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New World Mennonite Low German
An Investigating of Changes in Progress

By
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Abstract

This dissertation explores dialect diversification in the long-distance New World Plautdietsch speech community. Plautdietsch dialects are traditionally classified as belonging to one of two types: either Chortitza or Molotschna. The traditional dialect classification has recently come under scrutiny because speakers rarely use features exclusive to either type. I propose that variation in vowel production is an alternative way of classifying dialect affiliation. In this project, I analyze both the production of vowels and the production of traditional dialect features used by native Plautdietsch speakers living in North America. This work finds that both the traditional dialect features and the innovations in the vowel system are linked to information about a community's migration history, but the two systems represent different aspects of a community's history.

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Chapter 1 Problem and Definitions

Plautdietsch, also known as Mennonite Low German, is a West Germanic (WGmc) language spoken by Mennonites who fled the Netherlands in the the 16th century during the Protestant Reformation. Members of the speech community are now spread across four continents, but in spite of the distance, they view themselves as a global speech community. The goal of this dissertation is to analyze linguistic variation in the pronunciation of Plautdietsch across different Mennonite speech islands in North America in order to define three aspects of its linguistic development:

- (1) The nature of phonetic variation in Plautdietsch-speaking communities
- (2) The role of distance in the diffusion of innovations though the long-distance speech community
- (3) The factors that mediate the development of linguistic innovation in the long-distance speech community

The Plautdietsch community is known for its frequent migrations and has been called “trans-statal” by Cañas-Botos 2008 and “semi-nomadic” by its own members. Currently, Plautdietsch is spoken in over 10 countries spread across Europe, Asia, North America, and South America. By the time Plautdietsch was first documented in 1928, there was a two-way dialect division between the Russian Chortitza and Molotschna Mennonite settlements (Quiring 1928). Table 1.1 presents the features of the traditional dialect divide associated with these settlements (Epp 1993, Rempel 1995, and Tolksdorf 1985).

Feature	Chortitza	Molotschna
1. Long /u/	Very front like Standard German <ü>	Not as far forward. Sometimes modified to English <oo>
2. WGmc * <i>aaw</i>	<eiw>	<au>, sometimes <eiw>
3. <oa> Diphthong ¹	Front	Back
4. Palatal Oral Stops	<kj>, <gj>	<tj>, <dj>
5. Verbal infinitives, Plural Suffix	End in <i>-n</i>	End in <i>-e</i>

Table 1.1 Traditional Plautdietsch Dialect Variants

A two-way dialect distinction has been maintained in many communities, but there is considerable variation with respect to which features are used by which group within present-day Mennonite communities (Brandt 1992, Moelleken 1987).

Variation studies on Plautdietsch have mostly focused on syntactic variation (Kaufman 2007, 2011). These studies indicate that syntactic variation is not related to region and can differ considerably from village to village within a region. There has been considerably less focus on the role of phonetic variation within Mennonite communities. Many different documentary records of Plautdietsch indicate that there is, in fact, phonetic variation, but few scholars have attempted to systematically analyze the geographical and social distribution of the phonetic variation aside from Burns (2016).² Currently, there are three main views of the dialect variation in Plautdietsch:

¹ The front – back variation is only found in words which developed <oa> before Middle Low German velars. It is not found in words where the <oa> diphthong developed from Middle Low German *er*.

² Asian groups have mostly gone undocumented.

- (A) Variation is dependent on membership in one of two traditional dialect groups
- (B) Variation is only linked to low-level individual interactions and cannot be linked to traditional group membership or region (Moelleken 1987, Kaufmann 2007)
- (C) Variation may be linked to broader social categories such as region (Burns 2016)

This present work provides evidence that while some phonetic variation in Plautdietsch communities is associated with traditional dialect categories, other variation is independent of membership in traditional categories. The variation that is not grounded in traditional dialect affiliation tends to be linked to regionally defined linguistic norms. I provide evidence that through the history of Mennonite settlement, distance has played an important role in the development of regional norms, and that social distance more than geographical distance has a profound role in the development and maintenance of regional norms. Regional norms have developed quickly within the Plautdietsch speech community of North America in part due to different groups attempting to differentiate themselves from their predecessors, but also due to the social structure of certain communities that amplifies the dispersal rate of linguistic change throughout a speech island.

This investigation surveyed Plautdietsch speakers from Central Canada, the Central US, the Southern US, Northern Mexico, Southern Mexico, Belize, and Bolivia; all of whom were living in North America at the time of the study (see Chapter 3 for more information about the population represented in this study). Not all Mennonite denominations are represented in this work. Notably missing is the Holdeman Mennonite community, also known as the Church of God in Christ. Additionally, Beachy Amish Mennonites are not represented in this survey (few can actually speak Plautdietsch).³

The rest of this investigation is structured as follows. The remaining part of Chapter 1 surveys the linguistic history of the Low German language with an emphasis on Plautdietsch. §§1.2, 1.3, and 1.4 also include background information to the communities which speak Plautdietsch, both historically and in the communities surveyed in the present study. Finally, §1.5 provides a summary of known information about linguistic change in long-distance speech communities. Chapter 2 provides a more in-depth analysis of phonetic variation in Plautdietsch communities based on previous sources. Chapter 2 focuses on establishing correspondences of phonetic variation reported in different communities and the traditional dialect variants reported across different communities. Chapter 3 presents the methodology for the acoustic investigation, data processing, and data analysis. Chapters 4 and 5 present the findings of the acoustic investigation. Chapter 4 presents the individual results of all 50 participants and Chapter 5 presents a group analysis of all speakers. Chapter 6 concludes with a discussion of the results of Chapters 4 and 5 and the overall findings of the study and areas of future research.

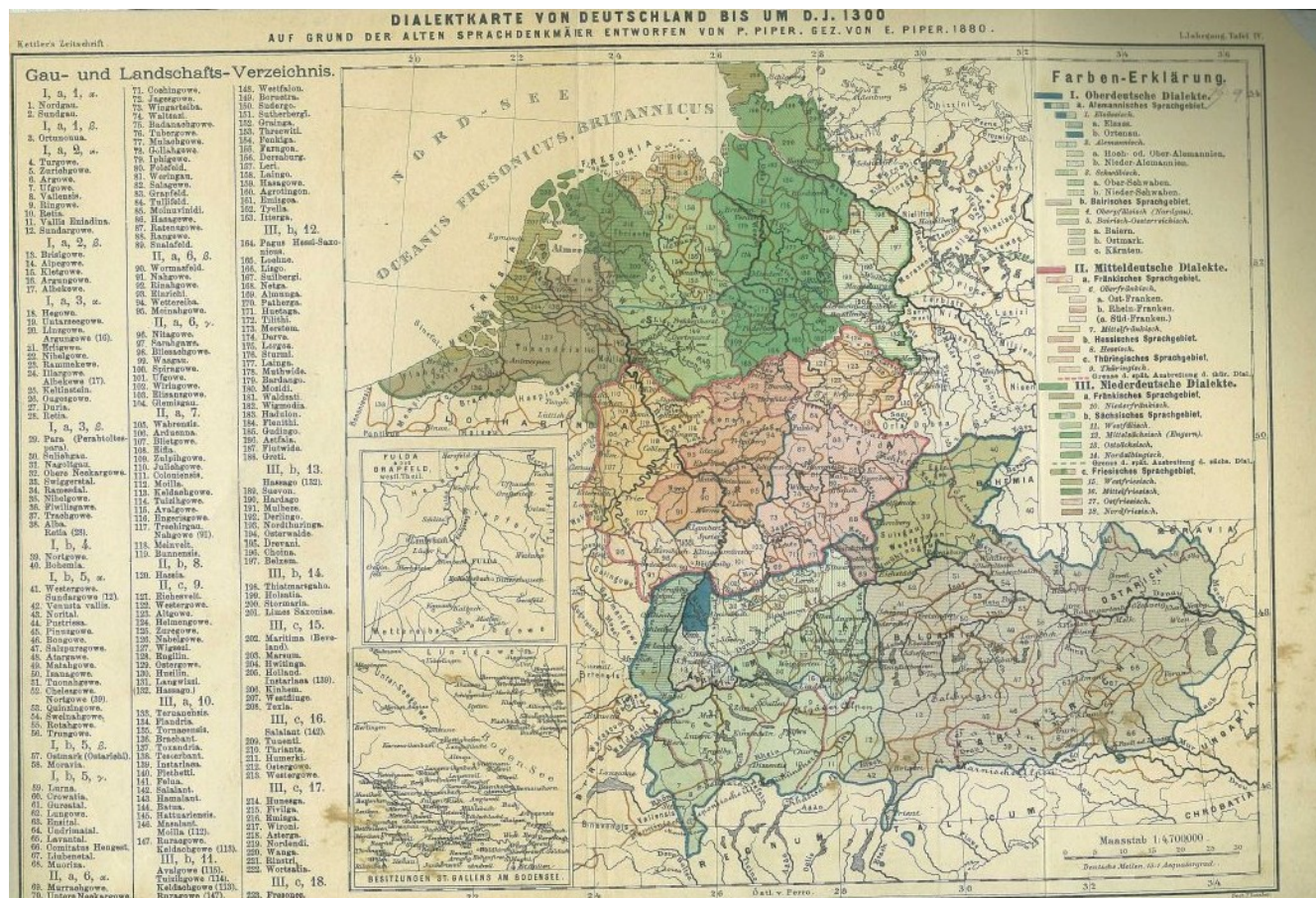
1.1. Plautdietsch Background

1.1.1 The History of Low German

Plautdietsch is a Prussian variety of Eastern Low German (Epp 1994, Lehn 1952). Its oldest attested predecessor in West Germanic is Old Saxon (9 – 12th c.). During the Old Saxon period, Low German was spoken in a territory which covers most of northwestern Germany and the northern Netherlands (Holthausen 1899:4-5). Old Saxon was spoken to the west of the Elbe River and to the east of the Rhine. The southern border of Old Saxon was to the south of Magdeburg and to the north of Cologne. The northern border of Old Saxon was the North Sea. Map 1 provides the approximate spread of Low German shortly after the Old Saxon period.⁴ Low German is marked in green.

³ Most of the Beachy Amish Mennonites that I encountered while conducting this study spoke English and a variety of High German (i.e., Standard German or Pennsylvania Dutch).

⁴ The geographical spread of Low German in this map is identical to the geographical spread of Low German presented in



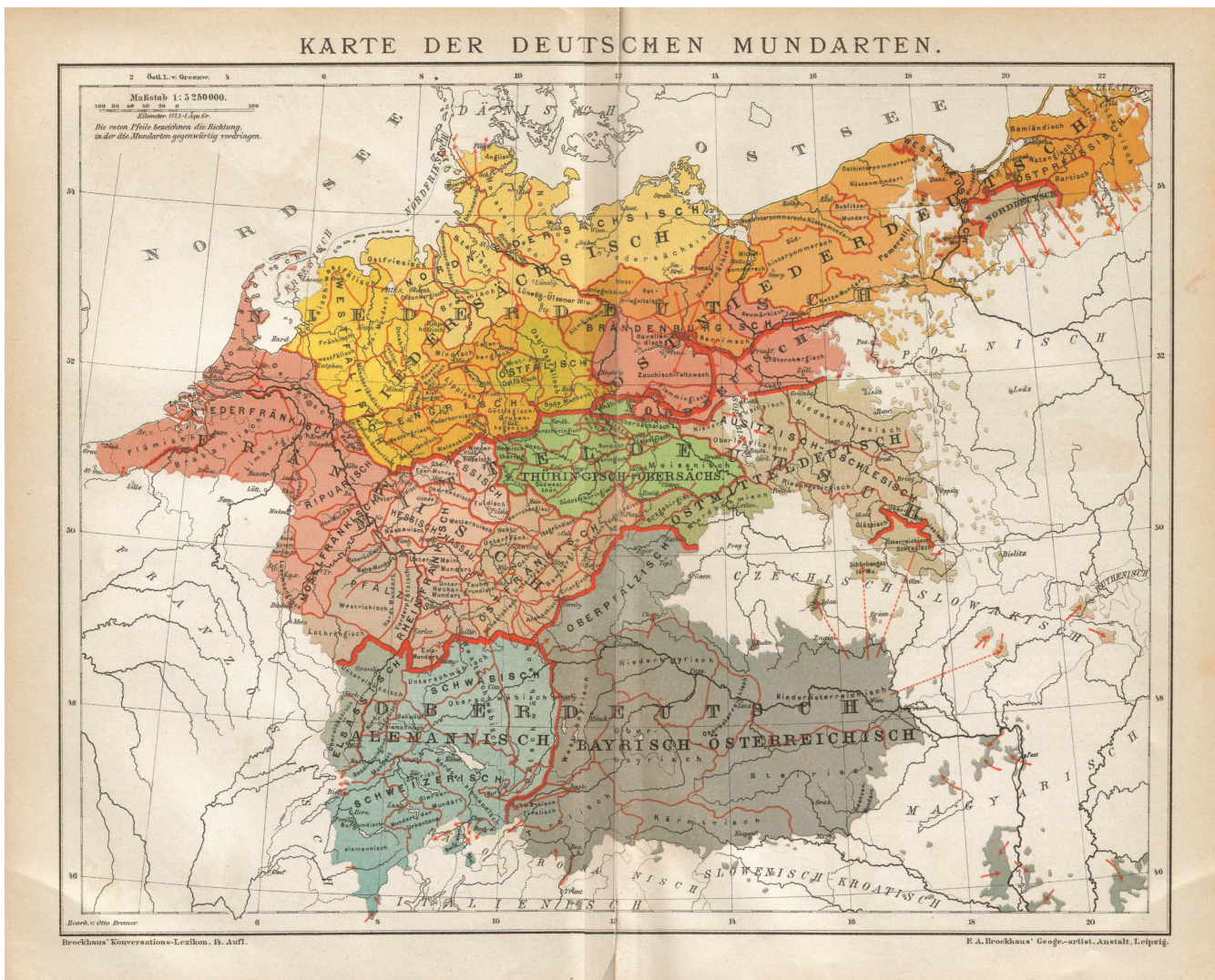
Ingvaemonic Features		Old Saxon	Plautdietsch
Phonological	N → 0 / __C[fricative] with compensatory lengthening	<i>fīf</i> 'five' <i>ūs</i> 'us'	<i>fief</i> 'five' <i>ons</i> 'us'
	PGMC {*k,*g} → [+front]/__ {i,e}	<i>kietel</i> 'kettle' <i>Reinesburg</i> 'Regensburg' ⁶	<i>Kjätel</i> 'kettle' <i>Rääjen</i> 'rain'
	Monophthongization of PGMC *ai and *au	<i>brôd</i> 'bread' <i>brêd</i> 'wide'	<i>Broot</i> 'bread' <i>breet</i> 'wide'
Morphological	3 rd SG pronouns with initial <i>h</i>	<i>hē</i> 'he'	<i>hee</i> 'he'
	Syncretism of ACC and DAT in 1 st and 2 nd person	<i>mī</i> 'me ACC/DAT' <i>thī</i> 'you ACC/DAT'	<i>mi</i> 'me ACC/DAT' <i>di</i> 'you ACC/DAT'
	Syncretism of plural verb forms	<i>bundun</i> 'bind PST PL'	<i>bunge(n)</i> 'bind PST PL'

Table 1.2 Ingvaemonic features of Old Saxon

Old Saxon manuscripts exhibit some variation in the presence or absence of Ingvaemonic reflexes. Occasionally, developments which are known to originate in High German spread north and are also found in Old Saxon manuscripts (Holthausen 1899:15).

After the Old Saxon period, the Middle Low German (MLG) period began. This period lasted from approximately the 12 – 16th c. The 12th century also marks the beginning of the *Ostsiedlung* 'eastern settlement' period which saw the rapid expansion of Low German into Slavic-speaking territories for commercial, religious, and political reasons. During this period, Middle Low German extended as far east as present-day Baltiysk (Standard German: Pillau). Map 2 shows the geographical distribution of Modern Low German about 200 years after the Middle Low German period ended. The geographical distribution of Low German along the North Sea Coast would be roughly the same as in the 1500s because the major port cities along the north were members of the commercial trading league, the Hanseatic League, which used Middle Low German as a lingua franca. Low German is marked in yellow and orange.

6 Compare Standard German *Regen* to English *rain*



Map 2. West Germanic Varieties ca. 1800 (source: Weinhold pamphlets)

The inflectional paradigm that was inherited from Old Saxon had begun to break down by the time of Middle Low German. The lexicon of Middle Low German is much closer to southern dialects of German than it is to other West Germanic languages spoken along the North Sea coast. Middle Low German is known to have approximately four macro-dialects: Westfälisch, Ostfälisch, North Low Saxon, and Brandenburgish (Lasch 1914:13-20). Although the macro-dialects describe the western zone of Middle Low German, there are certain isoglosses in the eastern region which are not found in the western regions (Burns forthcoming). Dating the development of these isoglosses has not been established and it is unclear whether they are features of Modern Low German or Middle Low German.

Plautdietsch is a Prussian Low German variety which belongs to the eastern region of Low German dialects. Prior to 1945, Prussian Low German was spoken as far east as Baltiysk and as far west as Człuchów (Standard German: Schlochau), Złotów (Standard German: Flatow), and Wałcz (Standard German: Deutsche Krone). As early as 1924, it was recognized that Mennonites living in Russia spoke a variety of Low German which was an exact match of contemporary Prussian Low German (Mitzka 1924:14). Today, Plautdietsch is one of the final remnants of Prussian Low German actively spoken in vital speech communities. Lists 1.1-1.3 provide vowel correspondences from the

earliest documentation of Prussian Low German from the Vistula Delta and the Low German of Russian Mennonite settlements in order to highlight the similarities of two regions (Mitzka 1922, Quiring 1928). Unlike Mitzka 1922 and Quiring 1928, these tables do not provide information about vowel development from Proto-West Germanic, but rather from Middle Low German. In Mitzka, long vowels are represented with a macron and lax mid vowels are marked with an ogonek. In Quiring, most long vowels are represented with a circumflex and a macron is used to mark lax long vowels.

MLG	Environments	Prussia (Mitzka 1922)	Russia (Quiring 1928)
î, û		<i>ī</i>	<i>wīf</i> 'wife' <i>blī</i> 'lead' <i>hīlen</i> 'to howl' <i>miz</i> 'mice'
	[-LONG]/_C[VELAR]	<i>kikəl</i> 'chick' <i>rik</i> 'rich'	<i>rik</i> 'rich'
	îr	N/A	<i>fīa</i> 'fire'
ê, ô		<i>hēd</i> 'protected' <i>twēdār</i> 'second' <i>dēd</i> 'did' (regional <i>ēi</i> < *e ² , otherwise <i>ē</i>) <i>kēinnōtəl</i> 'pine needle'	<i>hēdān</i> 'to protect' <i>twēda</i> 'second' <i>kēz</i> 'cheese' <i>brēf</i> 'letter' <i>jētān</i> 'to pour' <i>hēt</i> 'call' <i>flēs</i> 'flesh'
	/_C[VELAR]	<i>plēājān</i> 'to plow' <i>bēājān</i> 'to bend' <i>ēak</i> 'oak'	<i>bēaka</i> 'books' <i>bēājān</i> 'to bend' <i>ēak</i> 'oak'
	êr	N/A	<i>šēa</i> 'scissors'
ē, ȯ (< comp length) ê (< â umlaut)		<i>nēz</i> 'nose'	<i>mēl</i> 'flour' <i>knēdān</i> 'to kneed' <i>lēpəl</i> 'spoon' <i>bēta</i> 'better' <i>hēw</i> 'court yards'
	/_C[VELAR]	<i>brēāk</i> 'I break'	<i>brēākān</i> 'to break'
	ēr	N/A	<i>bēa</i> 'pear' <i>šmēa</i> 'oil' <i>štēān</i> 'star' <i>šwēāt</i> 'sword'
ô		<i>ō</i> (some regions <i>ōu</i>) <i>bōum</i> 'tree' <i>glōwə</i> 'belief' <i>wōlt</i> 'forest'	<i>brōda</i> 'brother' <i>blōm</i> 'flower' <i>ylōwān</i> 'belief' <i>wōlt</i> 'forest'
	/_C[VELAR]	<i>éō</i> (some regions <i>óo</i> or <i>óə</i>) <i>jānéox</i> 'enough' <i>šléoyān</i> 'hit pst pl' <i>réok</i> 'smoke' <i>héox</i> 'high'	<i>jānôox</i> 'enough' <i>rôok</i> 'smoke' <i>hôox</i> 'high' Molotschna: <i>ôo</i>
	/_r	N/A	<i>ôa</i> 'ear'
ȯ (< comp length)		<i>kōkə</i> 'to cook' <i>knōkə</i> 'bone'	<i>ōpān</i> 'open' <i>kōmān</i> 'to come'

MLG	Environments	Prussia (Mitzka 1922)	Russia (Quiring 1928)
	/_C[VELAR]	N/A	knōokən 'bone' bōoyən 'bow'
	ōr	N/A	wōət 'word'
â		<i>hōmər</i> 'hammer'	<i>rōt</i> 'advice' <i>slōp</i> 'sleep' <i>hōma</i> 'hammer'
	/_k, γ	<i>o</i> (some regions <i>ēo</i>) <i>wēoy</i> 'scale' <i>hēokən</i> 'to hook' <i>nēajəl</i> 'nail'	<i>wōoy</i> 'scale' <i>hōokən</i> 'to hook' <i>fəndōoy</i> 'today' <i>mōokən</i> 'to make' <i>nōoyəl</i> 'nail' Molotschna: <i>ōo</i>
	/_r	N/A	<i>boət</i> 'beard' <i>oərm</i> 'arm'
û		<i>ū</i> (some regions weakly fronted) <i>būən</i> 'to build' <i>mūs</i> 'mouse' <i>tūn</i> 'fence'	<i>būa</i> 'farmer' <i>tūn</i> 'fence' Molotschna: <i>ū</i>
	[-LONG]/_C[VELAR]	<i>buk</i> 'belly' <i>brukə(n)</i> 'to use'	<i>buk</i> 'belly' <i>brukən</i> 'to use'

List 1.1 Middle Low German Long Vowel Reflexes in Prussian Low German

An important shared reflex in Prussia and Russia is the fronting of MLG *ū*. Mitzka 1922 reports that the commerce dialect and some regions of the Vistula Delta had reflexes of MLG *ū* which were not fully front. These varieties have a reflex which is closer to a high central rounded vowel (Mitzka 1922:124). Quiring 1928 reports that all of the long reflexes of MLG *ū* are front in the Chortitza region, but not in the Molotschna region (1928:63). Another feature shared by Mitzka 1922 and Quiring 1928 is the lack of rounding in reflexes of Middle Low German front round vowels. These reflexes are retained to the west of the Vistula Delta. Finally, Prussian Low German developed opening diphthong reflexes of historical monophthongs that were preceded by a velar segment. Plautdietsch has a more robust inventory of opening diphthongs due to the vocalization of *r* immediately following long vowels. Some forms of MLG *e* developed into the diphthong *ei* in Plautdietsch, but there is not a clear correspondence of which categories of MLG *ê* became Plautdietsch *ei*.

List 1.2 provides reflexes of short vowels of MLG. Mitzka 1922 uses an ogonek for lax short vowels, but also provides information about tense short vowels (which occur before velar segments). Quiring 1928 does not mark tenseness of short vowels.

MLG	Environment	Mitzka 1922	Quiring 1928
i, ü		<i>mīg</i> 'mosquito' <i>gījk</i> 'went' <i>twintəχ</i> 'twenty' <i>štrikən</i> 'to knit'	<i>dik</i> 'thick' <i>bilt</i> 'picture' <i>štrikən</i> 'to knit'
		<i>šēp</i> 'ships'	<i>krek</i> 'crutch' <i>den</i> 'thin' <i>reb</i> 'rib' <i>šep</i> 'ship'
	_r	<i>kəǝřš</i> 'cherry'	<i>kōǝš</i> 'cherry' <i>kōǝk</i> 'church'
e, ö		<i>bat</i> 'until' <i>nat</i> 'net' <i>wəχ</i> 'way'	<i>bat</i> 'until' <i>malk</i> 'milk' <i>wəχ</i> 'way' <i>lada</i> 'leather'
		<i>fēlt</i> 'field' <i>fēnstəř</i> 'window'	<i>welt</i> 'world' <i>jelt</i> 'money'
	_r	<i>bǝřχ</i> 'mountain' <i>hǝřt</i> 'heart'	<i>bōǝχ</i> 'mountain'
a		<i>naut</i> 'wet' <i>drauf</i> 'trot'	<i>aupəl</i> 'apple' <i>auš</i> 'ash'
	_C[VELAR]	<i>dak</i> 'blanket' <i>lāxən</i> 'to laugh' <i>zāx</i> 'saw'	<i>dak</i> 'blanket' <i>flag</i> 'flag' <i>laxən</i> 'to laugh' <i>zax</i> 'saw'
o		<i>zǝn</i> 'sun' <i>rǝk</i> 'skirt' <i>zǝlt</i> 'salt'	<i>zoma</i> 'summer' <i>fǝs</i> 'fox' <i>rǝk</i> 'skirt' <i>bota</i> 'butter' <i>zolt</i> 'salt'
u		<i>u</i>	<i>štund</i> 'hour' <i>šula</i> 'shoulder'

List 1.2 Middle Low German Short Vowel Reflexes in Prussian Low German

Most of the short vowel reflexes in Mitzka 1922 match modern reflexes of Plautdietsch. One feature of Modern Plautdietsch that is not reflected in Quiring 1928 is the lack of a short *a*. In the modern language, all short *a* reflexes are long.⁷

Finally MLG *âw* and MLG *ouw* merged in Prussian Low German. Different regions have different reflexes of these segments as shown in List 1.3.

⁷ Goerzen 1952 claims that there is a length difference for *a*. This alleged difference is most likely allophonic because the short *a* appears before voiceless consonants and the long *a* appears before voiced consonants.

MLG	Mitzka 1922	Quiring 1928
âw	East: <i>aiw</i> , <i>aif</i> Central: <i>öu</i> West: <i>au</i> <i>blaiſ</i> 'blue' <i>graiſ</i> , 'grey',	Chortitza: <i>eiw</i> <i>bleiw</i> 'blue' <i>yreiw</i> 'grey' Molotschna: <i>au</i>
ouw	East <i>ai</i> Central <i>öu</i> West <i>au</i> <i>taif</i> 'dew' <i>hai</i> 'hay' <i>aifst</i> 'harvest'	Chortitza: <i>eiw</i> <i>kleiwän</i> 'to scratch' Molotschna: <i>au</i>

List 1.3 Middle Low German aw and ouw Reflexes

All of the differences between Chortitza and Molotschna speech presented in Table 1.1 are present in Mitzka 1922. For example, reflexes of MLG *âw* range from back round to front unround in a band which runs west to east in the Vistula Delta. Both front and non-front reflexes of MLG *û* were present in the Danzig region (Jedig 1966, Mitzka 1937). Many regions west of Pillau had front reflexes, but as mentioned above, some dialects had central reflexes. The reflexes of back centralizing diphthongs before velars also varies in Danzig. In some regions, a long back vowel is retained, whereas in others, a front round vowel has developed. Although I have not directly addressed consonants, Mitzka 1922 also provides evidence that the variation between the final infinitive *-n* ending was also present in Danzig. This suggests that the Chortitza vs Molotschna difference described by Quiring, which became conventionalized to represent the traditional dialect division, did not develop in Russia due to shared innovations. Rather, this variation was carried into Russia and some reflexes were retained in some villages, but not others.

Some of the variation in Table 1.1. extends well beyond Eastern Low German. Variation in the reflexes of WGmc **aaw* dates back to the MLG period with forms such as *lauw* and *lîwarm* 'luke warm' (cf. Chortitza *leiwarm*, Molotschna *lauwarm*). The variation of inflectional *-n* is a well-known feature of continental Low German (König 1978). While many Low German regions favor either *-n* or *-e*, there are some regions which are known to have both variants. Development of palatal stops from historically velar stops can be found in Pomeranian, Prussian, and Romanian varieties of both Low German and High German (see Burns forthcoming).⁸

In addition to shared vowel developments, Eastern Low German has several shared consonant developments (Burns forthcoming). Loan vocabulary in Plautdietsch from Slavic has been discussed extensively in Quiring 1928, Weins 1957, and Thiessen 1963. Plautdietsch has many words with features characteristic of High German varieties and lacks some features characteristic of other Low German varieties as shown in Table 1.3.

⁸ The new palatal series has a wide range of orthographic variation <tsch>, <tch>, <kj>, etc. This range of orthographic variation of this feature is likely due to the fact that place of articulation exists on a continuum rather than as two discrete places.

Feature	East Frisian Low German	Plautdietsch	Standard German	Standard Dutch
Low German: N → 0/_C[-son,+cont] With comp. length	<i>anners</i> 'other' <i>Goos</i> 'goose' <i>Sies</i> 'scythe' <i>uns</i> 'us'	<i>aundasch</i> 'other' <i>Gans</i> 'goose' <i>Sans</i> 'scythe' <i>sonst</i> 'otherwise' <i>ons</i> 'us'	<i>anders</i> 'other' <i>Gans</i> 'goose' <i>Sense</i> 'scythe' <i>sonst</i> 'other' <i>uns</i> 'us'	<i>anders</i> 'other' <i>gans</i> 'goose' <i>zeis</i> 'scythe' <i>ons</i> 'us'
High German: Second Sound Shift	<i>Spraak</i> 'language' <i>tuchen</i> 'to pull backwards' <i>Schöpp</i> 'juror'	<i>Spruch</i> 'recitation' <i>Ssiuach</i> 'train' <i>er'schaufe</i> 'to create' <i>tochen</i> 'to draw air'	<i>Spruch</i> 'speech' <i>Zug</i> 'train' <i>Schöffe</i> 'juror' <i>schaffen</i> 'to make'	<i>spreuk</i> 'speech' <i>scheppe</i> 'create'

Table 1.3 Features of Different German Dialects in Low German

The loan words which exhibit the second sound shift are often doublets that exist alongside the original Low German form. For example *Spraak* 'language' and *spraakje(n)* 'to talk' exist alongside the more formal register *Spruch* 'recitation'. While many varieties of German spoken within Germany use the word *Zug* 'train' (cf. Standard German *ziehen* 'to pull') from Standard High German, the Low German cognate should have an initial *t* as in English *tug* (cf. Old Saxon *tiohan* 'to pull'). The cognate *toch* 'draft (e.g. of air)' still exists in Plautdietsch, but has a specialized meaning. The words *er'schaufen* 'to create' and *schaufe* 'to work' are related to Standard German *schaffen* 'to create'. This word is cognate with English *shape* and does not appear to have cognates in Modern Plautdietsch. Some doublets have no clear difference in meaning or use. The word *sonst* 'otherwise' exists alongside its doublet *sest* 'otherwise'. There is not a clear difference in use between the two words. The difference between *dee* and *see* 'they' appears to be more dialectal in nature, but is not regarded as a traditional dialect trait.

Plautdietsch as a Written Language

Plautdietsch is not a standardized language in either written or oral form. Speakers report a high degree of individual and family based variation in Plautdietsch, but they insist that the standardized languages used by the community do not have a high amount of variation. Most of the attempts to standardize the language come from Canada (Rempel 1995; Jaquith 1970; Thiessen 1977; Epp 1996; Neufeld 2000; 2002, 2007; Reimer et al. 1983; and Loewen 1998 among others). Many speakers have told me that Plautdietsch is only an oral form of communication and cannot be written. Speakers who are familiar with the writing system say that they have difficulty reading the language. Even though Plautdietsch is not a “written language” according to many speakers, I have come across many different texts from different regions written in Plautdietsch (e.g. lyrics from Belizean bands, cook books from Belize, Canadian blogs, Canadian literary anthologies, Bible translations from Canada, and occasional short articles in international newspapers).

Speakers of Plautdietsch learn either Modern Standard German as a literary language or the language of the government in the region where they live. Some speakers from heritage communities in the US and Canada were taught Standard German instead of Plautdietsch because their families felt it was more refined to speak Standard German (Thiesen 1963). Many of the speakers of Standard German in Plautdietsch communities speak the literary language with Low German features (Penner 2010). For example, in Mexico Plautdietsch speakers pronounce words like Standard German *weiß* [vais] 'white' as [vɛ:s] and *Abraham* [a:bʁaham] 'Abraham' as [o:bʁəho:m]. Both pronunciations are developments from the Plautdietsch vowel shift, which is discussed in Chapter 2, but only the latter development of Standard German /a:/ is associated with conceitedness by the Old Colony (see the proud <au> discussion in §2.1). Although reflexes of MLG *ā* usually match the reflexes of Standard German [a:] in

the region, Plautdietsch words are not connected to the concept of the “proud <au>”.

Despite the fact that Plautdietsch is not standardized, community members do have a sense of what “sounds” better. Consultants can give both gradient and categorical acceptability judgments. Sometimes I attempted to explain my project about variation by getting acceptability judgments from potential consultants. Many of these attempts focused on word order because some consultants reported not being able to hear the difference in vowel pronunciation. Some parents even commented on correcting errors that their children made such as [fəpiə] < [pəpiə] *Papia* 'paper'. I was able to get acceptability judgments of Herman Rempel's pronunciation from some consultants in Southern Mexico. The speakers who heard him speak were either indifferent to his pronunciation or had a very positive view of his pronunciation. One even said that Herman Rempel spoke a very correct and elegant sounding Plautdietsch. This indicates that although Plautdietsch lacks overtly prescribed linguistic norms, there are covert norms in the language.

1.1.2. Plautdietsch-speaking Populations in North America

The current “official” estimate of Plautdietsch speakers globally places the population around 394,900 speakers (Lewis et al. 2015, Moseley 2007). Although the publication dates from these sources are in the 2000s, the population information comes from the mid-1990s. According to these sources, the largest Plautdietsch-speaking population is in Canada at about 80,000 speakers. The second largest population in North America is in Mexico with approximately 40,000 speakers. Community internal estimates from Mexico in 1996 were actually higher and ranged from 50,000-55,000 (Schroeder and Huebert 1996:147). Neither estimate provides an accurate picture of the present-day population. In Campeche alone, the 2010 census lists 6,583 people living in Mennonite villages even though only 2,907 people reported that they were Anabaptist.⁹ The Beachy Amish relief missionaries who have close ties to the Mennonite community estimate that the number is actually closer to 6,000 (which is a rough estimate). The *Deutsche-Mexikanische Rundschau* estimates that as of 2015 there are approximately 90,000 speakers of Plautdietsch within Mexico (personal correspondence 2015). This estimate comes from a community internal census which is held every two years.

