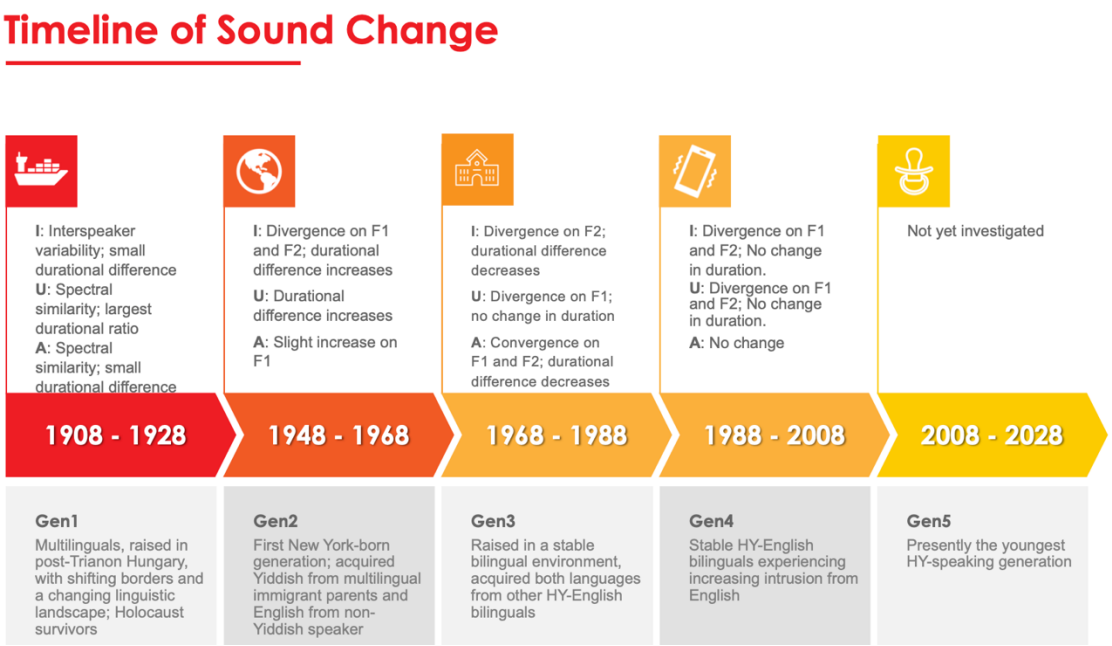

Figure 5.13. Timeline of vocalic sound change in Hasidic Yiddish peripheral vowels [i, ɪ], [u, ʊ], and [aː, a].

The data also reveal an apparent contradiction in the speech of male speakers, who pattern conservatively with regard to spectral divergence and durational distinction in [aː, a], but whose durational ratios in [i, ɪ] are in line with the direction of change. In the account below the trajectories of change, as well as the apparent contradiction, are explained.

Interpretating the results

As discussed in Chapter 2 §2.1, the vowel length feature was lost in all Yiddish dialects except Central Yiddish; and while Unterland Yiddish (UY) is purported to have retained it, we have only sparse impressionistic evidence in support of this claim. In fact, focusing on Gen1 speakers in this study, there are several signs portending that the vowel contrast in prewar Yiddish was in a precarious state, and possibly on the wane prior to its arrival to the U.S. The first indications of this are the durational ratios between the long-short vowels in all three pairs, reproduced in Table 5.17 below, which are significantly smaller than is typical for a length-distinguishing system (see Chapter 2 §2.3; Table 2.2). Moreover, the mean difference in [i, ɪ] and [aː, a] are both below 50 milliseconds, the threshold for length category identification posited by Labov and Baranowski (2006).[10]

Vowel	N	Dur (ms)	SD	Std. Error	CI	L/S ratio
i	2443	109	72.79	1.47	2.89	1.38
ɪ	4323	79	42.33	0.64	1.26	
u	771	138	80.57	2.9	5.7	1.75
ʊ	1821	79	41.75	0.98	1.92	
aː	1516	149	57.8	1.48	2.91	1.32
a	4901	113	49.6	0.71	1.39	

Table 5.17. Mean duration in milliseconds for Gen1 calculated from raw data, with standard error, confidence intervals and long-short ratios for each vowel pair.

The second sign of a lack of stability in this part of the vowel system is the amount of inter-speaker variability in the quality of high vowels, especially [i] and [ʊ], which had

[10] Lehiste (1970:13) summarizes the literature on just noticeable difference (JND) or difference limens (DL) in vowel duration and derives a range of 10 – 40 milliseconds, however, this range is not exclusive to vowels.

already diverged significantly for some, but not all, of the speakers. Such variability is, in fact, not unusual in intermediate dialects, as noted by Trudgill (1986, p. 108):

> *An important fact about dialects that have recently coalesced out of dialect mixtures is that, even after focusing has taken place,*[11] *many of them continue to retain, at least for some generations, a relatively high level of variability.*

The third intimation lies in the gender patterns observed within this generational group. Given the discrepancies in language dominance and use among women vs. men in this community (see Chapter 1 §1.2.2.2 for speakers' testimony on this topic), there is an expectation that the Yiddish of male speakers will be more conservative. In light of this, the fact that female speakers have smaller durational ratios for [i, ɪ] and [aː, a] strongly suggests that the shrinking difference was a relatively recent innovation to the UY system, led by females. Diachronic shifts from length to quality are common across the world's languages and have been posited to have articulatory and/or perceptual bases (see e.g., Abramson & Ren, 1990; Hadding-Koch & Abramson, 1964). Thus, a shrinking durational contrast in UY vowel system may well be internally motivated. However, it is not inconceivable that external influences played a role, as well, as Jews in the Transcarpathian countryside had long been in contact with Rusyn, Ukrainian and other Carpathian languages that lack length contrast in their vowel systems. Moreover, in the post-Trianon era during which these Gen1 speakers were born and raised, the language ecology underwent dramatic change, leading to new contact configurations. In the regions that had come under

[11] *Focusing* here (à la Le Page & Tabouret-Keller, 1985) refers to a 'hardening' or delimitation of a dialect's boundaries relative to other similar varieties based on a set of distinctive features.

Romanian and Czechoslovakian control, for example, the language of instruction in schools shifted abruptly (see Chapter 2, §2.1.5 and the testimonies quoted in Chapter 1 §1.2.2.2). The collective influence of all these factors may have led to destabilization of the length contrast in the peripheral vowels and it is very likely that, over time, UY would have followed the pattern of other Yiddish dialects that lost it. Consider, for example, that Southeastern Yiddish (SEY), its closest neighbor to the east and with which it maintained ongoing contact, lost vowel length but retained /ɪ/ as a lax counterpart to /i/ (Jakobson calls SEY /ɪ/ the "sixth vowel" (1953); see also Glasser's (2017) analysis of SEY /ɪ/ as a quantitative distinction in "new garb").[12] In both of these Yiddish dialects (UY and SEY), a possible support for the [i, ɪ] contrast in Yiddish, which might have contributed to its maintenance, could have come from liturgical Hebrew, in which /i/ shortens in closed syllables in this dialect.[13]

Upon arrival to the U.S., UY came into immediate and intensive contact with English. Under its influence, the impending collapse of vowel length, at least in the high vowels, was halted and the contrast was fortified. Based on the findings reported here, the first bolstering effect was in the two features that were already present and salient in UY,

[12] The precise origins SEY are not entirely clear. The region was resettled by Jews from Central Yiddish (CY) and Northeastern Yiddish (NEY) dialect regions after the Khmelnytsky Uprising (1648 – 1657), during which the Jewish population was virtually eradicated (Glasser 2017). Herzog (1969, p. 70) classifies SEY as a subdialect of CY, which lost vowel length only after short /a/ had shifted to /o/ and short /i/ had diverged qualitatively from /iː/, so that the only long-short merging occurred in long-short /u/, whose phonemic status is questionable to begin with (Glasser 2017). It is conceivable that UY, also a subdialect of CY, could have followed the same trajectory regarding vowel contrast, with or without a qualitative shift in short /a/.

[13] In the liturgical Hebrew of these populations, /u/ in closed syllables shortens to [ɔ] or [ʌ] and thus would not be associated with [uː, u]; and there is no [aː, a] contrast.

namely, duration and relative quality of [i] vs. [ɪ]. This result is in line with the well-known tendency for language contact to affect features common to both languages. The spectral divergence of [i] vs. [ɪ], which was already in progress at least in some of the UY subregions, is unsurprising as well, as language contact tends to accelerate internally-driven change (Silva-Corvalán, 1986, 1991). Less commonly reported but also attested are reversals of merged (or nearly merged) sounds motivated by external factors (see e.g., Bowie, 2001; Kerswill, Torgersen, & Fox, 2008; Nycz, 2013; B. Regan, 2020; Yao & Chang, 2016). The proposal here is that the (impending) merger of the long-short vowels was inhibited or reversed as a direct result of contact with English.

The second New York-born generation exhibits more English-like systems in *both* high vowels and (as will be shown in Chapter 6) their HY and HE vowels seem to be converging. This new symmetry in the high vowels again points to English as the model for a new type of phonemic contrast. Further, as short high vowels drift further apart from their long correlates, duration becomes less important as a perceptual cue (see discussion in Chapter 2 §2.3), and the temporal contrast stabilizes into a pattern that closely resembles English (see e.g., Crystal & House, 1988; Hillenbrand et al., 1995).

Mainstream Northern U.S. English does not provide a model for contrast in {/aː/, /a/} in stressed position, however, and Gen3 is exhibiting signs of a long-short merger, both in quality and duration. In all four generations, the L/S ratio is smaller than that reported for this vowel in other Germanic languages reviewed in Chapter 2 (Table 2.2). It bears noting, however, that the contrast in HY {/aː/, /a/} is supported by the orthography (/aː/ is represented by double *yud* (יי) while /a/ is spelled with an *alef* (א)). Additionally, there is a

strong mental awareness of this contrast and the pronunciation of the long phoneme as [aɪ] is considered more prestigious and is sometimes used in more formal contexts. These factors may help stave off a long-short vowel merger (Faber & Di Paolo, 1995; Herold, 1990). Indeed, the data do not indicate that the pattern of diminishing contrast (in quality or duration) is continuing into Gen4 (there are no significant changes in [aː, a] observed in this generation). However, when listening to the wordlist data of two young Gen4 speakers, it was, in fact, difficult to distinguish between some of their long-short vowels in the low category, suggesting that a pattern of convergence may be ongoing, even if it has not reached statistical significance in Gen4.

To relate these ongoing changes to existing accounts of previous vocalic changes in Yiddish, one might draw on the phonological principle of economy, as Jacobs (1990) does for Eastern Yiddish dialects. Within this framework, a merger of {/aː/, /a/} could be interpreted as a shift towards greater parsimony: That is, that having lost the length contrast in the high vowels and moved to a tense-lax distinction, maintaining this feature for a single vowel pair is no longer feasible. However, many linguists have pointed out that such an approach often misses the point when it comes to explaining and making predictions about sound change. For example, Blevins (2005) argues persuasively against the usefulness of feature economy. Drawing on patterns in the phonological systems of a wide variety of languages, including Austronesian languages with single fricative systems, Blevins illustrates how an historical account which references multiple independent phonetic principles can provide more insight into the development and maintenance of such systems. Indeed, languages that have a maintained length distinction in one vowel

pair are attested. For one, although Standard German is said to have a length contrast, all its long-short vowel pairs, except {/a/, /aː/}, are usually analyzed as having a tense-lax distinction (i.e., long vowels as /iː, yː, uː, eː, øː, oː/ and their short counterparts as /ɪ, ʏ, ʊ, ɛ, œ, ɔ/). Even more conspicuous are languages with a 5-vowel system that have a length distinction only in /a/. Two examples are Gooniyandi, an Australian aboriginal language (McGregor, 1990), and Dom, a language spoken in Papua New Guinea (Syuntaro, 2006).

HY and English are genetically related (West Germanic) languages with many structural likenesses, including a lexicon whose overlap is increasing over time due to transfer. This typological similarity surely facilitates the transfer of features from one language to the other (see Thomason [2020] for an overview of this and other contact-induced processes of language change). Such an outcome is illustrated by King (2000), who evaluates the impact of English language contact on Acadian French morpho-syntax and explicates how loanwords can be catalysts for structural reanalysis, essentially feeding structural borrowing. Additionally, U. Weinreich (1964) notes the importance of considering sociohistorical factors in the maintenance or loss of the vowel length in European Yiddish dialects. In the U.S., favorable conditions, long-term bilingualism, intense contact and language borrowing, and increasing cultural diffusion make it all the more likely for English to influence HY in this way (Thomason, 2020).

Finally, the account offered here explains the ostensible incongruity in the gender effect. If we view durational divergence in HY not as an innovation, but as the reversal of a trajectory of a change that was beginning to take hold in UY, then the fact that males appear to be leading this shift is consistent both with the gender effects in other vowels (i.e., [ɪ]

and [ʊ] lowering and [aː, a] convergence) and with the literature showing women at the forefront of change (as discussed in Chapter 2 §2.2.2).

U. Weinreich (1958a, p. 222) notes, "If a sound change should reverse its direction, its terminal points would yield an identity which would obscure the intervening episode completely". Without a comparative examination of UY vowel length, this important development in a length-distinguishing Yiddish dialect would be completely missed.

To summarize, the followings proposals are made based on the statistical analyses of phonetic contrast reported in this chapter:

1. In Gen1 (UY), certain internal changes were ongoing, including the merger of long-short contrasts for all peripheral vowels. High front vowels may have been developing a tense-lax contrast similar to Southeastern Yiddish.
2. Contact with English for Gen2 and subsequent generations had an impact on all the changes observed in the peripheral vowels. For the high vowels, contact reversed or inhibited the merger, with a remapping of (just-noticeable) length differences on a distinct quality plus quantity dimension parallel to the American English system. For the low vowels, contact either facilitated the merger or did not have a dramatic effect on it, since there was no parallel low vowel contrast with which inherited HY {/aː/-/a/} could be associated.
3. Male speakers have always been more conservative; their high vowels are diverging more slowly, and their low vowels are resisting merger more than the females'.

I consider in greater detail the possible influence of English on these vocalic changes in the following chapter.

Chapter 6

Language contact

איך רעד סאך מער אידיש יעצט, נאך מיינע קינדער [זענען געבוירן].
פארשטייסט? *So*, ווילאנג כ׳האב נישט געהאט קינדער בין איך געווען
סאך מער אין ענגליש. *First of all*, ווען מ׳ארבעט. און ס׳געווען, די
environment איז געווען מער ענגליש. און ווען מ׳האט קינדער, *you*
go back to אידיש.

'I speak much more Yiddish now, since my kids [were born]. You know? So, as long as I didn't have children, I was much more immersed in English. First of all, at work. And it was, the environment was more English. And then when you have kids, you go back to Yiddish.'

Etty (born 1978; interview data)

IN THE PREVIOUS CHAPTER, the acoustic characteristics of Hasidic Yiddish (HY) long-short peripheral vowels pairs ([i, ɪ], [u, ʊ], [aː, a]) were compared across four generations of speakers. The findings point to significant divergence in the spectral qualities of the high vowel pairs, principally due to laxer, or more centralized realizations of the short vowels [ɪ] and [ʊ]; as well as an increase in the durational contrast between the long-short vowels

since the onset of contact with English. Moreover, analyses of cross-speaker correlation suggest that the same mechanism is driving the lowering of high vowels. The [aː, a] pair shows the opposite pattern: more spectral similarity and a shrinking durational difference over time. In interpreting these results, the role of language contact, specifically, the influence of English, which has a tense-lax distinction in the high vowels but lacks an equivalent contrast in the low vowel pair, was evoked. In this chapter, the acoustic qualities of HY and Hasidic English (HE) target vowels are systematically investigated for evidence in support of the proposal about cross-linguistic influence.

The analysis reported here is based primarily on tokens of HY and HE peripheral vowels [i], [ɪ], [u], [ʊ], and [a], produced during the word elicitation task (described in §3.1.2.2). As a starting point, the degree of phonetic overlap in HY and HE peripheral vowels, i.e., how they are organized in phonetic space relative to each other, is considered. The data are then analyzed in three ways to infer the extent and/or direction of cross-linguistic influence. First, the phonetic configurations of the vowel systems are examined for evidence of change over time. Second, patterns in the conditioning of allophones of /u/ in both languages are investigated and compared to each other, as well as to known patterns in the mainstream English-speaking population. Finally, the social factors that may be correlated with the observed changes are considered. The findings are interpreted with reference to theories developed in the field of second language acquisition (SLA) studies, highlighting the sociohistorical circumstances that might be contributing to sound change in this community.

As a quantitative sociolinguistic analysis of a minority language community, this dissertation as a whole hews closely to the research goals that shaped the field of modern sociolinguistics.[1] An application of SLA models situates this chapter within a comparatively more recent tradition in the field that promotes an inter-disciplinary approach between variationist sociolinguistics and SLA, and emphasizes the relationship between the individual speaker and the group (see e.g., Adamson & Regan, 1991; Bayley, 2000; Fasold & Preston, 2007; Preston & Bayley, 1996; Regan, 2004; Tarone, 2007; Yao & Chang, 2016).

The remainder of this chapter is organized as follows: In §6.1, the bilingual circumstances of the target community are reviewed, highlighting cross-generational differences in language input and the characteristics that set this group apart from other minority-language groups. In §6.2, the theoretical underpinnings of the intersection between sociolinguistics and second language studies is briefly considered, and the Speech Learning Model (SLM) of second language acquisition developed by Flege (1995, 1996) is introduced. The dataset is described in §6.3, and the cross-linguistic overlap is visualized in §6.4. Section 6.4 discusses the findings about change over time in the phonetic similarity of the two languages. Section 6.5.2 looks at cross-language differences in the allophonic conditioning of /u/ and §6.5.3 explores the social factors that may be implicated in the

[1] Modern sociolinguistics is rooted in issues related to language contact (see U. Weinreich, 1953/1970), however, the research paradigm in the field shifted to monolingual communities early on (e.g., Labov, 2006), in large part due to the challenges inherent in studying multilingual communities (see Sankoff 2002). More recently there has been a call by sociolinguists for more quantitative research of minority languages and multilingual contexts (see Guy & Adli, 2019; Nagy & Meyerhoff, 2008; Stanford, 2016).

changes. In §6.6, the findings are discussed in the context of SLA and the sociocultural circumstances of the Hasidic community.

6.1 Bilingual circumstances of the speech community

Chapter 1 §1.2.2.3 provided a brief overview of the language practices of the community. To interpret the results in this chapter, however, a more detailed description of the bilingual circumstances can be instrumental. Thus, in this section, some previously discussed sociolinguistic particulars are reviewed, supplemented by details that lead to a more fine-grained depiction from which accurate inferences can be made. From this account we can extrapolate the circumstances that set this population apart from other minority language groups, and how the generational cohorts might differ from each other in ways that can impact language.

The present chapter focuses on the three generations of native New Yorkers (Gen2, Gen3, and Gen4). While these groups have their autochthonism in common, they diverge in some important ways with respect to their two main languages. Gen2, the first American-born population,[2] was born to parents who did not speak English. While some of these adult immigrants (Gen1) eventually acquired it, many did not. Moreover, growing up in an ethnic enclave, Gen2 individuals remained largely unexposed to English in any meaningful or consistent way until they started school, at age seven or eight.[3] Up until that time,

[2] Some of the speakers were in fact born in displaced person camps in Germany and came to the U.S. as infants or toddlers.

[3] During interviews, speakers were asked whether they had non-Jewish friends growing up. Not one individual reported having meaningful contact with his/her non-Jewish neighbors.

preadolescent Gen2 children spoke predominantly Yiddish,[4] presumably a dialect that resembled Unterland Yiddish (UY), the language of their immigrant parents.[5] Their English learning input, on the other hand, was the local mainstream dialect: As there were few English speakers in the Hasidic community, English teachers in Hasidic schools were largely American born individuals, Jewish and non-Jewish, who did not typically speak Yiddish. The intercultural environment created by non-Hasidic/non-Jewish individuals teaching Hasidic children was not viewed optimistically by Hasidic authorities, who had strong convictions about how children in the community ought to be educated. Conflicts sometimes arose when their beliefs clashed with those of the community outsiders (teachers) responsible for implementing them.[6] Thus, it was with considerable relief when, roughly two decades after the war, Hasidic leaders welcomed their own graduates into the faculty, as teachers for the next generation (Gen3). From there on, a great deal of emphasis was placed on employing members of the community as teachers in the school.[7] This transition marked the end of a period in which Hasidic children had regular, direct, and sustained contact with mainstream English speakers. Henceforth, Hasidic children would acquire language from, and largely interact with, other HY-HE bilinguals exclusively,

[4] It may be premature to apply the term 'Hasidic Yiddish', in the sense of a unified, pan-Hasidic language, to the dialect spoken by this generation in the first decade after the war.

[5] The importance of early input is highlighted by Labov (1990b) and Roberts (1997), *inter alia*, who note that young children's dialects resemble those of their mothers, and tend to reflect female-led language change in the community.

[6] During the interviews, I learned of at least one incident where an English teacher was summarily terminated for expressing views that were inconsistent with the Hasidic ideology.

[7] I heard this firsthand growing up from a Hasidic principal who was close to my family. I also heard it from one of the interviewees for this study, who has held an administrative position in a Hasidic school for more than thirty years.

effectively closing the circle of contact. The fact that Hasidic children do not watch television or have access to other mainstream media means that even passive exposure to mainstream English is limited. The circumstances changed again in the new millennium, with the proliferation of Internet-connected computing and, especially, handheld smart devices. In spite of an official communal ban on these devices, they are nevertheless becoming increasingly ubiquitous in the community, both in the context of the workplace, where they are broadly tolerated, as well as among less conformist individuals who have incorporated technology into their lives. The age of Internet technology has thus ushered in another new era of contact, in which Hasidic adults, are once again encountering mainstream culture and language on a daily basis.[8] These cross-generational differences in learning input and language contact can have important implications for how these languages are acquired and continue to develop across the lifespan.

Another consideration is related to the categories that are typically used in second language studies, for example, early vs. late bilinguals (related to age of acquisition of the second language) and, within the former group, simultaneous vs. sequential bilingualism, based upon when the second language is introduced. While at first glance it would seem that Hasidim fit into the class of early sequential bilinguals, there are important differences setting them apart from typical speakers thus described. For most American children of immigrants, school heralds the onset of total immersion into mainstream language and

[8] I specify adults here to remind the reader that although exposure to the mainstream culture, via Internet technology, is increasing community-wide, such access is not generally available to non-adults living with their parents, who are highly selective in the type of media their children consume. Therefore, direct access to mainstream language and culture is still extremely limited during the critical period of language acquisition.

culture. Hasidic kids, conversely, attend private community-run schools where most subjects are taught in HY. Boys, especially, receive only minimal instruction in English and some never achieve full proficiency. Consequently, English acquisition for this population 1) is generally a protracted process that extends well into adulthood and beyond; 2) is highly gendered in terms of both age of acquisition and level of proficiency ultimately achieved; and 3) can vary considerably across speakers. Additionally, the subculture status of Hasidism somewhat complicates the notion of ambient language dominance, since the local environment is L1 (first language) dominant, but the broader society is L2 (second language) dominant. This means that environmental language dominance is not necessarily fixed, as it could vary between speakers (depending, for example, on where one is employed) and within speakers across relatively short periods of time. Thus, when looking for precedents and comparing findings, a very open-ended approach is required with respect to these categories, and we should not be surprised to find that Hasidic speakers to do not pattern precisely as expected when it comes to language contact effects.