When compared with population estimates from other sampling dates, it is clear the Mexican Mennonite community is rapidly expanding. In 1950, there were approximately 16,000 Mennonites in Mexico (Winfield and Sawatzky 2010). The *Ethnologue's* estimate of 40,000 comes from 1996. Finally, the estimate of 90,000 speakers comes from 2015. Formula 1.1 provides the equation that I used to calculate annual percentage growth rate.

⁹ My attempts to ask census workers at the Instituto Nacional de Estadística y Geografía (INEGI) about the discrepancy shed light on the fact that many did not have the proper knowledge and skills to classify Mennonites. There is a general lack of knowledge in Southern Mexico that “Mennonite” is a religion and not a country of origin. Additionally, very few people actually speak Plautdietsch who are not from the community. If a census worker comes by while the patriarchs of the household are gone, they might not be able to speak to a proficient Spanish speaker. Additionally, many Mennonites classify themselves as “Christian” rather than “Mennonite” or “Anabaptist” when first asked. If pressed further, some of them will explain that they are also Mennonites. Some INEGI workers speculated that the discrepancy in the numbers were actually due to Mennonites leaving the religion, but staying in the villages. This is generally not the case: If someone leaves the religion, they are cut off from all aspects of social life within and across villages including, but not limited to, restricted access to emergency loans. People who leave the religion tend to move into predominantly Mayan towns. It is true that some non-Mennonites live in some Mennonite villages, but many of these cases were reported to be squatters who were living on the land before the Mennonites came in to develop it. Cases like this are few and far between.

In the North, the most common errors in the census data come from improper record standardization. After working with TX07's mother, who used to do census work for INEGI, I was told to abandon the idea of learning about population size from Mexican census data. She suggested instead that I contact the *Deutsche-Mexikanische Rundschau* to get the community internal population estimate.

$$\text{Annual Growth Rate} = \left(\left(\frac{P_{\beta}}{P_{\alpha}} \right)^{\frac{1}{T}} - 1 \right) * 100$$

Formula 1.1 Annual Percentage Growth Rate

In this formula, P is the population size at the initial sample time (α) and the subsequent sample time (β). The amount of time which elapses between α and β is T, in this case, years. This formula assumes that there is a steady growth rate. From the time of the initial 1950 estimate from *GAMEO* to the 1996 estimate from *Ethnologue*, the Mennonite population in Mexico increased 2% annually. It is not clear if the 1996 survey included Southern Mexico or just the largest Mennonite population, which is in the North. If we take the 1996 population estimate and compare it to the 2015 population estimate, the community's annual growth rate increased to 4%. If we were to assume a steady growth rate from 1950 to 2015, the growth rate would be 2.69% each year. Regardless of which sampling period we select, the overall picture shows that the Mexican Plautdietsch-speaking community is experiencing a strong positive growth rate. The growth rate of Mennonite communities in Mexico has outpaced the national average growth rate since at least 1994 when the national average dropped below 2% (World Bank Group 2015). Currently the national growth rate of Mexico lies between 1.3 – 1.5% annually (World Bank Group 2015). The large spike in the growth rate of the Mexican Mennonite population has been noted by other members of the global Mennonite community who have done studies in Mexico. In 1995, Terichow, a Canadian Mennonite journalist, estimated that the Mennonite population in northern Mexico doubled in size every 15-18 years (MCC 1995). Her estimate gives us a number close to the estimated population of Plautdietsch speakers in Mexico in 2015, exactly 19 years after the 1996 estimate.

In comparison to the groups in Mexico, reports which focus on other regions generally indicate that Plautdietsch is an obsolescing language (Moseley 2007:265). In Canada and the US, many speakers of Plautdietsch have not taught their children to be proficient in the language. In the US, many native speakers of Plautdietsch now find themselves to be more proficient in English than they are in Plautdietsch. My experience in Kansas and California is that the number of speakers is fairly low. There are many people in nursing homes who speak the language, but it is still difficult to get an estimate given the sometimes isolated nature of the individual communities. In Southwest Kansas and Oklahoma, the population is difficult to estimate due to the immigration status of many of the Mennonites in the region. Kiel (2006) estimates that there are approximately 5,000 Mennonites in Southwest Kansas. In western Texas, there are approximately 6,000 speakers of Plautdietsch (John Peters 2015, personal communication).

There are approximately 10,000 Mennonites living in Belize according to community internal estimates (Giesbrecht and Klassen 2011:112). According to an *Ethnologue* report from 2006 there were approximately 6,900 Plautdietsch speakers in Belize. During my research trips, I was told by Belizean Mennonites visiting Mexico that the language is increasingly under threat in Belize because of cultural reasons. Some parents commented that many children in Belize have lost interest in speaking Plautdietsch and instead prefer to speak English. Some of them report that there is a split in the proficiency of their children where older children can speak Plautdietsch proficiently, but prefer not to, and younger children are not proficient speakers. Refusing to speak Plautdietsch is generally not an option available to children in Mexican Plautdietsch communities unless their parents choose to put them in a non-Mennonite school system.

1.2. Defining Mennonites

Mennonites are an Anabaptist religious group which developed during the Protestant Reformation, a religious movement which began during the early 16th century. Although many different schools of theological thought developed among groups which considered themselves Anabaptists, Mennonites are associated with the leadership of Menno Simons. Menno Simons was a Catholic priest from Friesland, who converted to Anabaptism in 1525. He is widely viewed as the leader of Anabaptism in the northern Netherlands. He, and many other Anabaptists spent time in Emden in northern Germany because it was safer than areas which were controlled by Spain (Dyck 1993: 119). In the Belgian region of Flanders, there were many different leaders and followers of the movement, but they eventually immigrated to either England or Danzig out of fear for their lives (Dyck 1993:115).

There are other Anabaptist groups, but Mennonites are most frequently confused with the Amish, a group founded by Jacob Amman. Amman's congregation was originally a Mennonite congregation, but was different from other Mennonite congregations in terms of its leadership, relative age, and location. Jacob Amman was born in 1644 and cut his congregation off from other Mennonite groups in 1693 (Dyck 1993:153-4, Bender and Steiner 2005). His ministry was undertaken in Alsace, Southern Germany, and Switzerland, but eventually many Swiss Anabaptists rejected his teachings (Dyck 1993:153-4). Linguistically, the clearest differences between the heritage language spoken by the Amish and Mennonites can be found in the presence of regularized High German innovations in the speech of Amish (e.g. High German Sound Shift, High German Vowel Shift, *-l* diminutives, graded diminutives, etc.), and Ingvaeonisms in the speech of Mennonites (e.g. Nasal loss with compensatory lengthening, Velar Palatalization, *h*-initial pronouns, NOM vs OBLIQUE case, etc).

Theologically, Mennonites are very closely related to the Amish and sometimes interchange names (e.g., some Beachy Amish consider themselves Mennonites). Mennonites and the Amish tend to view each other as very similar groups and some Amish communities decided to migrate alongside Mennonite communities and vice versa (Old Colony Mennonite Support 2011:28, Schroeder and Hubert 1996:144). In many cases, the two retain their separate languages, but in some cases, children will learn the socially dominant language of the area.¹⁰ Generally speaking, Mennonites tend to be ancestrally from the Netherlands and Flanders while Amish tend to be ancestrally from Switzerland, although there are many exceptions to this rule (e.g. Mennonite evangelization in non-European countries, see Dyck 1993).

There is a lot of variation in the tenets and beliefs of Mennonites, but they tend to have at least three core beliefs which separate them from other Protestant groups: (1) Only adults can be baptized, (2) Believers should avoid violence and conflict, (3) Members should separate themselves from evil influences (Dyck 1993:134-149). Other practices, such as strict dress codes and shunning, are not core tenets of faith, but are meant to reinforce the structure of the community. Just like the Amish community, there is a wide amount of variation across the Mennonite community with respect to conservative and progressive approaches to interacting and integrating with the outside world. Old Colony Mennonites are as conservative as Old Order Amish and do not use electricity, while the Evangelical Mennonite Conference (EMC) and Beachy Amish are more progressive and use modern technology in their everyday lives. Some Mennonite groups cannot be distinguished from the neighboring population unless they explicitly say that they are members of the group (e.g. Alexanderwohl Mennonites, Krimmer Mennonite Brethren, General Conference Mennonites, etc.).

Schisms are very common in Mennonite groups because of different emphases on how one should adhere to the core tenets. One example of a highly salient division in Kansas was the difference

¹⁰ During my time in Southern Mexico I met several Beachy Amish who were raised speaking Pennsylvania Dutch. One of them had grown up in Paraguay next to a Netherlandic Mennonite settlement and also learned to speak Plautdietsch as a child because of the social dominance of the larger more successful Mennonite settlement.

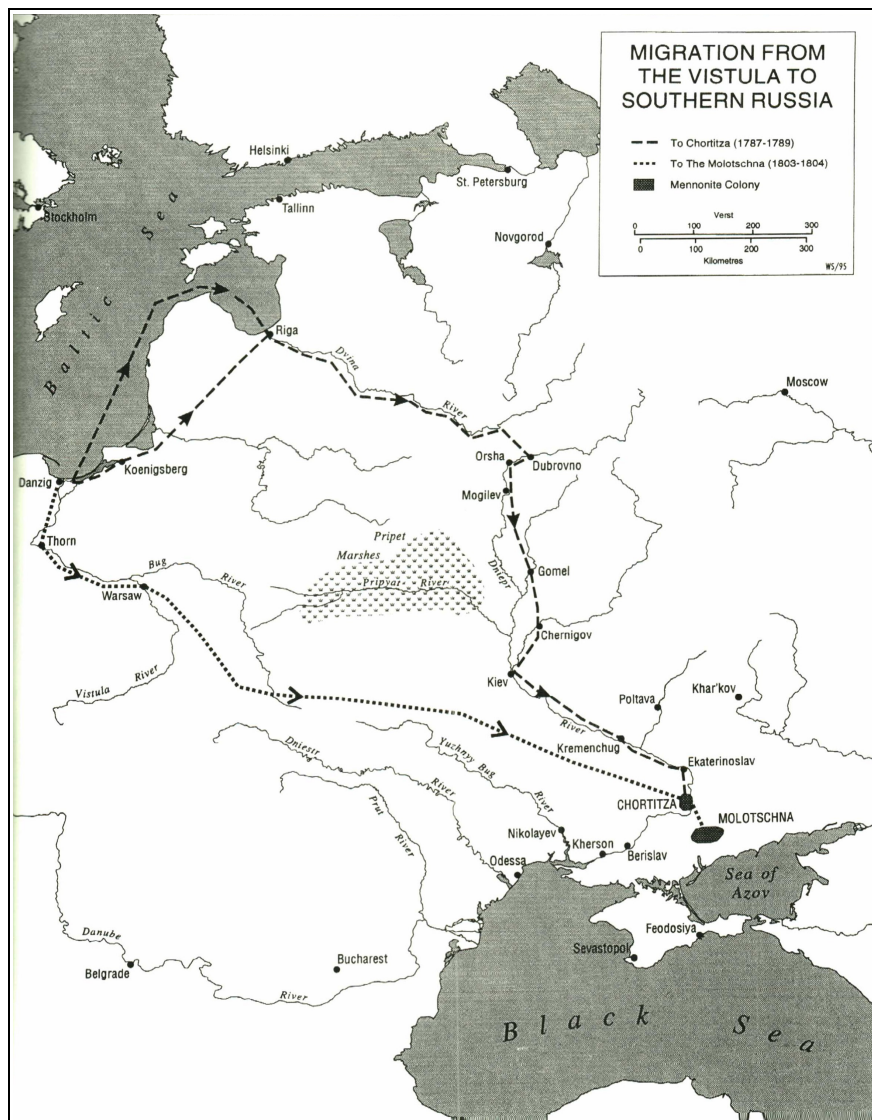
between Mennonites who baptized members by immersing them in water face down and those who baptized members face up. The two churches eventually had to merge and there was friction over whose tradition should be kept. The consultants who recounted this story laughed at the notion of people being upset by the direction of immersion during baptism. Splits historically occurred with some form of shunning behavior typical of excommunication, but in some modern-day communities, they occur peacefully and are just seen as a difference of opinion. As will be discussed in §1.2.1, one of the earliest divisions in the Netherlandic Mennonites was between the Frisian and Flemish Mennonites (Dyck 1993:123-7).

1.2.1. Prussian Mennonite Migrations

Many Mennonites began moving to Danzig in the 1530s because they had relatively more religious freedom there than in the Netherlands and Flanders (Dyck 1993:121, Epp 1993:57). During the time in Prussia, Mennonites adopted High German as a written language (Epp 1993:72). High German is still used in some communities as a hagiolect and a sign of being erudite. Mennonite settlers in Danzig belonged primarily to one of two groups: Frisian or Flemish (Epp 1993:73-4). Frisian Mennonites tended to be wealthier than Flemish Mennonites and many were land owners (Dyck 1993:123). Flemish Mennonites were known for resenting what they deemed to be the non-simple and ostentatious habits of Frisian Mennonites (Dyck 1993:123).

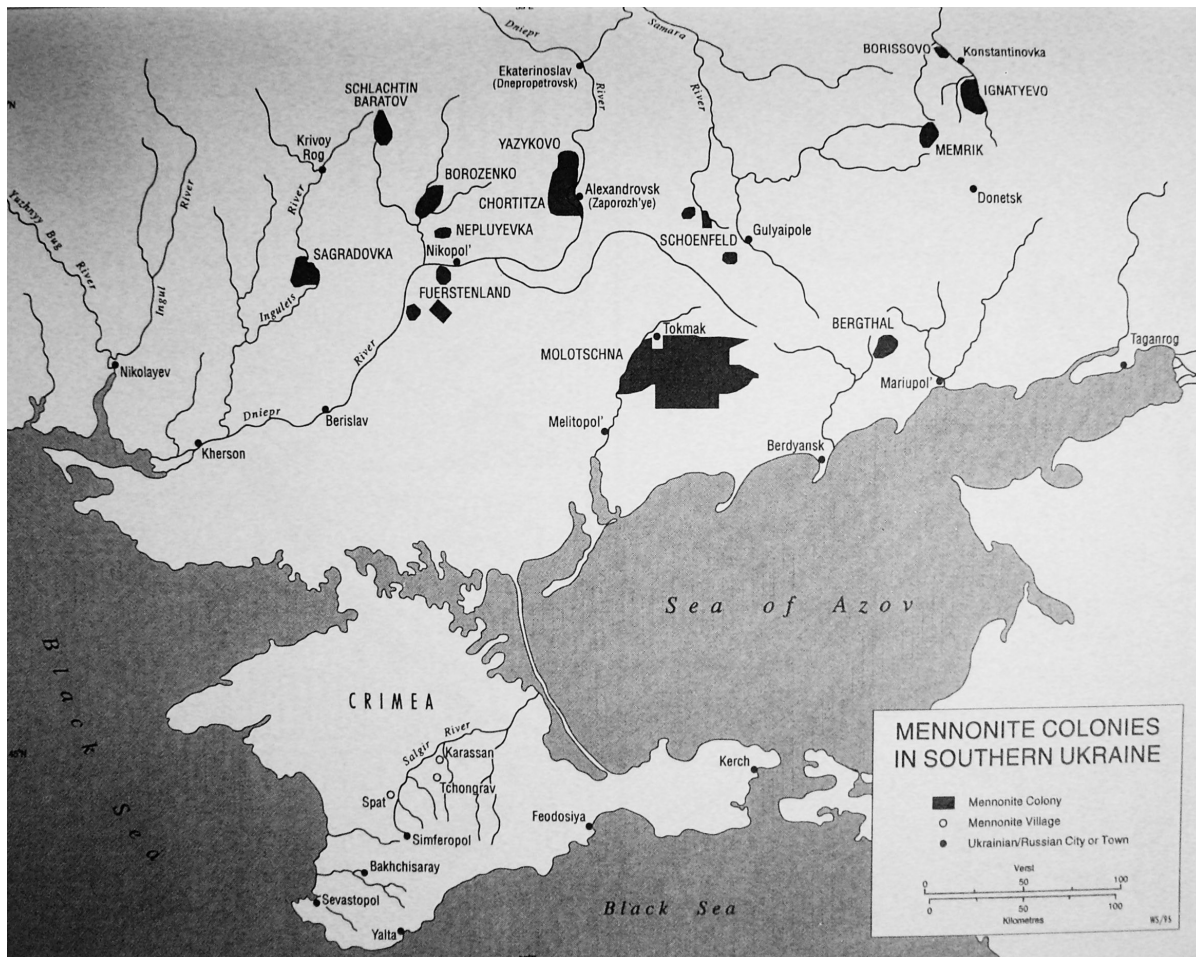
In 1763, Queen Catherine the Great of Russia issued an open invitation for German settlers to come to newly acquired Russian territory. In exchange, she offered them religious freedom. In retrospect many scholars find it clear that Queen Catherine the Great benefited politically from the German settlements because they allowed her to have greater claim to her new border territories (Cañas-Bottos 2008, Dyck 1993:169). The proclamation did not appeal to Mennonites until 1776, when Poland was appropriated by Germany (Prussia), Russia, and Austria in an event known as the First Partition of Poland. Shortly thereafter, Mennonites sought new land due to mounting political pressure from the Prussian government and a growing concern about involuntary involvement in military operations (Dyck 1993:169). In 1788, the Russian government granted Mennonites a document commonly known as the *Privilegium*. This document promised the new settlers religious freedom, political freedom, and military exemption.

The first group to leave Poland settled in the Chortitza region in 1788 (Bergman and Krahn 1955, Dyck 1993). This group mostly consisted of poorer, landless Mennonites who had nothing to lose by leaving Danzig immediately. The second group which left Danzig in 1803 settled approximately 100 km southwest of the Chortitza settlement near the Molotschnaya River. The second group named their settlement the Molotschna Colony. The second group consisted of the wealthier land owners from Danzig. The Molotschna group suffered fewer hardships than the Chortitza group because they were able to learn from the mistakes of the Chortitza Colony by spending time with them before moving on to the Molotschna settlement. The two settlements have nicknames which reference when they were settled; the Chortitza Colony is also known as the Old Colony and the Molotschna Colony is also known as the New Colony. Two other colonies were also founded, Am Trakt and Alexandertal, but these two were not as large as the first two groups which entered Russia. Map 3 shows the Mennonite Migration path from Western Europe to Eastern Europe.



Map 3. Mennonite Migrations to Russia (Source: Mennonite Historical Atlas)

After the settlement of the Chortitza and Molotschna villages, many daughter colonies developed. Some of the larger daughter colonies of the Chortitza settlement include Bergthal and Fürstenland. The larger Molotschna daughter colonies include Crimea, Schönfeld, and Sagrafovka. Although many daughter colonies were associated with either the Chortitza or Molotschna settlement, the reality is that many daughter colonies were settled by members of both groups (Nieuweboer 1998:130-132). Map 4 shows the daughter colony settlements in Russia.



Map 4. Mennonite Daughter Colonies in Russia (Source: Mennonite Historical Atlas)

For many Mennonites, peaceful times in Russia began to draw to a close around the 19th century. By this time, Russia and Germany faced political tensions. Russians felt that “Germans” should prove their loyalty to the Russian state by joining the army.

In 1874 many Mennonites began to arrive in North America destined for Canada and the United States. The groups which entered Canada were mostly Chortitza while the groups which entered the US were mostly Molotschna. The settlers destined for the US went to the Midwestern part of the US. This region had ample farm land and also jobs available from the railroad company which was expanding its tracks to the west (Keel 2006). Map 5 shows the early Russian Mennonite settlements in the United States.



Map 5. Early US Mennonite Settlements (Source: Mennonite Historical Atlas)

Groups destined for Canada went to the Prairie Provinces to farm. Unlike the American settlers, Mennonites who entered Canada sought a *Privilegium* from the Canadian government prior to immigrating. Similar to the *Privilegium* which was sought from Russia, this document sanctioned Mennonites to set up their own schools and live in their own colonies. One of the most conservative congregations which formed in Canada was the Old Colony Church, named after the Old Colony of Russia. Canada mostly followed through with its promises to the Mennonite community until around World War I. Most of the tension in Canada developed because of the School Attendance Act of 1916 which allowed the Canadian government to impose educational standards on the school system. One of the stipulations of the law was that instruction should be primarily conducted in English. Additionally, Canada began to require all young men to join a military registry (Sawatzky 1971:14-27). Conservative Mennonites felt that these laws interfered too much with their way of life and sought to live elsewhere.

Conservative Canadian Mennonites saw that Mennonites still in Russia were suffering under harsh Russian policies aimed at enemies of the state, while Mennonites in the US were losing their culture and language due to policies similar to the Canadian ones which they sought to avoid. Instead of returning to the Old World, Canadian Mennonites agreed to move south into Mexico. In 1921, a group of Old Colony Church community representatives went to survey land in Mexico and secure a *Privilegium* from the Mexican president Álvaro Obregón. In 1922, settlers from Canada began to arrive by train to the Cuactémoc Valley of Chihuahua. These Old Colony members viewed the Old Colony Church which remained in Canada to no longer be in communion with them. In the initial years, Mennonites faced many difficulties and some returned to Canada. Some consultants whose families

passed down oral histories of the move reported that, despite the hardships, many people could not leave Mexico because some community leaders took it upon themselves to confiscate passports and other documents which could allow people to leave. Others stayed by choice and maintained the paperwork necessary to retain Canadian citizenship in their family. Some of these families were able to easily resettle in Canada years later and are known as *Rückwanderer* 'reentry immigrants'.

By the 1950s, the original groups from Chihuahua expanded into Belize because of land shortages, internal conflicts, and fear of social security (Sawatzky 1971:332). They settled Shipyard in the Orange Walk District of Belize. By the 1960s, Canadian Mennonites had settled in the Mexican states of Durango and Zacatecas and many more from Canada joined the groups in Chihuahua. The presence of many Mennonite congregations in Northern Mexico led to friction with the Old Colony (Quiring 2004). The Northern Mexican community faced another loss in the 1970s when a substantial group of its members moved north into Texas. This migration arose due to a mix of cultural and financial motivations. In 1983, conservative Mennonites in Northern Mexico began moving into Southern Mexico where there were eventually joined by Belizean Mennonites who started moving north again. In some cases Belizean settlers formed largely successful communities, such as those in Quintana Roo, and in other cases they joined preexisting Mexican congregations, such as many of those in Campeche. Map 6 shows Mennonite settlements in Mexico, except for the ones in Quintana Roo.



Map 6. Mennonite Settlements in Mexico (source: Mennonite Historical Atlas)

Mennonite immigration into South America began shortly after settlement in Mexico. The first groups to settle this area were conservative Canadian groups and they were followed by conservative Mexican groups and groups from Europe trying to escape the Soviet Union. In the 1930s, the Russian government began to forcibly move the German settlers who were left and other undesirable populations to Siberia and Kazakhstan (Krahn 1959). During this time, Mennonites who stayed in Russia were forced to join Russian military operations in the *trudarmija* 'labor army'. A few families

were able to move into Germany, but after Russia shut down immigration to Germany many were trapped. Some Mennonites were able to escape Russia by going to South America, after which some entered Germany and others moved north into Canada.

There were many smaller subsequent migrations, not all of which can be expanded upon in this current work. The group in the Midwestern US expanded into the Central Valley of California. They never settled in a large Mennonite community, so it is unclear exactly when the westward move began. Groups from Mexico which settled in Seminole continued to move north and have pushed into the regions where the original group of US settlers from the 1870s live. They now have communities in Oklahoma and further north into Kansas (Keel 2006).

As was mentioned above, some Mennonites have engaged in what is known as the *Rückwanderung* 'backwards migration' (cf. Castro 2004). In this migration pattern, which usually goes from south to north, Mennonites remigrate from their current location to the country that settled that location. Two of my consultants from Canada were members of a Mexican *Rückwanderung* group. Sometimes the *Rückwanderung* is temporary for seasonal work. One Canadian consultant had memories of different seasonal workers from South America and Belize staying at the family's house.

Figure 1.1 presents a timeline summarizing the movements from Russia into the Americas.

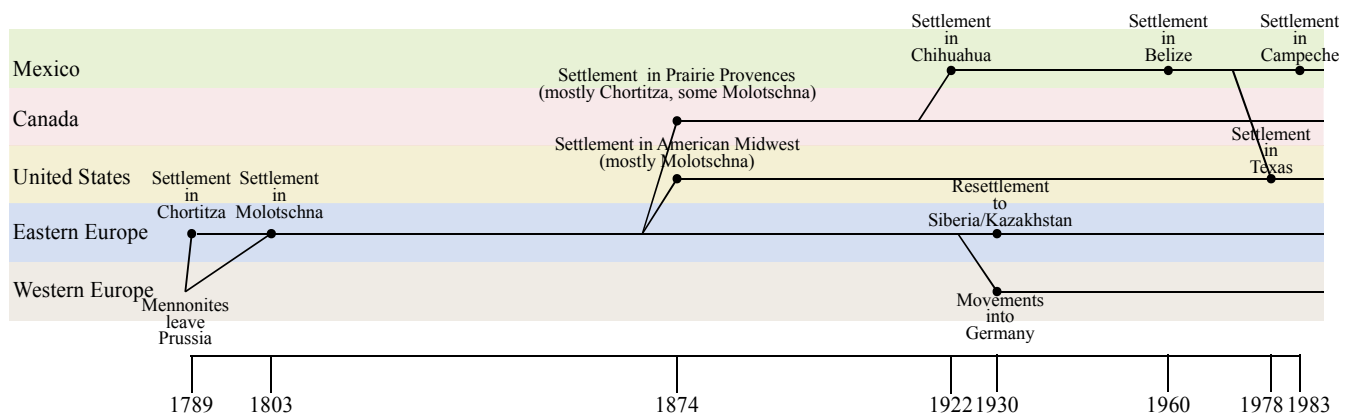


Figure 1.1. Timeline of Mennonite Migrations

There is much that cannot be expressed in this timeline, such as initial settlement size and the relative size of subsequent migrations. Appendix A provides a settlement table with dates of settlement, approximate population size at the time of settlement, the source communities which settled given locations, and subsequent migrations to those locations.

Today, there are communities of Netherlandic Mennonites who still speak Plautdietsch in Europe (Germany and Russia), Asia (Kazakhstan), North America (Belize, Canada, Mexico, and the US), and South America (Argentina, Bolivia, Brazil, and Paraguay). Plautdietsch-speaking Mennonites are aware that they belong to a speech community that spans a large geographical space and my own experience is that Canadian Mennonites tend to link communities together. During my time in Chihuahua, Mexico and Nordrhein-Westfalen, Germany, Canadians served as a middleman for people seeking to stay in touch with relatives in other countries. There is a presence of Canadian Mennonites in Southern Mexico and Texas, but they have either moved into the community or were traveling through the community visiting relatives. Some of the Amish relief missionaries working with Mexican Mennonites help arrange travel bookings and visas so that people can visit relatives in South America, the United States, and Canada. During my stay in Texas I attended a family reunion with attendees from Canada, the US, Mexico, and Bolivia. Cañas-Bottos (2008) outlines specific behaviors of Mennonites in South America which are driven by a community awareness of being members of a

global Mennonite community.

Groups from California and the Midwestern United States are aware of the groups in Mexico although not everyone is intimately familiar with members of that group. One consultant in California told me about a time in the 1970s or 1980s when a group of Mennonites from Mexico came up and briefly settled in the area. The church in California gave the Mexican group access to their church facility so that the Mexican group could have a space to pray. The consultant was unaware of what happened to the Mexican group; one day they packed up and left California. In Kansas, I met two consultants who knew each other from work. One was from the original group which settled in the midwest in the 1870s and the other was from a Mexican group which entered after the 1970s. The Kansas State Health Board put the two communities in contact with each other in an attempt to provide state medical care to the Mexican group. Groups in Canada and the US have kept in contact with some Mennonites in Europe through Mennonite heritage tourism such as that formerly led by the late Paul Towes (1940–2015). Some of the people who went on the tours told me that they were surprised to go to Russia and hear people speaking in a Low German that they could understand. Pilgrimages into Latin America also occur. Two consultants from Kansas recalled going on trips to Mexico and learning about the Mexican Mennonite culture. There are some well documented trips through all of Latin America by Canadians such as *Auf den Spuren der Mennoniten: 19.000 km durch Amerika* 'On the Trail of the Mennonites: 19,000 km through America' by the *Mennonite Post* authors Kennert Giesbrecht and Wilfried Klassen and *Menno Moto* by independent journalist Cameron Dueck.

The Plautdietsch radio program/podcast *Nies met Zachries* “News with Zachary” was broadcast from Canada and received across Mennonite communities in North and South America. This program played interviews from across the New World Plautdietsch community until the Carl Zachries' death in 2012. Newspapers such as *Deutsche-Mexikanische Rundschau*, *Mennonitische Post*, and the former *Kurze Nachrichten* are tools that members of the community use to stay in touch with Mennonites in other regions, but these papers are exclusively written in Standard German.

In sum, the global reach of the Mennonite migration path developed for a multiplicity of reasons. Depending on the reasons for migration, Mennonites either sought land either close to where they originated or wanted to settle further away in different countries. In spite of the differences of opinions which lead to divergent migration paths, a shared Mennonite identity among the Netherlandic Mennonites has played a strong role in reinforcing social bonds across the global community.

1.3. North America Data Collection Sites

This section provides contemporary information about the data collection sites that I visited from 2012 – 2015. Some regions have more information than others because there is a stronger presence of a Mennonite community and culture supporting language use. Other regions used to have an active culture supporting language use, but these social practices have eroded over time.

1.3.1. Campeche, Mexico

The Chenes region of Mexico was settled in the 1980s by Old Colony Mennonites from Northern Mexico. Eventually other Mennonite groups began to move into the region. In 2012, Beachy Amish missionaries estimated the Mennonite population to be around 6,000. Mennonites in this region are predominantly Old Colony Mennonites, but there are also firmly established Sommerfeld and Kleine Gemeinde communities. There is one EMC community, but it is much smaller than the others. Old Colony and Sommerfeld Mennonites mostly come from the states of Durango, Zacatecas, and Chihuahua, whereas the Kleine Gemeinde also has members from Tamaulipas and Belize.

Denominations in this region often chose to distinguish themselves from one another in their style of dress. Male members of the Old Colony wear denim bib overalls with long-sleeved shirts.

Many choose to wear broad-brimmed hats, often cowboy hats, to protect themselves from the sun while working. Male members of the Sommerfeld community usually wear jeans, short-sleeved shirts, and trucker hats. Some chose to wear suspenders. Members of the Kleine Gemeinde group frequently dress similar to Sommerfeld unless they are former members of the Old Colony, in which case they might wear bib overalls.

Women of the Old Colony wear a dress known as a *fahld cape* (Scott 1986). Their dresses are often dark jewel tone colors with long-sleeves and calf-length skirts. Many women wear a black apron over the front of the *fahld cape*. Old Colony women often wear broad-brimmed flat-topped straw hats, similar to boater hats, to protect themselves from the sun. The hat is usually adorned with a jewel tone ribbon. Some women wear long black fringed scarves, and other women wear long white fringed scarves. Traditionally, the white scarves are worn by unbaptized women and black scarves are worn by baptized women. This distinction has begun to fade in the South because the hot and humid weather makes it rather uncomfortable to wear scarves and many women prefer not to wear scarves unless the occasion requires it. Old Colony women wear their hair braided and pinned close to their head. They cover their hair with either a hair net, scarf, hat, or some combination thereof. Sommerfeld women usually wear short-sleeved two-piece dress-suits in pastels or mid-tone colors. Sommerfeld women wear their hair either in a long single braid or ponytail. The head covering used by women of this group is usually a small black square cloth folded into a triangle and pinned down. Women who are members of the Kleine Gemeinde community have a similar style of dress to the Sommerfeld community, but some will wear even brighter colors and patterns than the Sommerfeld. Some Kleine Gemeinde women wear a style of dress which is half way between Sommerfeld and Old Colony. Other Kleine Gemeinde women wear long dresses closer to the style which is readily available to the local Mayan population.

This region is frequently visited by Mennonites from Canada and Belize. Some of the Canadian Mennonites who visit belong to the Mexican-Canadian *Rückwanderung* group, while others are members of the original Canadian settlements whose relatives only recently moved into Mexico.

Mennonites of this region tend to be ethnically distinct from the local Yúcatec Maya population and live in separate spaces. Mennonites have separate schools which are taught exclusively in Standard German. Some Mennonites have rejected the idea of living in a colony and have moved into town and send their children to the Spanish-speaking schools, but these Mennonites are currently in the minority. Some people who live in the city choose to live there in order to be with spouses who are members of the ethnic majority. Others in interracial marriages have stayed in the colony and risk being rejected by other colony members.

Many of the older local Maya from the region remember the arrival of the Mennonites from Northern Mexico. Doña Alpuche remembers Mennonites coming to her husband's store in horse and buggy from their villages to request loans; now they come in rented taxi-vans driven by Maya villagers. Local taxi drivers have also claimed that Mennonites are losing some of their customs and traditions in the area. Señor España, a well-known taxi driver, claimed that many of the Old Colony Mennonites, who have heavy technology restrictions, use cell phones. Some Old Colony members can be found in the Internet-Cafes doing business when the clergy are not around, and one is even so bold to use the internet, computer, and other technologies regardless of who is around. Some Jehovah's Witnesses have reported that they know Old Colony men who will slip down the straps of their overalls and drive a car when they feel that they are safely out of the view of other Old Colony members. Still, many Mennonites come to use services in town because they feel uncomfortable speaking in Spanish over the phone and using the computer to book reservations for travel. This behavior indicates that in spite of some deviation from the norm, there is still a technological gap between the conservative Mennonites of the region and others.

Although “modernization” of Mennonites leads to more business competition between

Mennonites and Mayans, villagers of the Chenes region acknowledge that the arrival of Mennonites was important for their economy. Many in the region admit that the national government would rather grant loans to Mennonite farmers than non-Mennonite farmers. With the arrival of people who frequently got loans came the arrival of banks and new loan agencies to the region. These banks are accessible to the local non-Mennonite population, and those within the city can now manage savings and business accounts from within the city rather than having to travel to the city of Campeche de San Francisco.