6.2 Language contact in sociolinguistic and SLA studies

Language contact phenomena, while notoriously difficult to isolate, are a potentially significant factor underlying language variation and change and are thus of great interest to sociolinguists conducting research in multilingual communities. It is also a point at which sociolinguistics interfaces with second language acquisition (SLA) studies; however, the approaches of these two fields differ significantly. While the bilingual individual has remained the central focus in SLA studies, research in the field of sociolinguistics focuses

on patterns of language use in the speech community as a whole (Sankoff, 2002; Yao & Chang, 2016). The latter approach has facilitated a growing understanding of the linguistic and social factors that underlie language variability and change; however, it has provided less insight into cognitive factors that give rise to contact-induced change. Scholars in both fields undoubtedly agree that "macro change (in the language of a speech community) starts with micro change (in the idiolect of a member of that community)" (Yao & Chang, 2016, p. 433). Using this unifying statement as a starting point, Yao and Chang demonstrate how an integrated approach combining SLA models of the speaker's internal state with aggregated data obtained from a language community can lead to a more detailed account of the status of a vowel merger in Shanghainese. The merger in question involves the vowels /e/ and /ɛ/, which, once believed to be nearly merged, are presently showing signs of emergent separation. On the basis of three experiments, the authors confirm that Shanghainese [ɛ] in a particular lexical context is drifting towards [e] (or [ej]), becoming increasingly distinct from [ɛ] in other lexical sets. The results also support a view of contact with Mandarin as the catalyst for change, based on increasing diphthongization of the innovative Shanghainese vowel (i.e., more similarity to the Mandarin vowel [ej] upon which the alleged reanalysis is based); its prevalence among younger, more bilingual speakers; and its correlation with greater Mandarin activation and with words that are phonologically more like Mandarin. The authors suggest that sociolinguistic studies of variation and change within and across language systems can function as testing sites for models of SLA, for the mutual benefit of both fields, noting:

> *If the locus of language contact is indeed the bilingual mind, one would expect bilingual language systems to be the birthplace of many contact-induced language changes. Consequently, the investigation of such systems should be an essential step in understanding contact-related linguistic phenomena* (2016, p. 463).

Informed by the study cited above and others that offer cognitive explanations for the diffusion of natural and unnatural sound changes via contact (see e.g., Blevins, 2017b, 2017a), the analysis provided in this chapter layers an SLA approach onto data obtained via sociolinguistic methods for the purpose of identifying which of the observed patterns are attributable to cross-linguistic convergence. Drawing on the Speech Learning Model developed by Flege (1995, 1996), predictions about L1-L2 sound interaction in a bilingual speaker's mind are used to interpret group data comparing the phonetic properties of HY and HE vowels, for an account of contact-induced change in apparent time.

6.2.1 The Speech Learning Model

While apparent-time sociolinguistic studies assume a degree of linguistic stability across adult speakers' lifespans, recent research in the field has provided ample evidence that individual linguistic systems can and do change during adulthood (see e.g., Baxter & Croft, 2016; Bülow & Vergeiner, 2021; Gerstenberg & Voeste, 2015; Sankoff, 2019; Sankoff & Blondeau, 2007). The Speech Learning Model (SLM) is based on the premise that mechanisms of language learning remain operative across the lifespan. Indeed, Flege (2007) argues that the differential degrees of L2 acquisition long observed among learners are not attributable solely to maturational constraints (i.e., to a critical period), as many scholars (starting with Penfield and Roberts [1959] and Lenneberg [1967]), have posited. As such,

the SLM lends itself well to an application of contact-induced variation and language change. Flege explains that age of L2 acquisition in studies of bilingualism are likely to be confounded by a number of other variables, chief among them the amount and quality of language input. Specifically, Flege notes that early bilinguals are far more likely to enter immersive environments and receive the kind of rich language input that leads to proficiency.

Moreover, while the phenomenon known as INTERFERENCE (the impact of L1 on the acquisition of L2 sounds) is well-known, the SLM is distinctive among other SLA models in explaining influence in the opposite direction. Flege (1995, 1996) proposes that L1-L2 sound systems coexist in a shared phonological space in the bilingual mind and exert an ongoing bidirectional influence on each other. The interaction is based on a system of EQUIVALENCE CLASSIFICATION: L2 sounds that are perceived by learners as 'new', i.e., acoustically distinct from sounds in the L1 inventory, will form new categories; while sounds that are perceived as 'similar' will be mapped onto acoustically similar L1 sounds, resulting in non-native productions of those segments. ('Identical' sounds will similarly map onto L1 categories but will not result in any discernible production differences due to their inherent acoustic similarity.) Thus, perceptual similarity may prevent the formation of new sound categories, while phonetic distance increases the chances for new sound classification. Flege further explains that both language systems remain malleable throughout the lifespan[9] and, once perceptually linked, similar L1 and L2 sounds can potentially keep influencing each other.

[9] This is line with recent sociolinguistic research demonstrating various trajectories of language change across the lifespan (e.g., Sankoff, 2019)

Continued use of the L1 will have an (obstructive) influence on L2 learning, leading to outcomes often attributed to maturational constraints; and increasing proficiency with L2 can lead to change in the opposite direction. Additionally, the L1 system remains vulnerable to assimilation to the L2 throughout its development, which, Flege emphasizes (citing Hazan and Barrett [1999]), extends into adolescence. Indeed, such change in the L1 within a speaker's lifespan, referred to as PHONETIC DRIFT, is attested in L2 dominant environments (see Chang [2019] for an overview). For example, Flege (1987) found that native French speakers living in Chicago and proficient in English produced French /t/ with a longer (more English-like) voice onset time (VOT) than French monolinguals. Similarly, Sancier and Fowler (1997) examined VOT in the voiceless stops of a female native speaker of Brazilian Portuguese proficient in English and studying in the U.S. They found that when living in the U.S., the speaker's Portuguese stops were more English-like (i.e., longer), but during extended periods in Brazil, her English stops became more like Portuguese. This effect, however, is not limited to L2 dominant environments. Herd, Walden, Knight and Alexander (2015) studied the production of English voiceless stops and vowels of speakers studying Spanish in the U.S. Their sample (N = 40) included beginning, intermediate, advanced and near native learners. The results showed that advanced and near native learners had significantly more negative (Spanish-like) VOTs than beginners; and more peripheral (Spanish-like) vowels. Phonetic drift has also been found to occur fairly early in the language learning process. In a longitudinal study of English speakers learning Korean in South Korea, Chang (2012, 2013) discovered evidence of phonetic drift among novice learners, specifically, a systemic upward shift of all English vowels (in the direction of the

L2), during the third and fifth weeks from exposure. Moreover, this drifting effect was more pronounced in the novice learners than in a group of experienced learners. Based on these results, Chang suggests that drift is actually *reduced* as the learner's familiarity with the L2 increases.

The studies cited here support a view of the L1-L2 systems as constantly evolving and therefore subject to change. By referencing group-level differences in language exposure and input in conjunction with SLA predictions about individual-level language processing, we can gain a better understanding of the bilingual changes exhibited by this community in apparent time.

6.3 Data

The data for the analyses described in this chapter come from HY and HE vowel tokens extracted from the wordlist tasks (N = 7,262) (see Appendix C for the for the complete list of stimuli). The speaker sample thus consists of the 55 native speakers that completed this task, and represents three generations (2, 3, and 4). The sample is comprised of 14 Gen2 speakers (7 female) ranging in age from 54 to 70 (M = 64.75, median = 69, SD = 5.77); 20 Gen3 speakers (12 female), age range 13 to 49 (M = 37.95, median = 39, SD = 9.07); and 21 Gen4 speakers (11 female), age range of 11 – 29 (M = 19.99, median = 21, SD = 5.12). Two speakers, a Gen3 female and a Gen4 male, completed the Yiddish, but not the English wordlist task. The minimum, maximum and mean number of tokens of each vowel analyzed per speaker are shown in Table 6.1, by language, along with the number of tokens

analyzed in each category. Note that in all the tables and graphs shown in this chapter, HY is labeled as "YID" and HE as "ENG".

	ENG				YID			
Vowel	Min	Max	Mean	N	Min	Max	Mean	N
i	8	13	10	548	12	21	16	868
ɪ	9	14	11	591	10	21	15	826
u	7	16	11	558	9	17	13	718
ʊ	8	12	10	520	6	16	10	563
a	8	14	11	585	9	18	13	716

Table 6.1. Minimum, maximum and mean number of tokens analyzed per speaker (N = 55) and the total from each vowel category analyzed from the HY and English wordlist datasets.

6.4 Cross-linguistic comparison

To explore cross-language similarities and differences, the data were first summarized in aggregate, by vowel and language. Table 6.2 shows mean duration, F0, F1, and F2 of all the tokens in the dataset.

A well-known co-articulatory effect on English [u], discussed in more detail in §6.5.2.1, is a tendency for tokens preceded by coronal consonants to have fronter realizations. Thus, linguists studying this vowel typically treat post-coronal [u] as a distinct subset and analyze them independently of [u] in other contexts. As the words for this task were not initially selected with the intention of investigating fine-grained phonetic differences across these conditions, there is lack of balance in the data, both within and across the languages, in this respect: 44% of the HE [u] and 59% of HY [u] tokens are in post-coronal position. In the present section, which is intended to serve as a preliminary overview of the data, [u]

tokens are summarized in aggregate. In subsequent sections (§6.5.2.1), these are divided into lexical sets (TOO, HOOP, and COOL) and analyzed separately.

The first notable observation is that the mean F2 values of both HY and HE [u] are considerably lower (less than 1200 Hz in HE and less than 1100 Hz in HY) in this population than the values typically found among mainstream New York English speakers (around 1800 Hz for New York City speakers, see Haddican, Cutler, Farinella, & Zhu, 2019; submitted; Newman, 2014; Wong, 2014).

	ENG				**YID**			
Vowel	Dur (ms)	F0	F1 (norm)	F2 (norm)	Dur (ms)	F0	F1 (norm)	F2 (norm)
i	103	173	408	2229	99	161	398	2225
ɪ	69	175	484	1900	68	164	458	1965
u	108	173	416	1184	109	160	420	1054
ʊ	80	172	494	1224	71	163	465	1198
a	97	160	725	1331	95	152	744	1395

Table 6.2. Mean duration (in milliseconds) and formant frequencies of all tokens (N = 7,262) by vowel and language

Next, formant values were plotted (F2 on the x-axis and F1 on the y-axis) by language (columns) and generation (rows) to illustrate spectral differences in HY vs. HE vowels, with IPA symbols representing the means for each vowel and ellipses enclosing 68% confidence in the mean. These are shown in Figure 6.1. Here we observe more separation in the HE vs. HY long-short high vowels for all three groups. Additionally, the high back vowel pair seems to be advancing marginally in apparent time (from Gen1 to Gen4), however, within each group, HE [u] and [ʊ] are more fronted than their HY equivalents. Homing in on differences across the generations, we note that the HE vs. HY plots of Gen2 appear to represent two slightly different systems. In the HY system, the long-short versions of the

high back vowels' ellipses overlap considerably, and the formant means are closer together, while the same vowels in the HE system show minimal elliptical overlap and more distance between the formant means. The HY high front vowel pair, although more separated than the back pair, also shows some overlap, whereas the HE correlates show none. The HE-HY vowels of Gen3 and Gen4 show a higher degree of similarity, although the vowels of Gen4 show greater variability overall (and thus have larger ellipses). Additionally, Gen4 has a smaller vowel space, hence marginally more proximal vowels overall. There is no discernible difference in the phonetic position of [a] across languages.

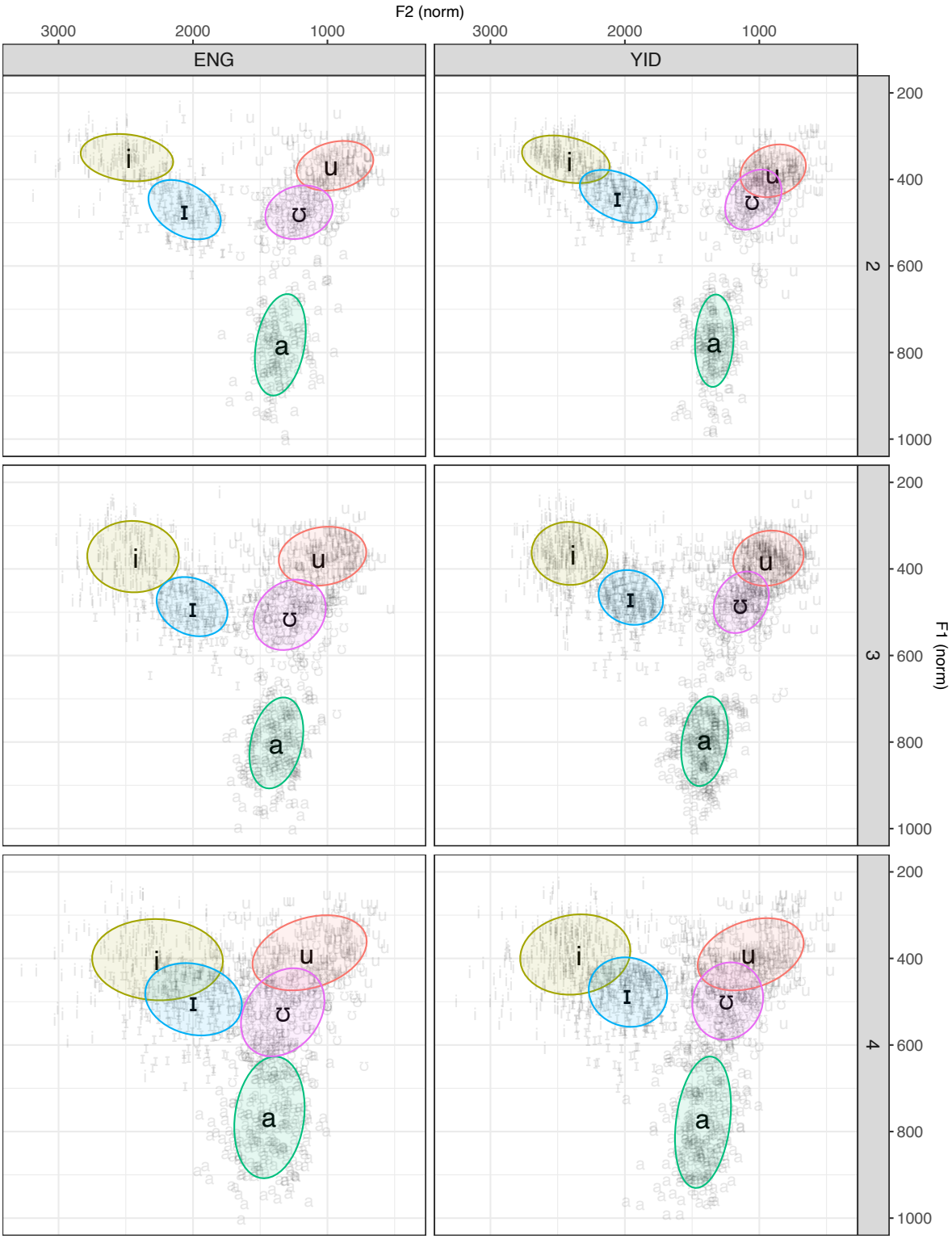

Figure 6.1. Normalized F1 and F2 values of all wordlist vowel tokens, faceted by generation (rows) and language (columns), with HY labeled "YID" and HE labeled "ENG". Formant means are represented by symbols in large font. Ellipses represent 68% confidence intervals. N = 7,262 (HY = 4,460; ENG = 2,802).

6.5 Apparent-time change in cross-linguistic overlap

To further visualize phonetic similarity across the two languages, the tokens of all the HY and HE short vowels and long vowels were plotted separately on two-dimensional contour maps, with density lines showing the internal distribution (or spectral density regions) of the data points (the farther apart the lines, the sparser the data),[10] by vowel (rows) and generation (columns). To assess the extent of overlap across and within languages statistically, a multivariate analysis of variance (MANOVA) was conducted for each vowel pair by language, with F1 and F2 as dependent variables,[11] to obtain Pillai scores. Recall that Pillai scores closer to 1 indicate more difference in the distribution of these tokens, while a score closer to 0 signifies more overlap (Pillai scores are explained in more detail in Chapter 3 §3.4.1).

6.5.1 Short vowels

Looking at the short vowels, we see in the contour plots of [ɪ] (Figure 6.2) some separation on the F1 for the HY vs. HE vowels, with the HE vowels (in pink) situated slightly lower on the F1~F2 plane for Gen2 and Gen3. In Gen4, these same vowels appear to overlap completely. Figure 6.3 is an enlarged version of the contour plots for [ɪ], to show more detail. Here one can observe that while the center points of the two vowels fail to intersect

[10] Contour plots, which use kernel density estimation (KDE: a non-parametric method of estimating the probability density function of a random variable), are a more realistic way of visualizing the non-symmetrical distribution of the data.

[11] R call: manova(cbind(F1, F2) ~ Language + Preceding Segment + Following Segment + Log_{10}(Duration))

in Gen2, they do so in Gen3 and Gen4 (although the HE [ɪ] of this youngest group is bimodal). The Pillai scores for [ɪ], listed in Table 6.3, reflect these observations. Although the distinctiveness in the distribution of HY vs. HE [ɪ] is relatively small, the scores decrease over time (from 0.12 in Gen2 to 0.02 in Gen4). A similar but more pronounced pattern is seen in [ʊ]. Here the divergence seen in Gen2, which is mostly for the F2, decreases across generations, and this too is supported by incrementally lower Pillai scores (from 0.22 to 0.07). Hence, HY short vowels come to resemble their English counterparts across this three-generation apparent time span. The low vowel [a] shows no such trend. Pillai scores indicate that there are no significant differences in the production of these vowels for Gen2 and Gen4 and only a miniscule difference in Gen3.

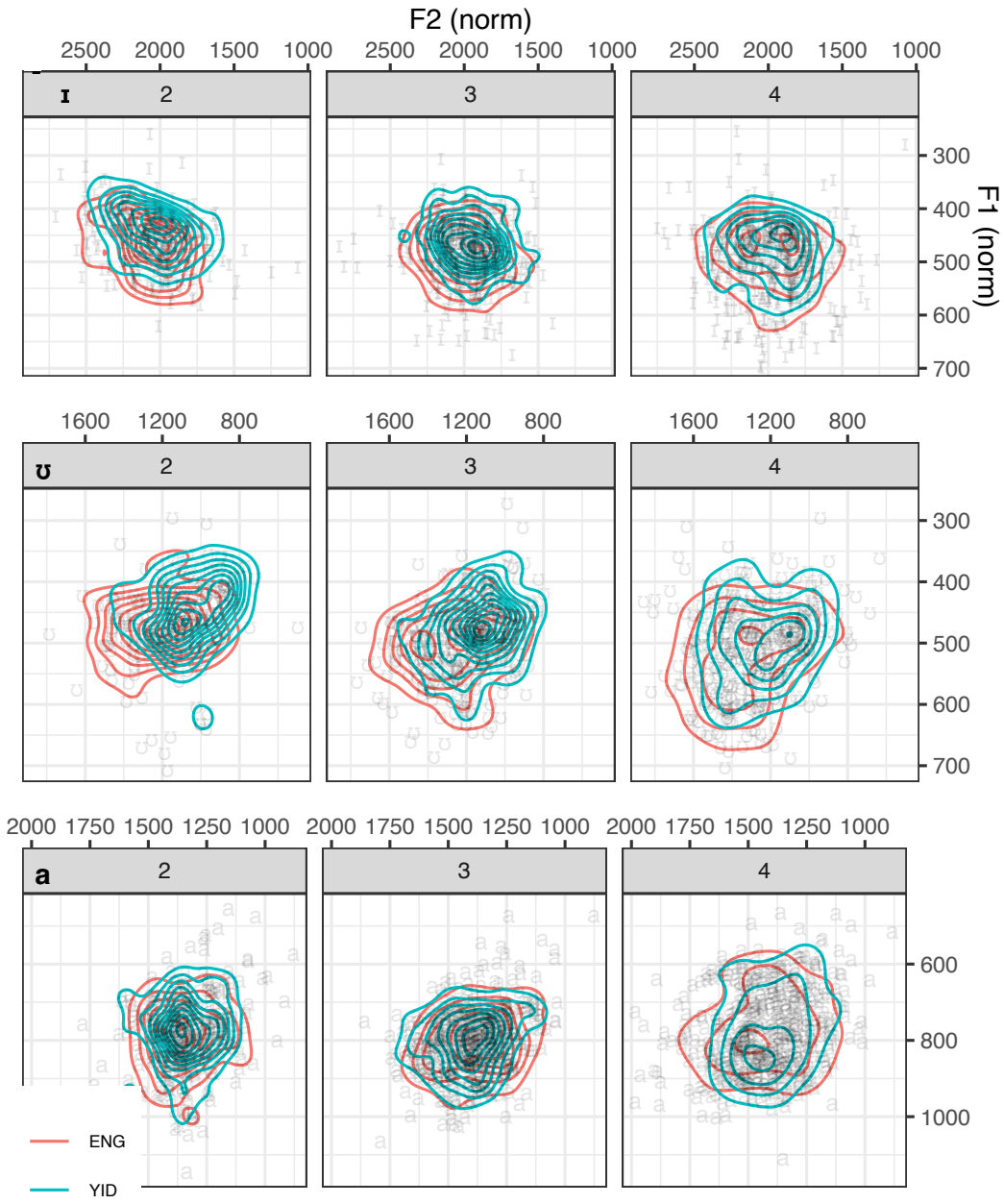

Figure 6.2. Contour plots of Hasidic Yiddish and Hasidic English short vowels showing location (by normalized F1 and F2) and density, faceted by generational group.

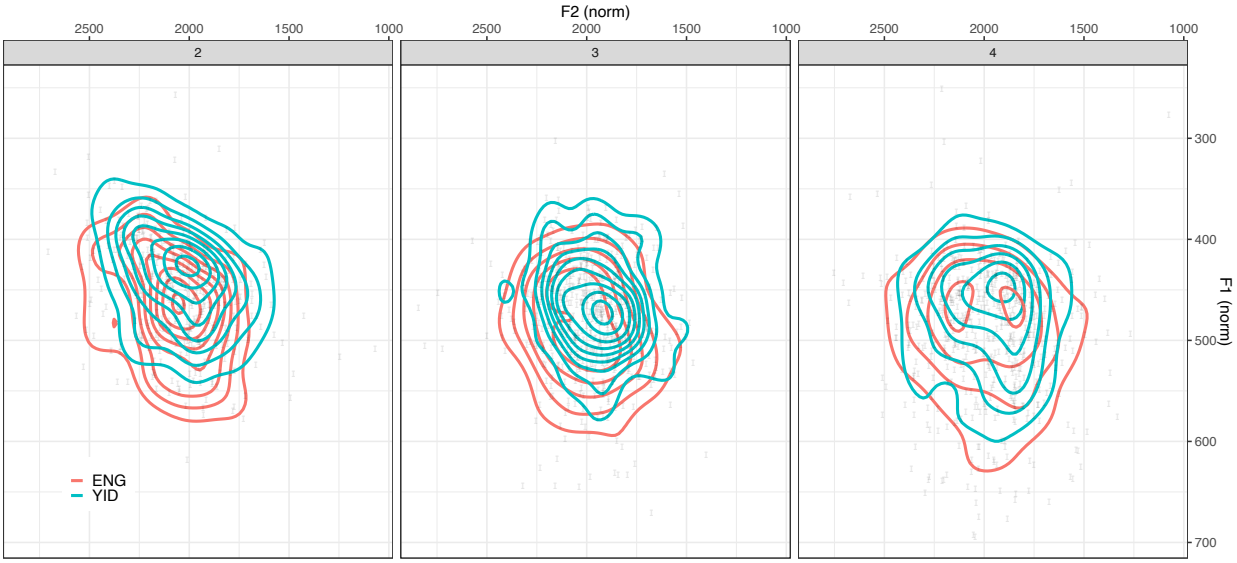

Figure 6.3. Contour plots of Hasidic Yiddish and Hasidic English short [ɪ], enlarged to show detail.