1.3.2 Wichita, Kansas, USA

The region around Wichita, Kansas was originally settled by Russian Mennonites from the Molotschna region in 1874. The groups which are in this area come from the Krimmer Mennonite Brethren, Alexanderwohl, so-called Prussian Mennonites, and Volhynia Mennonites among others (Gossel Historical Museum, Kaufman Museum, Schroeder and Hubert 1996:143-144). The Russian Mennonites who immigrated in the 1870s are associated with the Mennonite settlements in Henderson, Nebraska, Korn, Oklahoma, Montlake, Minnesota, and Fresno, California. Conversations with locals revealed that when Mennonites first moved to Kansas, they mostly lived in shared housing and close-knit Mennonite communities. Mennonites had their own school systems where instruction was in Standard German, but some Mennonites went to English-speaking schools. Using German on a daily basis was common until the advent of World War II. Many of the community members who were alive during this time told me that many Mennonites in the region stopped speaking “German” and switched to English for fear of retribution. Some report that their parents made the switch overnight. One consultant from Minnesota has vivid memories of his community being harassed during that time because people viewed their “German” heritage as a threat to American society. Some members in this community have clear memories of the time when they were told by their parents to stop speaking German in public, but continued to speak it at home. Because Mennonites are not clearly ethnically distinct from the large politically dominant population in these regions, language use was the clearest cue that someone was “not American”.

After many years, the period of bitter resentment towards all things German eventually blew over and some speakers began to promote the usage of the Plautdietsch. An undated manuscript of Plautdietsch educational materials by Evelyn Voth was produced to help heritage speakers of the language reconnect with their past. According to the rosters kept by Mrs. Voth, the materials were instructed during the 1980s. Currently there is also a custom of putting on annual Low German theatrical pieces (called “programs”). Some of the elderly speakers of the language gather together to speak and learn about the language on a weekly basis. None the less, the impact of World War II is still felt in this community. Some younger speakers have held onto the language, but they tend to be in their 50s. Some older speakers of the language describe having once been fluent, but losing the language because of the switch to English. KS03 recounted arriving in Mexico after having avoided using Plautdietsch for a very long time. When he heard the fluent Mexican Plautdietsch speakers, he could understand them, but couldn't remember how to respond. One morning, he was getting ready when he suddenly started speaking Plautdietsch. He described his knowledge of the language suddenly flowing back to him, and attributes the reawakening of his language proficiency to being around the fluent North Mexican community.

Although Mennonites are known to have schisms, the communities in Central Kansas are known to have acculturated practices of other groups in the region. In 1956, a fire destroyed the Gnadenu church, forcing the congregation to abandon the Gnadenu community and worship among other Mennonites. During this period, Gnadenu Mennonites assimilated to other groups around them. Central Kansas Mennonites recognize that they assimilated to the majority culture of the region and

know that their Amish neighbors maintain a lifestyle closer to the Mennonite lifestyle prior to the period when Mennonites sought to mask their “German” identity. Some Mennonites have adopted cuisine from other Russian German groups (e.g. *biroks* (< Russian пирожок *pirazhok* 'pastry') commonly found among the Volga German). Mennonites in Central Kansas still retain a separate identity from other “German” groups in part because of the Mennonite migration path.

Mennonites from the Wichita region were contacted by Kansas state health authorities in order to interpret to a group of Mennonites that had begun to settle in the southwestern part of the state. These Mennonites mostly settled around Mead, Kansas and were a part of the Northern Mexican Mennonite group which had settled in Seminole, Texas. In 2005, it was estimated that there were approximately 5,000 Mennonite inhabitants in Southwest Kansas of Latin American origin (Keel 2006). One of the earliest settlers who arrived in the 1980s claimed that she was unaware of other Mennonites in the state until she was about 15 years old. Aside from medical interpretation and translation, the group in Southwest Kansas does not interact much with the group in Central Kansas. Plautdietsch has gone into decline in Southwest Kansas and is predominantly spoken by people who are middle-aged and older, many of whom are first generation US citizens or immigrants. Children mostly hold onto the language to use as a secret code, but otherwise prefer to speak English.

Mennonites in Central Kansas have a strong commitment to education and founded two four-year colleges: Bethel College (1887) and Tabor College (1903). This commitment to education continued when Mennonites from this region moved into California. California Mennonites founded Fresno Pacific University in its earliest form in 1944. All three colleges maintain historical archives which document the migration, religion, culture, and language of not only Mennonites, but other Anabaptist groups too.

There is another group of Mennonites in Central Kansas known as Holdeman Mennonites. Their dress is similar to the Mexican Kleine Gemeinde dress. I overheard some members of this group speaking Plautdietsch which is indicative of either language maintenance or in-bound migration from a community which does maintain Plautdietsch. They are known to be very shy and difficult for outsiders to approach, including members of other Mennonite congregations.

1.3.3. Fresno, California, USA

Mennonites in Fresno, California are mostly associated with the groups from the Midwestern states and do not carry themselves in a way which distinguishes them from other populations in the area. Moelleken notes that if someone were to come to Reedley, just outside of Fresno, it would not be clear to outsiders that the area has a high number of inhabitants of Mennonite descent (1994:309). Fresno had already been settled by many different groups by the time Mennonites arrived (e.g. Hispanic, Basque, Armenian, etc). Other Anabaptists also settled in Fresno such as Hutterites from South Dakota. Mennonites in Fresno are culturally very similar to the majority and many speakers of Plautdietsch have forgotten the language. CA03 reported that she began speaking Plautdietsch again when a group of people arrived from Mexico although she couldn't recall if the group arrived in the 1970s or 1980s. Moelleken places the date of Mexican Mennonite arrival to Reedley around the early 1970s (1994:304). CA03 reported that after a while, the group vanished and speculated that they had moved to Canada. Some consultants from Texas who were born in Fresno mentioned that there is a settlement of “white cap Mennonites” in Fresno, but it is not clear if this group is associated with the Netherlandic-Russian community, or if it is a separate group of Swiss Mennonites who are also present in the region.

1.3.4. Seminole, Texas, USA

The Mennonite population of Seminole, TX comes predominantly from the state of Chihuahua, but

there are also Mennonites from other parts of Mexico, Canada (via Chihuahua), and Bolivia (via Chihuahua). The exact number of people living in Gains County is only really known by local leaders in the community. It is common knowledge in the area that there are many undocumented workers, and these workers fear that people from the Census Bureau care about their immigration status. As a result of this fear, undocumented workers have become very adept at dodging anyone associated with the Census and locals know that the US Census represent a gross underestimate of the actual population. The number of Mennonites estimated by John Peters is upwards of 8,000 and the number estimated by Bob Clark is around 15,000. Approximately 6,000 Mennonites in Gains County speak Plautdietsch (source John Peters 2015). Not all speakers of Plautdietsch are Mennonites in this region. Some speakers from traditionally Mennonite families have converted to other religions, e.g. Jehovah's Witness.

Mennonites first arrived in Seminole in 1977 from Cuactémoc, Chihuahua in a group of 100 families. The original settlers had planned to keep a community structure similar to that found in Mexico. They purchased a 6,400 acre lot southwest of Seminole, where land was cheap, and settled the land in a colony-style structure. The main impetus of the move was overcrowding in Mexican Old Colony regions and conflict over water rights. Some of the original settlers, however, insist that immigration was also driven by the need to break away from the lifestyle within the Old Colony and its leadership.

The settlers believed that because they had purchased the land, they would be able establish farms in a traditional colony settlement and they would be able to obtain US citizenship. In the summer of 1977, Mennonites of the region started receiving deportation notices from the Immigration and Naturalization Services and cease and desist orders regarding water usage from the local oil companies. Although Mennonites had purchased the land, they had not purchased water rights to the land, which were owned by the local oil companies. Cotton is one of the main agricultural products of the region and the crop could not survive without heavy irrigation. Many of the settlers faced crop failure in the coming years and could not make payments on the land they had purchased. A Florida businessman intervened and made payments on the land for one year, but that was not enough time for the crops to recover, and in 1979 the land was repossessed by the banks and sold at auction. These Mennonites were joined by Canadian *Rückwanderer* who were unsatisfied with what their children were learning in the Canadian school system. One consultant reported that a relative of hers, who was a Canadian citizen, started receiving deportation notices along with the rest of the Mexican group.

Mennonite settlers did not want to go back to Mexico despite having no land and having failed to obtain US citizenship. The only way to remain in the US was to continue renewing their visas and abandon the idea of a close-knit colony. During those early years Mennonites started accepting industrial jobs and living among the locals who already inhabited the area. Eventually, the citizenship problems rose to national awareness and in 1980 President Jimmy Carter signed legislation allowing the original 100 families to gain full citizenship (Camden and Duarte 2006:28). A local citizen in Seminole said that her family was from Mexico and she was born in Fresno, California, in the 70s. Her community saw that Mexican Mennonites in Texas were having better luck with immigration, so her entire community decided to leave Fresno and head for Seminole.

It is not clear where these misunderstanding of citizenship rights and water rights originated; many early reports blame the real-estate agent, but some people believe it began with the Old Colony leadership. Personal correspondence with Bob Clark, the mayor of Seminole during the Mennonite immigration debacle, revealed that an investigation into the real-estate agent's handling of the sale was quickly closed after two questions were answered by the Old Colony leadership at the time. There were no findings of wrong doing on behalf of the real-estate agent in the final report.

According to Clark, many academics descended upon the city to study the Mennonite

population, its history, and its prospects. They reported to him that they predicted the Mennonites of the region would assimilate quickly, and in his view this prediction came true 30 years after the initial move. Within less than one generation, Mennonites who arrived speaking no English could be found speaking only English in public with other Mennonites.

Although the colony structure is no longer present in Seminole, some of the traditional Mennonite practices still continue. Some groups have the mid-afternoon meal known as *Faspa*. The most visible *Faspa* group in the city is an all-male group which meets at a Mennonite-owned restaurant during the weekdays. Attendees of the *Faspa* group make it a point to converse in Plautdietsch.

There is still a heavy emphasis on how women dress. One conservative Mennonite neighborhood is nicknamed *Tacodarp* 'taco village' because the women wear their hair in a traditional part that resembles the shape of a taco. Many women still wear the traditional black *Düak* 'headscarf' to cover their hair, and some wear dress styles commonly found in Mexican Mennonite communities. Some women have switched to t-shirt and maxi-skirt combinations. Many younger women choose to wear either pants or shorts instead of skirts. Almost all daytime excursions in town with children in tow are lead by an older female relative (mother or sister). There are some traditional Mennonite schools in the area where the primary language of instruction is Standard German, but of these only one has the structure of the Old Colony *Darpschool* 'village school'.

Although it has been observed that Plautdietsch is quickly being lost past the first generation in the region, the language hasn't gone into rapid decline. There is a steady flow of new immigrant families from Mexico and South America who replenish the speaker population. Some of these new families are seasonal farm temps (migrant workers), but others decide to settle down permanently.

There are many Mennonite congregations in Gains County and the surrounding regions. The Old Colony and Reinländer are the most conservative groups, but a sizable number from both groups reportedly converted to the slightly less conservative Sommerfeld group. Unlike in Mexico, the Old Colony and Reinländer do not have technology restrictions. The Sommerfeld group of this region has some customs and traditions that are not characteristic of some Sommerfeld in Mexico. During the time of personal prayer, the whole congregation gets out of their seats to kneel facing the back of the church. One of the church leaders explained to me that this is the difference between the "New Sommerfeld" group from Canada and the "Old Sommerfeld" group from Mexico. Although many of the parishioners do come from Mexico, the church leadership is from Canada. The least conservative Mennonite churches are known to change their church name by removing the word "Mennonite" thus signaling openness of the congregation to people outside of the traditional Netherlandic Mennonite ethno-religious group (e.g. Gospel Mennonite Church → Gospel Mission Church).

Much of the history of Mennonites in the region is passed down through oral tradition. Many of the original settlers from Mexico are still alive today and are active members of the community. The main archives of Mennonite history in the region are in the Gains County Museum in Seminole, Texas and the Southwest Special Collections Library at Texas Tech University in Lubbock, Texas.

1.4. Social Variation in North America

There is a high degree of social variation in Mennonite communities of North America. Most of the social variation revolves around the willingness of different groups to engage with non-Mennonites. Groups that are more accepting of outside influence are more likely to assimilate culturally to other groups around them. In Amish communities, this is known as "the lunch pail threat" (Camden and Duarte 2006), but in Plautdietsch communities, this is primarily called *feanglscht* "Anglicized".¹¹ In islands surrounded by Spanish-speaking communities, there is not an equivalent term *fespaunsischt*

¹¹ The usage of the prefix *fe-* in this word is indicative that the first people who used this term generally found it to be a negative effect.

“Hispancized”. While some groups readily accept interacting with the local culture around them, other groups feel threatened and have been known to teach the congregation to be afraid of outsiders and the influence they may bring. Some people acknowledge that sometimes the non-Mennonite population is treated as a bogeyman and children are threatened with the phrase *De Russ/Mexas woa jie kjriejen* 'the Russian/Mexican will get you', even in communities where the parents are legally Mexican citizens. Some have reacted to this fear of outsiders by adopting the view that they are superior to what they are afraid of. Generally, the way that these groups safeguard themselves against outsiders is by treating all outsiders the same way they treat shunned individuals of their own community.

1.4.1 Physical Community Structure

The physical structure of a community is one aspect of how certain communities guard themselves against outside influence. The village structures in Southern Mexico are physically designed to keep private spheres of Mennonite life separate from outsiders who enter the village. These outsiders generally are welcome in the village if they help drive commerce, but they have to plan ahead and make special trips to the villages (e.g. Mayan grocers, taxi drivers, and personal wellness salesmen). These outsiders are usually welcome as long as they do not use their roof-mounted microphones, play loud music, or enter on Sunday. People who frequently enter the villages for commerce have begun to learn basic Plautdietsch in order to communicate with the women of the village while their husbands are at work in the fields. In addition to the external vendors who enter the village, internal vendors from the village frequently interact with outsiders (e.g. delivery trucks, pickup trucks, hired hands). Some villages have restaurants, which hired hands frequent on their breaks. One village on a major highway, uses its placement to its advantage by running a set of scales at its grain silos near the entrance of the community. These pay-per-use scales are used by truckers and produce buyers and serve as a meeting place for business deals.

1.4.2 Gender Community Structure

According to Nyce 1989, gender roles vary significantly across Mennonite communities. Within the Mennonite community from Central Kansas and California, gender roles are very similar to other cultures surrounding them. Women tend to be more involved in housekeeping, but men also engage in work traditionally done by women. Some churchgoers in the Kansas Alexanderwohl community reported that church seating used to be separated by gender, but young couples eroded that practice a long time ago by refusing to be separated in church. When community members come together and socialize, there is no clear difference between the behavior of men and the behavior of women.

In Southern Mexico, gender roles are sharply divided in both appearance and activities. Women generally do not cut their hair unless they need to for medical purposes, but there are a select few who cut their hair for fashion. Depending on the church they belong to, women will either wear their hair long so that everyone can see, or they will make elaborate braids, and pin the braids in a way that keeps them out of view. Adult women who have been baptized/married (a ceremony which often goes hand in hand) wear a black head covering which varies in style depending on the denomination. Some younger girls also wear scarves in public. In the South many younger women wear black, although white is the traditional color for unmarried women. Women wear long dresses or skirts. On rare occasions, groups of Kleine Gemeinde co-ed youth meet in the main city to play basketball after church. The majority of the young adults in this sports group wear pants, even if they are girls. As stated above, depending on the denomination, men wear either bib overalls or long pants. The only head covering men wear is either a trucker hat or a cowboy hat.

During their journey through Mexico, Giesbrech and Klassen ran into one man in particular who allowed them to photograph him in the kitchen helping his wife cook a traditional chicken noodle

soup (2011:79). They both reported that this scene is rare in colony life. Women are generally housekeepers and caretakers, but some engage in the enterprises of their male relatives. Men are expected to be the predominant breadwinners in the household if not the sole breadwinner. Men are usually out in the field before dawn and come back late in the evening. The matriarch is expected to be up before her husband to have his breakfast ready and to be up later than him to have his plates cleared. Depending on how accessible he is while he is working, she might be asked to drive to his field and bring him lunch and return later with his *Faspa*.

All Mennonite churches in Southern Mexico have a policy that the congregation should not mix: male members of the congregation sit on one side, female members of the congregation on the other. Children are the only exception to this rule. Only male heads of the household may vote in elections for lay and clerical positions. All clergy is male and in many communities, the choir is also all male. In conservative communities, teachers are all male and are usually accompanied by homeroom mothers to help manage the class.

In communities where people are allowed to drive, both men and women know how to drive, but only men drive into town alone, with few exceptions. When women go into town, they are usually accompanied by a male relative. Men sometimes go to town in groups with other men, but there are, generally speaking, not groups of women who go into town together. In communities where people are not allowed to drive, men are not allowed to sit next to women who they are not related to in rented taxi-vans.

Many schools have seating policies similar to church: boys sit on one side and girls on the other. At public gatherings, a family will arrive as a single unit, but men and women will almost immediately go in opposite directions to start socializing with their respective gender. In many communities in Southern Mexico, men are expected to learn Spanish by accompanying their fathers and learning from Spanish-speaking hired hands. Women are not expected to learn Spanish and many members of the community will claim that women cannot speak Spanish. Many Mennonites are very straightforward and say the reason women are not taught Spanish is so that they do not marry members of the local population. There are, however, women who do speak Spanish from the conservative communities; a skill they usually acquired if the father's hired hands frequently spend time around the house. Some communities do not see intermarriage as a threat and teach both boys and girls Spanish at school. These communities cite the need for women to procure goods and services as well as to participate in medical conversations with almost exclusively Spanish-speaking care providers as the reasons they teach women Spanish.

Men tend to be less confident when asked about their Plautdietsch-speaking abilities than women because they code-switch between Spanish and Plautdietsch. Initial investigation turned up many Mennonites in the community referencing their mothers as the source of their language, but after a while, they conceded that the language was really from both parents. The only time I have witnessed a woman contradict her husband in public involved differing assessments of Plautdietsch grammaticality. Her husband heard the contradiction and happily accepted it as a correction.

Although gender roles are very stark in the Mexican Mennonite community, there is a strong taboo surrounding physical differences between men and women. The desire to keep men and women separate in many communities drives the parents of young women to terminate their education early. One member of the Southern Mexican community who had grown up predominantly in Canada reported her shock of realizing that young girls who began to menstruate were being pulled out of school prematurely because parents insisted it was inappropriate for young boys to learn about menstruation. According to one resident of North Mexico, a major deterrent against moving to Canada is mandatory sexual education in school (MCC 1995). This was likened to “sending children to school to learn how to cuss”. A former teacher in the Texas Mennonite schools remembers being reprimanded

by her father when letters from North Mexico came in accusing her of teaching sexual education in school. According to the former teacher, she had asked a student to look up a definition in an encyclopedic dictionary and he came across an image of the birth canal.

The taboo nature of the reproductive system is not specific to the Mexican Mennonite community. Medical interpreters from Canada, the US, and Mexico have mentioned that they have difficulty discussing the body related to the reproductive system. One interpreter from Canada claimed she didn't know the word *Mutta* 'mother' could also referred to the uterus until as an adult she overheard her parents whispering in secret about a pregnant relative. One consultant in Texas mentioned that variation in forms of the traditional soft roll *Tweeback* literally 'two bake' was related to taboos surrounding sexuality.¹² Mennonite *Tweeback* is traditionally made by placing a small roll of dough on top of a larger roll of dough and letting them rise together before baking. Conservative Mennonites were worried about the message that one could infer from the dinner rolls and changed the form of the bread to be only one roll. Although some communities call this *Einback* literally 'one bake', many Mexican communities still refer to the roll as *Tweeback*.

The Texan Mennonite community is rapidly assimilating to the local culture. There are some churches in the region where men and women are separated, but there are also many churches where this is not the case. Men tend to still engage in more physically demanding labor, but many women are also working outside of the household, manage businesses, and serve in local offices in the community. There are many children who go to American schools and learn about sexual education, but there are still some children who go to schools which do not teach sexual education. Much of the Texan population that was raised in Texas readily admits that gender roles in Mexico are strikingly different. One of the issues which frequently comes up as differentiating Texan Mennonites from the Mexican Mennonites is the expectation of large families and the expectation that the mother's primary ambition should be to attend to the family.

1.4.3 Technology in the Community

Technology is viewed as one of the biggest threats to conservative Mennonites in Mexico. None of the denominations seem to agree on which technologies are inherently problematic. Many Old Colony members avoid the use of rubber tires on vehicle parts with motors, but there is one Old Colony village in Southern Mexico that uses rubber tires on their tractors. If any other Old Colony member purchases a tractor from this village, the workers at the store will strip the tractor of its rubber tires and replace them with metal tires. Many people in the Old Colony do not have cell phones as an official policy. Reports from various taxi drivers in Southern Mexico indicate that this ban is only nominal in nature. They report it is quite common for people to remove their phones from hiding when religious authorities pass by. Some have even reported religious authorities snatching and smashing cell phones to make an example in front of others. The Sommerfeld, Kleine Gemeinde, and EMC do not have policies against cell phones and vehicles with rubber tires.

The use of electricity also varies among Old Colony settlements. Some people report that gas lamps are used in some villages today, but in other villages there are electric lights. My experience in the Southern Mexican Old Colony showed moderate use of electricity such as printers in the school house, refrigerators, cash registers, and lighting. The Old Colony in this region is more or less free to use electricity for business or refrigeration as long as it is not from the main power grid that all other non-Mennonites of the region use. Some villages use mills to produce electricity, but many use generators. People who visited Belize have reported that conservative Mennonites of that region have switched to solar power (which sometimes powers hidden iPhones). Hiding technology use is not a new

¹² The word *Tweeback* is etymologically related to the Standard German word *Zweiback* 'toast, lit. two bake'. *Zweiback* is one piece of bread that is baked twice, but *Tweeback* is a doubled piece of bread that is baked once.

issue in Mennonite communities according to Klassen 2009, who studied the role of hidden music in the Mexican Mennonite community.

Mennonites in the US do not have technology restrictions and many gladly engage in using new gadgets and playing music. Both Tabor College and Bethel College in Kansas have museums filled with musical instruments brought to the US by the original Mennonite settlers from Russia. Groups in Texas which came out of Mexico sometime have youth play electrical instruments during church services. The most conservative groups only allow a choir in the church, and this is the most common form of musical accompaniment to the liturgy in Southern Mexico.

1.4.4. Bible Study

There is a great amount of variation in a community's ability to actively engage in Bible study. While many of the groups within the US can engage in Bible study if they desire, the practice is highly restricted in conservative groups in Mexico. It is unclear when groups in the US began engaging in Bible study, but some members have openly commented approvingly about the Methodist Church which strongly promotes Bible study.

Conservative groups in Mexico avoid Bible study for a variety of reasons, some of them internal and some of them external. Some people have reported that sometimes churches would actively preach against the use of technology such as rubber tires, and did not desire to be challenged by different interpretations people might have of the Bible. Some of these groups avoid Bible study because it is actively promoted by Jehovah's Witnesses who have a copy of the Plautdietsch Bible and preach their interpretation of the Bible in Bible study sessions. In these groups, Bible study is a punishable offense which may result in disciplinary action (along with smoking, drinking, and technology use). Other communities in Mexico actively engage in Bible study and set up study group rotations in the village. These villages tend to be very popular and according to one leader in the village, space is in high demand because other Mennonites want to read and openly talk about the Bible.

In Texas, there is another form of activity that happens outside of church: chorus study. Members of a particular congregation agree to meet at someone's house and spend an evening singing, socializing, and reflecting on their favorite hymns.

1.4.5 Education System

Education has long been a battleground for conservative Mennonites from Canada. The traditional Mennonite education system is known as *Darpschool* 'village school'. *Darpschool* has four levels: Fiebler, Bibler, Testamentler, and Catechism. The Fieblers are entry level students. They begin their education by learning Fraktur print and Sütterlin cursive from a book known as a Fiebel (whence the name of their grade level). Their Fiebel is written in Standard German and contains a syllable by syllable beginner's reading guide. Students are expected to learn the alphabet and syllable by syllable reading method also called the *Buchstabier* 'alphabet' method. The Biblers begin to read the Old Testament of the Bible. The Testamentlers move to reading the New Testament of the Bible. Catechism students are the at the final level of study. In this level, students begin to study for Baptism and entry into the church as adult members. Students are generally educated until they are about 12-14 years old. The traditional education generally includes singing lessons through all levels. The classroom is conducted in primarily chanted choral call and response. Students cannot review the day's materials at home because the primary tool for writing is a slate, which is frequently erased through out the day. Teachers are generally selected by whether someone thinks they can manage a classroom, or in some cases, if a particular person is in need of a job regardless of qualifications.

Some Mennonite groups in Mexico continue to use the *Darpschool* system, but some groups

have decided to undergo education reforms due to the high illiteracy rate connected to this tradition. According to the Mennonite Central Committee, about 70-80% of the students who leave the traditional system are illiterate (MCC 1995). Some groups in Northern Mexico have enlisted the help of the MCC and Beachy Amish communities from the US (Old Colony Mennonite Support 2011). According to the Beachy Amish, they were invited to get involved by Canadian Mennonites who felt rebuffed by the Mexican community. Both the MCC and Beachy Amish have cited similar problems in the traditional school system: too much emphasis on rote memorization, little conceptual emphasis, weak evaluation of individual achievement (e.g. choral response, no grades, and no homework), too few subjects in the curriculum, lack of long term feedback, and resistance to reform (MCC 1995). The main reason that the *Darpschool* system has a lot of support is because it is a traditional system. Another reason why people are resistant to the change is that many people in the community believe that there is a threshold of what one can learn before they stop acquiring wholesome knowledge and start internalizing sinful knowledge (MCC 1995).

Other Mennonite groups have taken it upon themselves to reform their own education system. In Southern Mexico and in some areas of Northern Mexico, some schools have successfully transitioned to a more modern education system. In Southern Mexico, some school systems educate students until they are about 17 years old, include homework, and offer a broader curriculum with electives such as Spanish, English, and a budding bookkeeping/accounting elective. Students are expected to work out of workbooks and notebooks and raise their hand if they make a mistake or need clarification of a concept. For upper grades, classes are usually conducted in Spanish, Standard German, and Plautdietsch. Teachers in these groups engage in teaching enrichment courses in other regions than their own. Nonetheless, conversations with some older members in these communities reveal that while there is an interest in the scholastic achievement of others, some people potentially sabotage the drive towards education enrichment with comments like “I do not like to learn things, I just like to know things”.

The traditional education system is not used in Central Kansas communities, although there is evidence that it used to be in place. The Tabor College Library owns several Fiebels, one of which is a modern Fiebel written in Plautdietsch. One of the historians who works at the college mentioned that they used to carry more Fiebels but they came a dime a dozen. Because they were so commonplace, the library didn't prioritize keeping them and frequently gave them away during book sales. In Seminole, there are many people who attend public schools, but there is also the option of private schools, one of which is reportedly run similar to a traditional *Darpschool*.

Tied into the issue of education is the question of child care. Child care in traditional Mennonite communities is usually defined by structures within the nuclear family. The mother is the primary caregiver for children and when she is not present, the oldest daughter will take over. The father can be somewhat involved in child care while he is around, but for the most part, he works a very demanding job which takes him away from his home for most of the day. Some people report that during harvest season, the father is up before the dawn and only comes back after sundown. During this time, if the mother is not able to manage all of the children and chores herself, she may call upon the assistance of young girls from other families to help her with the chores or send the children to an elderly relative.

1.4.6 Language Use

In communities which have not assimilated much, language use tends to differ by gender as mentioned above. In communities which have assimilated more, there are different degrees of maintenance. In Canada and the US, it has been widely reported that Plautdietsch is a dying language. While it is generally true that elderly speakers are more fluent speakers of the language, there are still some

younger speakers who speak Plautdietsch.¹³ Many speakers who are not elderly come from families which interact frequently with the Latin American Plautdietsch community. All facets of daily life in the Central Kansas community are conducted in English. Some events are specifically intended for people who want to interact in Plautdietsch, but most of these events are annual events (e.g. Christmas Programs, Threshing Days, etc). Sometimes there are smaller meetings that meet every other week which are conducted in Plautdietsch.

Many of the speakers that I encountered from Belize and Mexico reported that the language is rapidly going into decline. Parents have reported actively trying to engage their children in Plautdietsch, but the children refuse to respond in the language. In Belize, Plautdietsch is being quickly replaced by English. Although British English is an official administrative language of Belize, the type of spoken English which is replacing Plautdietsch is Canadian English.

In the US community from Mexico, code-switching can be frequently observed in church service. For some congregations with only one service, the service might be divided into a predominantly Plautdietsch half and a predominantly English half. Some churches have multiple services with a Plautdietsch service which still involves moderate code-switching. Some of the Seminole community attends English only public schools, while others attend the “German” schools.

Non-native speakers of the language are not common. The largest group of non-native speakers in Southern Mexico are a group of Jehovah's Witnesses. According to the group, they have learned the language to help with literacy, especially Biblical literacy.¹⁴ The majority of the Mennonites who interact with the program have expressed that they do not trust the intentions of the Jehovah's Witnesses, but some feel that they are religiously obliged to interact with someone who wants to talk about the Bible.

In Texas, some have welcomed me as a non-native speaker of the language. They have expressed pleasure that I am learning the language because some of their children are in relationships with people outside of the native speaking community and they hope that these people gain an interest in their culture and learn aspects of the language. In Kansas and California, I am generally welcomed as a non-native speaker because people are interested in cross-cultural education and maintaining an aspect of their heritage.

1.5. Linguistic Change in Long-Distance Speech Communities

Up until now, I have primarily focused on explaining the social structure of the Plautdietsch speech communities that I visited in North America. I will now turn the focus to two questions concerning linguistic innovations in Weinreich et al. 1968:

- (1) Why do linguistic changes happen when they do?
- (2) How do changes spread through a community?

The first problem is known as the actuation problem which is defined as follows:

Why do changes in a structural feature take place in a particular language at a given time, but not in other languages with the same feature, or in the same language at other times?
This *actuation problem* can be regarded as the very heart of the matter. Weinreich et al. 1968: 102

¹³ I estimate that the younger speakers I met were around 35. The few people who I encountered in the younger range said that they were the odd ones out in their families.

¹⁴ There is a similar program in Mayan and Spanish targeting Roman Catholics of the Chenes region.

There are two main scholarly views on why linguistic change actuates. One view is that linguistic change actuates due to language internal pressures such as the structure of the linguistic system or perceptual responses to the linguistic system (Chen and Wang 1975, Trudgill et al. 2000). Other scholars draw a link between the development of linguistic innovations and the need to develop either new social relations or identities (Milroy and Milroy 1985, Holmes and Kerswill 2008). Other scholars take a middle road and acknowledge that linguistic change actuates from an admixture of social and language internal factors (Weinreich et al. 1968). Observing the conditions for innovation in a long distance speech community with a well-known and recent migration history can provide a case study of the conditions of linguistic innovation.

The second question regarding linguistic innovation is referred to as social embedding of linguistic innovation. The question of how linguistic change spreads across a speech community is stated as follows:

The changing linguistic structure itself is embedded in the larger context of the speech community, in such a way that social and geographic variations are intrinsic elements of the structure. In the explanation of linguistic change, it may be argued that social factors bear upon the system as a whole; but social significance is not evenly distributed over all elements of the system, nor are all aspects of the system equally marked by regional variation. Weinreich et al. 1968:185

In this view, the social structure of a speech community, social significance of a given subset of the linguistic system, and geography are all structures which are employed in the spread of linguistic change. The fact that geography is significant to the social structure raises the question: what role does distance play in the development of innovations in a long-distance speech community.

Prior to the birth of modern sociolinguistics, social embedding was primarily understood as spread of a linguistic feature across a geographical space. The family tree model of language change stipulated that if a speaker population moved to a new geographical location, they would have innovations independent of the home community (Schleicher 1873). The wave model was the main competing theory to the family tree model (Schmidt 1872). In this model, social and geographical factors could facilitate or inhibit the spread of isoglosses across geographically contiguous spaces. After the development of modern sociolinguistics, the gravity model and cascade models sought to incorporate both social factors and the spread of isoglosses across a given region (Trudgill 1974). In these models, changes can proceed from large urban centers to smaller locals that are not immediately adjacent (thus population size and interaction of populations would be a social factor). *Glottometry* is a recently developed quantitative model of linguistic subgrouping which incorporates clustering insights captured by the family tree model in a way that is compatible with the social dimension of the wave model (Kalyan and Françios forthcoming, Françios 2015). In this approach to subgroup classification, linguistic innovations can spread across speech communities due to social interaction between populations of speakers without the assumption of population size and social evaluation imposed by the gravity model. Glottometry assumes that some populations are networked in such a way that allows shared innovations to accrue over time, which eventually leads to the development of subgroups (i.e., subgroups are emergent properties of social interactions and do not need to be defined by an intervening node on a family tree). All modern studies which evoke these models focus on speech communities that are spread across a linguistically unified region. In effect, they rarely study which model is appropriate for linguistically related speech islands.

The relationship between “location” and “social structure” is not straightforward. Johnstone (2004) proposes that in global speech communities “location” can have two values: it can either reference a physical location, or a social identity construct (2004:66-70). Although it is clear why

location has two values in a global speech community, “location” as a sociolinguistic feature is not exclusive to global communities. Romero 2009 provides evidence that some Mayan communities of Guatemala associate certain linguistic innovations with a particular location. This social evaluation has provided a pathway for otherwise marked innovations to spread. People who wish to identify with the innovative region pick up the innovations associated with it.

At the macro level, Plautdietsch speech communities are global speech communities. There is, however, a social difference between the global speech communities which have been studied extensively, such as English and Spanish, and long-distance speech communities like the Mennonite community. Unlike the English- and Spanish-speaking communities, members of the Plautdietsch speech community are, at some level of consciousness, culturally and biologically related to other members of the speech community.

Plautdietsch speech communities are islands at the micro level of social interaction. They exist as linguistic minority enclaves in an environment surrounded by speakers of a more socially dominant language. These communities tend to exhibit all seven principles of linguistic isolation postulated by Wolfram when compared to the main locus of Low German speakers in Germany (2004:102).

- Principle 1. **Dialect Exclusion:** Lack of regular communication with speakers outside of the community impedes diffusion of regular change
- Principle 2. **Selective Change:** Changes which spread quickly are ones that are socially evaluated as indexing the community.
- Principle 3. **Regionalization:** Changes which spread in a physical space are independent from changes in the main community. They may result in either convergence or divergence, but they remain independent.
- Principle 4. **Social Marginalization:** Communities begin to be viewed as “non-mainstream” and anything socially evaluated as specific to that community is marginalized.
- Principle 5. **Vernacular Congruity:** Linguistic irregularities associated with the “mainstream” group are leveled in other marginalized communities.
- Principle 6. **Peripheral Community Heterogeneity:** Small peripheral communities can tolerate high amounts of variation that do not correlate to social variables
- Principle 7. **Localized Identity:** Dialect distinctiveness is frequently embraced as a sign of their unique local identity.

Plautdietsch speech islands also exhibit these seven principles with respect to the mainstream communities which surround them, but they do not exhibit these properties with each other (i.e., it is not clear that they are converging with the mainstream speech communities but some changes do spread from island to island).