Gen	/ɪ/		/ʊ/		/a/	
2	0.12	***	0.22	***	0.00	
3	0.07	***	0.20	***	0.02	*
4	0.02	**	0.08	**	0.00	

*Table 6.3. Crosslinguistic Pillai scores for short vowels for each generational group. Significance codes: *** = <0.001, ** = <0.01, * = <0.05, . = <0.1.*

6.5.2 *Long vowels*

Turning now to the long vowel plots (Figure 6.4), we note that [i] is produced similarly in both languages for all generations, based on both the plots and the Pillai scores.

As mentioned above, sociolinguists studying the phonetic quality of North American English vowels have identified an implicational hierarchy in /u/, conditioned by the phonological context, which has led to a partitioning into three lexical sets when discussing this vowel: 1) TOO: /u/ following coronal consonants tend to be the most advanced; 2) COOL: /u/ preceding laterals are maximally retracted; and 3) HOOP: /u/ elsewhere (Baranowski, 2008; Hall-Lew, 2009; Labov et al., 2006). To account for these known systematic

contextual differences, the lexical sets (including relevant Yiddish items) were plotted individually, and Pillai scores were calculated separately for each set.

Examining HE TOO, we observe that it is slightly more advanced in Gen2 relative to the HY correlate. In Gen3, this pattern is even more pronounced. In Gen4, however, HE and HY TOO overlap completely due to the HY vowels being as advanced as their HE counterparts. The Pillai score for TOO of the youngest generation is not statistically significant (see Table 6.4). Likewise, HE HOOP is more fronted than HY HOOP, but it remains largely consistent across the groups, with Gen3 showing relatively more divergence. The Pillai scores for the COOL set are not significant for any of the generational groups, signifying complete homogeneity for this lexical set across the two languages.

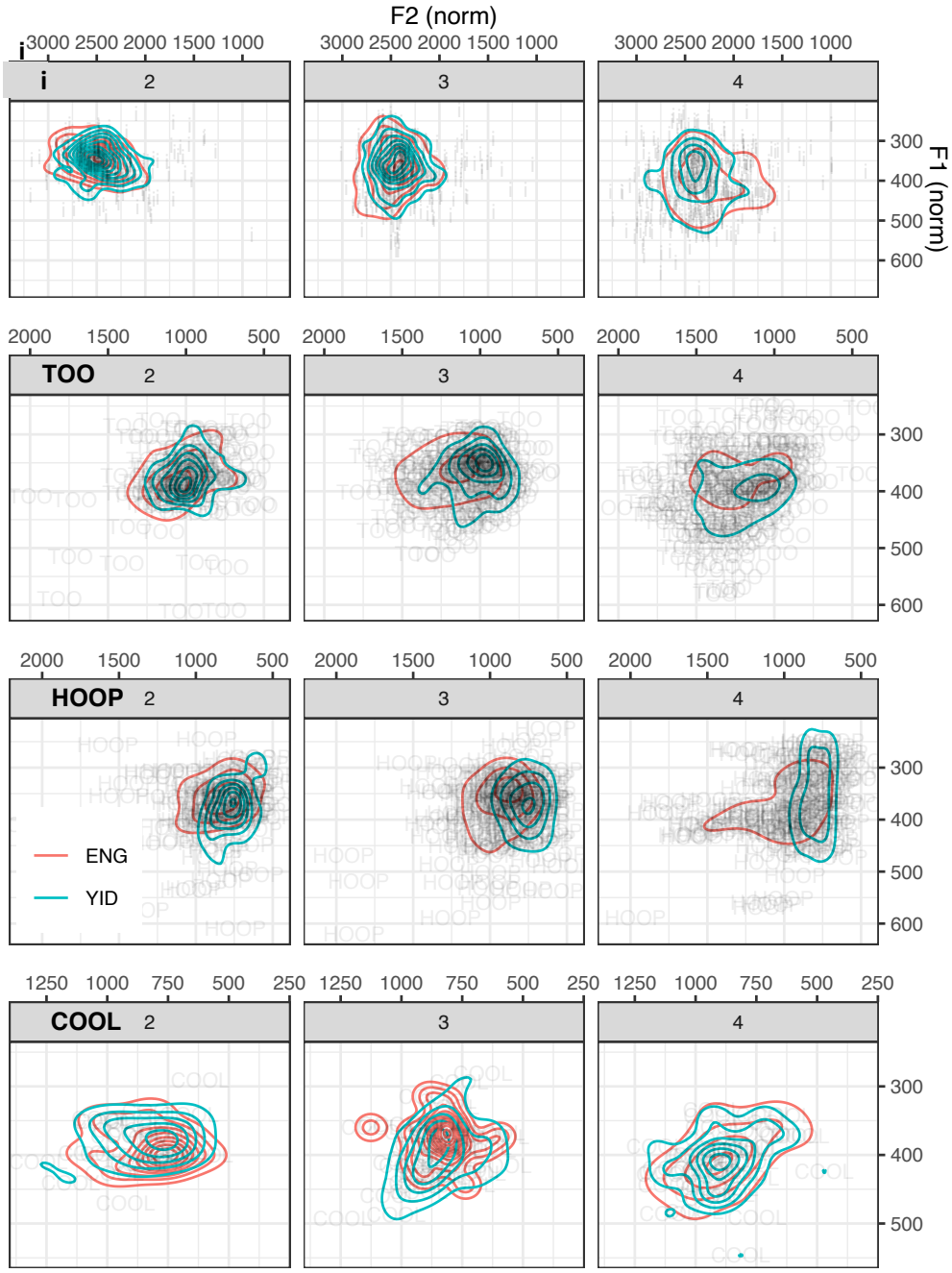

Figure 6.4. Contour plots of long vowels showing location (by normalized F1 and F2) and density, faceted by generational group

Gen	/i/		TOO		HOOP		COOL
2	0.02	*	0.09	***	0.16	***	0.04
3	0.01		0.14	***	0.21	***	0.05
4	0.02	**	0.02	·	0.19	***	0.01

*Table 6.4. Crosslinguistic Pillai scores for long vowels/sets for each generational group. Significance codes: *** = <0.001, ** = <0.01, * = <0.05, . = <0.1.*

6.5.2.1 Allophonic conditioning

The present section focuses on cross-language differences in the phonetic conditioning of /u/. As previously mentioned, there is a lack of balance in the wordlist data across the sets. Moreover, the English wordlist contains only a single item in the COOL category (*pool*) and the Yiddish wordlist contains only two (*tsul* and *mul*). The data for this subcategory of /u/ are thus too sparse for inferring general patterns about the phonetic parameters of this set. Instead, the tokens analyzed in this section are drawn from the larger dataset (wordlist *and* interview data coded as 'HE'), which, due to natural patterns of language mixing in the HY community, contains a substantial number of HE observations. After excluding Gen1, a total of 10,992 tokens of [u] were available for analysis, 3,579 of them HE. The HE tokens represent 371 unique words, the most frequent of which are: *school, sure, two, music, used, new, food, who, mood,* and *cute.*

The TOOL set

Given the allophonic conditioning effects on /u/ described above, there is the question of what to expect in competing environments, specifically, when /u/ is preceded by a coronal consonant (which typically cause fronting) and followed by /l/ (which has been shown to impede fronting). These have been classified as the TOOL set. Hall-Lew (2009), who studies

phonetic variation in an Asian American community in San Francisco, California, finds that TOOL patterns like COOL. To ensure that the allophones are categorized correctly in the data analyzed here, the observations of TOOL were first labeled separately. Then, a linear mixed-effects model was fit to the F2 values, with lexical set (four levels, with COOL as the reference) and (decadic log-transformed) duration as fixed effects, and speaker and word as random effects. The results showed no significant difference in TOOL vs. COOL, consistent with Hall-Lew (2009). TOOL and COOL are thus treated as a single category for the remainder of the analysis.

6.5.2.2 Visualizing the data

To evaluate differences in the phonetic quality of these allophones across the two languages, formant values were first summarized in aggregate. At 1204 Hz, the mean of the most fronted set (TOO) lies right on the threshold separating back vowels (< 1200) from moderately fronted ones (1200 - 1550), according to Labov et al. (2006), and falls far short of those found among mainstream New York City English (NYCE) speakers (~1800, according to Labov et al.). On the basis of these estimates, Hasidic speakers as a group are lagging far behind the mainstream population in the fronting of TOO. In the HE data, there is an incremental increase in the values from COOL to HOOP, which fits with the fronting hierarchy of North American English. However, the HY data show a lower F2 mean for HOOP vs. COOL (i.e., a reversal of their relative phonetic positions in HE), as well as a very retracted TOO compared to HE.

Next, the formants were summarized by generation and plotted on the phonetic plane (Figure 6.5), with the positions of the means represented by labels and ellipses enclosing

68% confidence in the mean. Studying this faceted plot, we note rising values in all the F2 means across generations for both HE and HY, with the most substantial increase occurring in HE TOO between Gen2 and Gen3 (131 Hz difference) and HY TOO between Gen3 and Gen4 (174 Hz difference). Gen4 has also reached the 1200 Hz threshold mentioned above in HY TOO. And while these values are still very conservative relative to NYCE, there is an obvious trend towards fronting.

The cross-language difference in the relative positions of HOOP vs. COOL observed for the group overall remains consistent across the generations (i.e., COOL is consistently more retracted than HOOP in HE, but the reverse is true for HY). Additionally, the plots reveal a change over time in the HE vowels, which are increasingly resembling the mainstream English system. Small changes are discernible in the HY system as well, including more advanced realizations of TOO relative to the other sets, but HOOP and COOL do not appear to be moving apart significantly on the F2.

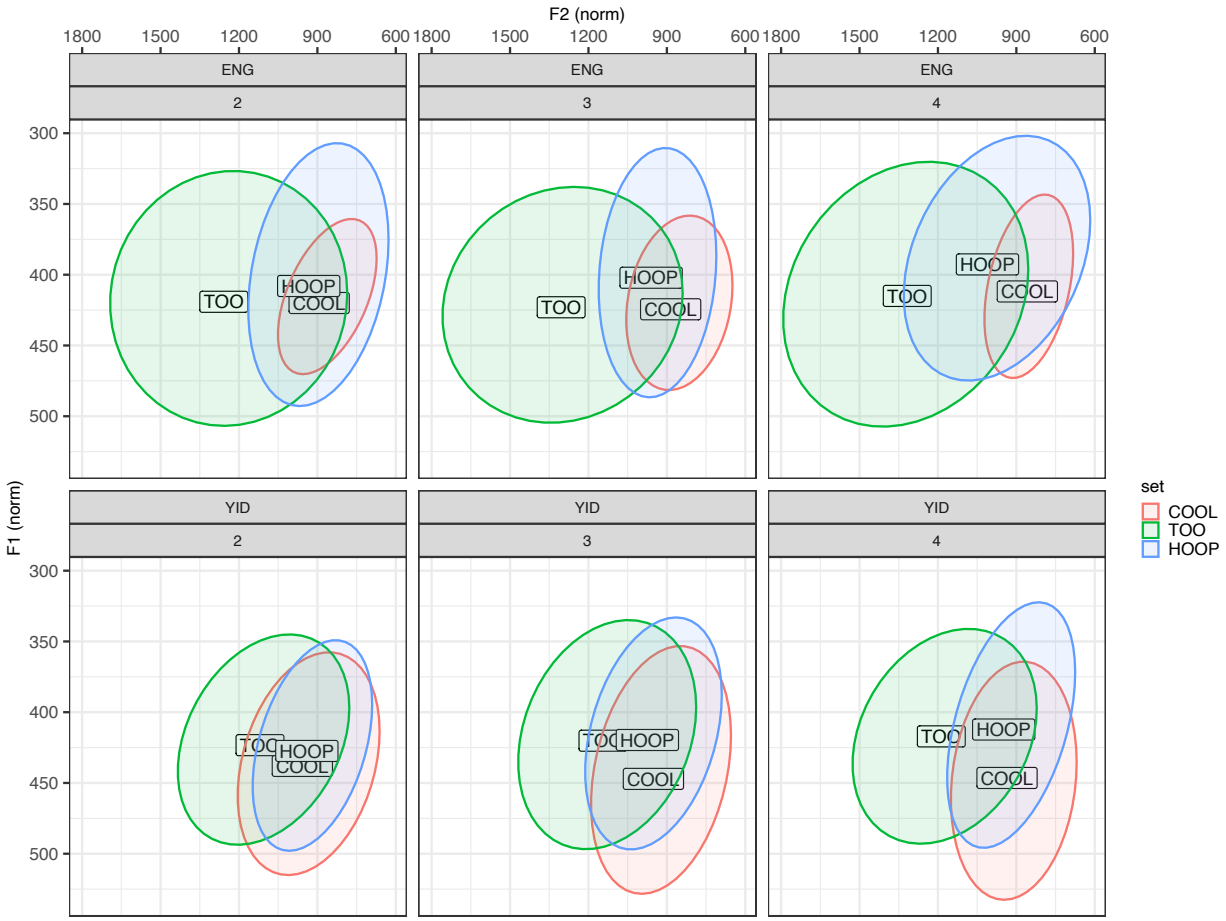

Figure 6.5. F1~F2 plot of all lexical sets in the /u/ vowel class, faceted by generations (columns) and language (rows), with labels representing the position of the means and ellipses enclosing 68% confidence in the means. (N = 10,992)

6.5.2.3 Statistical modeling

To test whether the patterns observed above are significant, MANOVAs were once again used to obtain Pillai scores, this time comparing the lexical sets, in pairs, within each language (TOO vs. HOOP and HOOP vs. COOL) separately for each generational group. The results are shown in Table 6.5.

For HE TOO vs. HOOP, we see a dramatic increase in divergence in Gen3, which, based on the plots we saw above, is the result of substantially fronter realizations of TOO. HE HOOP

and COOL show divergence in apparent time as well, with the biggest change occurring in Gen4. Like their HE correlates, HY TOO vs. HOOP exhibit incrementally increasing divergence, with Gen4 displaying the least overlap in this pair, as well as in HOOP vs. COOL. The difference in the distribution of HOOP vs. COOL is only significant in Gen4.

	ENG				**YID**			
Gen	TOO~HOOP		HOOP~COOL		TOO~HOOP		HOOP~COOL	
2	0.09	**	0.07	·	0.22	***	0.07	
3	0.23	***	0.09	**	0.34	***	0.01	
4	0.14	***	0.14	***	0.40	***	0.12	**

*Table 6.5. Within language Pillai scores by lexical set (TOO vs. HOOP; HOOP vs. COOL) for each generational group. Significant codes are given in the column to the right of the scores: *** = <0.001, ** = <0.01, * = <0.05, . = <0.1.*

6.5.3 Social factors

Researchers have reported a sound change in progress in NYCE, which shows /u/ advancing in phonetic space (Haddican et al., 2019, submitted; Newman, 2014). This parallels the behavior of this vowel in other English dialects in North America and across the world, where similar fronting has been observed (see review and citations in Chapter 7 §7.1). In most of these studies, women are observed to be leading the change (see e.g., Baranowski, 2008; Hall-Lew, 2009; Labov, 2001). Here too, there is an expectation for female speakers to show more extensive fronting, albeit for reasons that are culturally specific: As discussed in Chapter 1 §1.2.3.2, females receive quantitatively and qualitatively superior English language instruction in school and tend to use English more than males in everyday life. If the /u/-fronting trend is driven by language contact, as the vowel plots and Pillai scores seem to suggest, then females should exhibit more fronting by virtue of their proficiency and regular use of English.

To investigate the linguistic and social effects on allophonic conditioning of /u/, linear mixed-effects models were fit to F2, separately for HY and HE, with random intercepts for Speaker and Word, and fixed effects for Set, (decadic log-transformed) Duration, Task, Generation, Gender, and the interactions of Set × Generation and Set × Gender.[12] The model estimates predict the F2 distance between each lexical set and COOL (the reference) and whether the difference between each subclass is significant. The age group (generation) is included to confirm the apparent-time changes shown above, and gender is added to see whether predictions about the effect of English proficiency/use are borne out.

The model results are displayed in Table 6.6, with pertinent significant effects shaded in grey. They confirm that TOO is significantly more advanced in both languages however the extent of fronting is substantially greater in HE (β=179.9, SE=47.49, t(491.15)=3.79, p<.001; HY β=73.95, SE=21.43, t(625.44)=3.45, p=<.001). In neither language does HOOP differ significantly from COOL for the group overall, however in Gen4, HE HOOP is more fronted than COOL (β=99.52, SE=42.51, t(3420.11=2.35, p=.019), reflecting the more English-like system of this generational group observed in the plot shown above (Figure 6.5). Moreover, Gen4 has significantly more fronted TOO in both languages relative to other age groups (HE β=87.5, SE=35,95, t(3416.37)=2.43, p=.015; HY β=46.41, SE=16.2, t(7445.41)=2.887, p=.004), indicating that TOO-fronting is a change that has recently started to take hold in the community. In the HE model, Gender is significant in the TOO set (β=61.23, SE=29.86, t(3439.98)=2.05, p=.04), but contrary to expectations and patterns observed elsewhere in

[12] R call: F2 ~ Lexical Set * Generation + Lexical Set * Gender + Task + Log_{10}(Duration) + (1|Speaker) + (1|Word)

the vowel system, male speakers are shown to have more fronted vowels than female speakers. This pattern also conflicts with studies of North American English that show women leading the change. The Set × Gender interaction is shown in Figure 6.6, which plots estimated model means of HE F2 by lexical set for each gender group. In the HY model, Gender is not a significant predictor of /u/-fronting.

	F2 (ENG)				**F2 (YID)**			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*	*Estimates*	*Std. Error*	*t-value*	*p-value*
Intercept	1762.24	65.38	26.96	**<0.001**	1838.16	35.51	51.77	**<0.001**
Set: TOO	179.90	47.49	3.79	**<0.001**	73.95	21.43	3.45	**0.001**
Set: HOOP	-38.16	53.52	-0.71	0.476	-40.40	22.47	-1.80	0.072
Generation 3	33.93	38.91	0.87	0.383	42.80	31.39	1.36	0.173
Generation 4	-44.42	42.44	-1.05	0.295	51.60	31.94	1.62	0.106
Task (wordlist)	54.18	27.49	1.97	**0.049**	-35.05	25.54	-1.37	0.170
Gender: M	17.16	34.97	0.49	0.624	30.40	25.21	1.21	0.228
Log_{10}(Duration)	-403.76	19.82	-20.37	**<0.001**	-429.55	9.21	-46.64	**<0.001**
SetTOO:Gen3	17.45	31.61	0.55	0.581	-11.73	15.29	-0.77	0.443
SetHOOP:Gen3	-5.87	38.72	-0.15	0.879	-26.23	16.69	-1.57	0.116
SetTOO:Gen4	87.50	35.95	2.43	**0.015**	46.41	16.19	2.87	**0.004**
SetHOOP:Gen4	99.92	42.51	2.35	**0.019**	-19.21	17.88	-1.07	0.283
SetTOO:GenderM	61.23	29.86	2.05	**0.040**	16.89	12.84	1.32	0.188
SetHOOP:SenderM	-11.85	35.44	-0.33	0.738	-12.21	14.05	-0.87	0.385
Random Effects								
σ^2	58169.23				32141.64			
τ_{00}	14771.45 word				8470.90 word			
	5928.11 speaker				6851.00 speaker			
ICC	0.26				0.32			
N	56 speaker				57 speaker			
	360 word				383 word			
Observations	3486				7506			
Marginal R^2 / Conditional R^2	0.266 / 0.459				0.276 / 0.509			

Table 6.6. Output of linear mixed-effect model for F2 by lexical set.

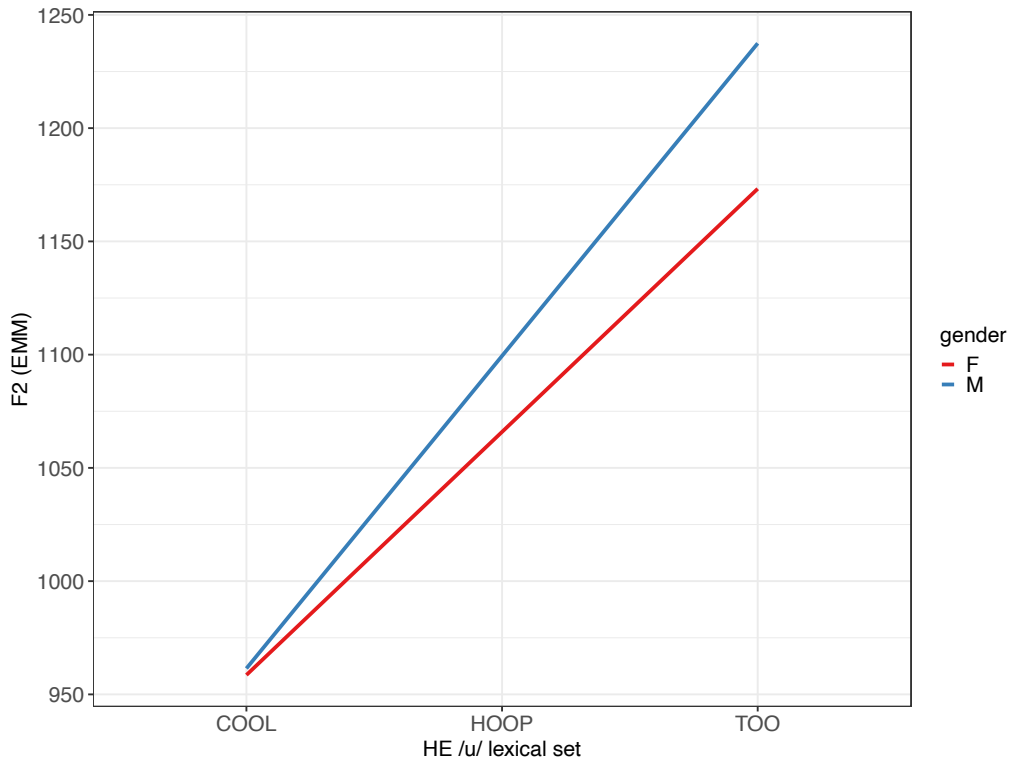

Figure 6.6. Estimated model means of F2 of Hasidic English /u/ by lexical set (COOL, HOOP, TOO), grouped by gender (red for female and blue for male).

In summary, this analysis confirmed the patterns in the allophonic conditioning of /u/ observed in vowel plots but yielded two surprising results. The first is the lack of a gender effect on HY TOO; and the second is the direction of the gender effect on HE TOO, which suggests that male speakers are taking the lead in this innovative phonetic shift.

6.5.3.1 Cross-speaker covariation

To examine cross-speaker covariation, a LMM was fit to F2, separately for HE and HY, with set as a fixed effect (reference: TOO), and speaker and word as random effects. The random intercepts of each model were extracted and plotted against each other (Figure 6.7), illustrating a positive cross-speaker correlation (Spearman ρ=.76, p<.0001) that is highly

significant (p<.001). These results underscore that the same speakers who are fronting HE TOO also have fronter realization of HY TOO, which suggests that a single mechanism is driving the change in both languages. The points representing speakers are also colored by gender (blue for female and yellow for male), but no obvious gender pattern emerges from these data.

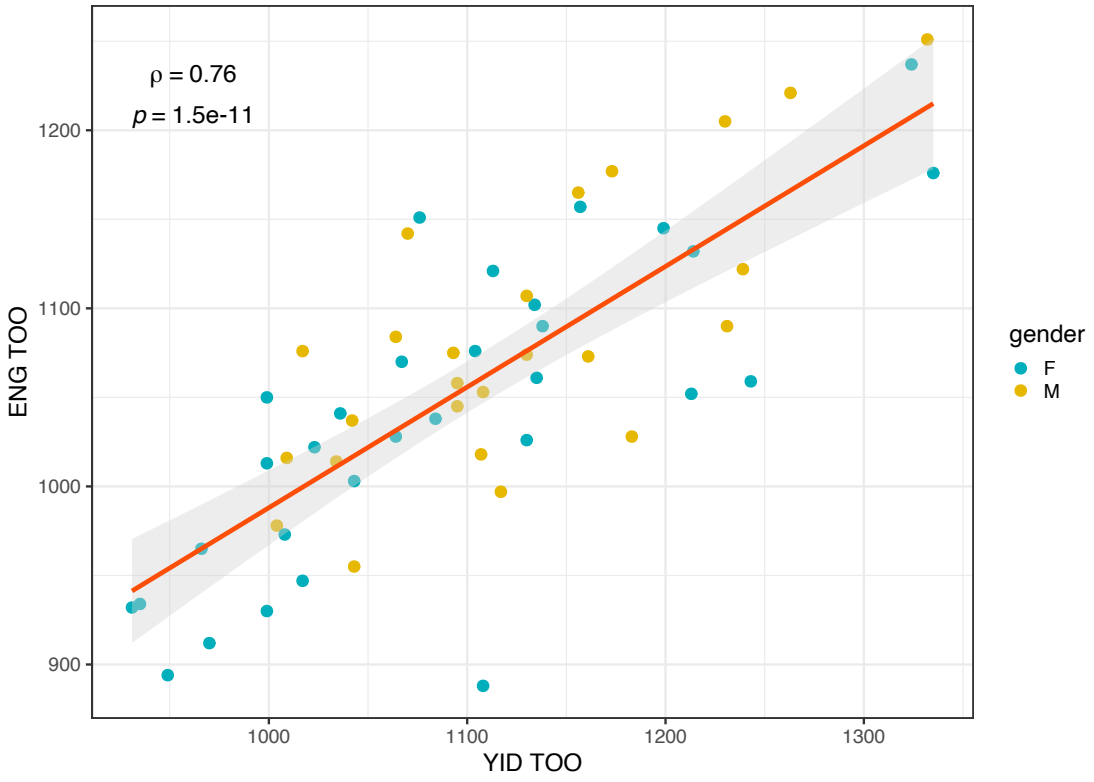

Figure 6.7. By-subject random intercepts of F2 for TOO by language (Hasidic English vs. Hasidic Yiddish), colored by gender (blue for female and yellow for male). Model template: (F2 ~ Set + Log_{10}(Duration) + (1|Speaker) + (1|Word).

6.6 Discussion

In the present chapter, several findings emerged that are of particular relevance to the question about cross-linguistic influence. As seen in §6.5.1, for the short high vowels, the

least overlap between the two languages is found in Gen2, after which these vowels converge. To explain the cross-generational differences in the phonetic configuration of these two language systems, we consider differences in the properties of the target languages for Gen2 acquisition. While the Yiddish input for Gen2 came from their immigrant parents (Unterland Yiddish), their learning input for English came from mainstream (non-Yiddish) speakers. The data suggest that, on the basis of these different targets, the first New York-born generation perceived the short high vowels of each language as different and formed discrete phonetic categories for them, thus acquiring two distinctive vowel systems. Over time (within the lifespan of Gen2 speakers), these two systems may have exerted an influence on each other, resulting in phonetic drift, specifically, a lowering and centering of Yiddish vowels in assimilation to their English vowels. This would also account for the differences in the phonetic realization of [ɪ] and [ʊ] that were found between Gen1 and the younger generations in Chapter 5.

For Gen3 learners, on the other hand, the input for both languages came from the same speakers, the first New York-born generation (Gen2), whose English and HY vowels were already more proximate due to the aforementioned drift. The similarity of these two systems led to perceptual linkage, whereby Gen3 learners classified English and Yiddish short high vowels as the same, causing the two vowel systems to converge. Such an outcome is predicted by Flege's (1995, 1996) equivalence classification system.

The second important finding is related to the TOO allophones of /u/, which show more cross-linguistic *similarity* in Gen2, with maximal *divergence* in Gen3. In Gen4, however, overlap of HE and HY TOO is once again achieved, due to fronter realizations of HY vowels

(HY TOO advancing to meet HE TOO). Cross-speaker correlations show that the same speakers are fronting TOO in both languages, suggesting that it is part of the same process. Moreover, we observe within-language alterations in the relative positions of the HE lexical sets, with Gen4 exhibiting an approximation of the system found in mainstream American English. The last two innovations (fronting of TOO and a shift in the hierarchy of the allophones) may be the result of external language influence, as they accord with patterns and changes found in the mainstream population, yet their source is not immediately obvious. As described in §6.1, there were few non-Yiddish speaking teachers in the Hasidic educational system when Gen3 was growing up, and generally very little contact with mainstream English speakers, or exposure to the majority dialect.

Finally, the results showing males in the lead for HE fronting, and the lack of a gender effect in HY are unexpected and require further explanation. The prediction that female speakers would lead in this change is based on gendered differences in the levels of bilingualism in the Hasidic community. However, if the influence is coming from mainstream NYCE, then other contact-related factors, e.g., the type of social networks speakers maintain, may be more important than their English proficiency or use per se. In other words, females who are speaking HE, a version of English that is strongly influenced by HY, may not be the ones who are ushering in this change. Rather, the shift may be propagated by Hasidic speakers with direct and frequent exposure to mainstream NYCE. The results of the present analysis should serve as a reminder that these social and linguistic categories, which are sometimes accepted as 'universals', ought not to be taken at face value and interpreted without considering the extent to which their behavior may be tied to the

local, cultural context. This point is made persuasively by Nagy (2017), and by Bleaman (2018, p. 18) in reference to this particular Hasidic community. In the following chapter, the notion of Hasidic orientation, which encompasses, among other things, diversity in social networks and other modes of exposure to mainstream culture, is revisited and its potential explanatory power for the phonetic change in progress is explored.

Chapter 7

The social meaning of /u/-fronting in Hasidic Yiddish

איך בין אייביג געווען *fascinated* מיט די דרויסענדיגע וועלט. ממש *in*
utter fasc-, *like* א *utopia* איז עס געווען צו מיך.

'I was always fascinated by the outside world. Literally in utter fascination, it seemed like a utopia to me

Chaim (born 1994; interview data)

In the previous chapter, the lowering of short high vowels [ɪ] and [ʊ], reported in Chapter 5, was reexamined in the context of bilingualism. The results show increasing phonetic convergence of the two language systems in apparent time, suggesting that these changes are driven by contact. Another linguistic phenomenon that emerged from the analyses in Chapter 6 is increased fronting of /u/, especially in post-coronal contexts. Here too, the change is initiated in HE, with growing convergence with HY vowels, which are similarly advancing albeit at a slower rate. However, unlike the lowering of the short high vowels, the advancement of HY /u/ is not easily attributable to differences in language input. Moreover, no social correlates were found for this behavior.

The analysis conducted in this chapter is an attempt to answer the question about the sociolinguistic relevance of /u/-fronting in the HY-speaking community, specifically: Is /u/-fronting indexing a particular Hasidic identity? To address the question, this chapter considers Hasidic orientation (introduced in Chapter 1 §1.4 and elaborated on in Chapter 2 §3.1.2.2) as a potential conditioning factor on /u/-fronting, and presents a preliminary analysis. Section 7.1 provides a brief overview of /u/-fronting in North American English. In the following section, some theoretical background is given on group orientation and the methods that have been used to investigate its association with language variation and change. Next (§7.4), the data and methods are reviewed and the results of the analyses are presented. Section 7.5 discusses the results and proposes directions for future research.

7.1 /u/-fronting: a pan-English feature

Sociolinguistic studies focusing on a range of English dialects have observed a conspicuous pattern, which shows /u/ (often referred to as the GOOSE vowel, per Wells' (1982) lexical sets), especially those appearing in post-coronal environments, moving increasingly forward in the vowel space (i.e., produced with higher F2 frequencies), to the extent that it may overlap with /i/ (see e.g., Bauer, 1985; Haddican, Foulkes, Hughes, & Richards, 2013; Harrington, Kleber, & Reubold, 2008; Kerswill & Williams, 2005; Koops, 2010; Trudgill, 2001; Watt & Tillotson, 2001, *inter alia*). This sound change, which is part of a more general trend affecting back vowels, is diffusing rapidly across the globe, and North American English (NAE) is no outlier: Studies have identified /u/-fronting in a variety of regional dialects across the U.S. (Cheng, 2016; Eckert, 2008; Hall-Lew, 2009; Podesva, D'Onofrio, Van

Hofwegen, & Kim, 2015). Moreover, this change appears to transcend some of the social barriers that sometimes inhibit the diffusion of sound change, such as gender and social class (Fridland, 2001). It is also been observed among minority populations that do not always participate in sound changes affecting the mainstream dialect, such as African American communities (Fridland and Bartlett 2006), Chicano speakers in Los Angeles (Fought, 1999), and Asian Americans in San Francisco (Hall-Lew, 2009) and in New York City (Wong, 2014).

New York City English (NYCE), which was previously classified as conservative with respect to this trend by Labov et al. (2006), is also exhibiting evidence of /u/-fronting in particular phonetic contexts and among certain groups, according to recent studies. For example, both Newman (2014) and Haddican et al. (2019, submitted) report a tendency among White and Asian speakers for more fronted realizations of post-coronal /u/ (the TOO set). Haddican et al. (submitted) further show that TOO fronting rises sharply among speakers born after 1989. Wong (2014), who focuses her study on Chinese-Americans, observes more advanced realizations of HOOP among younger speakers in the sample.

Less studied but also attested is /u/-fronting in minority languages in contact with English. For example, this sound shift has been observed among Spanish speakers in the Mid- and Southwestern regions of the United States (Ronquest 2012; Willis 2005) as well as among Māori speakers in New Zealand (Maclagan et al. 2009).

7.2 Group orientation and marginality

Group identity or orientation, alternately framed as ethnicity (sometimes based on race or national heritage), religion, and relationship to place (among other things), has occupied an important place in sociolinguistic research since its earliest days, resulting in a substantial literature on the myriad ways in which language intersects with identity (Labov, 2001). Large-scale quantitative studies often take a top-down approach with respect to this factor, constructing a priori categories and grouping speakers based on basic demographic information. In recent years, this approach has been justifiably challenged both for the assumptions that it makes about ethnicity more generally (Hoffman, & Walker, 2010), as well as for its inability to capture within-group differences (see e.g., Baker-Smemoe & Bowie, 2015; Newlin-Łukowicz, 2015b). More nuanced approaches to group identity, which take participants' perceptions of its constitutive features into account, have come from qualitative studies, which typically include smaller sample sizes (see e.g., B. Bailey, 2001; Cutler, 2008; Eckert, 1989) However, as Hoffman and Walker (2010) point out, the methods used in some of these studies make the results difficult to replicate.

Furthermore, even socially-relevant categories derived from insider criteria may prove inadequate for dealing with liminal membership if the categories are viewed as isolated units (Davies, 2005). Research that focuses on peripherality suggests that language change is often born in such "in-between" spaces, which can be sites of creativity and reinvention. For example, Moore (2010) examines the variable use of tag questions by the 'Populars' and the 'Townies', two locally-identified social groups in a British high school (Midlan High). When viewed in aggregate, the differences between these groups over time are marginal. A

far more dramatic distinction emerges when the tag questions of a peripheral member of each group, who were previously part of the same social network and close friends, are tallied. Moore explains that the social precarity of being on the fringe may lead to a heightened need for linguistic self-presentation, which may result in greater innovation. Benor (2012) studies the language of newcomers to Orthodox Judaism, who can be seen as inhabiting a perpetually marginal position in the community, and identifies a range of behaviors, from *hyperaccommodation* to *deliberate distinctiveness*; the former of which includes more extensive use of variants than is typical in the mainstream Orthodox population, while the latter is the intentional avoidance of such features. Intersectionality and cultural hybridity can also be forms of peripherality, in that individuals who identify with multiple groups simultaneously often feel like they are not fully part of any of them. Baker-Smemoe and Jones (2014) study three groups in the Mexican Mormon Colonies: English-speaking Mormons whose ancestors relocated there from Utah in the late 19th century, indigenous Spanish-speaking Mormons who joined the religious community, and non-Mormon locals. They find that the Spanish-speaking Mormons, whose identity overlaps with both of the other groups, employ a unique combination of linguistic variants which simultaneously connects and distinguishes them from the other two groups.

Studies also show that language can reflect degrees of involvement and/or orthopraxy in a culture or religion. For example, Samant (2010) found a correlation between the presence of Northern Cities Shift features in English and the level of involvement in the religious community among Lebanese Muslims in Michigan. Similarly, Baker-Smemoe and

Bowie (2009) discovered phonetic differences in the speech of Mormons in Utah County that coincided with their level of participation in religious traditions.

As discussed in Chapter 1 §1.4, contemporary Hasidism is a dynamic cultural space that encompasses a range of stances vis-à-vis traditional and progressive values. Moreover, there are many HY speakers who have left the community yet continue to speak the language on a regular basis. The studies cited above raise the question of how and to what extent these intra-group differences in cultural orientation and group status might condition the use of linguistic variants and thus influence the direction of sound change in the community.

7.2.1 Quantifying identity

In recent years, sociolinguists have developed measures designed to capture the intrinsic nuances of multi-dimensional group identities, which can be used in large-scale studies of language variation to analyze differences between groups as well as disparities within them. For example, Hoffman and Walker (2010) investigate two linguistic variables (t/d-deletion and the Canadian Vowel Shift), one stable the other in flux, in Chinese and Italian communities in Toronto. Sociolinguistic interviews were conducted by members of each community, who incorporated uniform questions intended to elicit the extent of ethnic participation based on speakers' self-perception. Responses to these ethnic orientation questions were graded from 1 to 3, scaled from less to more ethnically oriented. The results show differences in orientation across the two groups, as well as distinctions in the use of the variables across and within groups, based on ethnic orientation. Citing Johnstone and Kiesling (2008), Hoffman and Walker (2010, p. 58) cautiously remind readers that

"correlation with social categories is a necessary but not sufficient condition to establish that a linguistic feature serves as a marker of social identity", and call for the use of similar methods (scaled surveys) to better understand how members of minority ethnic groups use linguistic variants to construct and express their identity. A similar approach is taken by Newlin-Łukowicz (2016), who studies variation in the speech of Polish New Yorkers and uses a questionnaire that focuses on three domains of Polish culture (lifestyle, community involvement, and transnational ties) to derive a score representing ethnic orientation. The results indicate that participants use regional and ethnolinguistic features variably to express a range of cultural identities. Carmichael (2017) too employs a survey-style measure to investigate the relationship between r-lessness and place identity among current and former residents of a New Orleans suburb (Chalmette) who were displaced due to Hurricane Katrina. She finds that place orientation is a significant predictor of r-lessness, regardless of where they resettled after the storm: Former residents of Chalmette who feel closely tied to that location are more likely to exhibit r-lessness. Finally, Nagy, Chociej and Hoffman (2014) use an ethnic orientation questionnaire centered on eight aspects of cultural identity (identification, language proficiency, language choice, heritage, parents, partner, culture, and discrimination) to investigate the relationship between ethnic orientation and the use of linguistic variables across six minority language groups in Toronto, using a range of grouping and statistical methods. One finding is that even when the same measurement is used, differences in the way that responses are coded and grouped will impact the result. They also illustrate that questions may be independently

relevant to an overall picture of orientation, but their weighting (i.e., ability to account for variance) may differ across groups.

7.3 Hasidic orientation revisited

As outlined in Chapter 1 §1.4, contemporary Hasidic culture is a hybrid of inherited principles and acquired ideologies and is full of inherent tensions arising out of these. In investigating the link between language and cultural identity, I use the term Hasidic orientation (HO), conceived as a constellation of social features that together form a cline of Hasidic identity, one that is maximally inward-facing and traditional on the one end, and outward-facing and progressive on the other. Many Hasidim have staked out positions at the peripheries of this spectrum, which has led to a degree of polarization within the community. Others are content to reside somewhere in the middle, selectively partaking of the available cultural opportunities. Recall from the discussion in Chapter 1 §1.2.3 that language preservation in the Hasidic community has been explicitly and repeatedly linked to religious/cultural preservation by religious authorities: *shem, lushn, malbish* are lauded as the redeeming qualities of the diaspora Jew. Based on this, the expectation is that individuals who are highly conservative in their approach to Hasidic culture will also be more conservative with respect to language. Those who fall somewhere along the center of the spectrum may employ a combination of innovative and conservative linguistic features, a sort of mixing and matching that reflects the hybrid persona of a traditional Hasid with modern sensibilities. A similar outcome is found among young male speakers of Tyneside English, who use the variant [ɵː] for the diphthong found in the word GOAT to index a

modern type of the local 'Geordie' identity (Watt, 2002). In this speaker community, a pan-Northern variant ([ɵː]) becomes a sort of linguistic compromise between the ultra-localized, raised [ʊɵ] and the more formal, centralized [oʊ], which occurs in other British dialects.

Religiosity is a component of HO as conceived here; however, it is not necessarily the central one. Rather, maximally Hasidic-oriented individuals are seen as being deeply and primarily engaged with the Hasidic vs. mainstream culture on multiple dimensions: involvement with Hasidic social networks, deep familiarity with news and information relevant to the community (Hasidic politics), immersion in Hasidic music, habituation to traditional Hasidic foods, and so on. On the opposing end are individuals who have 'a foot in both camps'. They stay abreast of world news, are early adopters of new food and fashion trends, are immersed in mainstream media (music, movies), and have social networks beyond the Hasidic community. Bilingual practices (e.g., language dominance) too may be part of the Hasidic identity, but the assumption here is that the various domains of HO have a cumulative effect in relation to language variation and that the explanatory potential of HO transcends that of language use alone. HO and gender do not necessarily correlate, and men are presumed to be as likely as women to be positioned on the lower end of HO, and thus be linguistic innovators. Women may have a lower HO orientation because of their greater English proficiency, which affords them access to mainstream culture. However, most Orthodox Jewish boys attend boarding school-type *yeshivas* ('Orthodox Jewish seminaries') at some point in their adolescence or early adulthood, typically starting at sixteen – eighteen years of age but sometimes as young as thirteen. During this time,

they often gain access to cultural media not available to them at home. As adults, Hasidic men are also more likely than women to have access to Internet-enabled devices at work, for example. Thus, individual differences in experience and exposure to outside culture may lead to a leveling of the assumed gender gap with respect to particular aspects of HO orientation. Finally, studies often show age-related patterns in religious beliefs, practices, and attitudes. These are sometimes interpreted as support for folk wisdom claims that individuals become more traditional as they age (Argyle & Beit-Hallahmi, 1975). Indeed, older speakers in this sample expressed more traditional opinions on a variety of topics, including language ideology. The sample analyzed in this chapter, however, includes only three speakers from Gen2. Additionally, as mentioned earlier (see footnote 8), young people in the Hasidic community have less agency with respect to, e.g., the use of technology, and thus have less exposure to mainstream culture. Thus, there is no expectation for speaker age to be strongly correlated with HO in this study.

This study also includes a handful of participants who have opted out of the Hasidic system entirely. However, all these individuals continue to engage with some elements of Hasidic culture, for example, maintaining connections to Hasidic social networks and using HY with family, friends, and/or at work. If degree of HO is indeed correlated with linguistic variation in the hypothesized direction, these individuals should be at the forefront of contact-driven innovation.

7.4 Data and methods

The data for this analytical section consists of vowel tokens extracted from the wordlist and conversational data of 38 speakers (17 female) who completed the HOS task, six of whom only contributed wordlist data. The HE data analyzed come from only 37 speakers, as one speaker did not record the English wordlist. Gen2 speakers are minimally represented, for reasons explained in Chapter 3 §3.1.2.2. Table 7.1 shows the speakers included in this analysis along with basic demographic information, the year recorded, tasks completed, and the speakers' scores on the Hasidic orientation survey (HOS). A double asterisk appears next to the pseudonym of speakers who are no longer part of the Hasidic community and are not religious, while those who are religious but no longer Hasidic are marked with a single asterisk. While the 'not religious' category is balanced for gender, the 'religious but not Hasidic' category includes only two male speakers. That the HOS scores of the four non-religious participants are also the lowest in the group points to the reliability of the HOS as a tool to measure this variable.

Gen	Speaker	Gender	Born (Age)	Raised	Year Rec.	Int.	YID WL	ENG WL	HO
2	Brandel	F	1948 (69)	Brooklyn	2017	√	√	√	68
2	Nechemia	M	1966 (54)	Brooklyn	2020	√	√	√	82
2	Shimon	M	1948 (69)	Brooklyn	2017	√	√	√	86
3	Bashy	F	1974 (43)	Rockland	2020	√	√	√	71
3	Chumy	F	2007 (13)	Brooklyn	2020	X	√	√	67
3	Etty	F	1978 (42)	KJ	2020	√	√	√	79
3	Leahle	F	1986 (33)	KJ	2019	√	√	√	92
3	Libby	F	1973 (46)	KJ	2019	√	√	√	27
3	Mindy	F	1973 (46)	KJ	2020	√	√	√	83
3	Peri	F	1978 (39)	KJ	2017	X	√	√	58
3	Pessy	F	1982 (35)	Rockland	2017	√	√	√	64
3	Raizy	F	1988 (29)	KJ	2020	√	√	√	42
3	Tzurty **	F	1985 (34)	Brooklyn	2020	√	√	√	14
3	Yachet	F	1969 (48)	Rockland	2017	√	√	√	64
3	Alter	M	1980 (38)	KJ	2018	√	√	√	43
3	Chesky	M	1997 (23)	Rockland	2020	√	√	√	72
3	Chune *	M	1980 (37)	KJ	2017	√	√	√	29
3	Frayim *	M	1974 (45)	KJ	2020	√	√	√	19
3	Leibish	M	1979 (41)	Brooklyn	2020	√	X	X	59
3	Luzer	M	1971 (49)	Brooklyn	2020	√	√	√	44
3	Sender	M	1979 (38)	KJ	2017	√	√	√	47
3	Simcha	M	1983 (34)	Brooklyn	2017	√	√	√	61
3	Zalmen	M	1971 (47)	Brooklyn	2019	X	√	√	66
4	Brocha	F	1997 (23)	Rockland	2020	√	√	√	65
4	Hindy	F	1998 (21)	Brooklyn	2019	X	√	√	48
4	Shaindy **	F	1992 (25)	KJ	2017	√	√	√	23
4	Shevy	F	1999 (20)	Rockland	2020	√	√	√	57
4	Zeldy	F	1993 (24)	Rockland	2017	X	√	√	44
4	Chaim	M	1991 (29)	Brooklyn	2020	√	√	√	24
4	Chili	M	1995 (25)	Rockland	2020	√	√	√	42
4	Kalmen	M	1993 (27)	KJ	2020	√	√	√	65
4	Moishy	M	2003 (16)	Rockland	2020	√	√	√	74
4	Moti	M	1995 (24)	Rockland	2019	X	√	X	46
4	Rafoel **	M	1993 (24)	Rockland	2017	√	√	√	16
4	Shauly	M	2004 (16)	Rockland	2020	√	√	√	57
4	Volvi	M	1996 (21)	Rockland	2017	√	√	√	72
4	Yanky	M	2004 (16)	Rockland	2020	√	√	√	100
4	Zevi **	M	1996 (21)	Rockland	2017	√	√	√	16

Table 7.1. Demographic profiles of participants by pseudonym, including gender, birth year and age at the time of the recording, year recorded, tasks completed (interview, Yiddish wordlist, English wordlist, and HOS score) (KJ refers to Kiryas Joel).