The social duality of the Plautdietsch speech community is a unique feature of the group: it has properties of both a speech island and a global speech community. Speakers actively engage in activities which keep them linked to this global community as outlined in §1.2.1, but they are linguistic minorities at the local level. Perhaps the appropriate analogy for the broader Plautdietsch speech community isn't either “speech island” or “global speech community”, but rather “speech archipelago”.

Traditionally, speech islands are viewed as conservative outposts of larger language groups even though there are clear exceptions to this generalization (e.g. Asia Minor Greek). Early studies of German speech islands often sought to attribute the conservative nature of German speech islands directly to the degree of isolation from other populations (Schirmunski 1992, Thudt and Richter 1950). Effectively, linguistic developments in speech islands were viewed as a matter of language contact. Regardless of the early emphasis on the role of external changes, current studies of long-distance

speech archipelagos reveal that in spite of relative isolation, macro innovative regions can develop (Keiser 2001).

Eichinger 2003 proposed a typology of speech islands and the types of changes which are likely to develop based on their social and geographical conditions. Geographically, some speech islands might be remote enough that there is not enough chance for contact with the linguistically dominant language of the region. Socially, some speech islands might openly distance themselves from outside influences, even if they live in close proximity to the linguistic majority. Communities which have low degrees of “distance” tend to develop in tandem with the linguistic majority whereas communities with a high degrees of “distance” tend to have developments which fortify features of the language which are not in the majority language (Eichinger 2003:85).

Eichinger discusses two macro categories of speech islands: *Border Islands* and *Remote Islands* (2003:91). Border Islands are ones which are still in proximity to the centralized locus of mainland speakers whereas remote islands are not. Historically, developments which happen in the mainland have a higher chance of entering Border Islands than they have of entering Remote Islands. Remote Islands also have more of a tendency to be ideologically opposed to social integration with respect to both the mainland and the neighboring community. The five major categories of speech islands are summarized in Table 1.4.

Macro Type	Name	Social Characteristics	Linguistic Characteristics	Example
	Pseudo Island	Language spread via Lingua Franca L2 community. Heavy extended language contact	Territories on the fringe of the mainland with high percentage of L2 speakers.	Polish German enclaves
Border Islands	Mont St. Michel Islands	Physically isolated in daily activities. Connection to mainland's influences.	Preserve archaisms that have been lost in mainland speech, even if mainland speech enters the region	Cimbrian Enclaves in Italy
	Heligoland Islands	Developed by settlers looking to expand economic opportunities. Function like mainland outposts.	Pick up influences from the linguistic majority. Can undergo the process of Koinization/New Dialect Formation	Hungarian Enclaves
Remote Islands	Robinson Crusoe Islands	Ideologically or economically driven to leave homeland, but determined to maintain identity associated with homeland. Tend to maintain links with other "Robinson Crusoe" types in the vicinity.	Maintain dialectal variation from the homeland. Maintain forms which mark them as separate from the socially dominant speech community.	Russian German Enclaves
	Atlantis Islands	Want nothing to have to do with anyone else. Live far away from others. Tend to impose heavy social restrictions on members of the community to keep them in the community.	Loan words and code-switching varies from island to island.	Pennsylvania Dutch Enclaves

Table 1.4 Eichinger 2003's Typology of German Speech Islands

This typology captures many features of well-studied German speech islands, but it falls short of the present-day and historical reality of Mennonite and Anabaptist speech islands. Many of the scenarios which are described by Eichinger predate the development of widespread technology accessibility in society. Many of the "Atlantis Islands" can stay in touch with each other across long-distances thus providing them with Robinson Crusoe Island-style social networking. Another problem with the typology is the exact historical placement of Plautdietsch, which fits five of the different island types at different points in time. The *Ostsiedlung* 'eastern settlement' period, which began in the 12th century, led to the expansion of Low German into into Polish-, Kashubian-, and Prussian-speaking regions. The island type developed in the *Ostsiedlung* period is closest to the Heligoland Island scenario. As the

Hanseatic League expanded its geographic trading range, Low German speakers moved with it. The lingua franca of the Haseatic League was Low German. Linguistic census records also indicate that Prussian Low German was of the Pseudo-Island type with many L2 learners who spoke the language (Stade 1908). Mennonites who picked up Prussian Low German and moved into Russia were historically Robinson Crusoe Islands. They maintained links with their homeland and people seeking to leave the homeland in later waves of migration. Today, Plautdietsch speakers are most likely classified as Atlantis Islands, similar to highly conservative Pennsylvania Dutch enclaves, but there are counterexamples of communities which openly embrace outsiders who are interested in their language and culture. Regardless of the fact that Mennonites have had different Island Profiles in Eichinger's typology, they still view themselves as members of an extended global community.

A previous study of linguistic change across long-distance speech islands was performed by Keiser 2001. This study focuses on Pennsylvania Dutch-speaking Amish communities which are seemingly isolated from each other. Amish communities have many features which Wolfram associates with speech community isolation, but in the end Wolfram admits that ultimately isolation is a social construct (2004:90).

In spite of the geographical separation of Midwestern Pennsylvania Dutch speakers, a Midwest macro-dialect has developed which is distinct from the Pennsylvania macro-dialect. The development of these macro-dialects is not the result of random phonetic drift, but rather they come from speaker to speaker contact diffusing the change across the midwestern region. In this respect, Keiser views the development of Midwestern Pennsylvania Dutch not in terms of the traditional family tree, but rather in terms of social contact. He rejects the likening of the changes to those in a wave model (2001:65-6). Because of the relative isolation of the communities, the change cannot spread to immediately adjacent locations. According to Keiser 2001, changes diffuse across the Midwest in a discontinuous space due to low-level contact among individuals (i.e., similar to the claim made about Plautdietsch dialects by Moelleken).

Burns (2016) explores another aspect of innovation, namely the distribution of innovative patterns across a subset of the Plautdietsch speech community. In this study, she examines the distribution of innovative speech patterns in Mennonites from Canada, Mexico, and Belize. Unlike the traditional linguistic scenario where older settlements are more linguistically diverse, this study suggests that linguistic innovations are spread quickly in newer settlement regions.

What always escapes these studies is a way to formalize an equation that measures the degree of isolation or connectedness across different communities. Social network analysis does provide an objective way to quantify network distance, but providing an answer to the question "What is the degree of isolation or connectivity that a community needs to affect social embedding of linguistic change?" is a much more difficult task. This is because any equation would need to objectively measure a community's commitment to the social construct of isolation within its own group.

1.6. Summary

Plautdietsch is a variety of Low German which comes from the Vistula Delta region of Poland and has many shared features with other varieties of Low German from this region which are not found in Western Low German. Mennonites are the predominant group which speaks Plautdietsch, but defining their social characteristics is rather tricky because there is much variation in the social structures of different Mennonite communities. There are many different types of Mennonites who come from distinct backgrounds. Even within the group that comes directly from Russia, there is considerable variation in when individual families immigrated to a given location and which customs they have maintained. While there is a general downward trend in the population size of Plautdietsch speakers in Canada and the US, the population in Mexico is rapidly increasing.

When assessing the changes which happen in these long-distance speech communities, traditional approaches to sociolinguistic stratification can prove to be difficult because there is so much variation in the social structures of different groups. This is not to say that all sociolinguistic indices are incapable of being tested, rather tested variables must be broad enough to apply across all communities. Other important social factors, such as community placement within the global speech community, are much more difficult to test directly and can be more easily assessed through direct observation of communities. Due to the difficulty of quantifying and properly weighting all relevant social factors, the tests which I employ to analyze linguistic variation are primarily clustering analyses which will be further discussed in Chapter 3.

The next chapter lays the foundation for the analysis of the changes in the Plautdietsch pronunciation system of North America. This chapter analyzes the traditional dialect features in more depth and establishes directions of innovation pertinent to the study of variation in vowel pronunciation across different Mennonite communities.

Chapter 2 Defining Linguistic Variation in Plautdietsch

The previous chapter situated the Plautdietsch language as a whole within its linguistic and social historical contexts. Much of the historical linguistic information focused on the relationship of Plautdietsch with respect to older forms of Low German. As was shown in Chapter 1, all of the features traditionally used to mark internal divisions within the Plautdietsch language existed before Plautdietsch speakers moved to Russia. This chapter investigates the traditional dialect patterns of Plautdietsch and lays the groundwork for an alternate socio-linguistic variable to assess contemporary dialect divisions within the language. §§2.1 and 2.2 present an overview of the current scholarship regarding Plautdietsch linguistic variation. These sections survey thirteen texts: Baerg 1960, Brandt 1992, Goerzen 1952, Jedig 1966, Lehn 1957, Moelleken 1966, Moelleken 1987, Molleken 1972, Nieuweboer 1998, Quiring 1928, Thiessen 1977, Rempel 1995, and Zacharias 2009. §2.1 presents an overview of the traditional dialect divide within Plautdietsch and problems of the traditional analysis. §2.2 presents an overview of vowel system variation listed across the 13 documentation texts.

Although all 13 sources provide fairly reliable dialect information, they vary in the observational adequacy of the phonological material. Two of the sources make use of *Bühnendeutsch* 'stage German' transcriptions and the remaining 11 sources make use of some form of the IPA. Some sources are detailed in phonetic variation, but do not present phonemic categories (e.g. Jedig 1960, Brandt 1992). As a result, these sources list many vowel classifications in Plautdietsch that are not found in other sources (e.g. short vs long diphthongs; tense vs lax short vowels).¹⁵

§2.3 presents theoretical classifications of vowel shifts and the known mechanisms involved in the development of vowel shifts. In this section, I define the historical trajectory of the vowel shift which is taking place in Plautdietsch. Ultimately, the trajectory developed in this chapter will be used in subsequent chapters to determine which speakers exhibit more advanced stages of the vowel shift. In addition to the extended vowel shift, Plautdietsch is undergoing a number of contextual sound changes, which are presented in §2.4. Finally, §2.5 summarizes the findings of this chapter.

2.1. Traditional Plautdietsch Dialectology

As was mentioned in Chapter 1, traditional Plautdietsch dialectology recognizes two dialects: Chortitza and Molotschna. These two locations were settled 15 years apart and were approximately 100 km apart in the Zaphorizia Oblast of Ukraine. The initial years of the Molotschna settlement began after the settlers spent time with the Chortitza settlers (Klippenstein 1989). Table 2.1 provides the summary of the traditional dialect features which was first presented in Chapter 1.

¹⁵ Brandt shows indications of perceptual bias from English and German influencing his IPA transcriptions.

Feature	Chortitza	Molotschna
1. Long /u/	Very front Like Standard German <ü>	Not as far forward Sometimes modified to English <oo>
2. WGmc * <i>aaw</i>	<eiw>	<au>, sometimes <eiw>
3. <oa> Diphthong ¹⁶	Front	Back
4. Palatal Oral Stops	<kj>, <gj>	<tj>, <dj>
5. Verbal infinitives, Plural Suffix	End in <i>-n</i>	End in <i>-e</i>

Table 2.1. Traditional Plautdietsch Dialect Variants

All of the traditional dialect features are phonetic in nature, even though there is considerable morpho-syntactic variation which has been documented in the language (Kaufman 2007, 2011). As was shown in Chapter 1, all of the traditional dialect features predate the settlement of the Chortitza and Molotschna colonies.

Most of the alleged Chortitza vs Molotschna features are not innovations of either the Chortitza villages or the Molotschna villages; rather, the reflexes of the five dialect features reflect regional retention. It is likely that the dialect features which predate the settlement of the two colonies were actually present in both to varying degrees. Two of the Chortitza speakers from Moelleken 1972 only used the Molotschna form of Feature 3 and claimed they had never heard the Chortitza form in their village (1972:21-22). Two other speakers from the Chortitza settlement were familiar with these forms and used them regularly. The features might have eventually become associated with a particular location due to settlement patterns and the outcome of dialect leveling. Variation of Feature 2 provides direct evidence that not all variation was lost due to dialect leveling. For the purposes of this investigation, I treat <eiw> as the Chortitza reflex (as it is the only traditional Chortitza variant) and <au> as the Molotschna reflex (as this traditional variant is only ascribed to the Molotschna).

One of the more puzzling aspects of the continued usage of the Chortitza vs Molotschna labels is the fact that they represent 18th c. Old World constructs. Plautdietsch communities have migrated considerably since then and new social groups have developed in the speech community. Within Latin America, there has been a restructuring of which groups are indexed by different features. In this zone, the only feature from Table 2.1 with traditional associations is Feature 5. Usage of final *-n* is associated with the Old Colony denomination, a Canadian Chortitza group. It could be argued that within Mexico, Feature 5 indexes “conservative” as the liberal Sommerfeld denomination uses the Molotschna form even though they are historically a Chortitza group. Although variation of Feature 2 is present in Mexico, the back vowel form is associated with the region Jagüeyes in Northern Mexico. All other regions use the front variant. Feature 3 does have some variation, but most speakers use the front variant. Speakers in Mexico report variation in Feature 4, but many view variation of this feature as idiolectal.¹⁷

Nieuweboer 1998 is critical of whether or not the Molotschna vs Chortitza division currently represents a true dialect division. His consultants reported consciously switching from Chortitza to Molotschna features in an attempt to sound more refined (1998:127-128). My investigation revealed that some people who recently moved out of Chortitza (Old Colony) villages in Mexico would remove

16 The front–back variation is only found in words which developed <oa> before Middle Low German velars. It is not found in words where the <oa> diphthong developed from Middle Low German *er*.

17 In general, Mexican Plautdietsch speakers have a more back pronunciation of Feature 4 than German Plautdietsch speakers who have a more assimilated pronunciation.

features associated with Chortitza groups either from their speech or from their appearance. Moelleken 1972 worked with Chortitza speakers who switched to Molotschna forms of Features 3 and 5 when they were in close contact with Molotschna speakers (1972:21-22). Moelleken cautions against using the Chortitza/Molotschna labels in British Columbia (1972:14). It is his belief that many Plautdietsch speakers in the area actually speak a variety with interdialectal forms from various Old World inputs. Nieuweboer raises a similar issue; Russian Mennonite daughter colonies have input from their parent colonies, but are nonetheless distinct linguistically (1998:127, 132).

A survey of the 13 texts reveals that the feature variation shown in Table 2.1 is still present in many communities. Table 2.2 summarizes the variation in traditional dialect features by labeling *C* for Chortitza reflexes and *M* for Molotschna reflexes. The “affiliation” of a given text with either Molotschna or Chortitza populations was assigned based on the author's description of the origin of the sampled population.

	Russia – Germany			Canada							US	Mexico	
	Quiring 1928	Jedig 1966	Nieuweboer 1998	Goerzen 1952	Lehn 1957	Moelleken 1972	Thiessen ¹⁸ 1977	Moelleken 1987	Rempel 1995	Zacharias 2000	Baerg 1960	Molleken 1966, 1987	Brandt 1992
Affiliation	C	C/M	C/M	M	C	C	C	M	C	C	M	C	C
FEATURE 1	C	C	C	M	C/M	C	M	M/C	C	C	M	C	M
FEATURE 2	C	M	M	C	C	C/M	C, (M)	C	C	C	M	M	C
FEATURE 3	C	M	M	M	M	C/M	M	C	C	M	M	C	C
FEATURE 4	C?	C/M?	M?	M	M	C	M	M?	C	C	C	C/M?	C
FEATURE 5	C	M	M	M	C	C/M	M	C	M	C	M	C	C

Table 2.2 Traditional Dialect Features

18 Thiessen 1977 and many of his other works are written in a variety that looks like a Molotschna variety, but his personal bio in the introduction to this book and on his website both indicate that his family is from the Chortitza colony on the Dnieper river.

Contrary to the image constructed by the traditional dialect categories, a group's traditional affiliation does not entirely determine which dialect features they use. The most conservative sources, Quiring 1928 and Thiessen 1970 are the only sources which show usage of the dialect features corresponding to traditional dialect affiliation.¹⁹ While many groups can be defined by using more Molotschna or more Chortitza features, they often use features from both groups. It is not always predictable which feature will surface in which group. The complications in Table 2.2 support the concerns expressed by both Nieuweboer 1998 and Moelleken 1972. The primary consultant used for Goerzen 1952 has the pattern listed in Table 2.2, but Goerzen does reference some Molotschna regions of Canada which use the Chortitza reflex of Features 2 and 3 (1970:190).

In addition to the traditional dialect features, speakers in Mexico have innovated some indexes of Old Colony/Chortitza speech. Usage of [o:] rather than [a:] in words like *Abraham* are associated with the Old Colony. Old Colony speakers view the use of [a:] as snooty and proud; using [o:] instead symbolizes humbleness. There are lexical features of Old Colony speech which are frequently identified by both native and non-native Plautdietsch speakers. Old Colony speakers actively avoid the use of newer loan words e.g., *Soppsel* vs *Jelly* 'jelly', *Kjätel* vs *Trakta* 'tractor', *Schwoatklock* vs *Mobil* 'cell phone/mobile phone', *Foatig* vs *Koa* 'car'.²⁰

Although the Chortitza and Molotschna features are still observable in Plautdietsch speech communities, much time has elapsed since these features were first associated with the two original Russian settlements. As an alternative way of looking at dialect affiliation, Moelleken 1987 suggests that one should observe shared social interactions, not identify regions or shared histories (1987:183). While Moelleken is correct to be cautious about dialect classification, there is evidence from Brandt (1992) that new dialect regions are forming at a macro-social level, namely by region. The next section will focus on the vowels of Plautdietsch, a feature which shows considerable variation among the 13 source texts.

2.2. Comparative Vowel Inventories

This section presents an overview of variation in the vowel system of the Plautdietsch language across the 13 sources. In this section, the texts are always grouped by location and date. Table 2.3 gives an overview of the regional and temporal setting of each work. Each column of Table 2.3 is grouped by the location of the Plautdietsch community under investigation. Each text listed under a given location is presented in descending order of publication date. Locations marked with an asterisk indicates that the speakers surveyed included recent immigrants from other regions.

¹⁹ Rempel 1995 is almost identical to Thiessen 1977 except that he claims the Molotschna final *-ə* is a Chortitza trait.

²⁰ Old Colony speakers are aware that some words, such as *Arbus* 'watermelon', are loan words from Russian (cf. Russian *арбуз* 'watermelon'). They seem to use the word due to convention even though they know they could say *Wotamelon*, which is closer to the Standard German *Wassermelone*. Some loan words are not widely known to be loan words, e.g. *Bocklezhonn* 'tomato' (cf. Russian *баклажан* 'eggplant'), *Schemmedaun* 'suitcase' (cf. Russian *чемодан* 'suitcase'), *Schessnikj* 'garlic' (cf. Russian *чеснок* 'garlic'), and *Lusch* 'bag' (cf. Polish *luszcza* 'veneer'). *Bocklezhonn* is often used alongside *T'meeta* in many groups in Southern Mexico.

OLD WORLD		NEW WORLD		
Russia	Germany	Canada	United States	Mexico
Quiring 1928 Chortitza	Nieuweboer 1998 Altai, Germany	Goerzen 1952 Generic	Baerg 1960 Kansas	Moelleken 1966 Chihuahua
Jedig 1966 Altai		*Lehn 1957 Manitoba		Moelleken 1987 Chihuahua
		*Moelleken 1972 British Columbia		Brandt 1992 Chihuahua
		Thiessen 1977 Manitoba		
		Moelleken 1987 Ontario		
		British Columbia		
		Rempel 1995 Manitoba		
		Zacharias 2009 Manitoba		

Table 2.3. Source Texts by Location and Publication Date

The location with the most extensive documentation is Canada. Most of the Canadian sources analyzed long-term residents of Canada, except Lehn 1957 and Molleken 1972. These sources analyzed the speech of recent immigrants from Russia.

In the initial stages of research, vowel pronunciation was first categorized source internally and then the categories were aggregated into a correspondence chart (see Appendix B). Because many of the sources lack phonemic analysis, sources where phonemic status could be determined were analyzed first (Rempel 1995, Thiessen 1977). In all, each source had a set of long monophthongs and closing diphthongs (N=9), a set of opening diphthongs (N= 5-6), and a set of short stressed monophthongs (N=4). The set of long monophthongs and closing diphthongs include the following tokens, which are presented in Rempel 1995's orthography: *Biet* 'bite', *Hüt* 'skin', *heet* 'hot', *ät* 'eat', *hab* 'have', *Hoot* 'hat', *Hos* 'hare', *Ei* 'egg', and *Tauss* 'cup'. The set of opening diphthongs include the following tokens: *Ua* 'ear (body)', *Üa* 'watch', *Oa* 'ear (corn)', *äa* 'her', and *Ea* 'honor'. In some sources, there are three levels of front unrounded opening diphthongs and the *Ea* group's *Scheare* 'scissors' would contrast with *schiare* 'to scrub'. The set of short stressed monophthongs include the following tokens *Witt* 'white', *Hett* 'heat', *Hutt* 'protection', and *Oss* 'ox'. The aggregated correspondence chart was checked for lexical membership and phonemic value against Thiessen 1977 and Rempel 1995. The following sections show the variation in reported phonetic values of the different vowel classes and introduce the major allophone classes across different groups.

2.2.1. Long Vowels and Closing Diphthongs

Table 2.4 shows the comparative IPA value of the monophthong and closing diphthong set. The columns are organized by the source text, and the rows are organized by word class. The word classes are represented by token members of the word class cited above in small caps. The IPA represented is

solely based on the descriptions provided by the authors of the texts, except for Rempel 1995 whose own pronunciation was cross-checked with his spelling system.²¹ Zacharias (2009), Moelleken (1966, 1987), and Brandt (1992) make use of modern IPA values which I use for the IPA value of their sources.

²¹ The recordings of Herman Rempel used in this project can be found at <http://www.plautdietsch.ca/PronunciationExercise.htm>.

	Russia – Germany				Canada								US		Mexico	
	Quiring 1928	Jedig 1966	Nieuwboer 1998	Goerzen 1952	Lehn 1957	Moelleken 1972	Thiessen 1977	Moelleken 1987	Rempel 1995	Zacharias 2000	Baerg 1960	Molleken 1966, 1987	Brandt 1992			
BIET	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]	[i:]			
HUT	[y:]	[y:]	[y:]	[u:], [y:]	[u:], [ɥ:]	[u:] ((u:))	[u:]	[y:]	[y:], [u:]	[y:]	[y:]	[y:]	[y:]			
HEET	[e:]	[ei]	[ai], [ɔi]	[ei]	[eɪ]	[ai]	[e:]	[ai]	[ei]	[ai]	[e:]	[ɔi]	[ei], [ɔi]			
ÄT	[e:]	[e:]-[e:], [ei]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]	[e:]			
HAB	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]	[a:]			
HOOT	[o:]	?	[au]	[oo]	[əu]	[oo]	[oo]	[oo]	[oo]	[oo]	[oo]	[oo]	[au]			
HOS	[ɔ:]	[o:]-[ɥ:], [ou]	[u:]	[o:]	[o:]	[o:]	[o:]	[o:]	[o:]	[ɔ:]	[o:]	[o:]	[o:]			
EI	[ei]	[ai], [e:]	[ei], [e:]	[ei]	[aɛ]	[æi] ((ei))	[ei]	[æi]	[ei]	[ei]	[ei]	[æi]	[ei]			
TAUSS	[ao]	[ao]	[ɔ:]	[oo]	[aɔ]	[oo]	[oo]	[p:]	[oo]	[oo]	[oo]	[p:]	[ɔ:]			

Table 2.4. Long Vowel and Closing Diphthong Phoneme IPA Value²²

22 The Chortitza vs Molotschna variation of Feature 2 corresponds to whether the reflexes are members of the EI class (Chortitza) or TAUSS class (Molotschna).

The most stable vowels across all sources are the vowels represented by the BIET and HAB classes. The HÜT vowel is relatively stable across different sources. Almost all sources cite a [-BACK] variant of the vowel, but in English-speaking locations, some of the variants of the vowel are [+BACK]. The most variation occurs in the back vowel space. The HOOT and HOS classes are originally distinct mid back vowel classes in Quiring 1928 and Baerg 1960. According to Baerg's description, it appears the HOS class has begun to encroach in the space of the HOOT class. Most other sources show the HOOT class has compensated for the encroachment by centralizing. All of the sources which have a centralized HOOT class have a HOS class which is at least [o:] if not higher. A monophthong TAUSS class is only found in systems with HOS as [o:] or higher. The only systems where the EI class is a monophthong have both an ÄT class which is [e:] and a monophthong TAUSS class. The only members of the HEET class which centralize are in systems where the HOOT class has already centralized.

Some sources prove to be problematic with respect to IPA analysis. Brandt 1992 appears to use IPA, but his data collection/analysis might have introduced errors to his vowel classifications. One indication of potential error in his analysis is the use of [ei] for both the HEET and EI classes. Taken at face value, one would assume that the two classes have merged. Members of the HEET class, however, appear to be distinct from the EI class because only HEET words exhibit the variant [oi]. Most all other sources indicate that the diphthong form of the EI class is either [ɛi] or [æi] while the diphthong form of the HEET class is either [ei], [øi], or [ɔi]. Brandt might have misheard the quality of the nucleus in the two distinct classes due to influence from either Standard German or English.

Burns (2016) and Nieuweboer (1998) present analyses of the system in Jedig (1966). Both authors agree that Jedig 1966 is one of the most difficult sources to analyze as it is not clear which vowel phones are contrastive. Jedig is very diligent in his presentation of any and all variation in the vowel system, but in the view of Burns (2016), his level of detail proves to be problematic because without contrastive analysis, it is not clear which communities are in the middle of shifting and which communities have different phonemic systems. Jedig 1966 has a problem similar to Brandt 1992, but in this case the misclassification involves an alleged merger of the HOS and HOOT classes. Words in both of these classes are back vowels with the value [ou], but the variants ranging from [o:] to [ɥ:] only occur in words that correspond to the HOS class in other sources.

2.2.2. Opening Diphthongs

Opening diphthongs are the only set of vowels which did not exist prior to the Middle Low German (MLG) period. This set of vowels exhibits the most amount of variation in the Plautdietsch vowel system. As was stated in Chapter 1, opening diphthongs developed from long vowels which diphthongized before velar segments and from $\bar{V}r$ sequences. Because opening diphthongs came from a very restricted set of the vowel system, they have low functional load and are prone to mergers. Variation in the OA diphthong before velars is a well-known traditional dialect feature which I call the Dialect OA class (see Table 2.1 Feature 3). As will be shown in this section, there is a lot of variation in the opening diphthong system aside from the Dialect OA class.

While all sources acknowledge the existence of opening diphthongs, it is uncertain whether the opening diphthongs are phonemes in the synchronic system or whether they can be allophonically derived (see Siemens 2012 for a discussion of the two positions).²³ Table 2.5 shows the comparative IPA value of the opening diphthong set. The table does not include the Dialect OA class because Chortitza variants are not attested in all texts. The columns are organized by the source text, and the rows are organized by word class.

²³ In some sources, forms like [kəʊrən] *Kuarn* 'kernel' and [həʊrən] *Huarn* 'horn' are treated as synchronic $\bar{V}r$ sequences (cf. Lehn 1957). In other sources, these words contain diphthongs (Rempel 1995).

	Russia – Germany				Canada						US	Mexico	
	Quiring	Jedig	Nieuweboer	Goerzen	Lehn	Moelleken	Thiessen	Moelleken	Rempel	Zacharias	Baerg	Molleken	Brandt
	1928	1966	1998	1952	1957	1972	1977	1987	1995	2000	1960	1966, 1987	1992
	[iə]	[i:a], [i:r]	[iə]	[iə]	[i:a]	See EA	[iɪ]	[ɪa]	[iɪ]	[ia],[iə]	[iə]	[ia]	[i:a]
EA	[ɛiə]	See IA	See IA	[ɛiə]	[ɛjə]	[ɛə]	See ÄÄ ²⁴	[ɛa]	See IA	See IA	[ɛə]	See IA	See IA
ÄÄ	[ɛä]	[ɛ:ɛ],[ɛ:r]	[ɛɐ]	[ɛä]	[ɛä]	[ɛä]	[ɛɐ]	[ɛä]	[ɛɐ]	[ɛä]	[ɛä]	[ɛä],[ɛä]	[ɛ:r],[ɛä]
ÜA	[yɛ], [øä]	[y:r]	[yɐ]	See UA	[u:r]	[yɛ], [øä], [øä]	[uɐ]	[u:]	[yɐ]	See UA	[uə]	[y:], [ya]	[y:r]
UA	[oa]	[u:a]	[uɐ]	[ouə]	[ɔə]	[ɔä]	[əoɐ], [uɐ]	[oa]	[uɐ]	[ua]	[øə]	[oa]	[u:r]
Oa	[œ]	[o:c],[a:c]	[œ]	[œ], [ov]	[ca]	[ca]	[œ]	[ca]	[œ]	[ca]	[œ]	[ca]	[o:r]

Table 2.5. Opening Diphthong Phoneme IPA Values

24 Both <ea> and <äa> are given the phonetic value [ɛä] in Thiessen 1977. The graph <ä> is always associated with the phonetic value [ɛ] in the dictionary.

Rempel (1995) claims there is a difference between <ia> and <ea>, but this difference is not audible in his own pronunciation. Quring (1928) describes the diphthong [iə] for words corresponding to Rempel's transcription <ia> (e.g. *diare* 'to last') and [eiə] for words corresponding to Rempel's transcription <ea> (e.g. *Peat* 'horse'). Goerzen and Baerg also make a distinction between these two vowels, but Baerg's description indicates near merger of the two and one of her consultants has the pronunciation <ia> instead of <ea> in the words *Peat* 'horse' and *studeare* 'to study'.²⁵ Goerzen 1952 observes Steinbach, Manitoba residents who are beginning to merge the EA diphthong with the "IA" diphthong (1970:187). Moelleken 1987's consultants with distinct <ia> and <ea> pronunciations also have a mid-low realization of ÄA. Those who have a mid-high pronunciation of ÄA have merged <ia> and <ea> into [ia].

Brandt indicates that the OA class shares an allophone [o:] with the HOS class. In words where the off-glide is realized as a consonant, there is sometimes variation in the height of the nucleus, e.g. *Spoa* 'spur' [ʃpo:ʌ] for most speakers, but [ʃpu:r] for one. Loss of off-glide in European populations is observable in Nieuweboer (1998) e.g., [vuə] ~ [vu:] 'where'.²⁶ Moelleken 1972 exhibits loss of the off-glides in the diphthong [ɔa] which is in free variation with a raised monophthong [o:] in *Doag* 'days'. In Lehn 1957, all members of the EA and OA classes have a centralizing off-glide, but the nucleus has developed in the same way as the long vowel system as if the opening diphthongs were still actually $\bar{V}+r$ sequences synchronically. Jedig 1966 shows frequent loss of the off-glide in the UA class, e.g. *Kuarn* 'corn', *nuade* 'north'. Loss of the off-glide is also found in the word *Üa* 'watch' which appears in two classes in the text. The UA reflex loses the off-glide, but the ÜA reflex does not.

Nieuweboer 1998 and Jedig 1966 contain evidence that the diphthong /yæ/ is not a category with high functional load and that it mostly overlaps with /uæ/. In these sources, the forms *Plüag* 'plough', *klüak* 'wise', *hüag* 'high', *Düak* 'cloth', and *Büak* 'book' are members of the UA class, but these words belong to the ÜA class in many other sources. The only members of the ÜA class which are distinct developed from *r* vocalization (e.g. *süa* 'sour' and *Büa* 'farmer'). Moelleken 1972 also shows partial merger of the ÜA and UA classes e.g. *Plüag* 'plough' pronounced with the same vowel as *Ua* 'ear' and *fua* 'drove'. According to Moelleken 1966, [ya] is an allophone of /ɔa/ which only occurs before velars, but he does not cite any instances of ÜA which developed from MLG $\bar{u}r$ sequences (1966:36). Lehn 1957 seems to contain evidence that the UA and ÜA classes are near merged, but his word list contains very few tokens of these classes. The words *fuats* 'immediately', *Wuat* 'word', *Ua* 'ear', *Üag* 'eye', *Büak* 'book', and *hüag* 'high' are all members of the UA class, but *Trüa* 'sorrow' remains separate. Similarly, the data in Nieuweboer 1998 and Jedig 1966 only contrast the UA and ÜA reflexes which developed from historical $\bar{V}r$ sequences. Zacharias 2009 shows complete merger ÜA and UA classes. Mexican varieties tend to contrast the words UA 'ear' and ÜA 'watch', neither of which are listed in either Moelleken 1966 or 1987's word lists.

A curious feature of Quring 1928 that is not listed in Table 2.5 is the existence of three front round vowel categories. The reflex [ya] corresponds to the ÜA class which developed from MLG $\bar{u}r$ sequences, [øa] corresponds to the ÜA class which developed from $\bar{o}C_{[VELAR]}$ sequences, and [œa] corresponds to the Chortitza OA class which developed from MLG $\bar{a}C_{[VELAR]}$ sequences. The UA class, which developed from MLG $\bar{o}r$ sequences, is lower than in any other source and matches the height of

25 This consultant also has the front raised pronunciation <üa> in *Büak* 'book' and *Plüach* 'plow' instead of the lower and back <oa> used by the other consultant.

26 Brandt (1992) contains variation in the ÄA class, sometimes the nucleus is tense and other times it is lax but it is not clear that this is phonemically meaningful variation. According to Bussmann 2004, although diphthongs contrast for the off-glide's target (either I-, E-, O-, U-, or A-bound), they do not contrast in tenseness or laxness of the off-glide's target. Given that [ə] and [ɐ] are both central lax vowels, it might be the case that degree of aperture is not contrastive for these off-glides.

the $\ddot{U}A$ class which also developed from Middle Low German \bar{o} .

Jedig 1966 lists tense/lax variation of opening diphthongs with a [-HIGH] nucleus. This variation appears to be allophonically triggered. If the diphthong OA precedes a velar consonant, it surfaces as [o:ɔ]. If the diphthong $\ddot{A}A$ precedes a palatal consonant, it surfaces as [e:ɛ].

There is also considerable variation among the Chortitza OA reflex in the feature [±ROUND]. Quiring 1928 and Molleken 1972 indicate that the Chortitza reflex is round. Thiessen and Rempel make it clear that there is a distinction between the Chortitza and Molotschna reflexes in terms of the feature [±FRONT], but it is not clear if there is variation in the feature [±ROUND]. Moelleken 1966 shows unround variants, but the Chortitza OA reflexes in Moelleken 1987 are both [+ROUND] and [-ROUND]. Brandt's consultants mostly use [-ROUND] reflexes of the Chortitza OA diphthong's nucleus and only seldom use the [+ROUND] variant.