7.4.1 The Hasidic Orientation Survey (HOS)

As described in Chapter 3 §3.1.2.2, questionnaires were administered to the 38 speakers listed above, designed to measure HO. The reason that only 38 of the speakers completed

this task is because it was not part of the original data collection protocol. The inspiration for the HOS actually came from fieldwork in the community, and development on it started when the research project was already well under way. Questionnaire items were based in part on those in previous work on local orientation measures (see §3.1.2.2), adapted to the New York Hasidic context. For example, members of ethnic groups that are variably integrated in mainstream society may embrace or reject affiliation with the group. Hasidim, on the other hand, unless they have formally left the community and are no longer dressing or acting the part, are unlikely to express ambivalence about their group identification, as it is an omnipresent part of their existence. Language differences in ethnic groups have also been associated with ties to the homeland or patronage of local ethnic supermarkets, for example. While many Hasidim make pilgrimages to their ancestral homelands to visit the gravesites of their ancestors, there is no real possibility for ongoing relationships with Yiddish speakers there. And dietary restrictions make shopping in kosher supermarkets a necessity. Hence, the topics addressed in questionnaires used for other groups could not be applied and a new survey needed to be created. Moreover (as described in Chapter 3 §3.1.2.2), the sensitive nature of this endeavor, specifically, that of a community insider asking probing questions whose answers can have ramifications on members' standing in the community, necessitated an indirect approach. Instead of querying participants about their convictions or attitudes, the HOS focused on habitual behaviors believed to be reflective of such stances. This, in turn, meant that the questionnaire needed to be substantially longer than those used in other studies, as multiple items were needed to address what may be posed as a single question in other identity surveys.

The initial stage of the HOS included a pilot version, which was administered to three Hasidic individuals, judged to represent a broad range of cultural orientations, for the purpose of soliciting their feedback. These volunteers were not told the precise purpose for which the HOS would be used, only that it was about understanding the Hasidic lifestyle. They were asked to read each question out loud as they were completing the survey and offer commentary about whether the question felt invasive or inappropriate in any way. They were also encouraged to offer suggestions on the wording, and so on. After each section, I also asked each person what they thought the purpose of the survey might be. The goal was for the purpose to be sufficiently opaque to prevent participants from adapting their responses to intentionally project a persona they believe might be viewed favorably by me, a community insider. The feedback given on the pilot version was recorded and reviewed, and the HOS was revised following each of the three initial encounters. Ultimately, this bottom-up approach enabled the utilization of deep ethnographic knowledge in the design of the HOS, so that the particular domains selected, as well as the formulation of the questions and responses, reflect not only my own observations but those of the members of the community.

As described in Chapter 3 §3.1.2.2, each response was assigned a numeric value along a scale, such that higher numbers reflect a greater degree of HO. The HOS included different questions for men vs. women and for adults vs. minors, the latter of which also had fewer questions and thus fewer possible total points. The points assigned to each response were added and the totals were max normalized by group (adult vs. minor) and then in aggregate, so that the highest HOS score is a 100 (the lowest score is 16). To reiterate, the

hypothesis here is that /u/-fronting, as an exogenous change associated with contemporary non-Hasidic cultural innovation, will be negatively associated with HOS score.

7.4.1.1 Visualization and statistical analyses

A visual example of an [u] token is shown in the left pane of Figure 7.1, which depicts a spectrogram of the word *yur* 'year' produced in stressed, phrase-final position by Chaim (4:1991). The right pane shows a spectrogram of the word *ir* ('her') in stressed position, for comparison. While not identical, the spectral profiles of these two tokens are similar in that the F2 of [u] extends into the range of the F2 of [i].

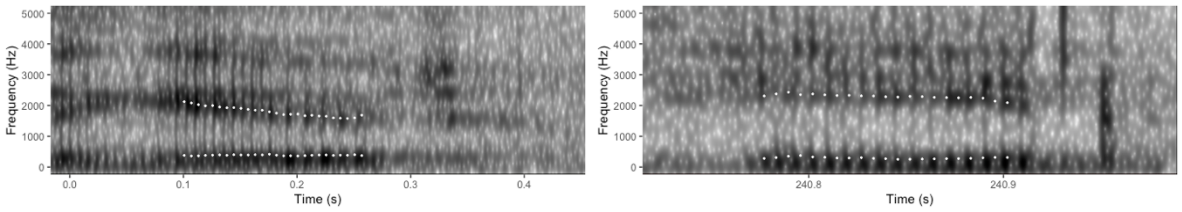

Figure 7.1. Spectrograms of the words yur ('year': left pane) and ir ('her': right pane) produced by Chaim (4:1991)

When summarized by gender group, male speakers exhibit lower mean HOS scores relative to females (M 55, F 61). The fact that there are more male than female speakers in the 'not Hasidic' category (as mentioned in §7.4) may be contributing to this bias.

To analyze the connection between HO and /u/-fronting, a LMM[1] was fit to F2 of HY /u/ by Set, with COOL as the reference, and HOS score, Age, Task (wordlist vs. conversational), Gender, (decadic log-transformed) Duration, and interactions of Set and

[1] R call F2 ~ Lexical Set * HOS + Age + Task + Gender + Log10(Duration) + (1|Speaker) + (1|Word).

Gender by HOS score as fixed effects. Since there are only three Gen2 speakers in this dataset, age was included as a continuous variable (rather than by generational groups). Random intercepts were also included for speaker and word. As predicted, the results, presented in Table 7.2, show a significant negative effect of TOO by HOS score (β=-87.46, SE=32.47, t(5006.89)=-2.69, p=.007). Neither Gender, nor the interaction of Gender × HOS score, is significant.

	F2 (YID)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*
Intercept	1894.25	68.81	27.53	**<0.001**
Set: HOOP	-58.09	29.96	-1.94	0.053
Set: TOO	143.27	27.98	5.12	**<0.001**
HOS	-78.59	95.43	-0.82	0.410
Task: wordlist	-49.74	27.00	-1.84	0.066
Age	-1.33	0.96	-1.38	0.167
Gender: M	86.09	70.06	1.23	0.219
Log_{10}(Duration)	-396.43	10.75	-36.86	**<0.001**
SetHOOP:HOS	-12.71	35.86	-0.35	0.723
SetTOO:HOS	-87.46	32.47	-2.69	**0.007**
HOS:GenderM	-91.81	117.04	-0.78	0.433
Random Effects				
σ^2	29829.37			
$\tau_{00\ word}$	9055.66			
$\tau_{00\ speaker}$	5784.98			
ICC	0.33			
$N_{speaker}$	38			
N_{word}	293			
Observations	5086			
Marginal R^2 / Conditional R^2	0.289 / 0.525			

Table 7.2. Output of linear mixed-effects model fit to F2 of HY [u].

To visualize the effect reflected in the model, random intercepts extracted from a LMM fit to F2 for HY /u/ (with the TOO set as the reference level), were plotted by HOS scores (Figure 7.2). Data points were also colored by gender (blue for female, yellow for male).

Other than a small cluster of male speakers at the highest end of the F2 scale, and a cluster of female speakers at the lowest end, no other gender patterns are discernible.

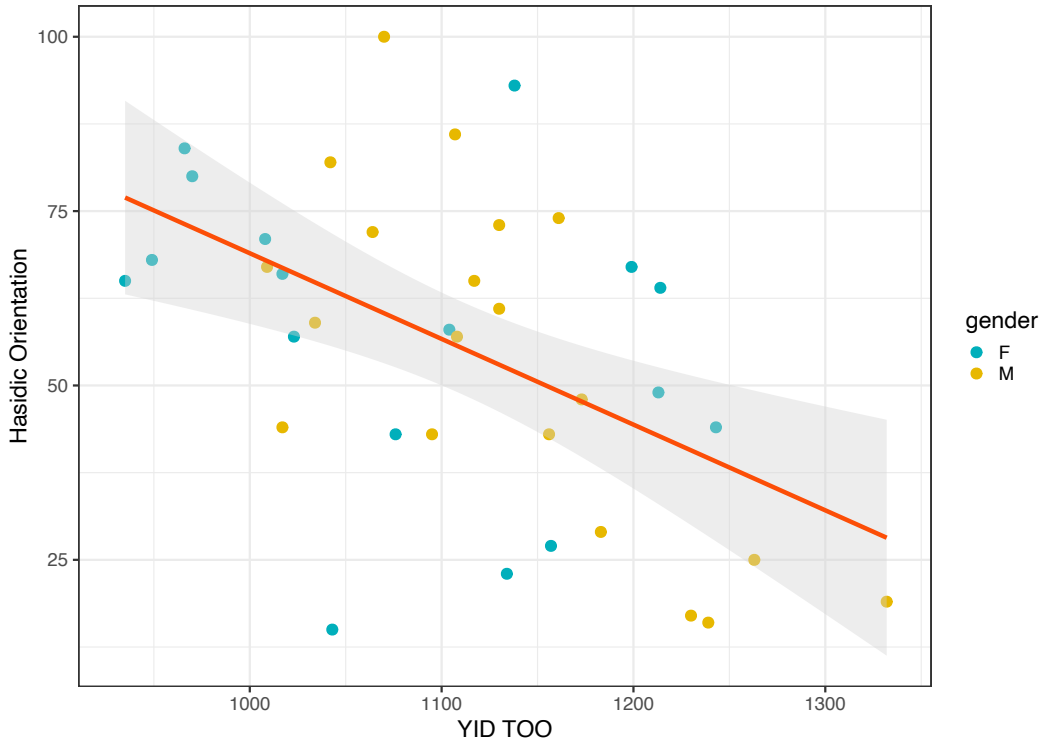

Figure 7.2. Scatterplot with HOS score on the y-axis and by-speaker (n = 38) random intercepts of F2 for HY TOO on the x-axis, with regression line.

To confirm that the conditioning factors for this change are indeed different than for that for short high vowel lowering, a LMM was fit to F1 for HY [ɪ] and [ʊ], with HOS score as a fixed effect.[2] Unsurprisingly, given that previous analyses reported in this dissertation have already determined that this is a change in progress, age remains highly significant in short high vowel lowering (β=-1.25, SE=.25, t(31.40)=-5.0, p<.001), and there is an effect of gender (also previously shown) which shows male speakers producing higher vowels (β=-

[2] R call F1 ~ HOS + Gender + Task + Age + Log10(Duration) + (1|Speaker) + (1|Word).

19.75, SE=6.83, $t(31.97)=-2.87$, $p=.007$). However, this model does not show an effect from HOS score. This is taken as confirmation that lowering of high short vowels is a systemic change, driven by contact-induced phonetic drift, with the effect of gender underscoring the role of women, who are more proficient and prolific English users. It is not, however, implicated with the range of social features described here as HO.

7.5 Discussion

The analysis conducted here shows a significant negative effect of HOS score on HY TOO: The higher the HOS score, the more retracted the vowel. This is different than the conditioning factors for short high vowel lowering, which shows an effect of age and gender, but not HOS score. Based on the HOS score effect, the gender effect on HE /u/-fronting reported in the previous chapter can be interpreted as the result of a sampling bias, specifically, the inclusion of more male than female speakers who have left the community. If indeed the liminal members of the community have a greater tendency for /u/-fronting, then the inclusion more male exiters in the sample can potentially skew the data, showing males at the forefront of this change, a state of affairs that may not be representative of the general population.

The lowest end of the HOS spectrum represents individuals who are not currently Hasidic, an identity that can be seen as straddling the secular and the Hasidic cultural realms and, in some ways, peripheral to both (Schwartz, 2020). As discussed in §7.2, research shows that linguistic innovation often starts in such liminal spaces. However, it is not only non-Hasidic individuals who are displaying this pattern. The biggest /u/ fronter

in the sample is Chaim, who lives with his wife and children in Hasidic Williamsburg, sports the traditional *payes* ('sidelocks') worn by Hasidic men, and appears, at first glance, to be a prototypical member of the group. However, Chaim's lifestyle is, in many ways, highly unorthodox and, as suggested by his HOS score (24), he might be among the most outward-oriented Hasidic individuals in this study. He is, for example, college educated, and presents as atypical in a variety of ways (which I refrain from listing to protect the participant's anonymity). Interestingly, Chaim, whose words are quoted in the epigraph to this chapter, unwittingly commented on his own HO, unprompted, early on in our conversation, while talking about his childhood: "*ikh bin aybig geven* fascinated *mit de drowsendige velt, azoyvi mamesh* in utter fasc-, *like a* utopia *iz es geven tsi mikh*" ('I've always been fascinated with the outside world, like literally in utter fascination, it seemed like a utopia to me'). He recalled that as a young child he would read thriller stories in Yiddish magazines and think: *ikh gay zaan a* CIA agent. *vos kh'hob gelaynt, ikh bin geven* fascinated, okay *deys gay ikh zaan".* ('I'm going to become a CIA agent. Whatever I read, I was fascinated, okay, this is what I'm going to be [when I grow up].'). Chaim assigns some credit to his mother's open-mindedness for the way that he grew up and describes himself as "out of the box". It is this outward-oriented stance, this "fascination with the outside world", in his own words, that may make this speaker, and others like him, more receptive to external linguistic influence.

It is clear that an analysis that groups speakers into discrete, macro sociological units based on superficial features such as appearance or geographical location would have missed these important nuances and, consequently, overlooked the correlation that

emerges when HO is evaluated on a continuum. The preliminary hypothesis, based on the correlation observed here, is that /u/-fronting has an emergent, socially salient meaning, indexing a modern, cosmopolitan Hasidic identity, one that is equally at home in the Hasidic and in the mainstream world.

7.5.1 Explaining the process

How might a sound change in the majority dialect infiltrate the minority language spoken in an auto segregated community and acquire social significance? Scholars have proposed that the semiotic linking may begin with *accommodation* or *entrainment*, the unconscious and simultaneous adaptation of a person's speech to the dialect of their interlocutor (Trudgill, 1986, 2014). Thus, a speaker's social network is a crucial factor in their linguistic behavior. More frequent exposure to particular variants may lead to recurrent accommodation to these variants. Over time, these variants may become part of the speaker's linguistic repertoire (Milroy, 1987; Pierrehumbert, 2006). Moreover, as a variant finds its way into the dialect of increasingly more speakers who belong to the same social groups, it may move through the different orders of indexicality described in Chapter 2 §2.2.2.3, first becoming associated with that group and then becoming linked to the perceived characteristics of that group, acquiring 'third order indexicality,' per Silverstein (2003).

As mentioned above, Haddican and his colleagues (submitted) find a sharp rise in /u/-fronting for New York speakers born after 1989, which means that New Yorkers who are increasingly fronting their /u/s are the contemporaries of the Gen3 speakers in this study. Thus, /u/-fronting may enter the speech of low HO individuals through accommodation to

mainstream speakers in their social network, become associated with these more modern Hasidim, and finally become an index of worldliness, *au currant*-ness, cultural awareness, etc.

When a variant becomes thus imbued with social meaning, it may be abandoned by some and more readily adopted by others (Silverstein, 1985). In time, we may observe that the distribution of /u/-fronting begins to mirror the social polarization that is already evident in the community, as speakers who wish to project a more traditional Hasidic identity eschew it.

7.5.2 Future research

The results of this pilot study point to a number of research questions for future work. One of these relates to the salience (i.e., the noticeableness) of this phonetic feature, specifically among the Hasidic population. It has been suggested that accommodation is more likely to involve salient speech sounds (Auer, Barden, & Grosskopf, 1998). Citing Trudgill's (1986) linguistic criteria for sound salience, Alderton (2020) surmises that English /u/-fronting is not salient, as it is a phonetically gradient change, does not infringe on any phonemic contrasts, and is not represented in the orthography. To this, Alderton adds the observed distributional patterns (which follow gender lines and age gradations) and the fact that /u/-fronting is rarely remarked upon by non-linguists.

The linguistic phenomenon of /u/-fronting never came up in metalistinguistic commentary during my conversations with people in the Hasidic community, and when I brought it up, it was not immediately clear to people to what it refers. I was therefore taken aback when, after a recent public lecture on this topic (Nove, 2021a), a young man raised

in a very strict, extremely traditional Hasidic home publicly recounted that his father would not let the children listen to the music of a popular Hasidic wedding singer (Michoel Schnitzler) because, apparently, he disapproved of the way the singer says /u/. This singer habitually employs *vocalise* (nonlexical units, such as vowel sounds, used to vocalize a melody) that sounds like *oo-oo-oo,* and it's certainly possible that the young man's father was objecting to the practice, not the quality of the /u/ sound per se, although his son intimated that it was the latter.[3] On another occasion, I played a word extracted from an interview with a male speaker, which contains a very fronted realization of [u], to asked another Hasidic man and asked him to describe the speaker. The reply was that the speakers sounded "gay". There were also indications in the data, which require further exploration, that /u/-fronting might have some performative function.

Lack of salience, however, does not necessarily imply absence of social relevance (see e.g., Babel, 2012; Pardo et al., 2018). Exemplar models, for instance, explain that the social attributes of the speaker who produced it is mentally stored alongside each utterance, and that speakers use these utterances as prototypes, both for phonetic and social information, when producing and interpreting meaning (Pierrehumbert, 2001). Even if /u/-fronting exists below the level of consciousness in this community, it is still possible for it to be indexing a kind of Hasidic identity. Future perception-based studies using matched guise tests may be able to shed light on this issue. Additionally, by looking at the local contexts

[3] My curiosity aroused by this comment, I conducted a quick analysis using audio from an interview with this singer that is available online and detected no pattern of fronting. I also isolated the vocals of one of his songs and did not find that the [u] tokens extracted from that were excessively fronted, either.

in which the phonetically more advanced tokens of [u] occur in this dataset, it may be possible to ascertain whether or to what extent intraspeaker variation can be explained in terms of interactional style-shifting or stance-taking (see e.g., Becker, 2014a; Benor, 2004b; Bucholtz & Hall, 2005; Eckert, 2008).

The findings of this study also suggest the possibility of discovering additional variables that are correlated with HO. Future studies might look at HE /æ/ and /ɔ/, for example, to see if patterns in /æ/-raising or /ɔ/-lowering found among mainstream New York City English speakers (see e.g., Becker, 2014b; Becker & Wong, 2010; Coggshall, 2017; Haddican, Newman, Cutler, & Tortora, 2021; Newlin-Łukowicz, 2015c; Newman, 2014) are evident in the Hasidic community, and if so, whether outward-oriented individuals are leading the change.

As a final note, I raise the intriguing possibility that /u/-fronting is linked to a more outward-oriented identity through sound symbolism: In discussing the iconic aspect of sound, Eckert (2019) reviews several well-known, seemingly natural associations between sound quality and sensory characteristics (e.g., the link between frequency and size) or affective states (e.g., lip spreading being associated with smiling and happiness) and, citing Pratt (2020), introduces the idea that tongue position may be associated with affective or psychological state, i.e., tongue backing as a 'drawing in' of the self. By this logic, fronting is harmonious with an outward facing Hasidic persona.

In conclusion, this study models the use of a continuous metric to evaluate a relevant group identity, Hasidic orientation, thus capturing difference along a spectrum. In addition to a correlation between /u/-fronting and an outward-oriented Hasidic identity, this

analysis points to a number of approaches through which the social meaning of this variant can be explored. Moreover, it demonstrates how change in the majority language can enter into the minority language of a relatively self-contained community whose members have only limited contact with the mainstream dialect. In doing so, it also contributes to research on social peripherality, exemplifying how marginal or intersectional members of a group, with access to a variety of (overlapping) social networks can be propagators of contact-induced sound change.

Chapter 8

Conclusions

Modern life makes it impossible for any culture to be entirely independent from its surroundings or from influences coming from afar. That being the case, all one can or should hope for is as much cross-cultural understanding as possible, and as much development of cultural individuality as modern reality permits, i.e., an individuality which consists of each culture's own, maximally self-regulating fusion of influences from a variety of sources.

Joshua Fishman (1991a, p. 85)

AS THE 20TH CENTURY drew to a close and the Hasidic presence in New York approached its half-century mark, the population had grown and Hasidic institutions were bursting at the seams (Saundra, 1999). The sounds of Yiddish were reverberating in the streets of Hasidic neighborhoods, where the voices of three generations of New York-born speakers mingled with those of their immigrant grandparents. Yet this dialect, like that of its European precursor, Unterland Yiddish, had gone virtually unexplored by linguists studying the language, arguably due to deep-rooted prejudices against its speakers (Nove, 2018c). Its

detractors often pointed to a liberal approach to linguistic borrowing by HY speakers, which offended their purist sensibilities and fueled accusations that the dialect is 'not really Yiddish' (Nove, 2018c). These critics tended to be secular Yiddishists who had grown up amidst the rhetoric about the impending demise of Yiddish (Basu, 2014; Butnick, 2014; Cashman, 2015; Kumar, 2019), which seemed to be reflected in the dwindling numbers of speakers outside the Hasidic community. This trend, documented in U.S. census data showing a decline of approximately 90% in the number of Yiddish speakers nationwide between 1910 and 2000 (U.S. Census Bureau, via Manson, Schroeder, Van Riper, & Ruggles, 2017), may have led many to believe that it was only a matter of time before Yiddish succumbed to the onslaught of the majority language and became completely subsumed by it.

Two decades into the new millennium, as I began to work on this dissertation, the circumstances had changed considerably. The past five years have seen a dramatic upsurge of interest in Hasidic Yiddish (HY), with more than half a dozen publications in the past two years alone (see e.g., Belk, Kahn, & Szendroi, 2020a, 2020c, accepted-a, accepted-b; Bleaman, 2020, 2021b, forthcoming; Nove, 2021c). Data on HY has been collected in every community where it is spoken across the world. A lecture series devoted to this variety ("Ada-Rapaport Albert Seminar Series on Hasidic Yiddish")[1] has provided a public platform for scholars working on HY to showcase their work. And while the stigmatization of HY has not vanished, a subtle shift in attitude is apparent in many Yiddish language spaces.