2.2.3. Short Stressed Monophthongs

The most stable category of vowels across all of the descriptive sources is the short stressed vowel system. Table 2.6 provides a list of the comparative IPA value of the stressed monophthongs across the 13 sources. The columns are organized by the source text, and the rows are organized by word class.

	Russia – Germany			Canada						US	Mexico		
	Quiring 1928	Jedig 1966	Nieuweboer 1998	Goerzen 1952	Lehn 1957	Moelleken 1972	Thiessen 1977	Moelleken 1987	Rempel 1995	Zacharias 2000	Baerg 1960	Molleken 1966, 1987	Brandt 1992
W _{ITT}	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]	[ɪ]
HE _{ITT}	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]	[ɛ]
HU _{ITT}	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[ʊ]	[u]
Oss	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]	[ɔ]

Table 2.6. Short Stressed Vowel Phoneme IPA Values

Although there is some variation in the system, because there are only four short stressed vowels, it is possible they can move without encroaching on the space of other short vowels in the system. The most commonly reported variation in the short vowel system is in the quality of the high vowels. According to Brandt's IPA, these vowels have tensed, yet maintained a short duration. These vowels might actually be lax, like the other short vowels, but Brandt does not discuss his transcription of short vowels in much detail (1992:40). Jedig 1966 makes a distinction between both tense and lax short vowels, but there is no evidence that the distinction is phonemic.²⁷ According to Nieuweboer 1998, the high back vowel is centralized. Centralization is a plausible development given that Cox et al. 2013's acoustic analysis of Canadian Plautdietsch shows a very central set of short back monophthongs.

2.2.4. Summary

Descriptions of Plautdietsch from different regions have a high degree of variation in which traditional dialect features are attested. Variation in the use of traditional dialect features is in part dependent on the traditional dialect affiliation of the speaker, but it is also regional in nature. Although the vowel system does show considerable variation, the variation is mostly regional rather than ideolectal or dialectal. The opening diphthong system shows the most variation in the vowel system. The variation in the opening diphthong system is related to three reflexes. Varieties differ based on whether or not reflexes of MLG $\bar{V}r$ and $\bar{V}C_{[VELAR]}$ sequences exhibit merger of different input vowels (e.g. *Büa* 'farmer' < MLG *būr*, *Büak* 'book' < MLG *bōk*), whether or not back vowels in MLG $\bar{V}C_{[VELAR]}$ sequences fronted (e.g. *moak* 'make' < MLG *māk*, *Büak* 'book' < MLG *bōk*), and whether or not the EA and IA classes have merged (e.g. *schiare* 'to touch', *Scheare* 'scissors'). In the long vowel system, there is no reported variation in the BIET and HAB classes. Variation in the HÜT class is present, but the variation is a well-known feature of Prussian Low German that existed before Mennonites settled in Russia. Of the classes that do show non-traditional dialect variation, the most stable are the HOOT and ÄT classes. Long vowel classes with considerable variation are the HEET, EI, HOS, and TAUSS classes. The short vowel system shows the least amount of variation. The only variation observed in the short vowel system is with respect to the laxness of the high vowels, most notably the vowel of the HUTT class. There is a lot of variation and inconsistency across the different sources, but some of the inconsistencies actually provide insight to an ongoing community-wide vowel shift which will be explored further in §2.3. Unlike the picture painted by the traditional dialect features, which focus on the frontness of vowels, many of the innovations in the vowel system are height-based.

2.3. Theory of Vowel Shifts

In order to know how the observational variation of Plautdietsch vowels is to be understood historically, one first has to understand the diachrony of vowel shifts. A vowel shift is a set of step-wise changes in the vowel space of a given language. This section outlines the cross-linguistic typology of vowel shifts from Labov 1994 and the proposed mechanisms of vowel shifts. This section will not provide formalizations of vowel shifts because in order to formalize vowel shifts in a way that is more insightful than the observational tendencies, we must first be aware of what causes vowel shifts to happen. Although there are several proposed mechanisms of vowel shifts, there is hardly a consensus on what the actual mechanism is.

The final section analyzes the Plautdietsch vowel shift with respect to the typology and formalization in order to establish a relative schema of innovation. Much of the variation in the vowel

²⁷ A possible explanation for the occurrence of short tense monophthongs could be that they are unstressed variants of long monophthongs. Goerzen 1972 provides an analysis of stress reduction in which long vowels shorten when they do not bear primary stress, but they still retain their tenseness. Baerg 1960 has a similar proposal. The rest of the short tense monophthongs come from loan words.

space must be understood as a set of community-specific innovations rather than dialect leveling of vowel systems carried over from Europe. Manifestation of new reflexes seems to closely correspond to the development of new settlements, which would not be the case if leveling were responsible for the distribution of vowel systems. Burns (2016) argues that as new settlements are formed along the Mennonite Migration Path, an advanced step in the vowel shift might develop, but new settlements never “revert” to older forms in the chain. This differs from the Traditional Dialect Features, which are not Mennonite community-specific innovations, but rather features of Prussian Low German brought by Mennonite communities entering Russia from Danzig. Mennonite communities frequently reorganize the distribution of innovative and conservative Traditional Dialect Features as is shown in §2.1 and Rosenberg (2005). Understanding which speech communities tend to innovate together will help define the current status of linguistic variation in Plautdietsch speech communities and eventually aid in assessing the extent to which the traditional dialect features align with innovations, and ultimately which types of social factors are indicative of innovation.

2.3.1. Vowel Shift Typology

Principles of Chain Shifts

The vowel variation described in section 2 can be analyzed according to Labov's principles of vowel shifts (Labov 1994). There are three principles of vowel shifts:

- I. Long Vowels Rise
- II. a) Short Vowels Fall
b) Nuclei of Closing Diphthongs Fall
- III. Back Vowels Front

All three of these principles are observable in the developments of the Plautdietsch vowel system. Principle I is observable in the Ä_T and HOS classes, and as will be discussed in Chapter 4, the monophthong reflex of the TAUSS class. The HOS class has risen the most out of all vowels [ɔ:] → [o:] → [u:]. The Ä_T class has risen as high as it can within the front vowel system, [ɛ:] → [e:], without merging with the BIET class. Likewise, the TAUSS class has risen as high as it can in the back vowel system, [ɔ:] → [o:], without merging with the HOS class.

The short vowels of Plautdietsch appear to be fairly stable, but recently Principle IIa can be observed in the HETT and WITT classes of Mexican and Belizean communities (see Chapter 4). Principle IIb is already observable in the HEET class chain [eɪ] → [əɪ] → [ɔɪ]. In some communities, IIb is visible in the EI and TAUSS classes, giving rise to the reflexes [aɪ] and [aʊ]. In other communities, vowels of the EI and TAUSS classes monophthongized, producing the reflexes [ɛ:] and [ɔ:]. Monophthongization is not typologized in Labov's Principles, but is referred to as *smoothing* (1994:240).

In the long vowel system, MLG *ū* fronted in the Prussia dialect which is reflected in the Chortitza reflex [y:] and the Molotschna reflex [u:] of the HÜT class. The centralization of the HOOT class also reflects Principle III, and as will be discussed in §2.3.3, is evidence that both the Molotschna and Chortitza groups fronted MLG *ū*.

The only developments of the Plautdietsch vowel system that do not fit within their typology of Labov's principles are the behaviors of the opening diphthongs. The opening diphthongs differ from the other sub-systems in Plautdietsch because they are the newest sub-system of the language. The opening diphthong system developed from one of two sources: CV coarticulation between long back vowels and velars and coda *r* vocalization. Across the different sources, the opening diphthongs have a tendency to rise, and some of the back opening diphthongs have a tendency to monophthongize. The

tendency of opening diphthongs to rise could be viewed as a subset of Principle I and the converse of Principle IIb.

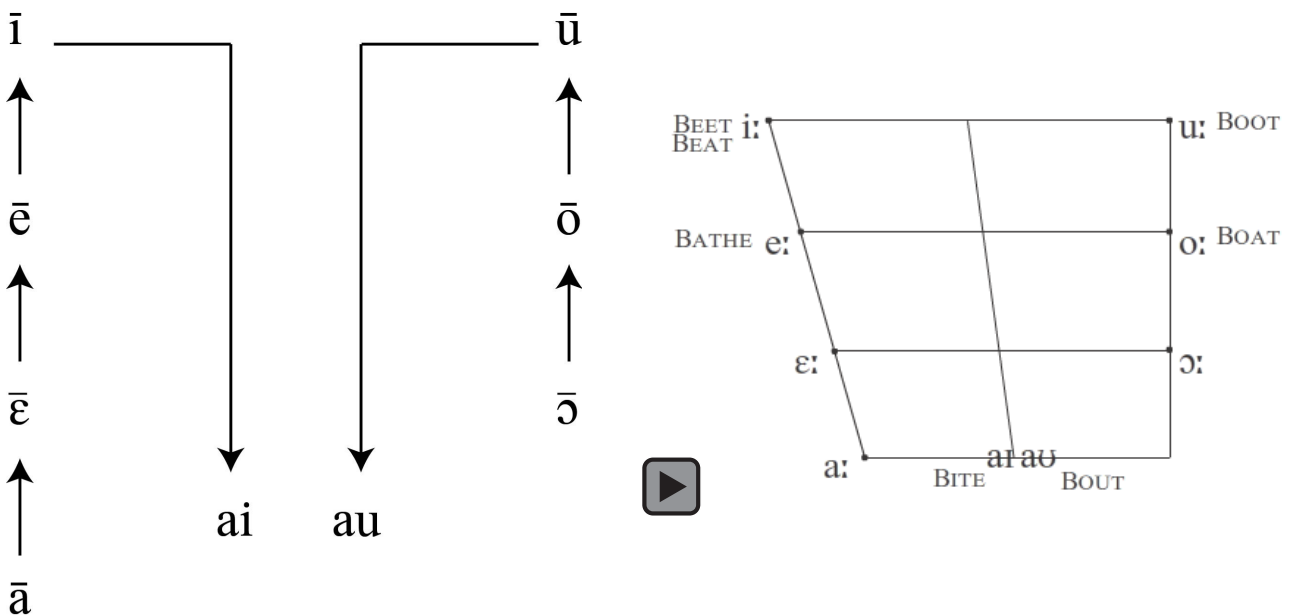
It is not clear why only the back opening diphthongs have a tendency to monophthongize, but the front opening diphthongs are more prone to merger and near merger with other opening diphthongs. The back opening diphthongs could be more variable than the front opening diphthongs for a number of reasons. Back opening diphthongs frequently exhibit Principle III as found in the variation of the \bar{U}_A class, < MLG $\bar{o} + C[\text{velar}]$, and the Chortitza Dialect O_A reflexes. Back opening diphthongs might vary because they do not have acoustic transition cues that are as strong as the front vowel system in certain contexts (see Chapter 4 for vowel charts). If the glide transition cues of the back diphthongs are weaker than the glide transition cues of front diphthongs, speakers could reinterpret the back opening diphthongs as monophthongs (e.g. Central Kansas [ko:kə] *koake* 'to cook' vs Moelleken 1987 [kɔkə]) or to dissimilate to increase the transition (e.g. Moelleken 1987 [kœakən] *koaken* 'to cook' vs Zacharias 2009 [kɔkən]). Unfortunately, the weak perceptual cue account does not account for the reason why some varieties monophthongize the high opening diphthongs before monophthongizing the mid opening diphthongs.

While Labov 1994 lays out three principles, all principles seem to converge on the development of Principle I. Short vowels never fall independent of long vowels rising (Parkinson 1996:77). Long vowels, however, do rise independent of short vowels falling. As will be discussed in §2.2.3, fronting of back vowels physically result in a raised tongue position; Principle III necessarily evokes Principle I. Principles I, IIa, and III are robust not only as historical changes, but they are also found in context-free speech errors of normally developing children (Donegan 2013: 40-45). This suggests that there is a robust phonetic bias to the mechanisms which produce these tendencies.

Patterns of Vowel Shifts

The principles of chain shifts tend to cluster together into three distinct patterns (Labov 1994:122-33).

Pattern 1. Symmetrical front – back movements. Long high vowels leave the monophthong space and become closing diphthongs. Other long vowels subsequently rise to fill the vacated positions.



Video 1. Pattern 1: English Great Vowel Shift (Labov 1994:145)

Pattern 2. Asymmetrical front – back movements. Long low back vowels front prompting low front vowels to rise. Short vowels subsequently fall to fill the vacated spaces.

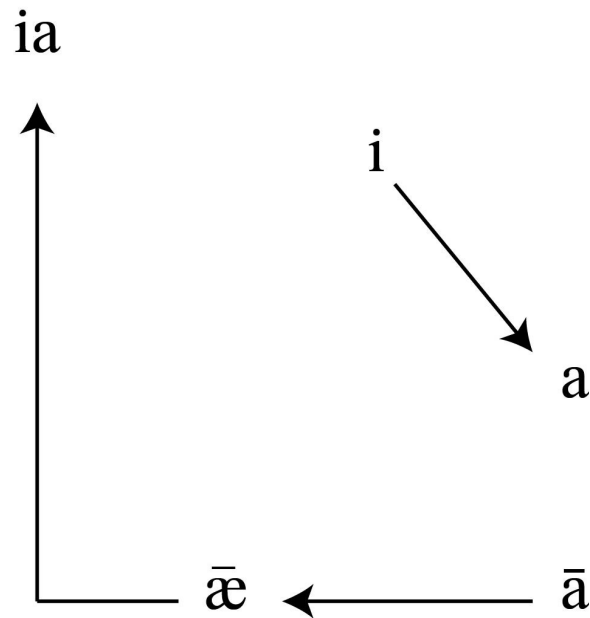


Figure 2.1. Pattern 2: Frisian Vowel Shift (Labov 1994:126)

Pattern 3. Asymmetrical front – back movements. Long high back vowels front. If more than one high back vowel moves, the higher of the two vowels will front first and the second vowel will trail behind the first. Lower long back vowels rise subsequently filling the vacated positions.

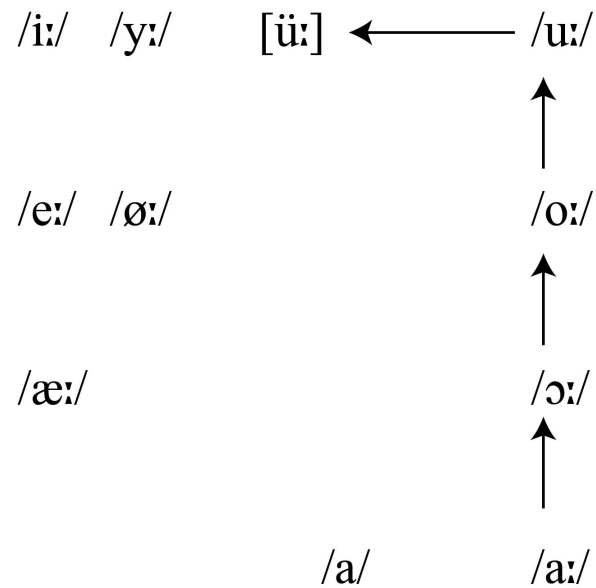


Figure 2.2. Pattern 3: Swedish Vowel Shift (Labov 1994:131)

Some shifts actually involve a mixture of different patterns such as the extended chain of the North Frisian Chain Shift which is a Pattern 2/3 shift.

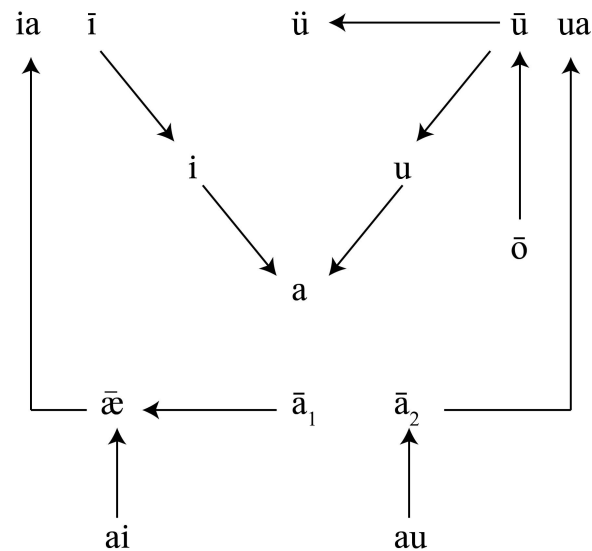


Figure 2.3. Pattern 2/3 Extended Frisian Vowel Shift (Labov 1994:136)

There are other types of mixed chain shifts such as the East Lettish 1/2 shift (Labov 1994:134). As presented in Burns (2016), the Plautdietsch long vowel and closing diphthong shift is a Type 1/3 shift. As will be presented in section §2.3.3, the vowel shift currently underway in the opening diphthong system is also a Type 1/3 chain shift. The changes underway in the short stressed monophthong system do not appear to be related to Type 2 at this point in time.

Other Changes

Some changes observable in vowel shifts do not follow the principles or patterns listed above.

Parallelism is a type of harmony whereby vowels of the same height or similar height behave similarly (Labov 1994:208). This type of pattern is found in the Southern American English shift where lowering of [oʊ] > [ɔʊ] of 'boat' can be seen as mimicking the behavior of the earlier change [eɪ] > [æɪ] of 'say'.

Smoothing is a process which affects some diphthongs by removing the off-glide resulting in a monophthong (Labov 1994:240). *Vowel coalescence* is another process which results in a monophthong. Coalescence differs from smoothing in that the input height of both the nucleus and off-glide are present in the new output (Parkinson 1996:93). Although these are observable in chain shifts, they are not considered to be primary governing principles, but rather additional processes.

Unrounding is the loss of the feature [+ROUND]. Unrounding has been observed in many dialects of English and in many varieties of West Germanic spoken outside of the main West Germanic territory. In most of these languages, unrounding effects the front rounded vowels which developed from the process of umlaut and not back vowels.

2.3.2. The Mechanisms of Perception and Production

Although the Labovian chain shift generalizations are useful in classifying vowel shifts, they are a descriptive tool and are not underlying mechanisms which produce vowel shifts. Various scholars have attempted to formalize vowel shifts based on the mechanisms they believe to be working to produce the

change, but there is no consensus on what actually causes shifts to happen. The mechanisms that produce vowel shifts are most likely grounded in vowel perception, auditory reception, and vowel production. Although these proposed mechanisms give insight to individual principles of chain shifts, they do not provide an explanation as to why shift patterns arise.

Vowel Perception and Perceptual Distance

Perceptual distance is a concept which refers to the need for sound categories to be distinct in order for a listener to properly differentiate one category from another. This concept has some support from the cross-linguistic tendency of vowel systems to be spread across the outer boundaries of the perceptual space. The tendency for vowel systems to be spread out gave rise to the development of Dispersion Theory (Flemming 1995, 2005; Crothers 1978; Lindblom 1986, 1990). According to this theory, vowels in any given system will maximize their perceptual distinctness from other members in the system by spreading out evenly throughout the vowel space (Crothers 1978:125). Dispersion Theory in its strongest form is frequently rejected as an explanation of vowel shifts as there are many synchronic vowel systems which are counterexamples to the “ideal inventories” (e.g. Kabardian, Qawasqar, among others).

Most scholars who evoke perceptual distance make a softer claim: vowels maintain perceptual distinctness in order to avoid confusability. OT accounts model perceptual distinctness with either individual constraints whose sum is the avoidance of merger, or an explicit constraint against merger to maintain minimal distance (Miglio and Morén 2003, Minkova and Stockwell 2003:182). The family of *MERGE constraints is not as strong as Dispersion Theory in its predictive power of vowel inventories, but it does capture the structure preserving nature frequently (but not always) observed in chain shifts.

There is evidence from perceptual experiments that listeners perceive increased peripherality of vowels and enhanced distinctness of actual speech signals (Johnson et al. 1993). This effect, known as *perceptual hyperspace*, results in exaggerated F1 (low vowels have higher F1, high vowels have lower F1) and F2 (front vowels have higher F2, back vowels have lower F2). Sometimes the hyperspace favors subsets of vowels. Carlson et al. 1970 ran an experiment in which Swedish speakers were asked to match the F1 and F2 of simulated vowels. Subjects accurately estimated the F1 of the stimuli, but the only accurate F2 estimates were in the back vowel space. The test subjects overwhelmingly estimated a much higher F2 for front unrounded vowels, thus increasing their distance from the front rounded vowels.

Auditory Perceptibility Feeds Raising

Audition of Hz frequencies is a process that is highly influenced by the shape of the inner ear (Johnson 2012:88-90). The basilar membrane is more sensitive to lower frequencies than it is to higher frequencies. A change of 50 Hz from 300 to 350 Hz will be more perceptible to the human ear than the same change from 2000 to 2050 Hz. Given that small changes in F1 (height) will occur at lower frequencies than small changes in F2 (frontness), small changes in F1 should be more perceptible to the inner ear.

Cross-linguistically, mental perception of vowels appears to be sensitive to the frequencies of the acoustic parameters F1 and F2 (Johnson 2012:148). Auditory perception tends to blur together multiple high frequency harmonics to derive F2, whereas lower frequency harmonics tend not to be blurred together and are more easily distinguished by the auditory system. (Kiefte et al. 2013:170, Johnson 2012:146). Lower frequency harmonics tend to be F0 and F1. This means that if speakers mentally perceive vowels in terms of F1 and F2, they will be more sensitive to small changes in F1 production than small changes in F2 production because the bandwidth of the harmonics which make the F2 span is wider.

The direction of F1 changes should feed vowel raising (F1 lowering) as lower frequency sounds tend to mask the presence of higher frequency sounds (Johnson 2012:91). Additionally, signals masked by artificially introduced noise are more easily recovered at lower frequencies than at higher frequencies (Johnson 2012:91). F1 usually has a higher amplitude than F2 and F3 and occurs at lower frequencies. If a vowel signal is compromised at lower frequencies, it should be easier to overcome the noise by estimating the center of the F1 band at a lower frequency, thus resulting in a perceptually raised vowel. If a signal is compromised at higher frequencies (the F2 range), listeners should be able to accurately recover the F1 center and might possibly be able to recover the F2 center. In an experiment by Iverson et al. 2006, two groups of English speakers were asked to rate the acceptability of vowel production in normal speech stimuli and simulated cochlear implant stimuli. One group consisted of speakers with normal hearing and the other group consisted of speakers with cochlear implants. Both groups of listeners preferred lower than natural F1 in the simulated speech (i.e., compromised signals) but this did not occur for the normal speech stimuli (i.e., non-compromised signals). Neither of the groups adjusted F2. Because multiple high frequency harmonics with wide bandwidths are used to derive F2, the interrupting signal would have to have a wider bandwidth than the harmonics which are smearing together in order to render the estimated F2 non-recoverable.

Raising Production and Fronting as Raising

Production-based accounts of vowel shifts focus on the role of tongue raising as the most active process in vowel production.²⁸ These particular accounts of production do not focus on the distinctive features [±HIGH] and [±LOW]; rather, they focus on a monovalent feature [HIGH]. Acoustically, vowel height occurs along a single dimension of F1 rather than two independent features combining to produce F1 (Parkinson 1996:13). These approaches try to capture the phonetic reality of tongue movement in their representation by treating the feature [HIGH] as gradient in nature. According Labov (1994) and Parkinson (1996), long (peripheral) vowel shifts result from incremental increase of relative tongue height constriction. Both constriction models make the assumption that although tongue raising and F1 production is a gradient feature, there are discrete levels of raising which can be defined in any given linguistic system. Table 7 shows a comparison of the features used in constriction models of vowel shifts. Asterisks are used to represent the relative height constriction of different vowels.

Parkinson (1996:8)	Labov (1994:247)	Front	Central	Back
+++CLOSED	3 HIGH	*** [i]		*** [u]
++CLOSED	2 HIGH	** [e]		** [o]
+CLOSED	1 HIGH	* [ɛ]		* [ɔ]
	0 HIGH		[a]	

Table 2.7. Vowel Height Constriction Features

According to these models, each step of a vowel shift changes the relative position of a vowel by one increment. In Parkinsons' model, the only direction which is governed by constriction is raising.

²⁸ Although both height and frontness are defining features of vowels, developmentally and cross-linguistically there seems to be a bias towards the height dimension of vowel production. Most languages make finer-grained height distinctions than front-back distinctions (Crothers 1978). Children with normal hearing and production capabilities commonly develop height variation before anteriority (Hodge 2013:18, Donegan 2013:27).

Labov's constriction model draws an explicit link between tongue raising and tongue fronting.²⁹ Although F1 and F2 are indicative of tongue movement, they represent acoustic space and not actual physical space. Vowels which are acoustically back are produced with the tongue in a physically lower position than vowels which are acoustically front (Labov 1994:259-263). Speakers may produce the vowels [i] and [u] with the similar F1 frequencies, but they can be shown to have different degrees of tongue raising during production. Figure 2.4 shows the relative tongue raising during the production of ten vowels in American English in an /h_d/ context. Fronting always results in a higher position of the tongue blade than backing.

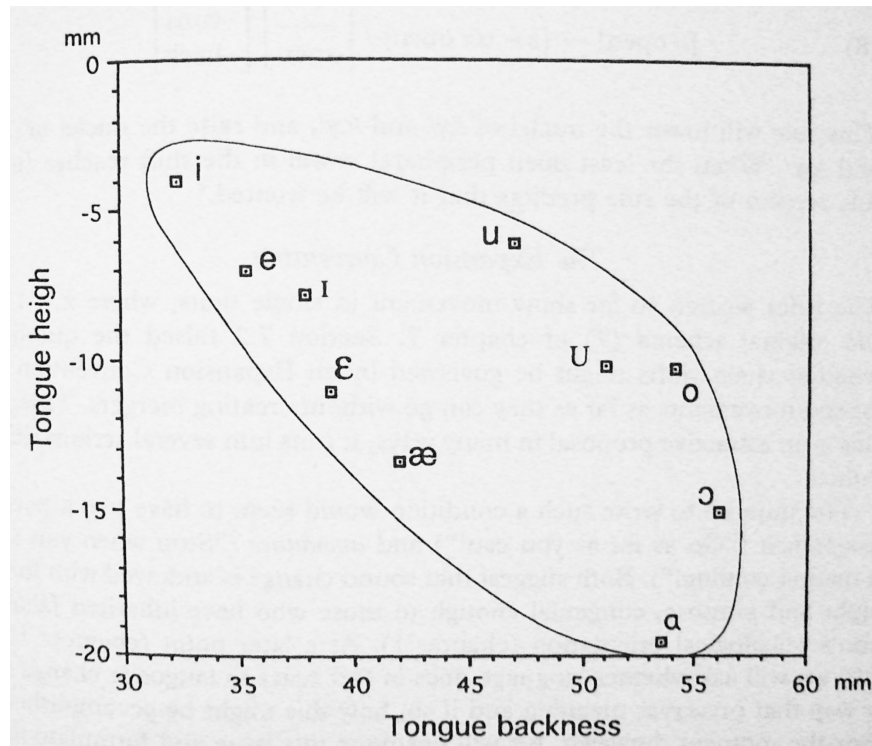


Figure 2.4 Tongue Raising in Vowel Production (Labov 1994:263)

Taken together, this means that fronting physically results in raising and reduction in constriction at the low back position of the oral cavity. As shown in Figure 2.4 the effect of fronting on raising is much more dramatic in the back of the oral cavity than towards the front of the oral cavity. Labov attempts to situate fronting within the constriction model, but ultimately his model does not rule out the lowering of long back vowels to increase constriction.

Dissimilation

Diphthongization is a dissimilatory process (Anderson 1972, Labov 1994, Minkova and Stockwell 2003:173).³⁰ In Labov's account, the morae of long vowels dissimilate the features [\pm PERIPHERAL] and [\pm VOCALIC]. According to Labov, only long vowels with the most height constriction in the system develop into closing diphthongs. All other vowels in the system develop into centralizing diphthongs.

Labov does not discuss smoothing and coalescence in detail, but they appear to be the inverse

²⁹ Parkinson does not explain the phonetic mechanism of Principle III, but he does present a phonological feature geometry that allows the tongue constriction (height) and tongue place (front vs back) to interact (cf. Parkinson 1996:121).

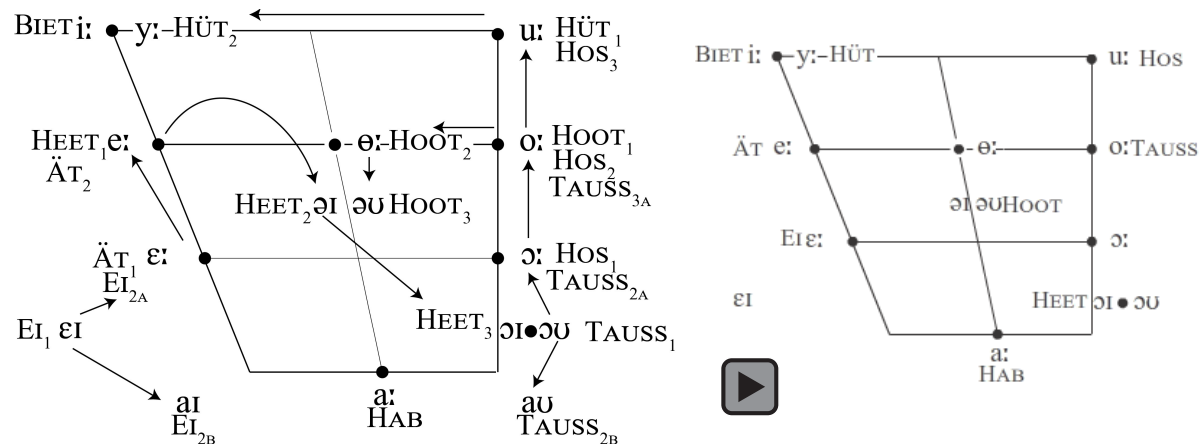
³⁰ Although Parkinson does discuss diphthongization, all of his discussion is situated within a synchronic model that predicts one step raising and therefore cannot account for changes of the type [i] → [ai].

functions of diphthongization as they are both assimilatory in nature. The process of smoothing delinks the off-glide of a diphthong and the features associated with the nucleus spread to the second mora (full assimilation). The process of vowel coalescence is a compromise between the different height features of the nucleus and off-glide which results in a single height across the two morae.

2.3.3. History of the Plautdietsch Vowel Shift

Long Vowels and Closing Diphthongs

Given that the Plautdietsch long vowel shift is a Pattern 1/3 shift, we should be able to observe fronting of back vowels, diphthongization, and the rising of front and back vowels. Of these changes, the earliest is most likely MLG \bar{u} fronting, i.e. the development of modern HÜT class reflexes. Video 2 shows the movements of the long monophthongs and closing diphthongs. Quiring 1928 represents the most conservative system and the endpoints are represented by forms found in Brandt 1992, Nieuweboer 1998, and Burns 2016.



Video 2. Long Vowel and Closing Monophthong Movement of Plautdietsch

The BIET and HÜT classes appear to be the most stable classes throughout the shift. The long vowel and opening diphthong system appears to have its most conservative realization in Quiring 1928 and Baerg 1960. In these two sources, the HOS class appears in the lowest position of the back vowel space. The least conservative varieties show that the HOS class has risen considerably. Many sources show that other classes have also risen (e.g. the ÄT class). The documentation reveals that many varieties of Plautdietsch have centralized the nuclei of the HOOT and HEET classes. In the least conservative varieties, the nucleus of the HEET class has also begun to fall and further dissimilate itself from its off-glide. The HAB class is relatively stable, but, as will be discussed in Chapter 4, some speakers show indications that this vowel may be pushing back.

The first change shown in Video 2 is fronting of MLG \bar{u} of the HÜT class which catalyzed the entire vowel shift.³¹ Almost all varieties developed a centralized reflex of Middle Low German \bar{o} in the HOOT class. Burns (2016) argues that this vowel most likely centralized prior to Mennonite communities leaving Europe because this vowel never rises to fill the vacated position of MLG \bar{u} . Also,

31 Rosenberg 2005 assumes that MLG $\bar{u} > y:$ was an innovation in Russia that diffused across Mennonite settlements. Many other scholars do not agree with this assumption. Both Jedig 1966 and Mitzka 1937 consider fronted \bar{u} to be a feature of all types of Prussian Low German, not specifically Prussian Low German in Russia. Molotschna forms which do not have the reflex [y:] often have a central reflex, [u:]. The only regions which has a fully back reflex of MLG \bar{u} is Canada; some Canadian Plautdietsch native speaker linguists have mentioned this is a modification to English (Epp 1993).

varieties which have the reflex [u:] of MLG \bar{u} , almost always develop a centralized reflex of MLG \bar{o} . Burns (2016) also provides evidence that the reflex of MLG \bar{o} is not a diphthong for all speakers, thus ruling out the possibility that the mid-high vowels developed into centralizing diphthongs independent of the high back vowel fronting. Evidence from Canadian Plautdietsch and Jedig 1966 indicates that the HEET class actually broke into a closing diphthong before centralizing in an apparent case of front – back parallelism with the HOOT class. Only later did the nucleus of the HEET class begin to centralize and eventually fall and round.

The EI and TAUSS classes followed one of two patterns. The pattern not shown in Video 2 involves the lowering of the nucleus of the closing diphthongs thus producing the reflexes [aɪ] and [aʊ]. This development is frequently found in the Central US. The other pattern, which is shown in Video 1, involves smoothing of the EI and TAUSS classes, resulting in them being incorporated into the long monophthong system. The TAUSS classes which entered the long monophthong system eventually underwent raising in the back vowel space and can be found as [o:] in highly innovative communities. The only groups which underwent monophthongization of the EI and TAUSS classes also exhibit raising of the ÄT and Hos classes.

The vowel shift of the long monophthongs and closing diphthongs is not just of interest for its complexity, but also for its geographical and temporal placement. The pattern that is explored in Burns (2016) is the possibility that innovations in the long vowel system spread quickly through the population of newly formed settlements. Both of the sources for the oldest settlements in the New World and Old World show the most conservative positions of Video 1. The newest documents from Nieuweboer 1998 and Brandt 1992 come from the newest settlements in their respective hemispheres and show the most innovative systems. The documents which come between those two points in their respective hemispheres show midway points between the conservative and innovative extremes. Lehn 1957 and Moelleken 1972 document the speech of Russian immigrants living in Canada. The consultants in Lehn 1957 were more recent immigrants than the consultants of Moelleken 1972, but both sources show a very close match in their vowel systems and also are a very close match to other Canadian systems documented at that time.

The ÄT class only rises in communities that have a centralized HEET class. One of Goerzen's consultants might have been in the middle of shifting the ÄT class. All the lexical members of the class have the realization [e:], but the functional members of the class have the realization [ɛ:].

The movement of the HAB class at the end of the video is nascent variation. There are some speakers who have variation in the production of the HAB class which is nearing [ɔ:]. All of these speakers have a monophthong TAUSS class which raised to [o:].