[1] Hosted by the Contemporary Hasidic Yiddish research group at University College London and the UCL Institute of Jewish Studies: https://www.ucl.ac.uk/pals/research/linguistics/linguistics-seminar-series/ada-rapaport-albert-seminar-series-hasidic-yiddish

Hasidic voices are showing up wherever Yiddish is represented and collaborations between secular and HY speakers are on the rise.[2] The most recent such collaboration led to the first DuoLingo course on Yiddish, released in April of this year, which teaches the HY pronunciation and the standard orthography (Forward, 2021). A revised and expanded edition of the *Comprehensive English-Yiddish Dictionary* (Schaechter-Viswanath & Glasser, 2021), which was previously criticized for not representing HY (Burko, 2017; Moskovich, 2017; Nove, 2018c), will include approximately a hundred new entries commonly used in HY speaking community.[3]

The field of Yiddish linguistics has undoubtedly benefitted greatly from this new focus. Among some non-linguists and newcomers to the language, however, the fascination with HY appears to be merely another version of Hasidic essentialism. I'm thinking, for example, of the young (secular) woman who recently sought me out to express her annoyance with Standard Yiddish. She maintained that HY is *heymish* 'homey' and authentic, and other dialects are mere imitations. There are other subtle signs of romanticism, of people turning to HY for a fossilized or version of the language (and culture).

This dissertation presents a view of HY as neither on the verge of disappearance nor frozen in time. Rather, it is caught between the opposing pressures of an ideological commitment to language maintenance and an increasing encroachment of English. Against

[2] For example, recent productions by the National Yiddish Theatre Folksbiene have included formerly Hasidic actors. Streaming services are offering movies and shows that feature Hasidic Yiddish (*Menashe* and *Unorthodox* on Netflix; *The Vigil* on Hulu).

[3] I was involved in the project to compile these words for the new edition. The corpus used in this study played an important role in identifying frequently used words.

this backdrop, we examine the status of vowels that historically contrasted in length and discover high vowels that have come to resemble their English counterparts, with two degrees of openness. The hypothesis about phonetic change, specifically a lowering and centering of short high vowels, is corroborated by statistical analyses showing cross-generational divergence in the quality of the long-short vowels. Cross-language comparisons show how this might have resulted from a combination of linguistic input, which caused the first New York-born generation to acquire two distinct vowels systems for HY and HE, and cognitive factors related to bilingualism, which led to gradual phonetic drift in which HY [ɪ] and [ʊ] assimilated to their HE correlates. In spite of the different origins and phonetic statuses of these vowels, patterns in interspeaker covariation show regularity in their lowering, indicating that the contact-induced effects are acting upon short high vowels as a class, thereby leading to changes in the structure of the vowel system as a whole. The outcome is two vowel systems (HY and HE) that resemble each other very closely.

Furthermore, there is some indication that sound changes that are ongoing in the general (non-Hasidic) New York population are entering into the linguistic systems of HY speakers, as well. Starting with Gen3, /u/ has been moving further forward in the vowel space. However, unlike the change affecting short high vowels, there is no age or gender effect on HY /u/-fronting. Rather, preliminary analyses suggest that the change may be entering into the HY speaking community via speakers whose orientation makes them more likely to be exposed and receptive to mainstream influences via their social networks or possibly through Internet technology.

In spite of these obvious influences, neither the HY nor HE phonological systems of Hasidic New Yorkers are identical to that of mainstream New York English speakers. For example, although /u/ is fronting, it is still lagging considerably behind the general population (cf. Labov et al., 2006). Moreover, the lowering of /ɔ/ (THOUGHT-lowering) and raising of /æ/ (short-a change) observed in New York City English (Becker, 2014a, 2014b; Becker & Wong, 2010; Newman, 2014) is not reflected in the phonetic positions of these vowels in HE, as shown in Chapter 4 §4.2.1. For HY consonants, Bleaman (2018) provides evidence that HY stops in word-initial position behave more like those in European Yiddish (which have shorter release bursts) than English. These differences suggest that a cultural barrier does exist, and that HY is not wholly susceptible to its linguistic environment.

8.1 Limitations of the study

The forced alignment tool exhibited some difficulty identifying the boundaries of vowels adjacent to sonorant sounds. Although steps were taken to minimize the impact of this issue on the comparative analyses of vowel duration, inferences about the absolute duration of vowels could not be made. It is possible that training the acoustic model on a larger dataset than the one used in this study can help eliminate this issue. Hand correcting a subset of the data and analyzing those separately, as recommended by Foulkes et al. (2018), would have helped ascertain whether any of the observed effects were influenced in any way by boundary marking procedures.

Additionally, suprasegmental prosodic features that can impact vowel duration were not taken into account in the analyses, as there was no efficient way to control, for example,

for temporal differences related to phrasal stress or the position of a word in the utterance. This is not, however, unusual for a corpus-based study. Finally, there is a small likelihood that the different recording equipment used in the Unterland Yiddish vs. the New York Hasidic Yiddish corpus introduced some artefactual disparities in the formants, although the normalization procedure used is expected to eliminate any such variances (Rathcke, 2017).

8.2 Directions for future research

This study used static measures of vowel formants extracted from the midpoint of the vowel, which is presumed to be its steady state. This was believed to be the best approach for the initial description of a dialect for which no acoustic baseline exists. Future studies will most likely benefit from analyzing spectral change in these vowels, which show more detail and can potentially help identify additional acoustic cues for vowel recognition, as well as cross-language differences in allophonic conditioning (see e.g., Bleaman & Duncan, 2021; Nearey, 1989). Fortunately, Fast Track measures formants at two millisecond intervals and preserves information about the whole contour, so it is a simple matter to reaggregate the existing measurements into a larger number of chunks and use those values (medians or means) to visualize and analyze vowel trajectories. Measurements of fundamental frequency (F0) were also extracted, so that future studies can make use of these to investigate intonational patterns and consider, for example, the extent to which this acoustic parameter contributes to vowel perception. Acoustic measurements also exist for all the stressed vowels, so hypotheses about apparent time change in other monophthongs

(especially in [ɔ], [ʌ], and HE [æ]) and diphthongs can be tested. Finally, perception-based experiments can be undertaken to examine the salience of /u/-fronting and begin probing the possibility of an approaching {/aː/, /a/} merger. To that end, tokens from the wordlists and conversational data can be extracted and used as stimuli, and their acoustic properties (formants, duration) can be manipulated to discover the thresholds for vowel identification. Furthermore, the sample of HOS scores should be expanded and additional procedures and methods (e.g., principal component analysis, hierarchical cluster analysis), should be applied to better understand the correlations observed in Chapter 7.

Finally, work is currently under way to begin transcribing a portion of the more than 600 Yiddish interviews currently available in the USC Shoah Foundation VHA. An acoustic model will be trained on the audio from those testimonies, which will then be time-aligned to facilitate linguistic analyses. This forthcoming *Corpus of Spoken Yiddish in Europe* (CSYE), a project that I am developing with Isaac Bleaman (UC Berkeley), will allow for the expansion of the UY dataset so that more local geographical differences in the Yiddish of speakers raised in this region can be investigated. Furthermore, the acoustic characteristics of all Yiddish dialects represented in the corpus can finally be accurately measured and compared. Of particular relevance to this study will be a comparison of the durational difference in the peripheral vowels of Central vs. Unterland Yiddish, to determine whether the small ratios observed are a distinct feature of UY and indicative of an ongoing change.

8.3 Main contributions

This project presents the first phonetic description of the vowel system of a Yiddish dialect that can be traced back directly to a spoken variety in prewar Europe. In doing so, it has provided a model for using existing archival data for Yiddish dialectology and linguistics. The ability to analyze patterns in linguistic variation within and across speakers of a particular region is crucial for understanding the role of social processes like migration and contact in the historical development of dialects (see e.g., U. Weinreich, 1963 for European Yiddsh and Watt, 2002 for Tyneside English). Moreover, because contemporary Yiddish dialects do not have homeland communities to which they can be compared, claims about linguistic innovation in these dialects are difficult to substantiate (as noted by Bleaman, 2018, p. 19). The study demonstrates how archival data can be used to establish the presence of innovative features in the community's European input dialect (see Bleaman, 2021a). Here, this comparison led to the surprising discovery that the long-short vowel contrast in UY may already have been undergoing change in the prewar period.

This project also underscores how research on minority languages spoken by non-western cultural communities can help develop and improve theories of the path and propagation of sound change under contact. It develops a sociolinguistic account of the HY-speaking community, whose distinctive social structures and ideologies make it especially well-suited for a variationist sociolinguistic approach. Analysis of variation in this dialect reveals how larger demographic factors (e.g., age, sex, location) are complicated by community structures, and uncovers locally significant factors (the cumulative effect of social networks, lifestyle choices and attitudes) that are implicated in change. Here,

absence of a hypothesized gender effect along with an observed effect of Hasidic orientation on /u/-fronting reveal that English proficiency and dominance are not necessarily what leads to change. Rather, one needs to consider *which* English is being spoken and *with whom* in order to understand how sound change from the majority language enters into the minority language system.

Finally, the project elucidates the ways in which vowel systems may be influenced by language contact. Cross-linguistic comparisons reveal two phases in contact-induced change. In the first, exposure to the mainstream dialect results in maximal difference between a sound segment(s) found in the two languages. This occurs for short high vowels in Gen2 and for /u/ in Gen3. Within the course of a generation, speakers have largely converged on a single realization for the phoneme, leading to cross-linguistic overlap. Drawing on models of second language acquisition, this research reveals the links between the social and cognitive mechanisms of sound change. In this way, this dissertation goes beyond description of variation towards possible explanations for the patterns observed.

8.4 Social impacts

HY speakers represent one of the fastest growing language groups in New York. Yet, until recently this dialect has been virtually overlooked. The lack of a systematic description has been a major disadvantage to those interested in acquiring HY, or learning about HY, in order, for example, to provide clinical speech and language-related services to children in the community. Existing scholarly references focus primarily on Eastern European Yiddish dialects, and language-learning materials are based on a standard that is very different from

the dialect spoken by this community. This became painfully evident recently when the New York City Department of Health disseminated poorly translated informational materials related to a measles outbreak in the Hasidic communities (Cohen, 2019; see also Belk, Kahn, Szendroi, et al., 2021). Comprehensive analyses of this language will contribute tremendously to areas of applied linguistics by providing much-needed resources for literacy development, language assessment, and forensic purposes, among other things. Additionally, the materials used for forced alignment, especially the acoustic model and pronunciation dictionary, can aid the development of important technological tools as speech-to-text and machine translation (cf. Bleaman, 2020).

Mostly importantly, this study shines a spotlight on a frequently misunderstood, often stereotyped community. While the endurance of Hasidic Yiddish is certainly remarkable, the history of Hasidim in New York is, in many ways, a quintessential immigrant story. Like other settler groups, Hasidim have had to grapple with the dual responsibility of building a new community while simultaneously maintaining traditional culture and values. The latter seemed especially urgent to a community whose cultural base had been completely decimated. In their seventy-year tenure in New York, Hasidim have profoundly and indelibly impacted, and been impacted by, the political, economic, and social landscape in New York (Deutsch & Casper, 2021). Like many other immigrants, they live between cultures and languages. Through this 'in-betweenness' a unique American Hasidic identity has arisen, one that values independence as well as custom.

Using language as a lens, this study highlights the dynamism of contemporary Hasidic culture, showing how it is being continually transformed from within and without. From

the outside, political and economic pressures, forces of modernity, and mainstream cultural trends are shifting its shape in small but decisive ways. Internally, change is led by those on the peripheries who are pushing cultural boundaries and redefining community standards. It is this dialectic of maintenance and change that is reflected in the language.

Studies such as this one can help counter reductive narratives that portray auto-segregated religious groups as rigidly anti-progressive and static, and promote cross-cultural understanding (Wolfram, 1993). Illustrating the multivalent and dynamic nature of Hasidic orientation and identifying the ways in which HY is converging with HE underscores the permeability of the Hasidic community and provides linguistic evidence of its interaction with the larger American culture. Such work is essential in developing a more inclusive and culturally informed polity.

Appendices

Appendix A: Transliteration system

Yiddish Letter	Roman Letter	IPA Symbol	YIVO Yiddish	YIVO Roman
		vowels		
(silent) א			(silent) א	
א	a	a	אַ	a
א	o	ʌ	אָ	o
א	u	u / ʊ	אָ	o
ו	i	i / ɪ	ו/וּ	u
ו	u	u / ʊ	ו/וּ	u
וי	oy	ɔɪ	וי	oy
וי	ow	oʊ	וי	oy
י	i	i	י/יִ	i
י	i	ɪ	י/יִ	i
יי	aa	aː	יַי	ay
יי	ay	aɪ	יי	ey
יי	ay	aɪː*	יַי	ay
ע	e	ɛ, eɛ	ע	e
ע	ey	eɪ	ע	e
		consonants		
ב	b	b	ב	b
ב/וו	v	v	בֿ/וו	v
ג	g	g	ג	g
ד	d	d	ד	d
ה	h	h	ה	h
ז	z	z	ז	z
ח/כ/ך	kh	x	ח/כ/ך	kh
ט/ת	t	t	ט/תּ	t
כ/ק	k	k	כּ/ק	k
ל	l	l	ל	l
מ/ם	m	m	מ/ם	m
נ/ן	n	n	נ	n
ס/ש/ת	s	s	ס/שׂ/ת	s
פ	p	p	פ	p
פ/ף	f	f	פֿ	f

* In word-final and vowel hiatus position, e.g., [draɪː] ‘three’ and [faɪːjər] ‘fire’.

צ / ץ	ts	ts	צ	ts
ר	r	r	ר	r
ש	sh	ʃ	ש	sh
טש	tsh	tʃ	טש	tsh
זש	zh	ʒ	זש	zh
דזש	dzh	dʒ	דזש	dzh

Modified YIVO transcription / transliteration used in for interview data in this dissertation.

Appendix B: Interview modules (1 - 8)

(original version)

1. דעמאגראפישע איינצלהייטן

- וואו זענען דיינע עלטערן געבוירן געווארן? _____
- אין וועלכע סקול/חדר זענען דיינע עלטערן געגאנגען? _____
- וואו זענען דיינע באבע/זיידע געבוירן געווארן?
  - טאטע'ס מאמע? _____
  - טאטע'ס טאטע? _____
  - מאמע'ס מאמע? _____
  - מאמע'ס טאטע? _____
- שפירסטו עפעס א קשר צו די פלעצער אין אייראפע ווי דיינע זיידעס/באבעס זענען געבוירן?
  - האסטו אמאל באזוכט די פלעצער?
- וואס האבן דיינע עלטערן געטון פאר פרנסה ווען דו ביסט געווען א קינד?
- וועלכע יאר ביסטו געבוירן געווארן? _____
- וואו ביסטו געבוירן געווארן? _____
- וואו ביסטו אויפגעוואקסן? _____
- וואו וואוינסטו היינט? _____
  - ווילאנג וואוינסטו שוין דא? _____
- וואספארא מינים מענטשן וואוינען אין דיין געגנט?
  - אידן?
  - חסידיש?
- וואספארא מינים מענטשן וואוינען אויף דיין גאס?
  - זענען זיי בדרך כלל פריינטליך? יא / ניין / מער ווייניגער
- איז די געגנט safe? יא / ניין / מער ווייניגער
- וויאזוי זענען די דרייווערס אין דיין געגנט?
- איז גרינג אנצוקומען ווי מ'דארף?
- וואס האסטו דאס בעסטע ליב וועגן די געגנט וואו דו וואוינסט?
- איז דא עפעס א וועג וואס מ'קען דערקענען די מענטשן וואס וואוינען אין דיין געגנט (למשל, אויף די וועג וואס זיי רעדן אדער גייען אנגעטוהן)?
- וואס זענען די stereotypes פון דיין געגנט (וואס זאגן מענטשן וועגן די וואס וואוינען דארט)?
- האסטו אמאל געוואוינט ערגעץ אנדערש?
- האסטו אמאל געוואלט וואוינען ערגעץ אנדערש?

- וואו וואוינען די אנדערע מיטגלידער פון דיין משפחה?
- האסטו משפחה אין אויסלאנד?
  - אויב אזוי, ווי אפט טרעפסטו זיך מיט זיי?
- האסטו געשוויסטער?
  - וויפיל? _____
  - וועלכע נומער קינד ביסטו אין די משפחה? _____
- ווי אלט זענען דיינע געשוויסטער?
- זענען דיינע געשוויסטער שוין אלע חתונה געהאט?
- וויאזוי איז דיין relationship מיט דיינע געשוויסטער?
  - מיט וועלכע פון דיינע געשוויסטער פארטראגסטו זיך דאס מערסטע?
  - פארוואס?

2. די קינדערישע יארן

- וואו האט די משפחה געוואוינט ווען דו ביסט אויפגעוואקסן?
- קענסטו מיר שילדערן (אביסל אראפלייגן) וויאזוי די געגנט האט דעמאלטס אויסגעזען?
- וועלכע סקול/חדר ביסטו געגאנגען?
  - האסטו עס ליב געהאט?
- וואסערע 'טייפ' קינדער זענען געגאנגען אין די סקול/חדר?
- מיט וועמען האסטו זיך געדרייט אלס קינד (מיט וואספארא טיפ קינדער)?
- האסטו געהאט אסאך חברים/חברטעס?
  - ביסטו נאך אלס נאנט מיט זיי?
- וואספארא טיפ קינד ביסטו געווען?
  - לעבעדיג? שעמעוודיג? טראבל־מאכער?
- קענסטו זיך דערמאנען פון עפעס א צייט אלס קינד ווען די ביסט געווארן אין 'טראבל'?
- וואס האסטו געטון פאר fun ווען דו ביסט געווען א קינד?
- וואס זענען די בעסטע זכרונות פון דיינע קינדער יארן?
- וואס זענען דיינע ערגסטע זכרונות?
- פלעגסטו גיין אין קעמפ זומער?
  - האסטו עס ליב געהאט?
  - וויאזוי איז קעמפ געווען אנדערש ווי ס'איז היינט?
- וואס האסטו שטארק ליב געהאט צו עסן אלס קינד?
- האבן דיינע עלטערן געטון עפעס special לכבוד דיין געבורטסטאג? יא / ניין
  - וויאזוי האט איר זיך געפירט מיט אייערע קינדער לגבאי birthdays? יא / ניין

- וואספארא געימס פלעגט מען ביי ענק שפילן אין סקול/חדר?
  - ביסטו געווען א גוטע שפילער?
- האט מען דיך אמאל אלס קינד באשולדיגט אין עפעס וואס דו האסט נישט געטוהן?
- ווען די וואלסט געקענט צוריק גיין צו דיינע קינדער יארן און זיי איבערמאכן, וואס וואלסטו געטוהן אנדערש?

3. משפחה אין קינדער

- ביסטו חתונה געהאט / ווי לאנג ביסטו שוין חתונה געהאט?
- וואס זענען געווען אפאר שווערִיגקייטן נאך די חתונה (למשל, וואוינען אין א נייע פלאץ, ארבעטן, א.ד.ג.)?
- וואס האלטסו דארפן א מאן און פרוי האבן אז זיי זאלן זיך פארשטיין?
- האסטו קינדער?
  - וויפיל?
  - ווי אלט זענען זיי?
- וואס איז דער עיקר שווערִיגקייט פון ערציען קינדער אין די היינטיגע טעג?
  - וועלכע זענען גרינגער צו ערציען, די מיידלעך אדער די אינגלעך?
- אויב דו האסט שוין חתונה-געהאטע קינדער, וואס איז די שווערסטע חלק פון טון שידוכים?
- וואס זענען אפאר fun זאכן וואס עץ טוטס מיט די קינדער (טריפס, א.ד.ג.)?

4. ארבעט

- וואס טוסטו פאר פרנסה?
- ווען האסטו זיך אריינגערלאזט אין די סארט ארבעט?
  - וואס האט דיך אריינגעברענט אין די 'ליין'?
- וויאזוי קומסטו אָן צו די ארבעט?
- מיט וואספארא סארט מענטשן ארבעטסטו אינאיינעם?
  - אידן?
  - חסידישע אידן?
- צו האסטו ליב דיין דזשאב?
  - וואס וואלסטו ענדערש געוואלט טוהן?
- וויאזוי איז דיין relationship מיט דיין 'באס'?
  - מיט דיינע co-workers?
- האסטו אמאל געבעטן א 'רעיז'?
  - וויאזוי האסטו עס געטוהן?
  - וואס איז געווען די result?

- וואס איז א עפעס וויכטיגע life lesson וואס דו האסט זיך אויסגעלערנט ביי די ארבעט?
- דיין מאן/ווייב ארבעט אינדרויסן פון שטוב?
  - וואס טוט ער/זי?

5. פארוויילונג און נאך

- ביסטו אמאל געגאנגען אין college אדער גענומען עפעס א class אין א סעקולארע ארגענעזאציע? יא / ניין
  - אויב יא, אין וועלכע college/school ביסטו געגאנגען? _____
  - ווי לאנג ביסטו געווען אין college/school? _____
- וועלכע יו'ט איז דיין favorite?
  - פארוואס?
- פון וואספארא טעמעס האסטו דאס מערסטע ליב צו רעדן?
- רעדסטו אמאל פון פאליטיקס?
  - חסידישע פאליטיקס אדער נאציאנאלע פאליטיקס?
- דו שטימסט (vote)?
  - וויאזוי באשליסטו פאר וועמען צו שטימען?
- וואס טוסטו פאר fun/enjoyment?
- וואס פארא סארט מוזיק האסטו ליב צו הערן?
  - ווער זענען דיינע favorite זינגערס?
- הערסטו אמאל אויס נישט־אידישע מוזיק?
- וואס האסטו ליב צו לייענען?
  - אין וואספארא שפראך?
- ליינסטו די אידישע צייטונגען?
- הערסטו זיך אמאל צו צי די אידישע האטליינס?
  - וועלכע?
- וואס איז דיין מקור פאר וועלטליכע נייעס?
- וואס איז דיין שטעלונג, בדרך כלל, לגבאי היינטיגע technology?
- האסטו ליב ארומצופארן די וועלט?
- האלטסטו זיך פאר אן אמעריקאנער? יא / ניין
- האלטסו זיך פאר א ריכטיגער New Yorker? יא / ניין
  - אין וואספארא וועגן ביסטו יא אדער נישט א New Yorker?
- קענסטו די ווערטער פון דעם אמעריקאנער national anthem? יא / ניין
- וואס איז די מערסטע אינטערעסאנטע אדער די מערסטע שרעקעדיגע זאך וואס האט מיט דיר פאסירט אינטערוועגנס?
- וואס איז דיין מיינונג/שטעלונג לגבאי immunizations פאר קינדער?

- ביסטו אמאל געווען אין א געפערליכע עקסידענט?
  - פארצייל מיר דערוועגן...
- ביסטו אמאל געווען אין א געפערליכע מצב וואס די האסט געמיינט אז די וועסט עס נישט איבערלעבן?
- וואו ביסטו געווען ווען די טווין טאערס זענען געפאלן?
- וויאזוי ביסטו געווארן affected פון די קאראנע־ווייירוס?