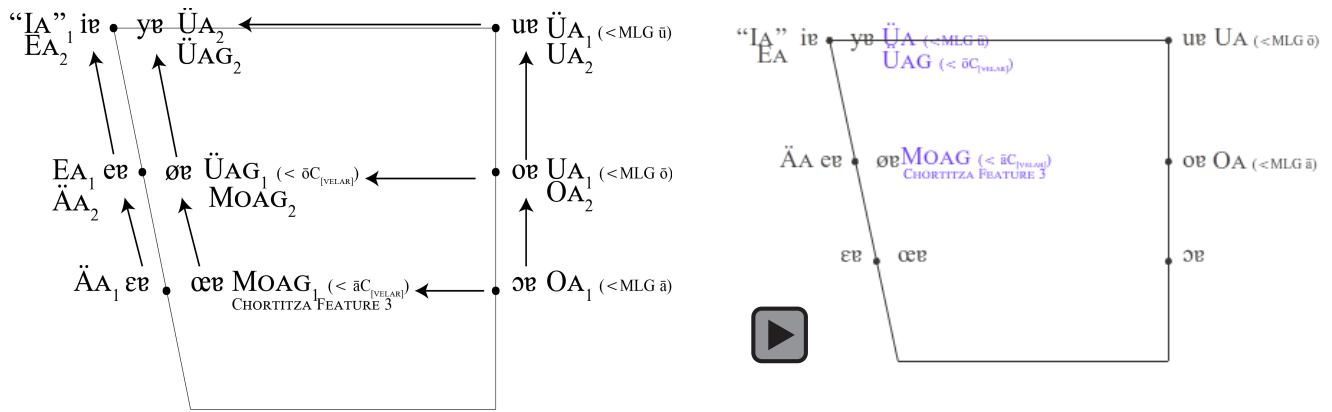
Burns (2016) argues that the similarities are not due to dialect admixture or drift, but rather a shared innovation in the Old World prior to when immigration to the Americas first began. After these innovations developed, structural pressure and the avoidance of merger produced similar, but not always identical, outcomes of the shift in many regions.

Opening Diphthongs

The opening diphthong system appears to have historically contained roughly six members. The most common developments in the opening diphthong sub-system are rising and fronting. Front vowels in this sub-system have been observed to undergo merger with other members of the system, which is why there are seldom opening diphthong systems which have all six members.

All of the opening diphthongs developed from either \bar{V}_T sequences of MLG or $\bar{V}C_{[VELAR]}$ sequences. As stated above, the Chortitza dialect has [+FRONT] reflexes of the velar context whereas the Molotschna variety retains the original [+BACK] quality. Video 3 represents the movements of the opening diphthong system according to the Labovian Principles of vowel shifts. Video 2 does not

include unrounding of front rounded vowels or the opening diphthongs which lose their off-glide and behave like monophthongs/closing diphthongs.



Video 3. Opening Diphthong Movement of Plautdietsch

Video 3 presents Chortitza fronting $\bar{V}_{[BACK]}$ before velars, but as Principle III of vowel shifts stipulates, if a low back vowel such as [ɔ:] has undergone fronting, it is most likely the case that higher back vowels of the system also fronted.³² No one has drawn an explicit connection between Dialect Feature 3's frontness and the development of the $\bar{U}A$ diphthong to include reflexes of MLG $\delta C_{[VELAR]}$. Table 2.8 presents the dialect affiliation and fronted vowel categories of the different dialects. If the dialect has a fronted reflex of a vowel, it has a Y in the appropriate column, but if it does not have a fronted reflex, it shows an N. Hypothetically, the Molotschna dialect should have mostly N (except for varieties with [ɯ:]) and the Chortitza dialect should have only Y.

32 If a dialect treated opening diphthongs as phonemically separate from monophthongs, it is possible that fronting could have developed in one system, but not the other.

	Russia – Germany			Canada							US	Mexico		
	Quiring 1928	Jedig 1966	Nieuweboer 1998	Goerzen 1952	Lehn 1957	Moelleken 1972	Thiessen 1977	Moelleken 1987	Rempel 1995	Zacharias 2000	Baerg 1960	Molleken 1966, 1987	Brandt 1992	
Affiliation	C	C/M	C/M	M	C	M	C	M	M/C	C	M	C	C	M
FEATURE 1	Y	Y	Y	N	Y/N	Y	N	Y	Y	Y	Y	Y	Y	Y
ÜA < ÜR	Y	Y	Y	N	(Y)	Y	N	Y	Y	N	Y	Y	Y	Y
ÜA	Y	N	N	N	N	Y/N	N	Y	Y	N	Y/N	Y	Y	Y
<OO[VELAR]														
FEATURE 3	Y	N	N	N	N	Y/N	N	Y	Y	N	N	Y	Y	Y
<ÄC [VELAR]														

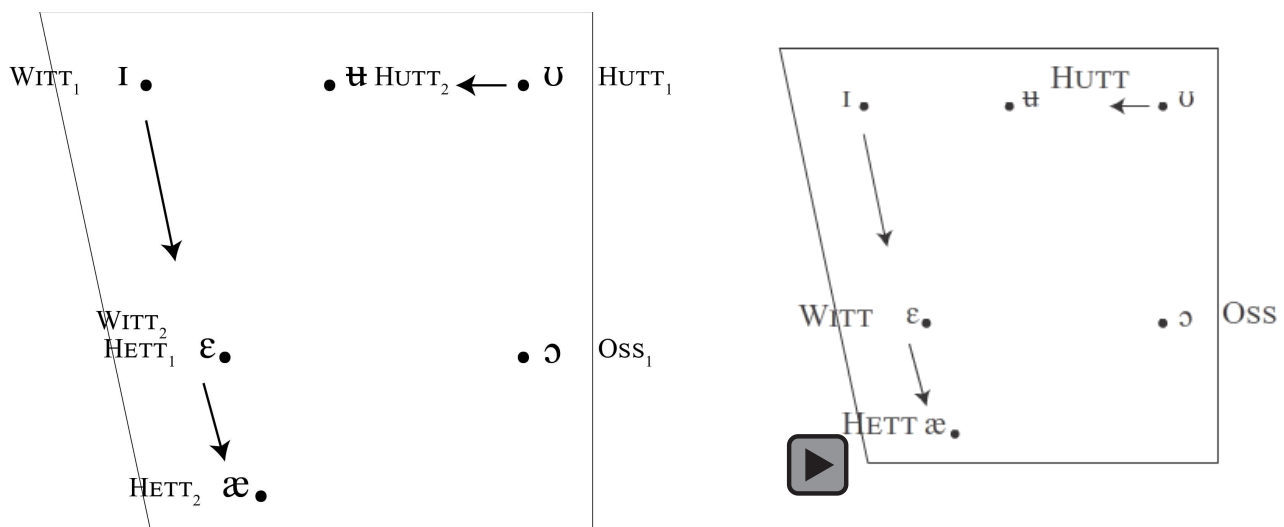
Table 2.8 Vowel Frontness Dialect Matrix

Table 2.8 shows two things: (1) low back vowels front only if higher back vowels front and (2) there are few Chortitza varieties which are categorically front. The sources with categorically front or back reflexes are Quiring 1928 and Brandt 1992's Chortitza variety and Goerzen 1952's Molotschna variety. There are only a few varieties where only the high vowels fronted Jedig 1966 and Nieuweboer 1998.³³ The status of the $\ddot{U}A$ diphthong < MLG $\ddot{u}r$ is unclear in some sources because the provided word lists are too small and the conversational data does not contain these words (Moelleken 1966, 1972). There are some varieties which show evidence of borrowing a phonetic form from a different variety. Brandt 1992's Molotschna consultants have only Chortitza forms with respect to vowel fronting. Lehn 1957 provides evidence that all high back vowels fronted, and that some speakers changed the vowel of the HÜT class to a back vowel without changing the front quality of the $\ddot{U}A$ class. Rempel 1995 and Thiessen 1977 show that the Molotschna group uses Chortitza fronted forms for the $\ddot{U}A$ class, but avoids using Chortitza forms for the traditional dialect features. Zacharias 2009 shows something similar; the Canadian Chortitza use a known Chortitza feature for the HÜT class, but the rest of the forms match expected Molotschna forms.

If it is the case that the sound changes involving the development of front opening diphthongs did not happen in Russia, the only other explanation for the patterns observed in Table 2.8 is that there was never truly a distinction between the Molotschna and Chortitza groups in terms of velar fronting. When both groups were founded and resettled into daughter colonies, they contained a mixture of front and back variants of centralizing diphthongs. If this were the case, dialect leveling and dialect borrowing would be responsible for the variation found in certain groups of speakers.

Short Vowels

Most of the short vowels appear stable except for centralization of the HUTT class in Nieuweboer 1998 (see also Cox et al. 2013). Although the 13 texts do not show it, the short vowels are currently in the process of falling in certain regions. The lowering does not seem to interact with the long vowel system, nor was it predicated by a back vowel fronting. Video 4 shows the movements of the short stressed monophthong system of Plautdietsch.



Video 4. Short Vowel Movement of Plautdietsch

33 Jedig claims raising of MLG $\delta C_{[VELAR]}$ without fronting is a development characteristic of Chortitza settlements (1966:31).

Labov's formulations of the vowel shift principles do not explicitly mention non-peripheral vowels centralizing, but they do move along a non-peripheral track. Given that the HUTT vowel is a back vowel, its centralization can be understood either in terms of Principle III or movement along a non-peripheral track.

2.4. Contextual Changes

While the majority of phonetic variation in Plautdietsch lies in non-contextual changes in the vowel system, some changes are conditioned by phonetic context. Some of the changes are very broad changes which have run their course through a given Plautdietsch speech island, but other changes are only evident in the speech of some individuals.

Dorsal Obstruents

There are two changes which involve dorsal obstruents:

- (1) $e: \rightarrow i: / _ C_{[PALATAL]}$
 $i \rightarrow e: / _ J$

Zacharias 2009 contains a raised reflex of the ÄT class before palatal oral stops as in the words *Ieekj* 'oak', *Brieej* 'boiling water' (cf. Rempel *Äkj* 'oak', *Bräj* 'boiling water'). Zacharias transcribes the ÄT class in this context as <iee> and lists its IPA value as [iə]. I call members of the ÄT class in this context the ÄKJ class. Many Mexican speakers of Plautdietsch use a raised reflex of the ÄKJ class, [i:], which has completely merged with the BIET class. American speakers from the earlier Midwestern settlements sometimes have a raised allophone of the ÄKJ class, but it is often still a member of the ÄT class and is realized as [e̞].

In Southern Mexico, it is common to find lenition of the voiced palatal oral stop accompanied by lowering and lengthening of the preceding BITT class, e.g. *Migj* 'mosquito' [mɨj] → [me:j], *Rigj* 'back' [rɨj] → [re:j]. The allophone which occurs in this context is what I call the RIGJ class. Some speakers have raised allophones of the BITT class before all palatal stops, but only the ones before voiced palatal stops develop into closing diphthongs.

It is not clear what the relationship of these two changes are because there do not seem to be any words in the language that have the ÄT class immediately followed by a voiced palatal stop.

Dialect OA class Off-glide

There are three changes which involve the development of the Dialect OA class off-glide:

- (2) Dialect OA Class Changes
 $[-\text{syll}, -\text{cons}] \rightarrow w / _ \gamma$
 $[-\text{syll}, -\text{cons}] \rightarrow ɪ / _ k$
 $[-\text{syll}, -\text{cons}] \rightarrow 0 / _ C_{[VELAR]}$

The Mexican Chortitza reflex of the Dialect OA class off-glide is usually [w] < [ɣ] (e.g. *Foagel* 'fowl' [fəwl] < [fœɣyl]). The Mexican Chortitza off-glide is sometimes realized as [ɪ] before voiceless velars (e.g. *Knoaken* 'bone' [knɛɪkn] < [knœaken]). It is difficult to say if these changes are related, but in both cases the new consonants have low F3 (which used to be on the vowel itself).

In the US, it is often the case that the Molotschna speakers from the original late 1800s settlements lack an off-glide in Dialect OA forms, but they do have off-glides in other OA forms (e.g. *Oabeid* 'work' [ɔɐbaɪd] vs *Foagel* 'fowl' [fɔ:ɣl], *koake* 'to cook' [ko:ke], and *Büak* 'book' [bo:k]).

Molotschna speakers from Mexico with the traditional Molotschna Dialect OA form retain the original off-glide in words like *Foagel* 'fowl' [foəyl].

Non-Initial Plosives

Some speakers realize non-initial voiceless plosives before *n* with glottalization:

(3) [plosive,-voice] → [+c.g.] / __n]_σ

For these speakers, the words *schlophen* [ʃlo:pɲ] 'to sleep', *äten* [e:tɲ] 'to eat', and *koaken* [kæɰkn] 'to cook' can be realized as [ʃlo:pɲn], [e:tɲn], and [kæɰkɲn]. Figure 2.5 shows spectrograms and waveforms of two female Plautdietsch speakers from Mexico saying *moake* 'to make'.

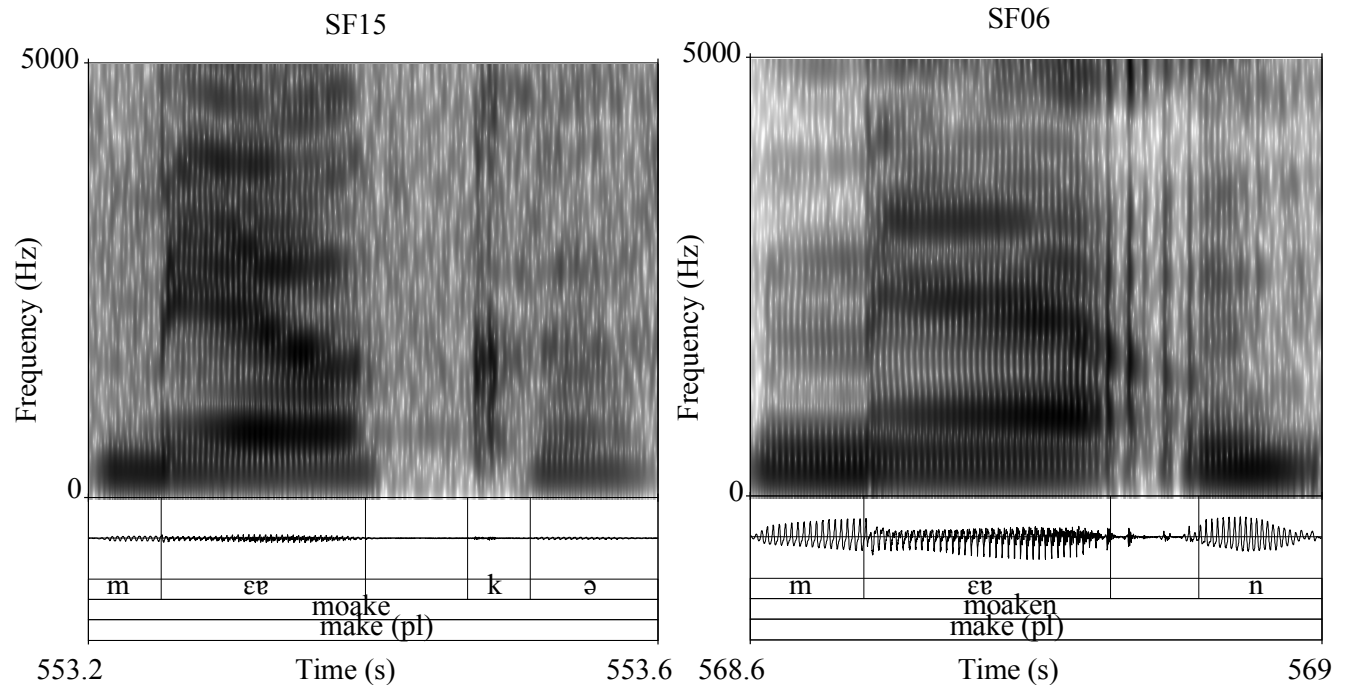


Figure 2.5 Glottalization of Plosive in *moake* 'to make'

Although both speakers use a Chortitza reflex of the Dialect OA class, the speaker to the left uses a Molotschna final *-ə* and the speaker to the right uses a Chortitza final *-n*. The speaker to the right produces several gestures at the glottis which are visible in both her spectrogram and her waveform.

Figure 2.6 shows a Mexican Chortitza speaker with a different variant of /k/ in the word *koaken* 'to cook'. Like both speakers in Figure 2.5, she uses the Chortitza variant of the vowel.

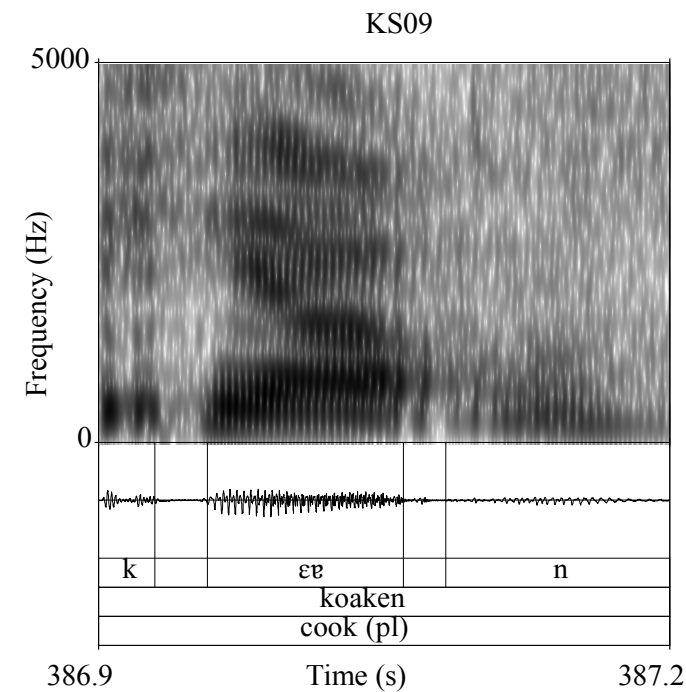


Figure 2.6 Glottalization of Plosive in *koake* 'to cook'

The speaker presented in Figure 2.6 and the right-hand speaker of Figure 2.5 both use the Chortitza final *-n*, but the speaker in Figure 2.6 does not creak during her production of the vowel. Instead, she has a glottal stop immediately following.

2.5. Summary

The current state of Plautdietsch dialectology is in need of re-evaluation of language internal divisions. Not only are the referents of the current two-way dialect distinction Old World constructs, there is also evidence that they do not reflect the reality of actual settlement affiliations. Additionally, these terms are problematic because prior work on the language has failed to draw connections between different vowel system movements and anomalies in the distribution of individual dialect features.

In this chapter, I have provided evidence for a different way to classify modern dialect affiliation based on shared innovations of continuous features rather than the presence or absence of discrete features. These innovations can be seen most clearly in the long monophthong and closing diphthong system. The short stressed monophthong system is mostly stable, but there is some innovation in that system which can be quantified. The opening diphthong system is by far the most difficult system to classify because it is subject to many different processes (raising, fronting, unrounding, monophthongization), and is highly variable across all 13 sources. In addition to unconditioned vowel changes, there are also some contextual changes which can be found in the population of Plautdietsch speakers.

The next chapter outlines the Plautdietsch-speaking population sampled in an investigation of the current realization of linguistic variation in North American communities. The chapter presents the methodology used to investigate both the traditional dialect division and more recent innovations in their vowel systems.

Chapter 3 Experimental Data Collection and Processing

The central issue which this dissertation seeks to explore empirically is the relationship between social/regional variation in the production of two different linguistic systems of Plautdietsch: traditional dialect features and vowel features related to an extended chain shift. This chapter details the methodology used to elicit data, sample speakers, develop a database, normalize data, and test data with the ends of answering this question.

3.1 Data Elicitation

Data elicitation took place from June 2012 – August 2015 in the states of California, Campeche, Kansas, and Texas. All participants were native speakers of Plautdietsch. Upon agreeing to participate, each participant was assigned an anonymized alphanumeric code indicating elicitation session information. Elicitation consisted of two parts: acoustic elicitation and a social questionnaire. During the acoustic elicitation, participants wore a Nady Hm-20U unidirectional headset microphone and were recorded on a Zoom HN4 digital recorder. Recordings were made at a 44.1 kHz/second sampling rate. Each participant was presented with a list of words to translate from a source language of their choosing to Plautdietsch. Monolingual participants and those who preferred not to translate were presented with a slide show of images related to the concept of the target word. See Appendix C for elicitation tools.

There are 2 versions of the word list. The first version of the word list has 119 target words and was elicited from June 2012 – January 2014. Words were selected in order to elicit all major vowel and consonant phonemes. The monophthong vowel phonemes and closing diphthongs were elicited the context CV(C) except for the central vowels [ə] and [ɐ]. The second version of the word list contained 131 target words. The second list was designed to have more tokens of short vowels, opening diphthongs, and vowel dialect features. The second list did not contain words from List 1 designed to elicit consonant phonemes with no noticeable variation. List 2 was elicited from January 2014 – August 2015.

All participants had access to written Plautdietsch target words during the elicitation session. Although many participants actively looked at the list during the session, many of them ignored the writing in Plautdietsch. Some participants would provide translations which did not correspond to the written words or they would provide dialect forms which were not written. Some speakers requested to skip a given word even if they saw the written word on the page. Some speakers provided words and then voiced their opinions concerning the Plautdietsch transcription. Some of these participants gave suggestions on how to correct the spelling to match their pronunciation.

The researcher made at most three attempts to elicit a given target word. If the participant did not provide the target word on the first try, the researcher sought to refine the definition of the target word. If the participant did not provide the target word, a third attempt was made by asking if the participant knew of a word which sounded similar to one uttered by the fieldworker. If they were familiar with the word, they were asked how this word differed from the word they had previously provided. If they did not know then the word was skipped. Participants were free to skip words they could not recall at any time during the session.

After the acoustic elicitation session, participants were asked to take a survey. The only data in the survey used for the purposes of this study were place of origin (or family origin), age, whether or not there is any variation in pronunciation, and which dialect they self-identify as speaking.³⁴

³⁴ Many of the Mexican Plautdietsch speakers expressed a belief that language and its use was independent of the person or community who spoke the language. Not all speakers felt this way, but a large number of community members did

Participants were free to refuse to do any of the tasks associated with elicitation and the survey at any time. Participants were also free to withdraw from the study at any time.

One set of acoustic and social data included in this survey was not the result of elicitation. These data come from Herman Rempel (1915–2008), author of *Kjenn Jie Noch Plautdietsch*. After the publication of his dictionary, Rempel recorded himself reading through the lexical entries in the dictionary. Although it is unclear when the recording was made the time can be restricted to 1995–2008.

3.2 Participant Sampling

All participants in this study are native speakers of Plautdietsch even though the only requirement to participate in the study was to be a competent speaker of Plautdietsch. The researcher identified participants in one of two ways. Either the researcher went into a community and set up meetings with people in the community to learn about the social history of the region and eventually obtain information about potential participants, or the researcher went door to door in a community and introduced herself and the goals of the study. For the most part, participants would suggest other people to participate (snowball sampling). One of the questions asked to participants is if they were aware of other dialects or accents of Plautdietsch. If a speaker knew of one, the researcher would try to meet with someone who spoke the different dialect. The researcher tried to get an equal number of men and women in the study, but this was not possible in many locations. In some locations, women tended to have more accessible schedules than men, but would expect men to interact with outsiders. In other locations where the language is moribund it was important to find anyone who could still speak the language well enough to participate.

Table 3.1 summarizes the participant codes of the study, their local dialect trait, and notes about the speaker.

Speaker	Gender	Age	Origin	Ostensible Dialect	Notes
CA01	M	87	Oklahoma	Molotschna	
CA03	F	92	Kansas	Molotschna	Had a close friendship with Mexican migrants in California during the 70s.
ES01	M	24	South Mexico	Chortitza	
Herman Rempel	M	~64	Central Canada	Chortitza	
HPC01	M	~40	North Mexico	Molotschna	
HPC02	M	22	North Mexico	Molotschna	
HPC03	F	18	North Mexico	Molotschna	
HPC04	F	~30	Central Canada	Chortitza	Moved into Mexico
KS01	M	86	Nebraska	Molotschna	Is acquainted with some of the members of the Mexican migration into Kansas
KS02	F	91	Kansas	Molotschna	
KS03	M	83	Nebraska	Molotschna	
KS04	F	88	Kansas	Molotschna	
KS05	F	84	Kansas	Molotschna	
KS06	F	89	Kansas	Molotschna	
KS07	M	95	Minnesota	Molotschna	
KS08	F	35	Central Canada	Chortitza	Remembers switching speech patterns when she started interacting with Mexican group
KS09	F	41	Texas	Chortitza	Has worked with some of the members of the original Molotschna settlers of Kansas
KS10	F	44	Bolivia	Chortitza	
KS11	F	41	North Mexico	Chortitza	
KS12	M	50	North Mexico	Chortitza	
KS13	F	93	Kansas	Molotschna	
MT01	M	38	Central Canada	Molotschna	
NE01	F	41	Belize	Molotschna	
NE02	F	20	Belize	Molotschna	
SF01	F	25	North Mexico	Molotschna	
SF03	F	20	North Mexico	Molotschna	
SF04	M	30	North Mexico	Molotschna	
SF05	F	28	North Mexico	Chortitza	
SF06	F	~18	South Mexico	Chortitza	
SF07	M	~50	North Mexico	Chortitza	
SF08	F	~23	South Mexico	Chortitza	
SF09	M	~25	South Mexico	Chortitza	
SF10	F	~18	Central Canada	Chortitza	From Mexican Rückwanderung group

Speaker	Gender	Age	Origin	Ostensible Dialect	Notes
SF11	M	~35	South Mexico	Molotschna	
SF12	M	~28	South Mexico	Chortitza	
SF13	M	~29	South Mexico	Chortitza	
SF14	M	~35	South Mexico	Chortitza	
SF15	F	~18	South Mexico	Molotschna	
TX01	M	35	Bolivia	Chortitza	
TX02	F	46	Texas	Chortitza	
TX03	M	38	Texas	Chortitza	
TX04	F	23	Texas	Chortitza	
TX05	M	34	North Mexico	Chortitza	
TX06	F	41	Texas	Chortitza	
TX07	F	23	Germany	Chortitza	Learned Plautdietsch from Russian grandmother, not parents
TX08	M	19	North Mexico	Chortitza	
TX09	F	42	Central Canada	Chortitza	From Mexican Rückwanderung group
TX10	F	48	North Mexico	Molotschna	
TX11	F	76	North Mexico	Molotschna	
TMP01	M	~55	North Mexico	Chortitza	

Table 3.1 Participant Summary

Overall the sample is not balanced with respect to age, gender, regional representation, and dialect representation.

3.2.1 Population Gender Sample

In total 28 females and 22 males participated. Figure 3.1 shows the distribution of participant gender.

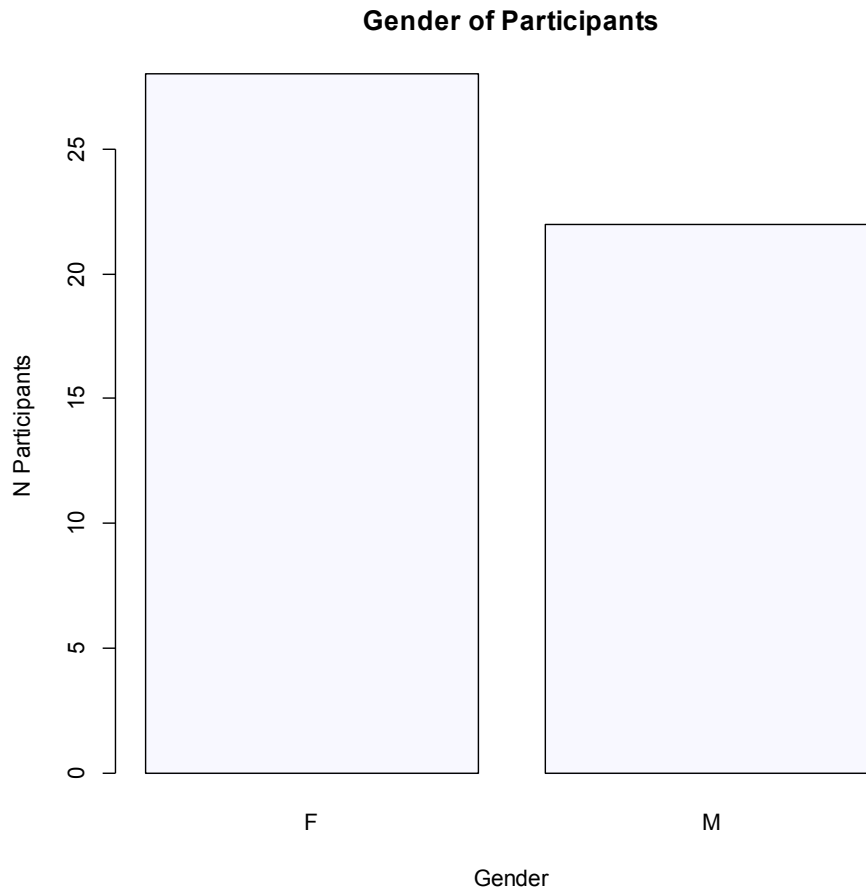


Figure 3.1 Gender of Participants

This sample is not balanced because slightly more than 2/5 of the participants are male and slightly fewer than 3/5 of the participants are female.

3.2.2 Population Age Sample

Age sampling shows a bimodal distribution meaning there are two loci of age groups. Figure 3.2 shows a histogram of the distribution of age through the sampled population.

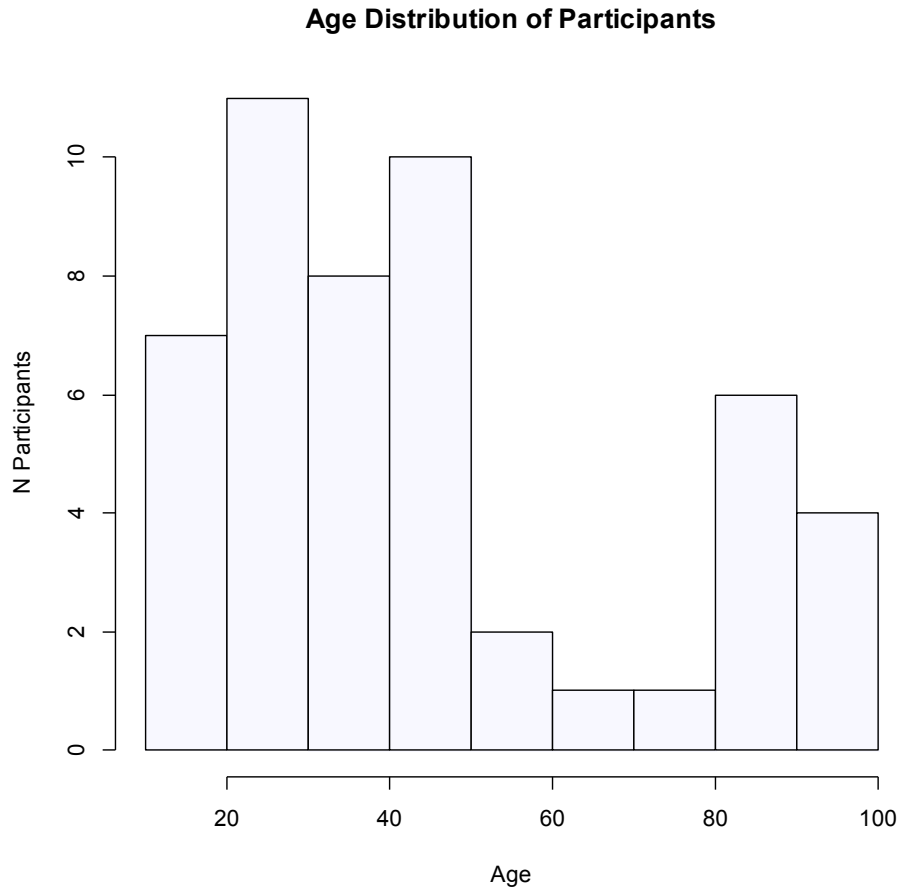


Figure 3.2 Age Distribution

Most speakers sampled were in the age range 20-40. The next most common age range sampled was 70-100. The two age clusters are associated with particular regions. The younger cluster is mostly from regions associated with Mexico whereas the older clusters are from regions associated with the Central US. There is not much of a way to avoid this type of bias in the sample because younger speakers from the US and Central Canada tend to be more self-conscious about their ability to speak Plautdietsch, especially in communities where the language is moribund. Older speakers from regions associated with Mexico were usually raised in a more technologically restrictive culture and do not understand the technology being used to document the language.

3.2.3 Population Region Sample

Regional sampling is biased towards Mexico because the initial fieldwork trips were undertaken in Mexico and there are more active native speakers in Mexico than in the US. Figure 3.3 shows the distribution of speaker's place of origin across the sampled population.

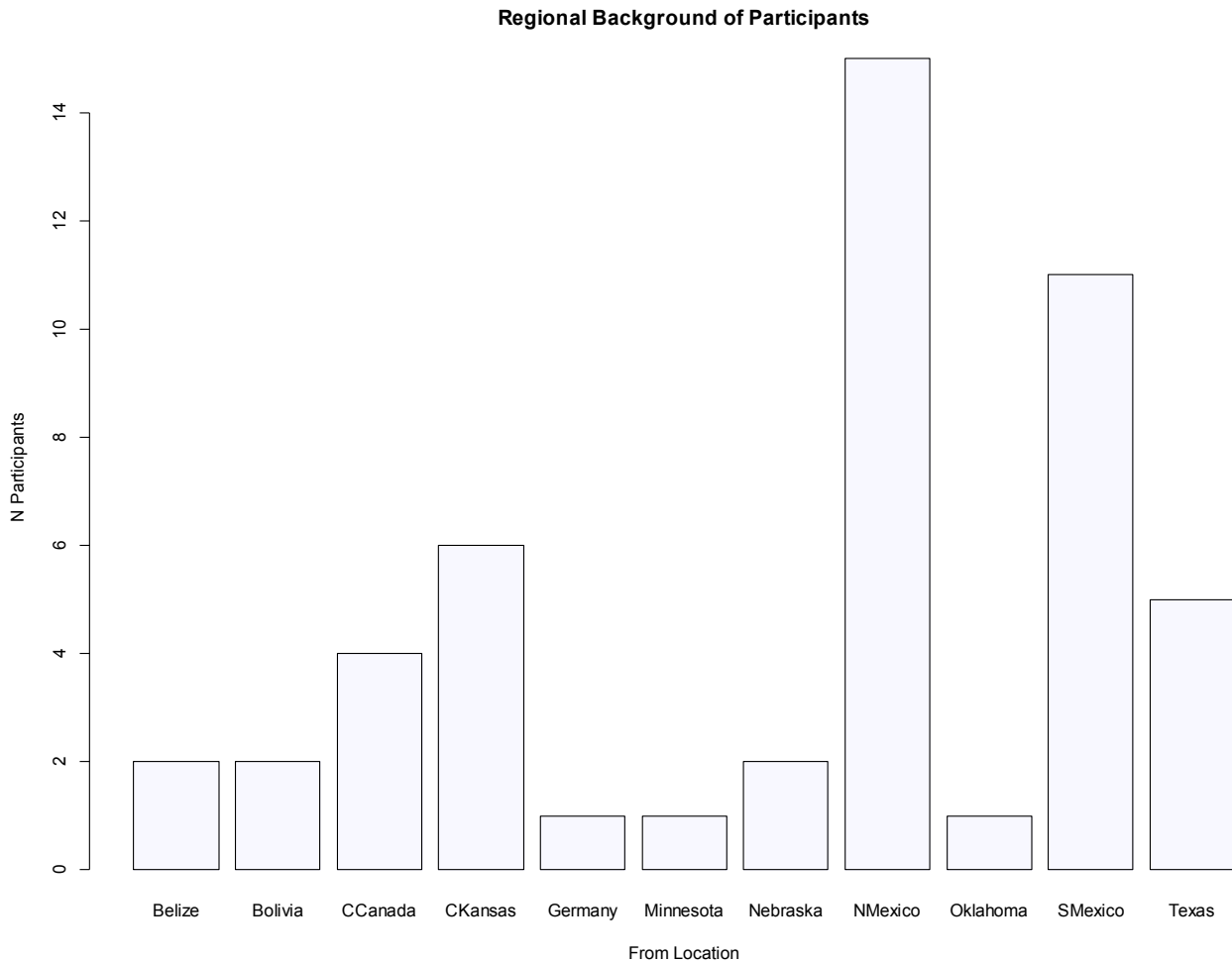


Figure 3.3 Regional Distribution of Speaker's Source Location

The bias in the source location of speakers mostly comes down to a question of linguistic competence. Communities which are from Mexico tend to have a larger population of competent speakers than communities from the US and Canada.³⁵ One thing not shown in Figure 3.3 is a macro region which could be called “Central US” which would include all of the counts from Central Kansas, Minnesota, Nebraska, and Oklahoma (N=10). The “Central US” group would contain nearly as many members as the group labeled S Mexico (N=11). I ultimately chose not to use this macro region because Southwest Kansas would need to be included in this geographical cluster. The settlers in Southwest Kansas are not associated with the immigration from Russia to the US in 1874 like the rest of the “Central US” group.

Groups which are in the minority in the sample are groups from Belize, Bolivia, Germany, and Central Canada. Two of the minority regions in this study, Germany and Central Canada, do have regional phoneme inventory reports which were made with larger sets of speakers and recorded samples (Nieuweboer 1998, Cox et al. 2013). These previous reports will be used to situate speakers

³⁵ Time spent in each location might have had an effect on the overall distribution of source locations. On average, the researcher was able to recruit approximately six speakers per month over a period of four months within the United States. Average recruitment in Mexico was approximately three speakers per month over a period of seven months. It is unclear if spending more time in the US would have led to a more balanced sample as there are a finite number of competent speakers in communities that enter and settle in the US due to language obsolescence.

from this study within their broader regional cohorts. The only regions which are still underrepresented in terms of documentation are Belize and Bolivia.

3.2.4 Population Dialect Sample

Admittedly, one of the most difficult decisions made for this study was trying to determine how to define “Chortitza” and “Molotschna” affiliations of speakers. Using the “traditional dialect” definition would result in almost every participant being categorized as a Chortitza speaker. For example TX10 and TX11 self-identify as speakers of a variety which is different than TX02’s variety but all three use many features which are traditional Chortitza features. Additionally, some speakers switch from dialect features they were raised with to dialect features of other groups in their region. SF04 and ES01 are native speakers of a variety that is close to TX02’s native variety, but they both used something which in their region is considered to be the variety of TX10 and TX11.³⁶

In order to capture the subtleties of community use of features, I decided to use the regional definition of Chortitza and Molotschna rather than the traditional definition. Perhaps it is misleading to use the traditional terms “Chortitza” vs “Molotschna”, but in this case, these terms are stand-ins for the regional variety which is closest to the traditional Chortitza and Molotschna forms. The term “ostensible dialect” is used because each region has its own alignment of the traditional dialect features. Figure 3.4 presents the distribution of speakers across the ostensible dialect that they speak.

36 It is not clear why SF04 changed his speech. The pattern shown by his younger sister is the pattern that is used by their father who moved the family from a larger village which is associated with conservative speech styles. Other siblings of SF04 and SF06 who are older remember the move and the events leading up to it vividly. Other people who have made similar types of moves show similar changes in their speech, possibly as a way to show that they affiliate with a new group. Another possibility could be that SF04 is just exhibiting a type of accommodation rather than consciously changing. Other people who live in the area that these participants live in mentioned that depending on who they are talking to, they have noticed their speech patterns change.

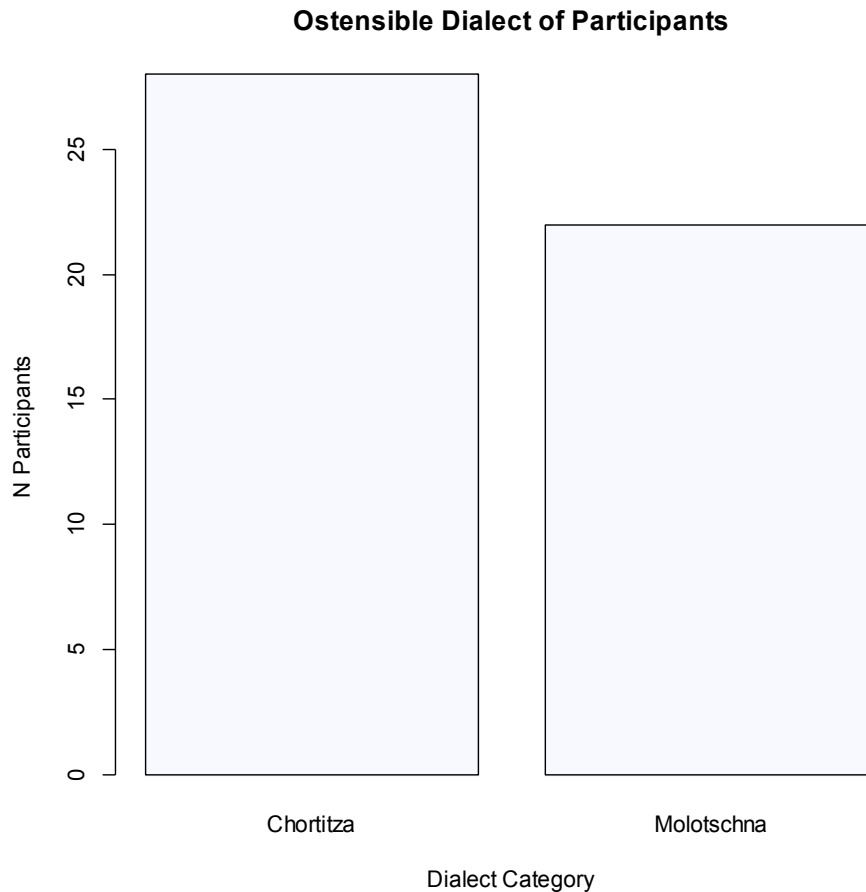


Figure 3.4 Distribution of Dialects

There are 28 consultants that use an ostensibly Chortitza variety and 22 that use an ostensibly Molotschna variety. Using this definition of dialect does not come without its pitfalls. Because “ostensible dialect” is regionally defined, the variable “dialect” is no longer truly independent of a speaker’s regional affiliation (although all regions have both Chortitza and Molotschna varieties). In the end, this complication will force us to ask a different type of question about how dialect affiliation is linked to vowel production. Instead of asking “How does traditional dialect correspond to particular vowel systems” instead we can ask “How does positioning oneself with respect to regional dialect correspond to particular vowel systems”. Other things being equal between dialect systems and vowel systems, if speakers can pick up dialect features in order to position themselves with respect to others in their community, they should also be able to pick up vowel features too.

3.2.5 Correlations in the Sample Population

All social categories represented in the sampled speakers, except for ostensible dialect, were checked for correlations. Correlations of different categories are indicative of sample bias. Although a chi-square test detected a low correlation between gender and the participants’ regional background, this correlation is not statistically significant and does not represent true bias in the sample ($\chi^2 = 14.44$, $p = 0.15$). As has already been discussed above, there is a correlation between age and region. A linear model which models age of the speaker as a function of the region they are from indicates that 82.62% of the extant data can be explained through region alone (adjusted $r^2 = 0.7816$, $p = 7.149e-12$). A linear

model which models age of the speaker as a function of the speaker's gender indicates that there is no correlation between these two categories (multiple $r^2=0.0001$, adjusted $r^2= -0.02063$, $p=0.9224$).

3.3 Data Processing

Data was processed in three major phases. The first phase of processing involved annotation of elicitation sessions in Praat, the second involved extracting formant values from the annotated recordings, and the third involved the construction of a database to store and properly format data for statistical analysis. After each acoustic elicitation session, recorded files were annotated in a Praat Text Grid. Every word was annotated for the Plautdietsch word provided and the English translation of the word. For the Plautdietsch word, annotation involved the demarcation of vowels of interest and writing the word provided by the speaker noting any variation in the pronunciation (i.e., deleted segments, added segments, dialect segments). If a speaker produced a diphthong, two annotations were made. The divide between the two annotations for diphthongs was at the halfway point through the segment. If a speaker produced two adjacent monophthongs, a note was made to discard the measurement if the speaker glided from one monophthong to the next. Notes were made to discard the measurement of vowels immediately preceding retroflex rhotics and coda nasals. If a speaker produced a compound noun, vowels of both nouns were demarcated. If a speaker produced a prefix verb, only the vowel of the verb root was demarcated.³⁷

Vowel formants were extracted using the Berkeley Phonetics Machine and a Python script which runs Inverse Filter Control formant tracking software over Praat Text Grids and their corresponding wav files.³⁸ The formant tracking software returned seven readings from evenly spaced time intervals of every vowel demarcated in the Text Grid. Each reading contained F0-F4 measurements, the interval index of the reading, and the corresponding word. The fourth interval of every word was extracted from each speaker's results and checked against formant estimates in Praat for accuracy.

The third phase of data processing prepared the data for storage in a MySQL database. The database was built in order to store both social and production information of individual speakers in a format which could be easily manipulated to produce data frames ready for statistical analysis in R. All tables in the relational database fall into one of two types: social and production. There are four social tables: **Location**, **Speaker**, **Session**, and **Dialect**, and six production tables: **Rempel Dictionary Word**, **Dictionary Word Segment**, **Observed Word**, **Observed Segment**, **Observed Dialect Segment**, and **Observed Vowel Segment**.

The table **Dialect** contains two values: Chortitza and Molotschna. The table **Location** contains location names in North and South America relevant to the speakers who participated in the study. The table includes geographical coordinates of those locations, and the year Mennonites settled those locations. The table **Speaker** has information about the speaker's ostensible dialect association, the location the speaker is from, the speaker's age, and the speaker's gender. The **Session Times** table contains information about the elicitation session. It contains the speaker ID of the participant, location ID of the elicitation session, the sequence of the elicitation session (Herman Rempel = 0), and the year of the elicitation session (Herman Rempel = 0).

37 Prefix verbs come in two types: separable and inseparable. Both have a particle, similar to a preposition, followed by a root. Separable prefix verbs, such as *hangone* 'to go (to a destination)' have a root which is not adjacent to the prefix in inflected forms such as *woo jeist di han* 'Where are you going?' and *ekj sie doa hanjegone* 'I have gone there'. Inseparable prefix verbs such as *unjaschriewe* 'to sign' have a particle which does not separate from the verb in inflected forms such as *ekj hab den Beef unjaschräwe* 'I have signed the letter'.

38 The Berkeley Phonetics Machine is maintained by the UC Berkeley's Phonetics Lab.

http://linguistics.berkeley.edu/plab/guestwiki/index.php?title=Berkeley_Phonetics_Machine

The Inverse Filter Control formant tracking code used by the Berkeley Phonetics Machine is based on Ueda et al. 2007.

The six production tables contain information related to data produced during the acoustic elicitation session. The table **Rempel Dictionary Word** contains an aggregate of all unique words produced by speakers (N= 717 words). Unique words were extracted from each speaker's annotated Text Grid and given standardized annotation using the spelling system of Rempel 1995. Standardized spelling was assigned to words even if they do not appear in Rempel 1995 (e.g. *Broodasch* 'brothers'). Each word was assigned a unique identification number. The table includes morphological variation of lexemes and morphologically innovative forms of words (e.g. *Broodasch* 'brothers' instead of *Breeda* 'brothers'). The table does not include any phonetic variation that is not lexically significant (i.e., dialect features of words).

The **Dictionary Word Segment** table contains the expected phonetic value of segments of all unique dictionary words. All expected values match Herman Rempel's Pronunciation guide (1995:x-xi). The **Dictionary Word Segment** table was created by replicating all words and identification numbers from the **Rempel Dictionary Word** table to a new table containing IPA values for all segments in the word. For each unique word ID, the segments were given numbers to code their sequence within a given word. In total there are 4,341 expected segments. Vowel segments were coded with a special value if they are vowels delimited for formant extraction (N = 681 segments). All segments associated with traditional dialects were coded with a special value indicating that they are dialect forms (N = 209 segments).

The **Observed Word** table lists dictionary words that were uttered by individual speakers (N= 6,138 words). The **Observed Word** table was constructed by processing Praat Text Grids to return the Plautdietsch words coded for a given speaker. These words were then matched with their corresponding **Rempel Dictionary Word** identification number. The **Rempel Dictionary Word** identification number was then used in a query to match the English translation and Plautdietsch word to each speaker's observed words.

The **Observed Segment** table contains a list of all segments which speakers were expected to produce based on the observed words they uttered. This table was created by pulling all segments in the **Dictionary Segment** table which corresponded to the word identification numbers in the **Observed Word** table (N = 21,578 segments). The **Observed Segment** table also contains the sequence number of the segment within the word, whether the segment is tested for dialect affiliation or vowel frequencies, and whether or not the expected segment is actually present in a speaker's utterance. Observed words which were annotated for missing segments in the Text Grids were coded with "0" in the segment sequence field where the segment would have otherwise appeared.³⁹

The **Observed Dialect Segment** table contains a coded list of all of the discrete dialect segments that a speaker produced. This table was created by pulling all segments from the **Observed Segment** table which were coded as being dialect segments (N = 1,345 segments). This table also contains the identification number of the speaker who uttered the segments and identification number of the corresponding dictionary segment. The observed dialect segments were then coded for whether the speaker used either traditional Chortitza or Molotschna segments. Table 3.2 shows the traditional dialect values associated with the different pronunciations.

³⁹ Observed words which had epenthetic segments were not coded in a special way. This is because there were very few instances of epenthesis (e.g. *too dreede* 'to prepare' vs the expected *too reede* 'to prepare').

Dialect Feature	Chortitza Value	Molotschna Value
<oa> Diphthong Before Velars	œə, ɛə, øə, eə œʊ, ɛʊ, øʊ, eʊ	ɔə, oə, o:
WGmc * <i>aaw</i>	EI class	TAUSS class
Infinitive/Plural Suffix	-n	-ə

Table 3.2 Tested Dialect Features

As shown in the table, the three dialect features which were selected for analysis are ones which fall into discrete categories for both dialect types. The <oa> diphthong before velars has various realizations within the two dialect types, but the Molotschna value is [+BACK] while the Chortitza value is [+FRONT]. The reflex of WGmc **aaw* is also categorical; either the reflex is a member of the EI or TAUSS class without intermediate values.⁴⁰

The dialect features not included in this table are: frontness of /u:/ and frontness of the palatal oral stop. It is not clear what the phonetic variation between <kj> and <tj> actually is. The equipment required to measure the variation in these segments is more specialized than the equipment which was used in this present study (e.g. electro-palotography grids). Alternative techniques to measure these segments are not socially appropriate for the type of relationship which exists between the researcher and the consultants (i.e., pigmented palatograms and linguograms would be too invasive). Frontness of /u:/ was not included as a dialect feature because variation in this segment is best measured as a gradient variable rather than a discrete variable. Because this feature is more gradient in its variation, it is analyzed only with respect to the **Observed Vowel Segment** data.

The **Observed Vowel Segment** table contains a list of all vowel tokens produced by speakers that were expected to be testable. This table was created by pulling all vowels coded for testing from the **Observed Segment** table (N = 6,068 segments). The **Observed Vowel Segment** table contains information about the speaker who uttered the vowel token, F1-F3 for all vowel nuclei, an additional F1-F3 for diphthong off-glides, and the expected vowel class from the **Dictionary Word Segment** table. After double checking the automated formant extraction values against the Praat formant values, only 6,001 vowel tokens could be included in the study for analysis.

Figure 3.5 represents an enhanced entity relationship chart illustrating the database's relational structure. All tables are indicated in italics and the columns in those tables are represented as indented values underneath the table name. The key identifying feature of each table is marked with a key (key value). Mandatory columns in any given table which get their value from another table are marked with a black sphere (foreign key). The tables are organized into three columns representing different types of data stored in the database. Relational social information about speakers is presented with black lines, relations of expected pronunciation values are marked with red lines, and relational information about observed values are marked with blue lines. An equal sign next to a table indicates that one of its columns is the source of a value used in another table. The table which pulls information from another is indicated by a bared fork for the table. The database which was constructed only contains one to many relations.

⁴⁰ I decided to not code the presence or absence of [v] in these forms as an indicator of Chortitza vs Molotschna. It is almost always the case that speakers which use the EI class use [v] and speakers who use the TAUSS class do not use [v].

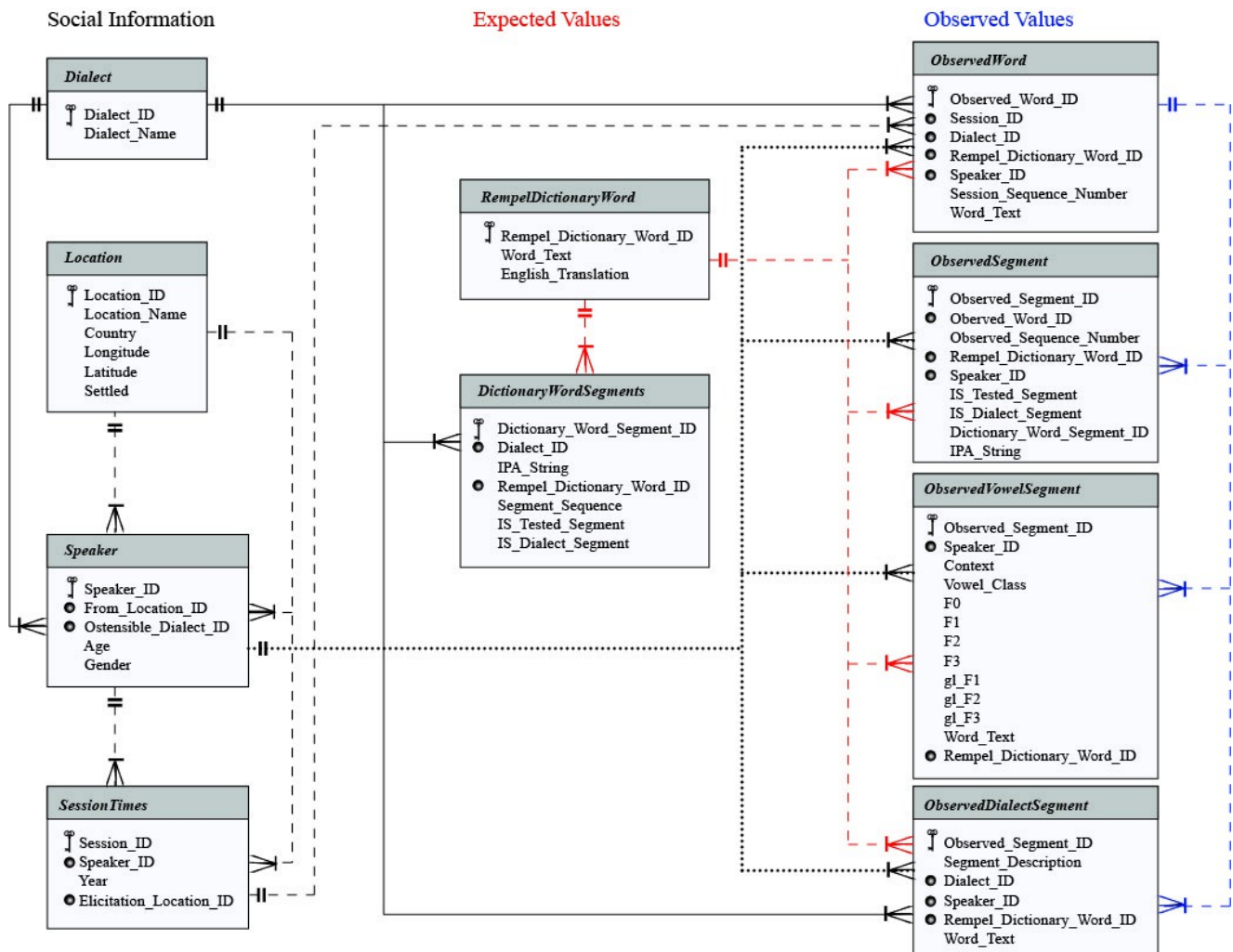


Figure 3.5 Relational Database Flow Chart

After all data was elicited, processed in Praat, and processed in the MySQL database, it was ready to be prepped in R for statistical analysis.

3.4 Data Analysis

Analysis of data involved normalization of values and statistical analysis in R. All data was analyzed for variability across the population and then processed into hierarchical clusters.

3.4.1 Normalization

This section outlines the normalization techniques performed on each speaker's data in order to prepare it for statistical testing.

Dialect Features

Tokens of words marked for traditional dialect features were aggregated into a single spreadsheet which indicates the speaker who produces the token, the type of dialect segment, and the word which the speaker uttered.

For each tested dialect feature produced by a speaker, the researcher calculated a “Chortitza Index”. The Chortitza index is the ratio of observed Chortitza tokens of a given dialect feature to the

total number of tokens of that dialect feature. Formula 3.1 provides the formula for deriving the Chortitza Index of a given speaker's dialect features.

$$\text{Chortitza Index} = \left(\frac{\text{observed Chortitza}_i}{\text{observed DF}_i} \right) * 100$$

Formula 3.1 Chortitza Index

In this equation DF_i is any one of the traditional dialect features listed in Table 3.2. $Chortitza_i$ represents an observance of a traditional Chortitza value which is associated with that particular traditional dialect feature. Each speaker has a maximum of 3 Chortitza Indices. If the strictest view of Dialect Features holds, speakers who are Molotschna speakers should always have a product of zero for their Chortitza Indices and speakers who are Chortitza speakers should have a product of 100 for their Chortitza Indices.

Vowel Data

The normalization technique used in this study is a speaker extrinsic method. In studies which compare vowel normalization techniques for sociolinguistic data, vowel extrinsic normalization always performs the best (Adank et al. 2004, Clopper et al. 2005, Clopper 2009, Fabricius et al. 2009, Flynn 2011). The specific vowel extrinsic technique used in this study is the Labov technique, a modification of the Neary method (see Labov 2006:39-40). This method makes use of a geometric log mean and is intended to reduce the differences between male, female, and child speakers. The following formula derives the geometric log mean (G) of all formants for all speakers (Labov 2006:39-40). The variable p represents the number of speakers, m represents the number of formants, and n represents the total number of tokens. Formula 3.2 provides the equation for Labovian normalization.

$$G = \frac{\sum_{k=1}^p \left(\sum_{j=1}^m \left(\sum_{i=1}^n \ln(F_{i,j,k}) \right) \right)}{m * \sum_{j=1}^p n_i}$$

Formula 3.2 Labovian Normalization

In order to properly superimpose the system of any one speaker to the system of all speakers, the formula also derives the individual log mean of each speaker across all formants (S). Formula 3.3 provides the equation for deriving an individual's log mean.

$$S = \frac{\sum_{j=1}^m \left(\sum_{i=1}^n \ln(F_{i,j}) \right)}{m * n}$$

Formula 3.3 Individual Log Mean

The scaling factor (F) for each individual is the anti log of the difference between the geometric mean and the speaker's individual mean.

$$F = \exp(G - S)$$

Formula 3.4 Scaling Factor

As women tend to have more expanded vowel spaces, their scaling factor will be less than one and the system will be contracted. As men tend to have more contracted vowel spaces, their scaling factor will be greater than one and their systems will be expanded. The normalized formant values are obtained by multiplying an individual's formant values by the scaling factor (Kendall and Thomas 2014:10).

This method was used instead of other vowel extrinsic methods because it has been used fairly recently in a large scale analysis of North American English vowel systems (see Labov 2006). These systems have structural features which are similar to those found in Plautdietsch (e.g. lack of a high back vowel). The only vowel extrinsic method which was not considered was the Watt-Fabricius method. This method was avoided because it treats the most extreme peripheral vowels [i], [a], and [u] as anchor points from which other vowels are scaled. As one of the points of variation in Plautdietsch is the absence of a high back vowel, this method distorts the vowel space of speakers which lack this vowel.

All F1 and F2 values were normalized using the function `norm.labov()` included in the package `Vowels` in R.⁴¹ All defaults were used.

3.4.2 Statistical Tests

As stated at various points in §3.2, the sample is not balanced with respect to age, gender, source location, and ostensible dialect. Unlike the normalized variables discussed in §3.4.1, the attributes of speakers would be difficult to normalize across the set of participants in the study. The failure to have a truly unbiased sample makes most approaches to linear modeling potentially problematic, but in some respects, the biased sample reflects the reality of linguistic obsolescence in the speaker population. Rather than use a supervised statistical model, this study investigates variation in the population in terms of unsupervised hierarchical clustering models. One of the advantages to using unsupervised models is that they can be bootstrapped, or resampled, to test for robustness. An additional advantage of using unsupervised models is that they group data based on similarity or dissimilarity within the data and the researcher can extrapolate the relevant social factors from their knowledge of the communities under investigation.

There are two types of distance metrics used in this project, euclidean distance methods and cosine distance methods. The euclidean distance method measures a linear distance between two vectors whereas the cosine distance method measures the angles between those two vectors and produces a cosine value of that angle. Figure 3.6 provides a visualization of the difference between the euclidean and cosine distance methods. Dashed lines represent the euclidean distance, and the curved line represents the angle of the cosine distance.

⁴¹ <http://lvc.uoregon.edu/norm/>

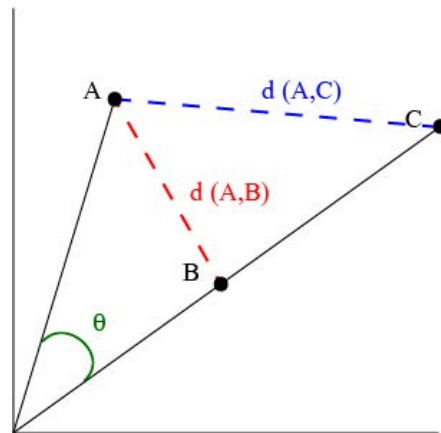


Figure 3.6. Euclidean Distance and Cosine Distance Measurements

As can be seen in Figure 3.6, the distance between point A and B and Points A and C are treated differently when using a euclidean distance ($d(A,C) > d(A,B)$). There is no difference between these two points when measuring the cosine distance because the angle between A and B is the same as the angle between points A and C.

The clusters in the analysis are built using the complete agglomerative clustering method. Agglomerative clustering is a bottom up approach to clustering where individuals are combined into clusters until there is only one cluster left (the root node). The Complete method first clusters the nearest neighbors together and then assigns individuals to clusters based on their proximity to the furthest member of that cluster.

These clusters were then validated with bootstrapping at an 80% confidence interval. Bootstrapping is a resampling method in order to test whether or not the findings of the initial clustering are robust enough to be replicated with sampling and replacement (Baayen 2008:146-8, Levshina 2015:315-7, Plonsky et al. 2015). The resampling technique increases the statistical power of small and otherwise unbalanced samples (Plonsky 2015:592-3).

Chapter 4 Individual Results

The previous chapter outlined the methodology for data elicitation, processing, and analysis. This chapter reports on the findings of the linguistic investigation for individual speakers. The organization of this chapter is by field site and session. This organization is used because certain field survey tools were used in some locations but not others. The social survey tool proved to be problematic because communities varied drastically in their beliefs about what constitutes language. In Southern Mexico, many speakers believe that language is a community feature and not something connected to the person who speaks it, so many decided not to complete the social survey.

All figures in this section represent the normalized formant values for each of the three Plautdietsch vowel systems: stressed long vowels (including long monophthongs and closing diphthongs), stressed short vowels, and opening diphthongs. All vowel categories are represented by the labels first presented in Chapter 2 and were organized alphabetically by speaker. The long vowel classes are BIET 'bite' [i:], ÄT 'eat' [e:], ÄKJ 'oak' [ɛ:] (allophone of ÄT class before palatals), HEET 'hot' [əɪ], HAB 'have' [a:], HÜT 'skin' [y:], HOS 'hare' [o:], HOOT 'hat' [əʊ], TAUSS 'cup' [ɔʊ], EI 'egg' [ɛɪ]. The short vowel classes are BITT 'bit' [ɪ], RIGJ 'back' [ɨ] (allophone of the BITT class before voiced palatals), HETT 'heat' [ɛ], OSS 'ox' [ɔ], HUTT 'protection' [ʊ]. The opening diphthongs classes are IA [iə], EA [eə], ÄA 'her' [ɛə], ÜA 'clock' [yə], UA 'ear', OA 'ear (of corn)' [ɔə]. I reference a class called “Dialect OA” which consists of the members of the OA class associated with the traditional dialect variation in words like *Loakes* 'sheets' (e.g. Molotschna [lœkəs], Chortitza [læəkəs]).

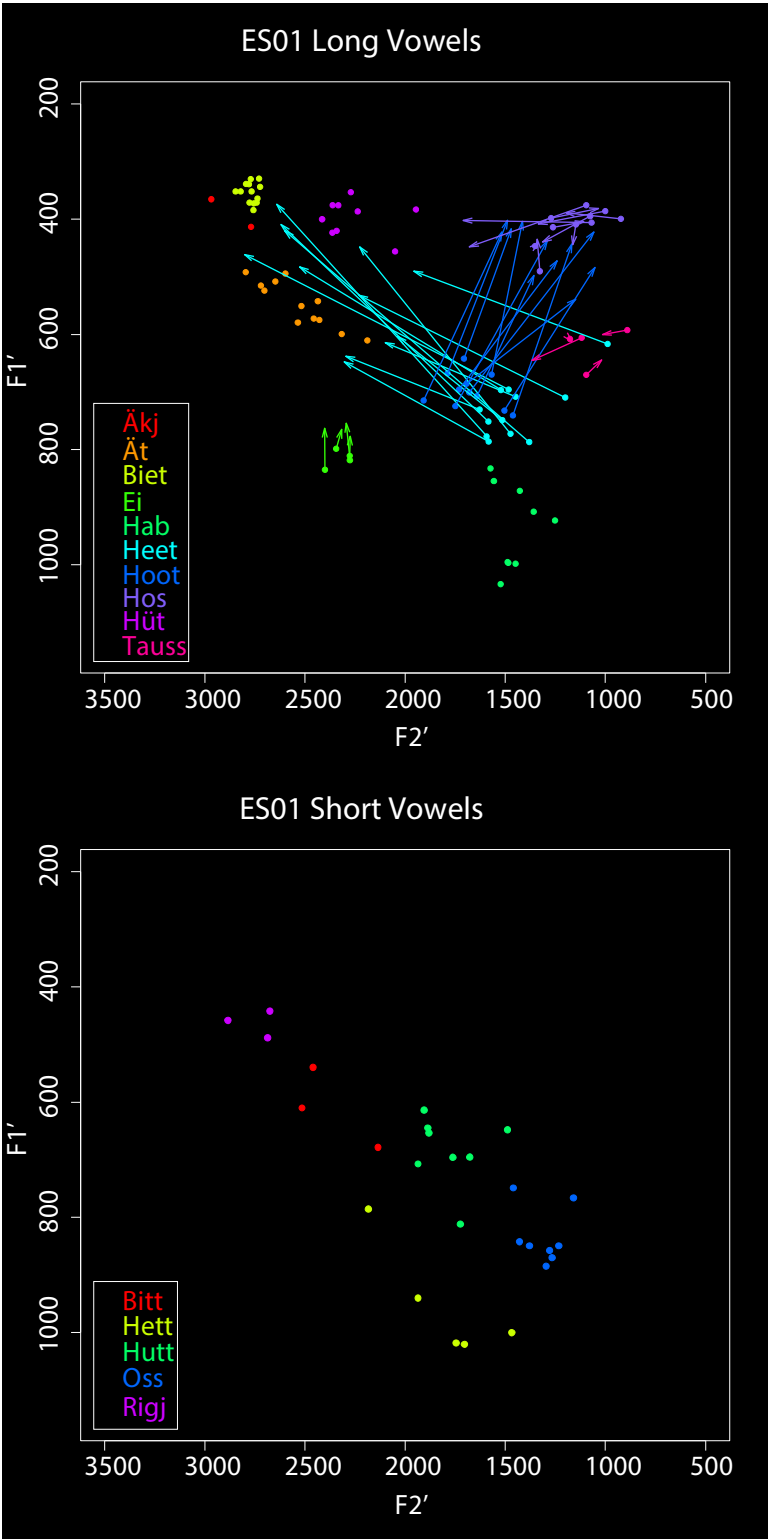
For each subsystem of vowels, vowel classes were automatically assigned a color in the spectrum that aligns with the alphabetic placement of the vowel class within the subsystem. All tables in this section provide information about the traditional dialect categories which were produced by a given speaker.

4.1 Summer Elicitation 2012, 2013 (Southern Mexico)

Initial fieldwork took place for roughly two months in the summer of 2012 and summer of 2013 in Southern Mexico. All speakers from this time used the first of the two elicitation tools which did not focus on traditional dialect variation. This location is home to four Mennonite denominations: Old Colony, Sommerfeld, Kleine Gemeinde, and EMC. The region is home to many people who have left Northern Mexico, Belize, and Canada to settle in a highly rural environment.