6. חסידישקייט

- איז דיין משפחה אלעמאל געווען חסידיש?
- צו וועלכע חסידות געהערסטו?
- ביסטו מקושר צו א געוויסע רבי? יא / ניין
  - וועלכע?
  - ווי שטארק involved ביסטו אין חסידישע ענינים?
- וואס פארא הכשרים האט מען געגעסן ביי אייך אינדערהיים אלס קינד? _____
  - האט איר זיך אויך אזוי געפירט מיט אייערע קינדער? _____
- צו גייט איר מיט די זעלבע לבוש ווי אייער טאטע/מאמע? יא / ניין
- צו גייען אייערע קינדער מיט די זעלבע לבוש ווי איר גייט? יא / ניין
  - וואלט עס אייך געשטערט אויב אייערע קינדער וואלטן געגאנגען אנדערש ווי איר גייט?
- קען א פרוי אויך זיין 'א חסיד' אדער איז דאס נאר פאר מענער?
- וואס מיינט עס פאר דיר צו זיין א חסידישע מאן/פרוי generally?
- וואס זענען אפאר פון די מעלות פון וואוינען (אין ערציען קינדער) אין א חסידישע קהילה?
- וואס זענען די חילוקים (לויט ווי דו פארשטייסט) צווישן די היינטיגע חסידים און די חסידים פון אמאל?
- ביסטו צופרידן מיט די חסידישע מוסדות וואו דו שיקסט דיינע קינדער צו חסידישע מוסדות ? יא / ניין
- ביסטו צופרידן מיט די מוסדות וואו דו שיקסט דיינע קינדער? יא / ניין
- אויב דו וואלסט געקענט טוישן איין זאך לגבאי די מוסד, אדער די חסידישע 'סיסטעם', וואס וואלסטו געטוישט?
- וואס איז דיין מיינונג לגבאי די לעצטיגע רעגירונג 'אינטערווענשען' אז מ'זאל לערנען מער לימודי חול מיט די אינגלעך אין חדר?
- האסטו אמאל געפילט אז מען האט דיך פיינט אדער מען דיסקרימינירט קעגן דיר ווייל דו ביסט חסידיש? יא / ניין

7. שפראך חלק א'

- וועלכע נאך שפראכן רעדסטו? _____
- אויף וועלכע שפראך רעדן דיינע עלטערן צווישן זיך? אידיש / ענגליש
- אויף וועלכע שפראך האבן דיינע עלטערן גערעדט מיט דיר ווען די ביסט אויפגעוואקסן? אידיש / ענגליש
- אויף וועלכע שפראך רעדסטו מיט דיינע געשוויסטער? אידיש / ענגליש

- אויף וועלכע שפּראך רעדסטו מיט דיין זיידע־באבע? אידיש / ענגליש
- אויף וועלכע שפּראך רעדסטו מיט דיינע חברים/חברטעס? אידיש / ענגליש
- וועלכע שפּראך נוצטו ביי די ארבעט? אידיש / ענגליש

8. שפּראך חלק ב'

- האלטסטו אז ס'איז א מעלה צו קענען רעדן מער ווי איין שפּראך?
- ווי גוט האלטסו איז דיין אידיש? (1-5) _____
- ווי גוט האלטסו איז דיין ענגליש? (1-5) _____
- וועלכע שפּראך איז דיר גרינגער/מער באקוועם צו רעדן? אידיש / ענגליש
- וועלכע שפּראך איז דיר גרינגער/מער באקוועם צו לייענען? אידיש / ענגליש
- וועלכע שפּראך איז דיר גרינגער/מער באקוועם צו שרייבן? אידיש / ענגליש
- וועלכע שפּראך נוצטו ווען דו רעדסט פון א פּערזענליכע ענין? אידיש / ענגליש
- וועלכע שפּראך נוצטו ווען דו ביסט אויפגערעגט? אידיש / ענגליש
  -
- וואס זענען די מעלות פון קענען אידיש?
- ווער רעדט היינטיגע טעג די בעסטע אידיש?
- ווער רעדט א בעסערע אידיש, דו אדער דיינע עלטערן?
- וויאזוי גלייכט זיך צו די אידיש פון דיינע עלטערן צו די אידיש פון דיינע באבעס/זיידעס?
- האבן דיינע עלטערן אדער באבע/זיידע אמאל קריטיקירט דער וועג וויאזוי דו און דיינע חברים/חברטעס רעדן אידיש? אויב יא, אויף וואס האבן זיי זיך געשטעלט?
- וויאזוי האט מען געלערנט די אידישע שפּראך ביי ענק אין סקול?
  - האט עץ געהאט ביכער צו לערנען אידישע גראמאטיק?
- האסטו אמאל פּראבירט צו טוישן דער די וועג וויאזוי דו רעדסט?
  - פּארוואס?
- האלטסטו אז אידיש טוישט זיך?
  - אויב יא, האלטסטו אז עס ווערט בעסער אדער ערגער?
- טראכסטו אז אין הונדערט יאר ארום וועט מען נאך רעדן אידיש?
  - ווער וועט עס רעדן?

Interview Modules (1 – 8): (translated version)

1. Demographics details

- What year were you born? _____
- Where were you born? _____
- Where did you grow up? _____
- Where do you currently live? _____
    - How long have you lived here? _____
- What sort of people live in this area?
    - Jewish people?
    - Hasidic people?
- What sort of people live on your block?
    - Are they generally friendly?
- Is your neighborhood safe?
- How are the drivers in your area?
- Is it easy to get around in your neighborhood?
- Are there specific ways to recognize/identify people who live in this area (for example, by the way they dress or talk?)
- Are there any stereotypes about people who live in this area?
- Did you ever live anywhere else?
- Where were your parents born? _____
- Where were your grandparents born?
    - Paternal grandmother? _____
    - Paternal grandfather? _____
    - Maternal grandmother? _____
    - Maternal grandfather? _____
- Do you feel a connection to the European lands where your parents/grandparents/great-grandparents were born?
    - Did you ever visit those places?
- What do your parents do (occupation)?
- Do you have family outside of this country?
    - If yes, how often do you see them?
- Do you have any siblings?
    - How many? _____
    - What number child are you in the family? _____
- How old are your siblings?

- Are they all married?
- How is your relationship with your siblings?
    - With which one of your siblings do you get along the best?
    - Why?

2. Childhood

- What did you do for fun as a child?
- What school/cheder did you attend?
    - Did you like it?
- What type of children were in your school/cheder?
- What sort of kids did you hang out with?
- Did you have lots of friends in school?
    - Are you still close to them?
- What type of child were you?
    - Lively? Friendly? Shy? Trouble-maker?
- Can you recall a time as a child when you got into trouble?
- What are some of your best childhood memories?
- What are your worst memories?
- What did you like to eat as a child?
- What kind of games did you play in school/on the street?
    - Were you good at it?
- Were you ever accused of something you didn't do?
- If you could go back and change anything about your childhood, what would it be?

3. Family and children

- Are you married / How long have you been married?
- What were some of the basic difficulties related to marriage?
- What are the secrets to a good relationship between spouses?
- Do you have any children?
    - How many?
    - How old are they?
- What are some difficulties related to raising children?
    - Do you find it easier to raise girls or to raise boys?

    - Why?
- What qualities would you like to see in your children when they grow up?
- Are any of your children married?
    - If yes, what are the most difficult aspects of marrying off children?
- What are some fun things you do/did with your children?

4. Work

- What do you do?
- When did you get into this field/line of work?
    - Why did you get into this line of work?
- How do you get to work every day?
- Do you like your job?
    - Is there something else you'd rather do?
- How is your relationship with your boss?
    - How is your relationship with your co-workers?
- Did you ever ask for a raise?
    - How did you do it?
    - Were you successful?
- What are some important lessons you learned at work?
- Does your spouse work outside the home?
    - What do they do?

5. Recreation and more

- What is your favorite holiday?
    - Why?
- What topics do you enjoy talking about?
- Do you like to talk about politics?
    - Chasidic politics or national politics?
- Do you vote?
    - How do you decide who to vote for?
- What do you do for fun?
- What sort of music do you like?
- Who are your favorite singers?

- Do you ever listen to secular music?
- What do you like to read?
    - In what language?
- Do you read Yiddish newspapers?
    - Which ones?
- Where do you get your news?
- What is your position regarding technology?
- Do you like to travel?
- What is the most interesting or the scariest thing that happened to you while traveling?
- Were you ever in a terrible accident?
    - Can you tell me about it?
- Were you ever in a situation where you thought you were going to die?
- Where were you when the twin towers fell on 9/11?
- Did you suffer any damage from hurricane Sandy?

6. Hasidic life

- Has your family always been Hasidic?
- Which Hasidic group does your family belong to?
- Are you close to a particular rabbi?
    - Which one?
    - How involved are you?
- Do you think that women are also "Hasidim" or does that only apply to men?
- What does it mean to you to be a Hasidic man/woman?
- What are some of the advantages of living and raising children in a Hasidic community?
- What are the differences between the Hasidim of today and those of the past?
- Are you satisfied with the Hasidic schools your children are attending?
- If you could change one thing in the school, what would you change?
- How do you feel about the recent government intervention in the secular education of Hasidic boys?

7. Language I

- What other languages do you speak?
- What language do your parents use when communicating with each other?
- What language did your parents use with you?

- What language do you use with your siblings?
- In what language do you speak to your friends?

8. Language II

- Do you think it's advantageous to know more than one language?
- How good is your Yiddish?
- How good is your English (or Hebrew)?
- Which language do you feel more comfortable using?
- Which language do you use at home?
- What are some of the advantages of knowing Yiddish?
- Who speaks the best Yiddish nowadays?
- Who has a better Yiddish, you or your parents?
- How do you compare the Yiddish of your parents with those of your grandparents?
- Growing up, did your parents or grandparents ever criticize the way you spoke Yiddish?
    - If yes, what did they focus on?
- How was Yiddish taught in your school/cheder?
- Did you have textbooks to learn Yiddish grammar?
- Did you ever try to change the way you talk?
    - If yes, why?
- Do you think Yiddish is changing?
    - If yes, do you think it is getting better or worse?
- Do you think Yiddish will still be spoken in a hundred years from now?
    - If yes, who do you think will speak it?

Appendix C: List of wordlist stimuli

YIDDISH WORDS

Carrier sentence: *yetst zug* ___ *shoyn* ('Now say ___ now')

1. גיס giis 'pour'
2. לייכט laakht 'shines'
3. נאך nokh 'more'
4. זינג zing 'sing'
5. מאַן man 'husband'
6. פאָן fuun 'flag'
7. שיף shiif 'sloping'
8. דין din 'thin'
9. צאל tsuul 'pay'
10. ליב liib 'like'
11. סוד sod 'secret'
12. רייז raaz 'rice'
13. בראָט bruut* 'roast'
14. האנט hant 'hand'
15. האָף hof 'hope'
16. טיש tish 'table'
17. דיק dik 'thick'
18. זון zin 'sun'
19. מאָן muun 'demand'
20. הוט hit 'hat'
21. בת bas 'girl'
22. פיל fiil 'feel'
23. מאָס muus 'measurement'
24. טאג tug 'day'
25. היט hiit 'protect'
26. גראד gruud 'straight'
27. זאט zat 'satisfied'
28. מיין maan 'my'
29. שיף shif 'ship'
30. נאָג nug 'suck'
31. פייל faal 'arrow'
32. שטאט shtuut 'city'
33. קאלט kalt 'cold'
34. טיר tiir 'door'
35. זון ziin 'son'
36. קאפּ kop 'head'
37. לאכט lakht 'laughs'
38. קוק kik 'look'
39. גראב grub 'dig'
40. לאז loz 'allow'
41. דאַן dan 'then'
42. מיד miid 'tired'
43. שלאף shluf 'sleep'
44. בייס baas 'bite'
45. וואס vus 'what/that'
46. בריוו briiv 'letter'
47. ראָט ruut 'advise'
48. גיך giikh 'quickly'
49. זייט zaat 'since'
50. גראב grob 'fat'
51. ווייט vaat 'far'
52. צוק tsuk 'draft'
53. היינט haant 'today'
54. קלאץ klots 'clumsy person'

55. פאל fal ‘fall’
56. יאָג yug ‘hurry’
57. וויין vaan ‘wine’
58. גוט git ‘good’
59. דאך dokh ‘still’
60. פרוכט frukht ‘fruit’
61. האט hot ‘has’
62. דאר daar ‘skinny’
63. ג־ט got ‘God’
64. מוז miz ‘must’
65. קלאר kluur ‘clear’
66. דיין daan ‘your’
67. נאנט nuunt ‘close’
68. ליפ lip (added) ‘lip’
69. וואנט vant ‘wall’
70. מיאוס miis ‘ugly’
71. פיינט faant ‘enemy’
72. ציג tsiig ‘goat’
73. גראז gruuz ‘grass’
74. זיך ziikh ‘self’
75. פאק pak ‘pack’
76. שארף sharf ‘sharp’
77. פול fil ‘not empty
78. זאג zug ‘say’
79. שטראָף shtruuf ‘punish’
80. פליג fliig ‘fly’
81. ו' (letter) vuv ~ vuuv
82. א' (letter) alef
83. ת' (letter) tuf
84. ווינט vint ‘wind’
85. טיף tiif ‘deep’
86. ווייב vaab ‘wife’
87. שוואַרץ shvarts ‘black’
88. קריג kriig ‘war’
89. כאַפּ khap ‘catch’
90. האָב hub (in gits) idiomatic for ‘earthly possessions’
91. שרייב shraab ‘write’
92. נאָך nukh ‘after’
93. ליג lig ‘lie’
94. שטארק shtark ‘strong’
95. פיר fiir ‘four’
96. פּאָר puur ‘pair’
97. אב uv ~ uuv (Hebrew month)
98. מאָל muul ‘draw’

ENGLISH WORDS

Carrier sentence: *Now say ___ again.*

1. hood
2. mop
3. beef
4. boss
5. shift
6. rod
7. brook
8. big
9. food
10. gift
11. meet
12. snoop
13. duck
14. feel
15. hit

16. noose
17. drawn
18. dim
19. sleeve
20. moose
21. bought
22. boon
23. pick
24. pool
25. miss
26. pot
27. laws
28. nook
29. suit
30. mall
31. sing
32. rude
33. nod
34. tried
35. mood
36. put
37. hid
38. talk
39. hoot
40. numb
41. haunt
42. mob
43. pull
44. teal
45. fight
46. should
47. fill
48. guys
49. good
50. hub
51. sheet
52. dots
53. took
54. cup
55. sight
56. would
57. cough
58. love
59. tip
60. lot
61. side
62. rock
63. foot
64. top
65. hug
66. geese
67. mice
68. nut
69. weed
70. size
71. hot
72. kite
73. thought
74. geek
75. sign
76. saw
77. cut
78. mine
79. sun
80. seep
81. lock
82. nuke
83. seen
84. deal

Appendix D: Hasidic orientation survey

(original version)

Participant code

_____

Gender

○ Male

○ Female

Status

○ Adult

○ Minor

בערך ווי אפט טוסטו די פאלגענדע זאכן(?אויב א געוויסע שאלה איז דיר נישט שייך ,דאן לאז עס אויס)

ברירות
1: זייער אפט (איינמאל א וואך אדער מער)
2: נישט אפט (איינמאל א חודש אדער מער)
3: זעלטן (עטליכע מאל א יאר אדער ווייניגער)
4: קיינמאל

פרויען ווערסיע:
אויסהערן א שיעור אויף אידיש (פערזענליך אדער דורך 'סי־די ', [mp3], טעלעפאן 'האטליין ,'א.ד.ג)
אויסהערן א שיעור אדער דרשה אויף ענגליש (פערזענליך אדער דורכ'ן טעלעפאן)
לייענען א צייטונג אדער מאגאזין וואס איז געשריבן אויף אידיש
לייענען א אידישע צייטונג אדער מאגאזין וואס איז געשריבן אויף ענגליש
לייענען א נישט־אידישע צייטונג אדער מאגאזין
קוקן א ווידיא וואס איז נישט ארויסגעגעבן דורך א איד
עסן אין א רעסטאראנט מיט אנדערע ערוואקסענע
אנטיילנעמען אין אן ארגאניזירטע חסד פראיעקט (צום ביישפיל ,צוזאמנעמען געלט פאר א צדקה צוועק ,קאכן עסן פאר .קימפערטארינס ,א.ד.ג)
אויסהערן א שיעור וועגן חינוך אדער נעמען א [parenting class] (פערזענליך אדער דורכ'ן טעלעפאן)
מאכן [exercise] אינדערהיים
מאכן [exercise] אינדרויסן פון שטוב
קויפן קליידונג פאר זיך
שיקן טעקסט מעסעדזשעס ([text messages])

נוצן א קאמפיוטער
נוצן א טאבלעט ([tablet])
נוצן א סמארטפאון ([smart phone])
נוצן אי־מעיל ([email])
נוצן די אינטערנעט
פאָרן ערגעץ מיט די קינדער (א ’טריפּ)
נעמען א [cruise]
שמועסן פון חסידישע פאליטיק
שמועסן וועגן נאציאנאלע אדער לאקאלע (נישט חסידישע) פאליטיק
אויסהערן אידישע מוזיק
אויסהערן נישט־אידישע מוזיק
שמועסן מיט מענטשן וואס זענען נישט חסידיש
שמועסן מיט מענטשן וואס זענען נישט פרום אדער נישט קיין אידן
טוהן עפּעס צו פארבעסערן די אויסזעהן פון די שטוב ([home improvements])
דאווענען אין א שול
איינקויפן אין א געשעפט וואס געהערט צו א היימישע איד ־ אויסער א גראסערי
איינקויפן אין א געשעפט וואס געהערט נישט צו א היימישע איד
קויפן עפּעס דורך די אינטערנעט
גיין צו א פּלעי אדער קוקן א סלייד שוי ([slide show]) ארויסגעגעבן דורך היימישע אידן
גיין צו א פּלעי וואס איז נישט ארויסגעגעבן דורך אידן
באזיכן אן אנדערע מדינה (אויסער אמעריקע)
מאכן ’אַרטס ענד קרעפטס’ ([arts and crafts]) מיט די קינדער
גיין צו א צדקה פּארטי
גיין צו א קלאס אדער [reunion] חנוכה פּארטי א.ד.ג.

מיידל ווערסיע:

אויסהערן א שיעור אויף אידיש (פערזענליך אדער דורך ’סי־די ’, [mp3], טעלעפאן ’האטליין ,’א.ד.ג)
אויסהערן א שיעור אדער דרשה אויף ענגליש (פערזענליך אדער דורכ’ן טעלעפאן)
לייענען א צייטונג אדער מאגאזין וואס איז געשריבן אויף אידיש
לייענען א אידישע צייטונג אדער מאגאזין וואס איז געשריבן אויף ענגליש
עסן אין א רעסטאראנט
אנטיילנעמען אין אן ארגאניזירטע חסד פּראיעקט (צום ביישפּיל ,צוזאמנעמען געלט פאר א צדקה צוועק ,א.ד.ג.)
גיין צו אן עקסערסייז קלאס, [gymnastics], אדער ענליך
גיין שאַפּינג פאר [fun]
שיקן טעקסט מעסעדזשעס ([text messages])
נוצן א קאמפיוטער
נוצן א טאבלעט ([tablet])
נוצן א סמארטפאון ([smart phone])
טוהן א פּעולה פאר א סגולה אדער דאס גלייכן אלס טייל פון א גרופּע ווי למשל א תהילם גרופּע ,שמירות הלשון גרופּע א.ד.ג.
שמועסן פון חסידישע פאליטיק
שמועסן וועגן נאציאנאלע אדער לאקאלע (נישט חסידישע) פאליטיק
אויסהערן מוזיק
איינקויפן אין א געשעפט וואס געהערט צו א היימישע איד ־ אויסער א גראסערי
איינקויפן אין א געשעפט וואס געהערט נישט צו א היימישע איד
שמועסן מיט מיידלעך וואס זענען נישט חסידיש
גיין צו א פּלעי אדער קוקן א סלייד שוי ([slide show]) ארויסגעגעבן דורך היימישע אידן

באזיכן אן אנדערע מדינה (אויסער אמעריקע)
זיך צאמקומען מיט חבר'טעס פאר [fun]
דאווענען אין א שול

מענער ווערסיע:

אויסהערן א שיעור אויף אידיש (פערזענליך אדער דורך 'סי־די ', [mp3], טעלעפאן 'האטליין ,'א.ד.ג)
אויסהערן א שיעור אדער דרשה אויף ענגליש (פערזענליך אדער דורכ'ן טעלעפאן)
לייענען א צייטונג אדער מאגאזין וואס איז געשריבן אויף אידיש
לייענען א אידישע צייטונג אדער מאגאזין וואס איז געשריבן אויף ענגליש
לייענען א נישט־אידישע צייטונג אדער מאגאזין
קוקן א ווידיא וואס איז נישט ארויסגעגעבן דורך א איד
עסן אין א רעסטאראנט מיט אנדערע ערוואקסענע
צאמשטעלן געלט פאר צדקה (אליין אדער מיט אנדערע)
זיך דורכרעדן מיט א קינד'ס מלמד ,מנהל ,ראש ישיבה א.ד.ג.
מאכן [exercise] אינדערהיים
מאכן [exercise] אינדרויסן פון שטוב
שיקן טעקסט מעסעדזשעס ([text messages])
נוצן א קאמפיוטער
נוצן א טאבלעט ([tablet])
נוצן א סמארטפאון ([smart phone])
נוצן אי־מעיל ([email])
נוצן די אינטערנעט
קאכן (פאר משפחה אדער באקאנטע)
נעמען די קינדער אויף א 'טריפ'
טוהן עפעס א פעולה פאר א סגולה אדער ישועה (למשל ,מתפלל זיין ביי א צדיק'ס ציון)
נעמען א [cruise]
רעדן פון חסידישע פאליטיק
אויסהערן אידישע מוזיק
אויסהערן נישט־אידישע מוזיק
שמועסן מיט מענטשן וואס זענען נישט חסידיש
שמועסן מיט מענטשן וואס זענען נישט פרום אדער נישט קיין אידן (למשל ביי די ארבעט)
שמועסן וועגן נאציאנאלע אדער לאקאלע (נישט חסידישע) פאליטיק
אויסהערן 'קול מבשר 'אדער אן ענליכע אידישע נייעס האטליין
אויסהערן די נייעס אויף די ראַדיא
פאָרן ([travel]) פאר ביזנעס
לערנען א חסידישע ספר
איינקויפן אין א געשעפט וואס געהערט נישט צו א היימישע איד
קויפן עפעס דורך די אינטערנעט
גיין צו א פלעי ארויסגעגעבן דורך היימישע אידן
גיין צו א פלעי וואס איז נישט ארויסגעגעבן דורך אידן
גיין צו א כינוס אדער פראטעסט
מיטנעמען די קינדער ווען דו גייסט איינקויפן/שאַפינג
זיך צאמקומען מיט חברים למשל פאר א קומזיץ ,א 'גריל 'אדער אין שוויץ (נישט אויף א שמחה)

יונגל ווערסיע:

אויסהערן א שיעור אויף אידיש (פערזענליך אדער דורך 'סי־די ', [mp3], טעלעפאן 'האטליין ,'א.ד.ג)
אויסהערן א שיעור אדער דרשה אויף ענגליש (פערזענליך אדער דורכ'ן טעלעפאן)

לייענען א צייטונג אדער מאגאזין וואס איז געשריבן אויף אידיש
לייענען א אידישע צייטונג אדער מאגאזין וואס איז געשריבן אויף ענגליש
עסן אין א רעסטאראנט
אנטיילנעמען אין אן ארגאניזירטע חסד פראיעקט (צום ביישפיל ,צוזאמנעמען געלט פאר א צדקה צוועק ,א.ד.ג.)
גיין צו אן עקסערסייז קלאס, [gymnastics], אדער ענליך
שיקן טעקסט מעסעדזשעס ([text messages])
נוצן א קאמפיוטער
נוצן א טאבלעט ([tablet])
נוצן א סמארטפאון ([smart phone])
טוהן א פעולה פאר א סגולה אדער דאס גלייכן אלס טייל פון א גרופע ווי למשל א תהילים גרופע ,שמירות הלשון גרופע א.ד.ג.
שמועסן פון חסידישע פאליטיק
שמועסן וועגן נאציאנאלע אדער לאקאלע (נישט חסידישע) פאליטיק
אויסהערן מוזיק
איינקויפן אין א געשעפט וואס געהערט צו א היימישע איד ־ אויסער א גראסערי
איינקויפן אין א געשעפט וואס געהערט נישט צו א היימישע איד
שמועסן מיט קינדער/בחורים וואס זענען נישט חסידיש
גיין צו א פלעי אדער קוקן א סלייד שוי ([slide show]) ארויסגעגעבן דורך היימישע אידן
באזיכן אן אנדערע מדינה (אויסער אמעריקע)
זיך צאמקומען מיט חברים פאר [fun]
לערנען א חסידישע ספר

בערך ווי אפט עסטו אדער טרינקסטו די פאלגענדע זאכן? (אויב דו ווייסט נישט וואס דאס איז, פיל אריין די ברירה 'איך ווייס נישט וואס דאס איז'

ברירות
1: זייער אפט (איינמאל א וואך אדער מער)
2: נישט אפט (איינמאל א חודש אדער מער)
3: זעלטן (למשל איינמאל א יאר) אדער קיינמאל
4: איך ווייס נישט וואס דאס איז

געפילטע פיש
לאַטע ([latte])
סושי ([sushi])
פערפל
זויערטייג ברויט ([sourdough bread])
פיצא ([pizza])
צימעס
גאלארעטא (גאלע)
קעיל ([kale])
טשיקן זופ
סאָ וויד פלייש ([sous vide meat])
טשאָקאָלאָד טשיפ קוקיס
פרעצל ([pretsel]) חלה
טאַקאָס ([tacos])
הערינג

גריק ([greek]) יאגורט
צענומענע פלייש ([pulled beef])

ווי שטארק זענען די פאלגענדע ווערטער צוגעפּאסט צו דיר? (שלעפּ יעדעס ווארט אריין אין איינע פון די קעסטלעך מיט דיין פינגער)

ברירות		
זייער פאסיג (דאס בין איך)	אביסל פּאסיג (so-so)	בכלל נישט איך (no way)

פרויען ווערסיע	**מענער ווערסיע**
זייער חסידיש	זייער חסידיש
צו ג־ט און צו לייט	צו ג־ט און צו לייט
תמימות׳דיג	תמימות׳דיג
וועלטליך	וועלטליך
טראדיציאנעל	טראדיציאנעל
אפּגעשיידט	אפּגעשיידט
ברייט	ברייט
זייער פרום	זייער פרום
בעל־ביתיש	בעל־ביתיש
רוחניות׳דיג	זעלבסט־געבויט
פריינטליך	פריינטליך
פארצייטיש	פארצייטיש
צוריקגעצויגן	צוריקגעצויגן
חומרה׳דיג	טיכטיג
אינטעליגענט	אינטעליגענט
אפּגעהיטן	אפּגעהיטן
אביסל מאדערן	אביסל מאדערן
באַלאבאָסטע	אפן
cool	באהאוונט
"in"	ערנסט
trendy	קיל
tech-savvy	tech-savvy
chilled	לייבט
up-to-date	up-to-date
תוכן׳דיג	מחמיר
fashion-conscious	אויפגעקלערט
open-minded	מתמיד
shtick-y	רוחניות׳דיג
out of the box	out of the box
fancy	צוגעפּיצט
down-to-earth	טשילער
book smart	פיינשמעקער

...אויף וועלכע שפּראך רעדסטו געווענליך מיט דיינע

?עלטערן...

?געשוויסטער...
?חבר'טעס...
?קינדער...
ביי די ארבעט (אויב שייך)

ברירות		
אידיש	ענגליש	געמישט

פלעגן דיינע עלטערן טון עפעס [special] לכבוד דיין געבורטסטאג ווען די ביסט געווען א קינד?

- יא
- ניין
- ווי אמאל

פירסטו זיך צו טון עפעס [special] לכבוד דיינע קינדערס געבורטסטאג?

- יא
- ניין
- ווי אמאל

ביסטו אמאל געגאנגען אין [college]?

- יא
- ניין

וויפל יאר ביסטו געווען אין [college]?

- א יאר אדער ווייניגער
- פיר יאר אדער ווייניגער
- מער ווי פיר יאר

האלטסו זיך פאר אן אמת'דיגער [New Yorker]?

- יא
- ניין
- איך בין נישט זיכער

קענסטו די ווערטער צו די אמעריקאנער [national anthem]?

- יא
- ניין
- נישט אלע

הכשרים			
וועלכע הכשרים האט מען געגעסן ביי ענק אינדערהיים אלס קינד?	אלע	רוב היימישע	נאר געציילטע
וועלכע הכשרים נוצט ביי ענק אינדערהיים (היינט)?	אלע	רוב היימישע	נאר געציילטע

גייסטו מיט די זעלבע לבוש ווי דיין מאמע?

- יא
- ניין

איז דיין לבוש מער אדער ווייניגער חסידיש פון אירס?

- מער
- ווייניגער

שיקסטו אדער האסטו געשיקט דיינע קינדער אין חסידישע מוסדות?

- יא
- ניין
- געמישט

ביסטו צופרידן געווען מיט די מוסדות וואו דו שיקסט דיינע קינדער?

- יא
- ניין
- מער ווייניגער

וואס איז דיין מיינונג/שטעלונג לגבאי [vaccines] פאר קינדער?

- איך האלט פון [vaccines]
- איך בין קעגן [vaccines]
- איך בין צומישט / איך ווייס נישט וואס צו גלייבן

דו ארבעטסט (אדער פלעגסטו ארבעטן) אינדרויסן פון שטוב?

- יא
- ניין

מיט וואס פארא מין מענטשן ארבעטסטו (אדער פלעגסטו צו ארבעטן) אינאיינעם?

- רוב חסידיש
- רוב אידיש ,נישט דווקה חסידיש
- רוב נישט קיין אידן

האסטו אמאל געפילט אז מען האט דיך פיינט אדער מען דיסקרימינירט קעגן דיר ווייל דו ביסט חסידיש?

- יא
- ניין
- איך בין נישט זיכער / איך געדענק נישט

פון 1 ביז 5 (5 איז אויסגעצייכנט), ווי גוט האלטסו איז דיין...

...אידיש?	1	2	3	4	5
...ענגליש?	1	2	3	4	5

וועלכע שפּראך איז דיר גרינגער/מער באקוועם...

...צו רעדן?
...צו לייענען?
...צו שרייבן?

ברירות		
אידיש	ענגליש	ביידע אייניג

וועלכע שפּראך נוצסטו געוועהנליך ווען דו...

...רעדסט פון א זאך וואס איז דיר נאנט צום הארצן?	אידיש	ענגליש	אמאל אידיש, אמאל ענגליש
...ביסט אויפגערעגט?	אידיש	ענגליש	אמאל אידיש, אמאל ענגליש

Hasidic Orientation Survey (translated version)

Approximately how often do you do the following?

options
1: frequently (once a week or more)
2: not very frequently (once a month or more)
3: seldom (several times a year or less)
4: never

Women version
Listen to a religious lecture in Yiddish (in person, on CD, mp3, telephone, etc.)
Listen to a religious lecture in English (in person or other)
Read a Yiddish newspaper or magazine
Read a Jewish newspaper or magazine written in English
Read a secular newspaper or magazine
Watch a non-Jewish movie or show
Eat out with other adults
Participate in an organized charity event (e.g., fund raising, meal train, etc.)
Listen to a lecture on parenting or attend a parenting class
Exercise at home
Exercise at the gym
Buy clothing for yourself
Use text messaging
Use a computer
Use a tablet
Use a smart phone
Send email
Use the Internet
Take a trip or vacation with the kids
Take a cruise
Discuss Hasidic politics
Discuss national politics
Listen to Jewish music
Listen to non-Jewish music
Converse with people who are not Hasidic
Converse with people who are not religious Jews
Make home improvements
Pray in a shul (synagogue)
Shop in Jewish-owned store (aside from a supermarket)
Shop in non-Jewish-owned store
Buy something online
Attend a Jewish show/performance
Attend a non-Jewish show/performance
Travel abroad
Make crafts with your kids
Attend a fund-raising event

Attend a class reunion or Hanukah part

Minor female version
Listen to a religious lecture in Yiddish (in person, on CD, mp3, telephone, etc.)
Listen to a religious lecture in English (in person or other)
Read a Yiddish newspaper or magazine
Read a Jewish newspaper or magazine written in English
Eat out with friends
Participate in an organized charity event
Attend an exercise or gymnastics class
Shop for fun
Use text messaging
Use a computer
Use a tablet
Use a smart phone
Participate in an organized ceremonial ritual (prayer group, etc.) for divine intervention on someone's behalf
Discuss Hasidic politics
Discuss national politics
Listen to music
Shop in Jewish-owned store (aside from a supermarket)
Shop in non-Jewish-owned store
Converse with non-Hasidic girls
Attend a Jewish show/performance
Travel abroad
Get together with friends for fun
Pray in a shul (synagogue)

Men version
Listen to a religious lecture in Yiddish (in person, on CD, mp3, telephone, etc.)
Listen to a religious lecture in English (in person or other)
Read a Yiddish newspaper or magazine
Read a Jewish newspaper or magazine written in English
Read a secular newspaper or magazine
Listen to a lecture in Yiddish (in person, on CD, mp3, telephone, etc.)
Eat out with other adults
Participate in a fund-raising/charity event
Talk to your child's teacher or principal
Exercise at home
Exercise at a gym
Use text messaging
Use a computer
Use a tablet
Use a smart phone
Send email
Use the Internet
Cook for your family

Take a trip or vacation with your children
Perform a ceremonial ritual such as lighting a candle or visiting a grave for divine intervention
Take a cruise
Discuss Hasidic politics
Listen to Jewish music
Listen to non-Jewish music
Converse with non-Hasidic people
Converse with non-Jewish people (e.g., at work)
Discuss national or local (not Hasidic) politics
Listen to a Jewish news hotline
Listen to the radio
Travel for business
Study a Hasidic religious text
Shop in a non-Jewish-owned story
Buy something online
Attend a Jewish show/performance
Attend a non-Jewish show/performance
Attend a religious assembly or protest
Take the kids along when you go shopping
Get together with friends for a grill, party, etc.

Minor male version
Listen to a religious lecture in Yiddish (in person, on CD, mp3, telephone, etc.)
Listen to a religious lecture in English (in person or other)
Read a Yiddish newspaper or magazine
Read a Jewish newspaper or magazine written in English
Eat out with friends
Participate in an organized charity event
Attend exercise or gymnastics class (etc.)
Use text messaging
Use a computer
Use a tablet
Use a smart phone
Participate in an organized ceremonial ritual (prayer group, etc.) for divine intervention on someone's behalf
Discuss Hasidic politics
Discuss national politics
Listen to music
Shop in a Jewish-owned store (aside from a supermarket)
Shop in a non-Jewish-owned store
Converse with non-Hasidic boys
Attend a Jewish show/performance
Travel abroad
Get together with friends
Study a Hasidic text

Approximately how often do you eat or drink the following? (If you don't know what something is, select 'I don't know what this is')

options
1: frequently (once a week or more)
2: not very frequently (once a month or more)
3: seldom (about once a year) or never
4: I don't know what this is

gefilte fish
latte
sushi
farfel
sourdough bread
pizza
tzimmes
galareta
kale
chicken soup
sous vide meat
chocolate chip cookies
pretzel challah
tacos
herring
Greek yogurt
pulled beef

To what extent do the following words describe you? (Drag each word into the appropriate box)

options		
extremely well	somewhat	not at all

Male version	Female version
zayer khasidish	*zeyer khasidish*
tsu got in tsu layt	*tsu got in tsu layt*
temimusdik	*temimusdik*
veltlekh	*veltlekh*
treditsionel	*treditsionel*
opgeshaydt	*opgeshaydt*
breyt	*breyt*
zeyer frum	*zeyer frum*
bal-batish	*bal-batish*
rokhniusdik	*rokhniusdik*
frayntlekh	*frayntlekh*

	fartsaytish	*fartsaytish*
	tsurikgetsoygn	*tsurikgetsoygn*
	tikhtik	*khumredik*
	inteligent	*inteligent*
	opgehitn	*opgehitn*
	abisl modern	*abisl modern*
	ofn	*baleboste*
	bahavnt	cool
	ernst	"in"
	kil	trendy
	makhmir	tech-savvy
	tech-savvy	chilled
	oyfgeklert	book smart
	tsugepitst	*toykhendik*
	masmid	fashion-conscious
	laykht	open-minded
	zelbst-geboyt	shtick-y
	out of the box	out of the box
	tshiler	fancy
	faynshmeker	down-to-earth
	up-to-date	up-to-date

What language do you use with your...

...parents?	
...siblings?	
...friends?	
...children?	
...at work (if relevant)?	

options		
Yiddish	English	mixed

Did your parents celebrate your birthday when you were growing up?

- ○ yes
- ○ no
- ○ sometimes

Do you do celebrate your child/children's birthdays?

- ○ yes
- ○ no
- ○ sometimes

Did you attend college?

- ○ yes
- ○ no

How many years of college did you attend?

- ○ One year or less
- ○ Four years or less
- ○ More than four years

Do you consider yourself a real New Yorker?

- ○ yes
- ○ no
- ○ I'm not sure

Do you know the words to the American national anthem?

- ○ yes
- ○ no
- ○ Not all of them

Kosher certification
Which kosher brands were permissible in your home when you were growing up? Which kosher brands do you allow in your home now?

options		
most of them	ultra-Orthodox certification	a select few

Do you follow the same dress code as your mother/father?

- ○ yes
- ○ not

(If no...) Is your dress code more or less Hasidic than hers/his?

- ○ more
- ○ less

Do your kids attend Hasidic schools?

- ○ yes
- ○ no
- ○ Not all

Are you satisfied with your kids' schools?

- ○ yes
- ○ no
- ○ More or less

What is your position regarding vaccines?

- ○ I am for them

- ○ I am against them
- ○ I'm confused and I don't know what to believe

Do you (or did you) work outside the home?

- ○ yes
- ○ no

What type of people do (or did) you work together with?

- ○ Mostly Hasidic
- ○ Mostly Jewish, not necessarily Hasidic
- ○ Mostly non-Jews

Did you ever feel like people were discriminating against you because you are Hasidic?

- ○ yes
- ○ no
- ○ I'm not sure / I don't remember

On a scale of 1 to 5 (where 5 is excellent), how good is your...

Yiddish?	1	2	3	4	5
English?	1	2	3	4	5

Which language are you most comfortable...

...speaking?		
...reading?		
...writing?		
options		
Yiddish	English	approximately the same

Which language do you use when you're...

...sharing something personal?		
...angry?		

options		
Yiddish	English	it depends...

Appendix E: Low-High frequency range used in Fast Track

Group	Min-max frequency
1	4000-6500
2	4500-7000
3	4500-7500
4	5000-7500
5	5000-8000

Frequency ranges used to track formants in Fast Track

Appendix F: Fast Track formant boundaries

label	f1 lower	f1 upper	f2 lower	f2 upper	f3 lower	f3 upper
AA	400	1650	0	2500	0	5000
AE	0	5000	0	5000	0	5000
AH	0	5000	0	5000	0	5000
AO	0	2000	0	2400	0	5000
AW	0	5000	0	5000	0	5000
AX	400	1650	0	2500	0	5000
AY	0	5000	0	5000	0	5000
EX	0	5000	0	5000	0	5000
OA	0	5000	0	5000	0	5000
EH	0	5000	0	5000	0	5000
ER	0	5000	0	5000	0	5000
EI	0	5000	0	5000	0	5000
EY	0	5000	0	5000	0	5000
IH	0	750	1600	5000	0	5000
IY	0	750	1600	5000	0	5000
OH	0	5000	0	5000	0	5000
OW	0	5000	0	5000	0	5000
OY	0	5000	0	5000	0	5000
UH	0	750	0	1800	0	5000
UW	0	750	0	1800	0	5000

Formant boundaries for selecting winning candidates in Fast Track

Appendix G: Function words excluded from analysis

WORD	GLOSS	LEXICAL CATEGORY
a / an	a / an	article
ah	ah	filler
aykh	you (2.pl.acc/dat)	pronoun
az	as, when, if, that	conjunction
aza	such a; a kind of	adjective
azane	such (pl)	adjective
bin	be (1.sg)	verb/auxiliary
de	the	article
dem	the (dative)	article
der	the (masc/fem dat)	article
di	the (fem or plural)	article
dikh	you (2.sg.acc)	pronoun
dir	you (2.sg.dat)	pronoun
dos	the (nom/acc.neut)	article
du	you (2.sing.nom)	pronoun
emir (veln mir)	be (3.pl.fut)	verb + pronoun
enk	you (2.pl.acc/dat)	pronoun
er	he (3.sg.acc)	pronoun
es	it (3.sg.neut)	pronoun
ets	you (2.pl.acc)	pronoun
far	for; in front of	preposition/adverb
farn (far dem)	for; in front of	preposition + article
fun	of; by; from	preposition/adverb
funem (fun dem)	from (dat)	preposition + article
hob	have (1.sg)	verb/auxiliary
hobn	have (1/3.pl)	verb/auxiliary
host	have (2.sing)	verb/auxiliary
hot	have (3.sg)	verb/auxiliary
hots	have (3.pl)	verb/auxiliary
iber	above, over, more than	preposition
ikh	I (1.sg.nom)	pronoun
im	him (3.sg.acc/dat)	pronoun
in	in, into	preposition
inem (in dem)	in the	preposition + article
ir	her (3.sg.fem)	pronoun
iz	be (3.sg)	copula
keyn	no, to	article(neg)/preposition
mayn	my (1.sg)	pronoun
men	one, you, they, people	pronoun
mikh	me (1.sg.acc)	pronoun
mir	me (1.sg.dat)	pronoun
mit	with	preposition
mitn (mit dem)	with the	preposition
nisht	not	adverb

nokhdem (and variants)	afterwards	adverb
nor	only, just, merely	adverb
oh	oh	interjection
oyf	on, upon, for	preposition
tsi	whether	conjunction
tsu	to	preposition
tsunem (tsu dem)	to the	preposition + article
uh	uh	filler
um	um	filler
un	and	conjunction
undz	us (2.pl.acc/dat)	pronoun
ven	when	adverb
ver	where	pronoun
vi-azoy	how	adverb
vil	want	verb/auxiliary
viln	want (2.pl)	verb/auxiliary
vos	what	adverb
vu	where	adverb
zenen	be (3.pl)	pronoun
zents	be (2.pl)	pronoun
zey	they (3.pl)	pronoun
zi	she (3.sg.nom)	pronoun
zikh	oneself, each other	pronoun (reflexive)

Yiddish function words excluded from analysis.

Appendix H: Linear mixed model results for [ʊ] F2

	F1 (norm)				F2 (norm)			
Predictors	*Estimates*	*Std. Error*	*t-value*	*p-value*	*Estimates*	*Std. Error*	*t-value*	*p-value*
(Intercept)	347.15	13.68	25.38	**<0.001**	1738.23	35.94	48.37	**<0.001**
GENERATION (vs. 1)								
2	26.73	9.84	2.72	**0.007**	0.40	27.39	0.01	0.988
3	44.53	9.30	4.79	**<0.001**	45.18	25.86	1.75	0.081
4	59.85	9.43	6.35	**<0.001**	111.55	26.22	4.25	**<0.001**
Task [wordlist]	0.46	7.57	0.06	0.951	0.77	16.83	0.05	0.963
Gender [M]	-12.22	6.38	-1.91	0.046	48.16	17.76	2.71	**0.007**
Log_{10}(Duration)	55.84	3.90	14.30	**<0.001**	-300.80	10.63	-28.29	**<0.001**
PRECEDING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	9.97	5.04	1.98	**0.048**	-12.83	12.60	-1.02	0.309
dorsal	-14.17	32.82	-0.43	0.666	-64.60	90.05	-0.72	0.473
labial	-18.24	9.07	-2.01	**0.044**	-150.14	22.27	-6.74	**<0.001**
glide: dorsal	-35.87	11.78	-3.04	**0.002**	58.32	27.71	2.11	**0.035**
liquid: dorsal	-39.42	13.72	-2.87	**0.004**	-120.96	37.01	-3.27	**0.001**
voiced obstruents								
coronal	-10.84	6.19	-1.75	0.080	84.73	15.19	5.58	**<0.001**
dorsal	-32.88	15.03	-2.19	**0.029**	-86.66	37.43	-2.32	**0.021**
labial	-16.62	6.79	-2.45	**0.014**	-186.35	16.16	-11.53	**<0.001**
voiceless obstruents								
coronal	-12.12	4.51	-2.69	**0.007**	12.05	11.10	1.09	0.278
dorsal	-14.52	5.47	-2.66	**0.008**	-184.48	13.76	-13.40	**<0.001**
labial	-16.76	9.62	-1.74	0.081	-177.69	22.97	-7.74	**<0.001**
laryngeal	44.59	24.60	1.81	0.070	-177.23	61.83	-2.87	**0.004**
SILENCE	-7.79	12.20	-0.64	0.523	-86.60	32.76	-2.64	**0.008**
[unknown]	-28.97	5.24	-5.53	**<0.001**	-52.68	13.53	-3.89	**<0.001**
vowel	6.50	6.22	1.05	0.296	-48.63	16.25	-2.99	**0.003**
FOLLOWING SEGMENT (vs. liquid: coronal)								
nasals								
coronal	-10.20	10.14	-1.01	0.314	-111.63	24.29	-4.60	**<0.001**
dorsal	0.36	9.45	0.04	0.969	-131.04	22.48	-5.83	**<0.001**
labial	30.99	10.73	2.89	**0.004**	-111.61	25.38	-4.40	**<0.001**
glide: dorsal	127.51	64.43	1.98	**0.048**	69.01	167.08	0.41	0.680
liquid: dorsal	-22.19	20.03	-1.11	0.268	-99.31	47.11	-2.11	**0.035**
voiced obstruents								
coronal	-13.74	15.51	-0.89	0.376	98.98	37.42	2.65	**0.008**
dorsal	-4.10	9.41	-0.43	0.664	-81.91	22.00	-3.72	**<0.001**
labial	-6.30	11.10	-0.57	0.570	-108.70	26.21	-4.15	**<0.001**
voiceless obstruents								
coronal	-36.09	10.42	-3.46	**0.001**	62.67	24.55	2.55	**0.011**
dorsal	30.30	9.02	3.36	**0.001**	-64.96	21.50	-3.02	**0.003**
labial	-2.38	8.58	-0.28	0.782	-98.62	20.64	-4.78	**<0.001**

Random Effects		
σ^2	3044.17	23029.72
τ_{00}	809.87 word	3040.57 word
	644.56 speaker	5001.44 speaker
ICC	0.32	0.26
N	70 speaker	70 speaker
	653 word	653 word
Observations	7460	7460
Marginal R^2 / Conditional R^2	0.165 / 0.435	0.369 / 0.532

Output of linear mixed-effects model for first and second formants for HY [ʊ]

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