4.1.1 ES01

Speaker ES01 is a Chortitza speaker from Southern Mexico. He was raised in the largest Old Colony community in Southern Mexico until his father abruptly moved the family out while he was still a boy, but old enough to remember. He moved into a village with a mix of Belizean and Mexican Plautdietsch speakers. He is fluent in Low German and Spanish and has knowledge of High German. Figure 4.1 shows ES01's normalized formant values by vowel class.



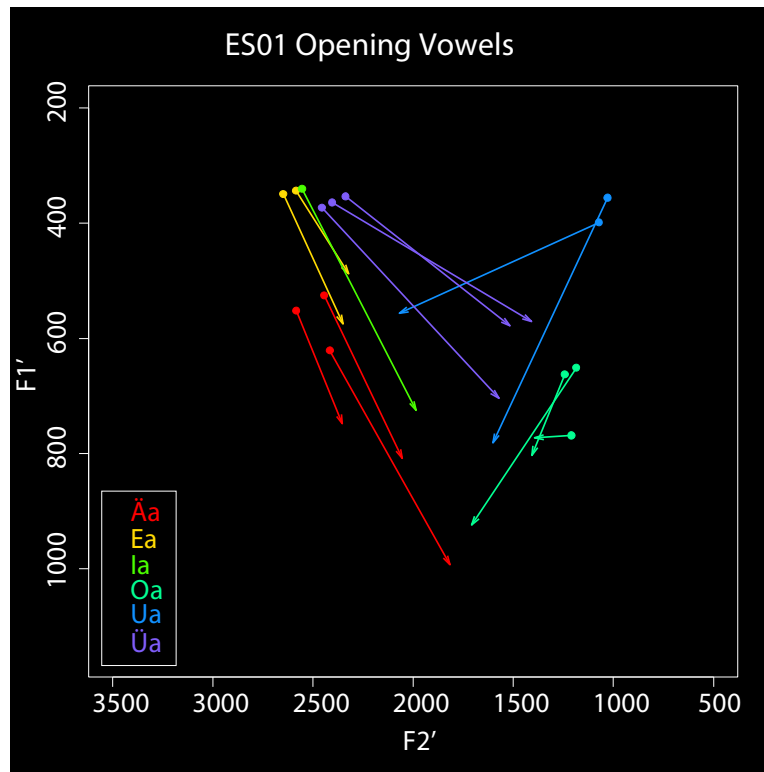


Figure 4.1 ES01 Normalized Vowels

Speaker ES01 has several notable features about his vowel system. All of his tokens of the EI and TAUSS classes are monophthongs. The HOS class is a high back vowel and the TAUSS class is a mid-high back vowel. His pronunciation of the ÄKJ class has risen to a high front position close to the BIET class. The RIGJ class has separated from the BITT class. The nuclei of the HEET class have a lower back nucleus, close to the OSS class, but one token has a mid-high back nucleus. The HETT class is sometimes a mid-low front vowel, but other tokens are both lower and more central than the tokens of his EI class. The nuclei of his EA and IA classes are merged in the high front vowel space. The ÄA class has risen, but the OA class remains low.

Table 4.1 shows ES01's use of tested dialect features.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	18	25
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.1 ES01 Traditional Dialect Features

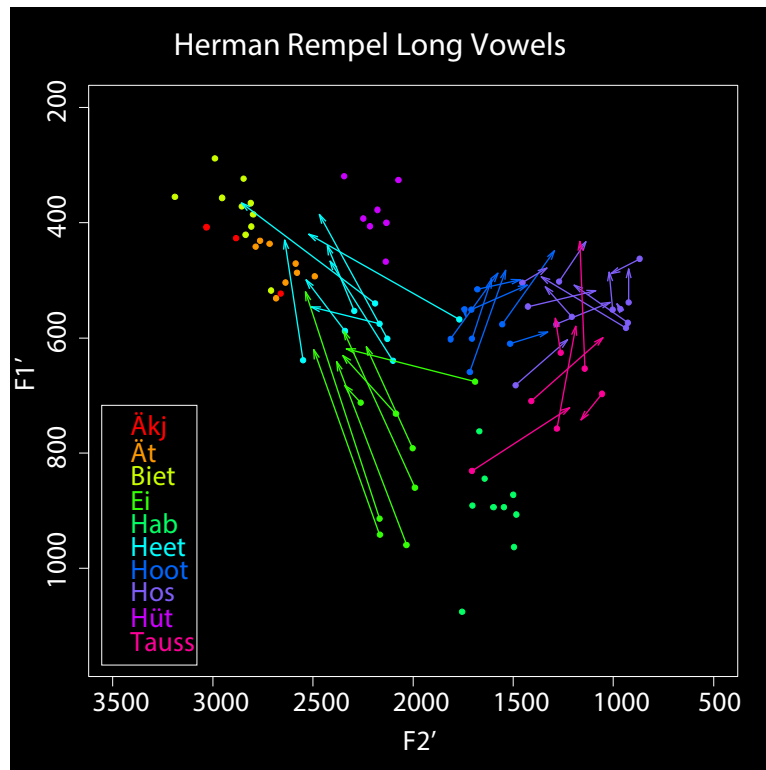
Although ES01 grew up in a Chortitza village, he does not consistently use the Chortitza final *-n*.

4.1.2 Herman Rempel

Herman Rempel is a Molotschna speaker from central Canada who lived from 1915–2008 (Wiebe Funeral Homes). He was the third generation in his family to be born in Canada and was involved in

teaching and language documentation. He was involved in an effort to produce Plautdietsch literature and language resources and published three editions of his dictionary *Kjenn Jie Noch Plautdietsch*. Some time after publishing the first edition in 1979, he recorded himself saying his own pronunciation of the words in his dictionary.⁴²

Figure 4.2 shows Herman Rempel's normalized formant values by vowel class.



⁴² The recordings of Herman Rempel used in this project can be found at <http://www.plautdietsch.ca/PronunciationExercise.htm>.

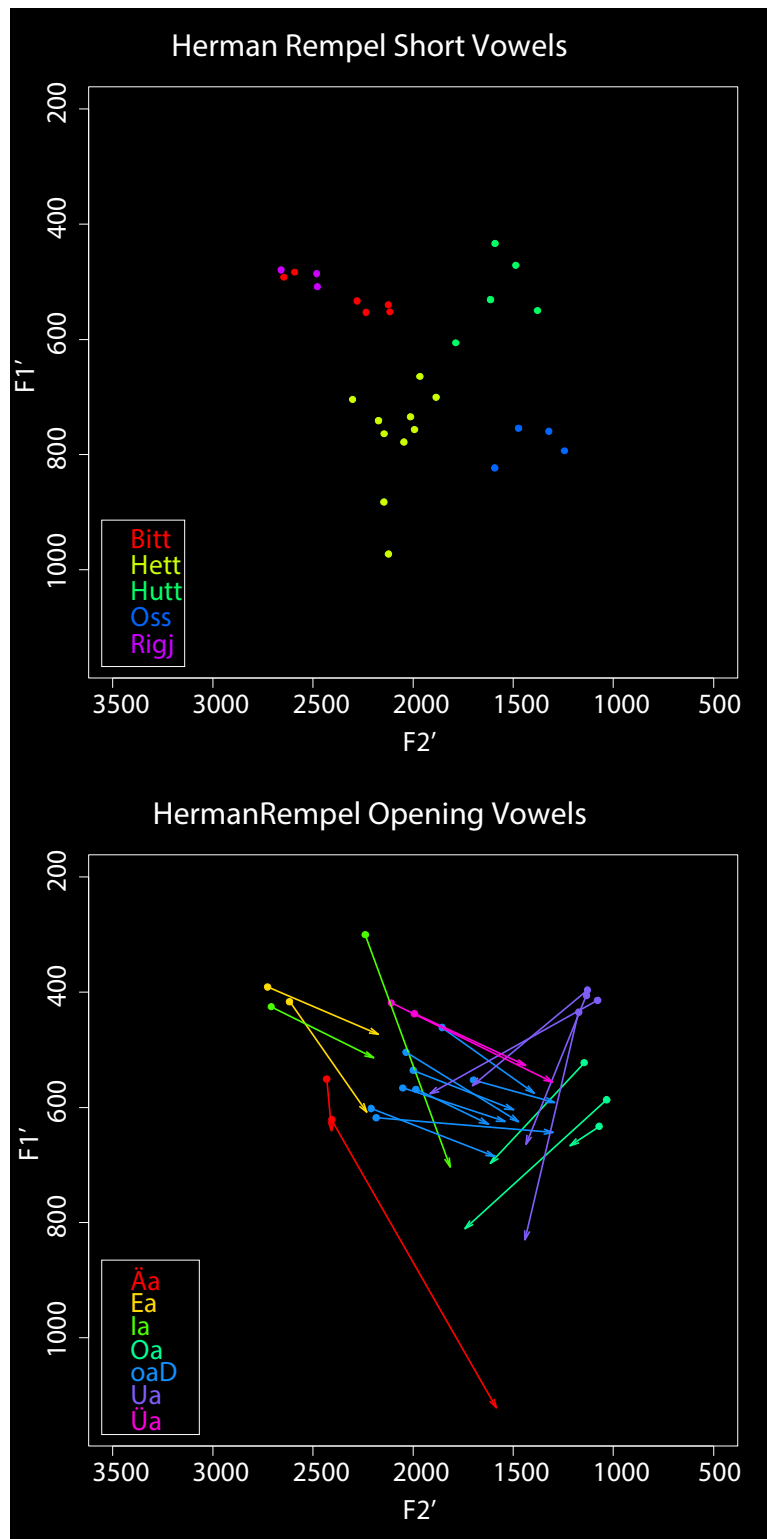


Figure 4.2 Herman Rempel Normalized Vowels

Herman Rempel has mostly diphthong realizations of the TAUSS and Ei classes. Although he has some centralized nuclei in the HEET class, much of the distinction between the HEET and Ei class lies in the

height of the nucleus. Herman Rempel's HOS class is a mid-high back vowel. The realizations of the ÄKJ class have not fully merged with members of the BIET class. Herman Rempel has some central monophthong realizations of the HOOT class. The RIGJ and BITT classes have not separated and both remain distinct from the HETT class. His EA and IA classes have merged. Some reflexes of the EA class exhibit a lower F1 than the reflexes of the IA class. The nucleus of the Dialectal OA class is central unlike the mostly front Dialectal OA diphthong found in Mexico. Additionally, he does not have any closing allophones of the Dialect OA class.

Rempel is one of the scholars who describes a two way dialect division between Chortitza and Molotschna (see table 2.1 for more information).⁴³ Table 4.2 shows Herman Rempel's use of traditional dialect features.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	24
WGmc * <i>aaw</i>	6	6
Dialect <i>oa</i>	8	8

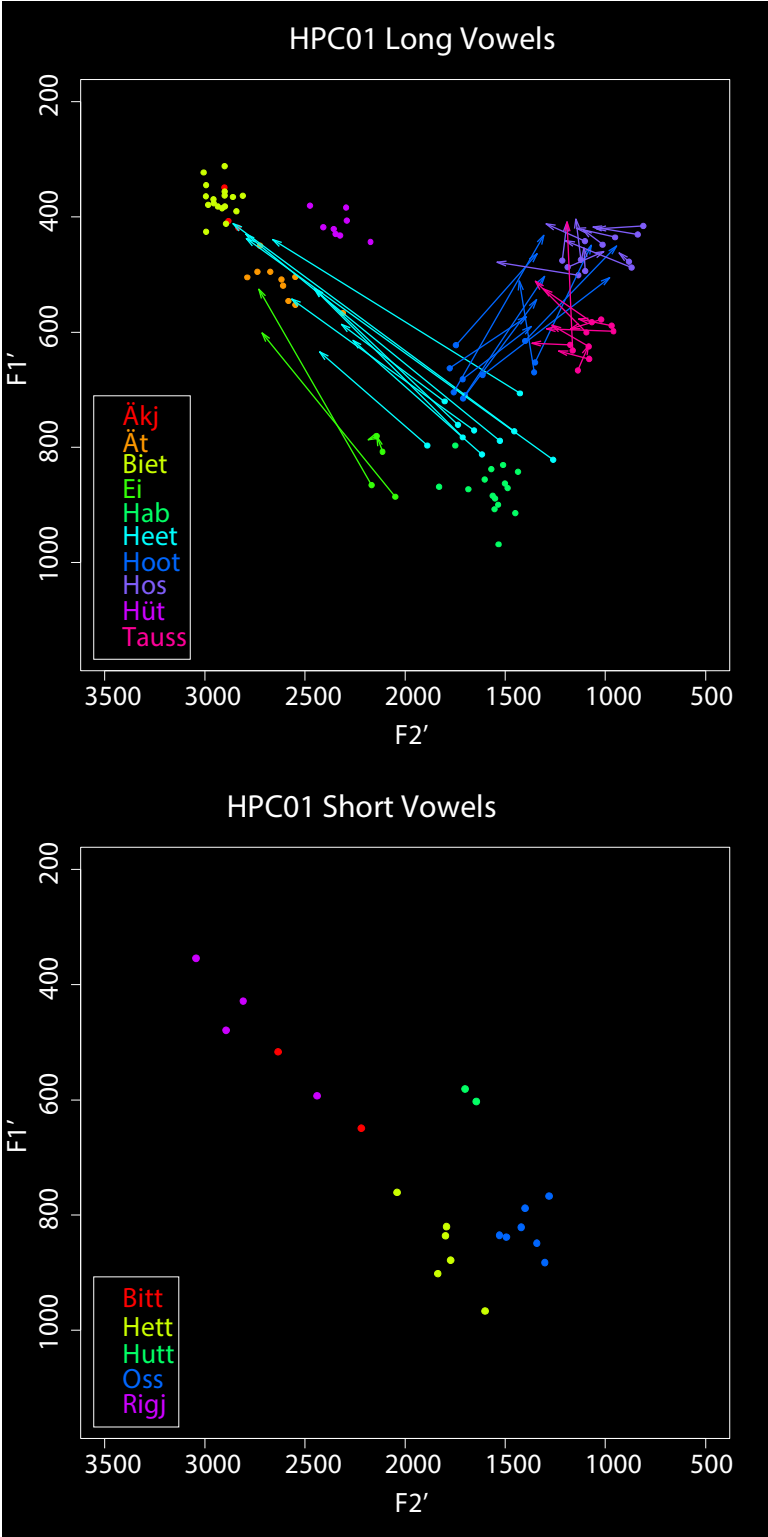
Table 4.2 Herman Rempel Traditional Dialect Features

Herman Rempel uses consistently Chortitza features for the three tested dialect categories, except for use of the final *-n*. This is likely part of the reason why he mistakenly categorized use of *-ə* as a Chortitza trait rather than a Molotschna trait: because he viewed himself as the archetype of a Chortitza speaker, all of his values were equivalent to Chortitza values at large.

4.1.3 HPC01

Speaker HPC01 is a Molotschna speaker from Northern Mexico. He is not affiliated with any Mennonite congregation and primarily speaks in Spanish with his family and fellow church goers. He was from a Sommerfeld community and his wife is from the Old Colony. He recognizes that she has a different pronunciation of the word *foare* 'to drive'; he says [foərə] but she says [fo.m]. Figure 4.3 shows the normalized formant values of HPC01 by vowel class.

⁴³ Rempel's description of the two way dialect division is mostly consistent with other descriptions (e.g. Quiring 1928 and Epp 1995) except for his description of the final *-n* feature. He appears to base what Chortitza features are on his own pronunciation which does not always fit the traditional divide.



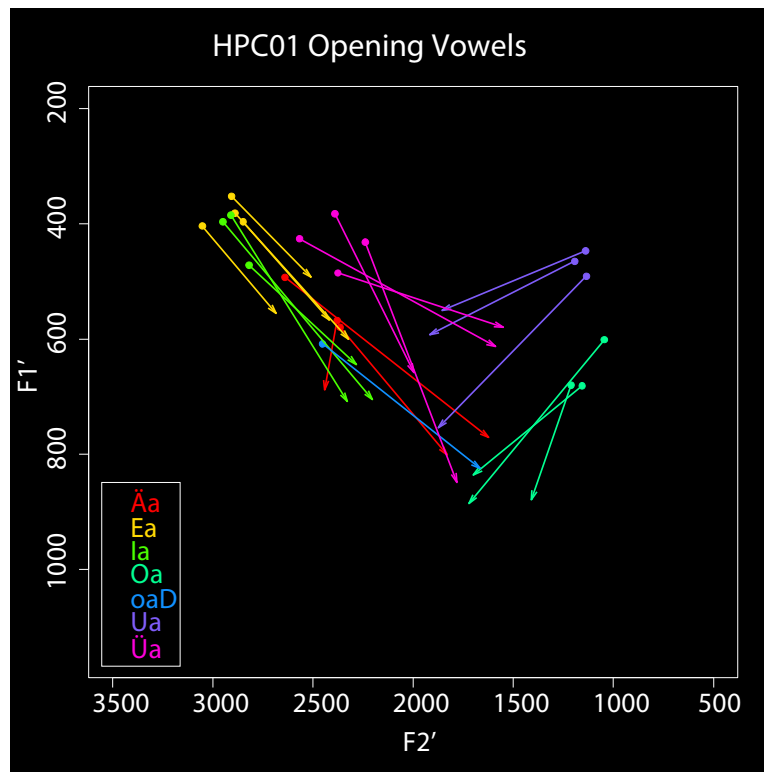


Figure 4.3 HPC01 Normalized Vowels

HPC01 has a merged ÄKJ class and BIET class. Although some of his members of the EI class are monophthongs, he still has the more conservative diphthong realization. His HOS class is a higher back vowel, but it is not as high as the HOS class of other speakers. Almost all of his realizations of the HEET class have a lower back nucleus and some have begun to push into the space of the HAB class. The RIGJ class has begun to separate from the BITT class. Some members of the BITT class are lower and closer to [ɛ] and the HETT class has many members which are lower than the nucleus of the EI class. His EA and IA classes have merged. He uses the front variant of the Dialect OA class.

Table 4.3 shows the traditional dialect features of HPC01.

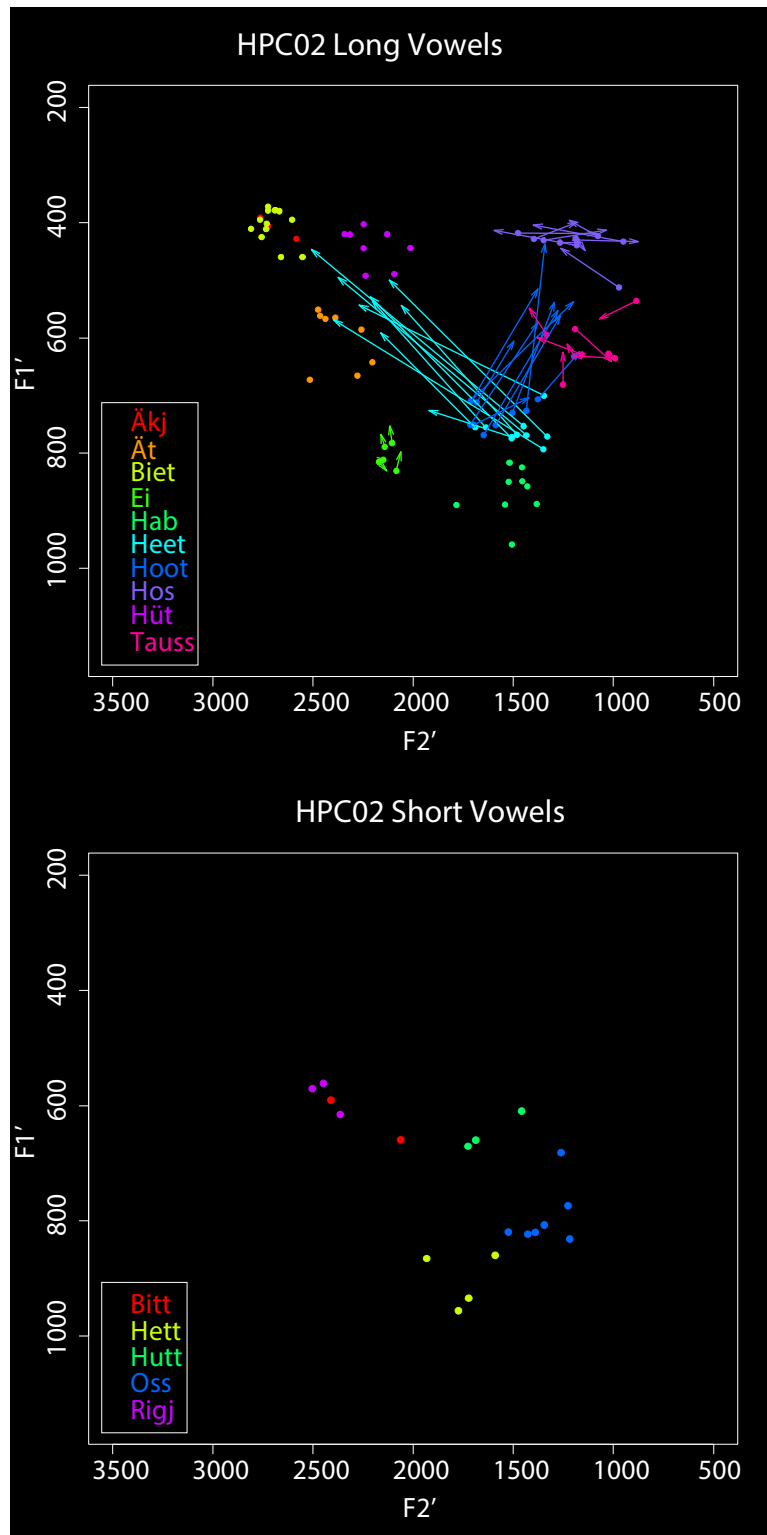
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	22
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	1	1

Table 4.3 HPC01 Traditional Dialect Features

HPC01 produced one token of the Dialect OA class in the word *Knoake* 'bone'. He did not produce any tokens of the WGmc **aaw*, but in casual conversations with him outside of the elicitation session, he used the Chortitza variant like his wife from the Old Colony.

4.1.4 HPC02

Speaker HPC02 is a Molotschna speaker from Northern Mexico. Although he was raised in a Mennonite community, he is not affiliated with a Mennonite congregation. HPC02 is related to HPC03. He frequently speaks Spanish at home with his wife, who does not speak Low German. He is also a fluent English speaker. Figure 4.4 shows the normalized formant values of HPC04 by vowel class.



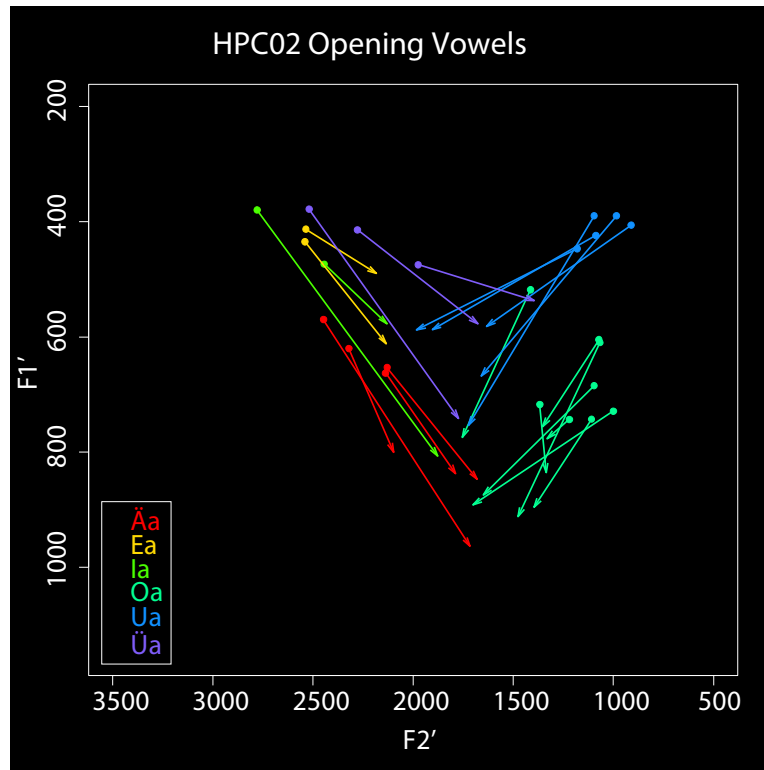


Figure 4.4 HPC02 Normalized Vowels

HPC02 has a high back realization of the HOS class. All of the tokens of his TAUSS and EI classes are monophthongs. His ÄKJ class has merged with the BIET class. The HEET class has a lower back nucleus which comes close to some of the members of the HAB class. The RIGJ class has separated from the BITT class and is pronounced as a diphthong. There is a raised allophone of the BITT class before voiceless palatals, but this is not pronounced as a diphthong. His HETT class is a low front vowel which is slightly lower than the nucleus of his EI class. The nuclei of the IA and EA classes are merged. The nucleus of the ÄA class has begun to rise, but the nucleus of the OA class is close the OSS class in most tokens.

Table 4.4 shows the traditional dialect features used by HPC02.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	11
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

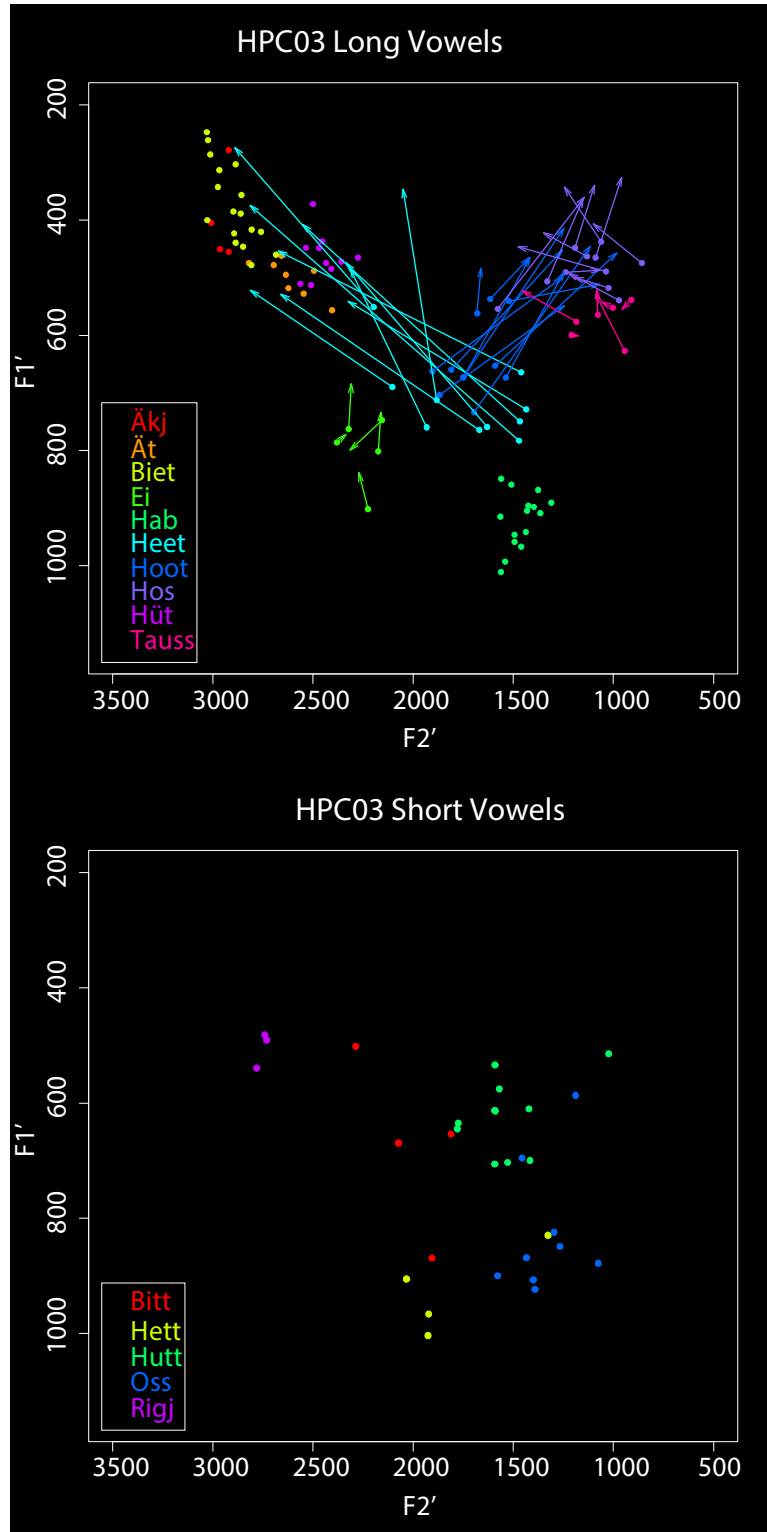
Table 4.4 HPC02 Traditional Dialect Features

HPC02 uses exclusively Molotschna features for the final *-n*, regardless of the fact that at the time, he was a co-worker of ES01 who used a mix of Molotschna and Chortitza features.

4.1.5 HPC03

Speaker HPC03 is a Molotschna speaker from Northern Mexico. Although she was raised in a

Mennonite community, she is not affiliated with a Mennonite congregation. HPC03 is related to HPC02 and ES01. She frequently speaks Spanish at home with HPC02's wife. She is also a fluent English speaker. Figure 4.5 shows the normalized formant values of HPC03 by vowel class.



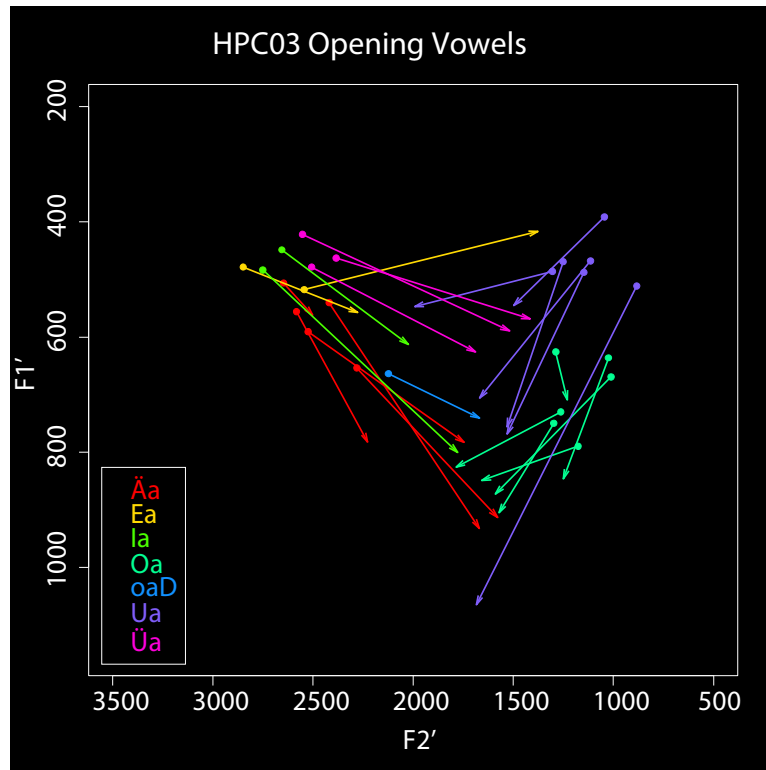


Figure 4.5 HPC03 Normalized Vowels

HPC03 has mostly monophthong variants of the Ei and TAUSS classes. Her TAUSS class is a mid-high back vowel and her HOS class is a high-back vowel. Some of the nuclei of the HEET class are central, but they have begun to move further back. The ÄKJ and BIET classes are merged. The RIGJ class has separated from the BITT class and is pronounced as a diphthong. The BITT class has a high allophone before a voiceless palatal stop, but it does not have a diphthong realization. Her HETT class is a low front vowel, but in one word, she realizes her HETT class as a member of either the HAB or OSS class. Some of the realizations of her OSS class are similar to her pronunciation of the HUTT class, but the rest appear to overlap with the higher range of the HAB class. Her EA and IA classes are merged. The one member of the Dialect OA class that she produced is a Chortitza value with a front nucleus. The nucleus of ÄA class has risen to a mid-high position, but the OA class remains mid-low.

Table 4.5 shows the dialect features produced by HPC03.

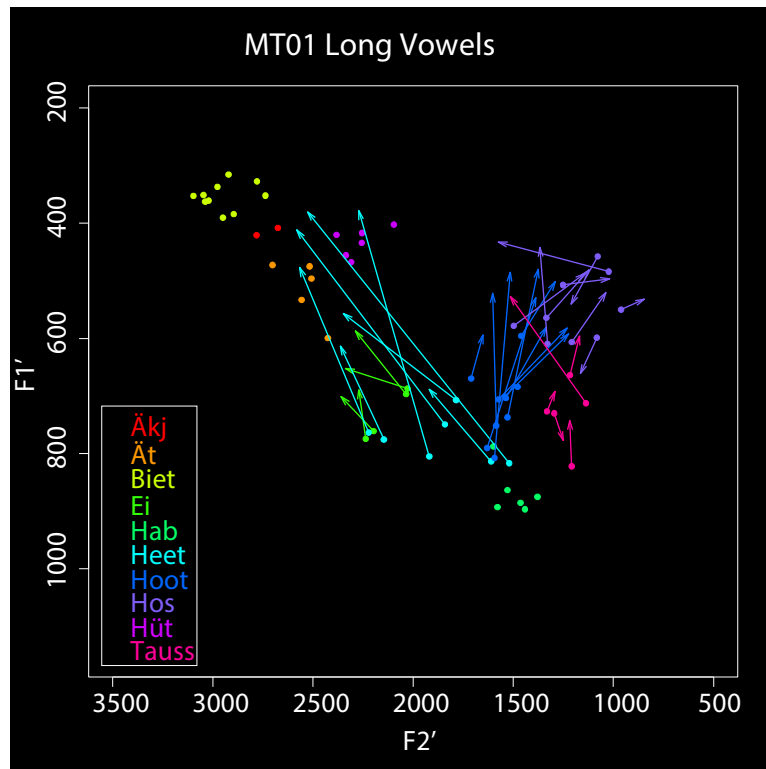
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	19
WGmc * <i>aaw</i>	1	1
Dialect <i>oa</i>	1	1

Table 4.5 HPC03 Traditional Dialect Features

Although she is a Molotschna speaker from Northern Mexico, the only Molotschna trait which she consistently used in the interview and outside of the interview is the final $-\partial$.

4.1.6 MT01

Speaker MT01 is a Molotschna speaker from central Canada. His parents did not want him to learn Low German because they had a preference for English. He managed to pick up Low German in spite of this. His family used to host Low German speaking migrant workers coming from North and South America. He does not actively use Low German because he lives in an area outside of the normal Mennonite migration path, but he maintains his Low German in order to keep in touch with relatives who have moved to Latin America. Figure 4.6 shows the normalized formant values of MT01 by vowel class.



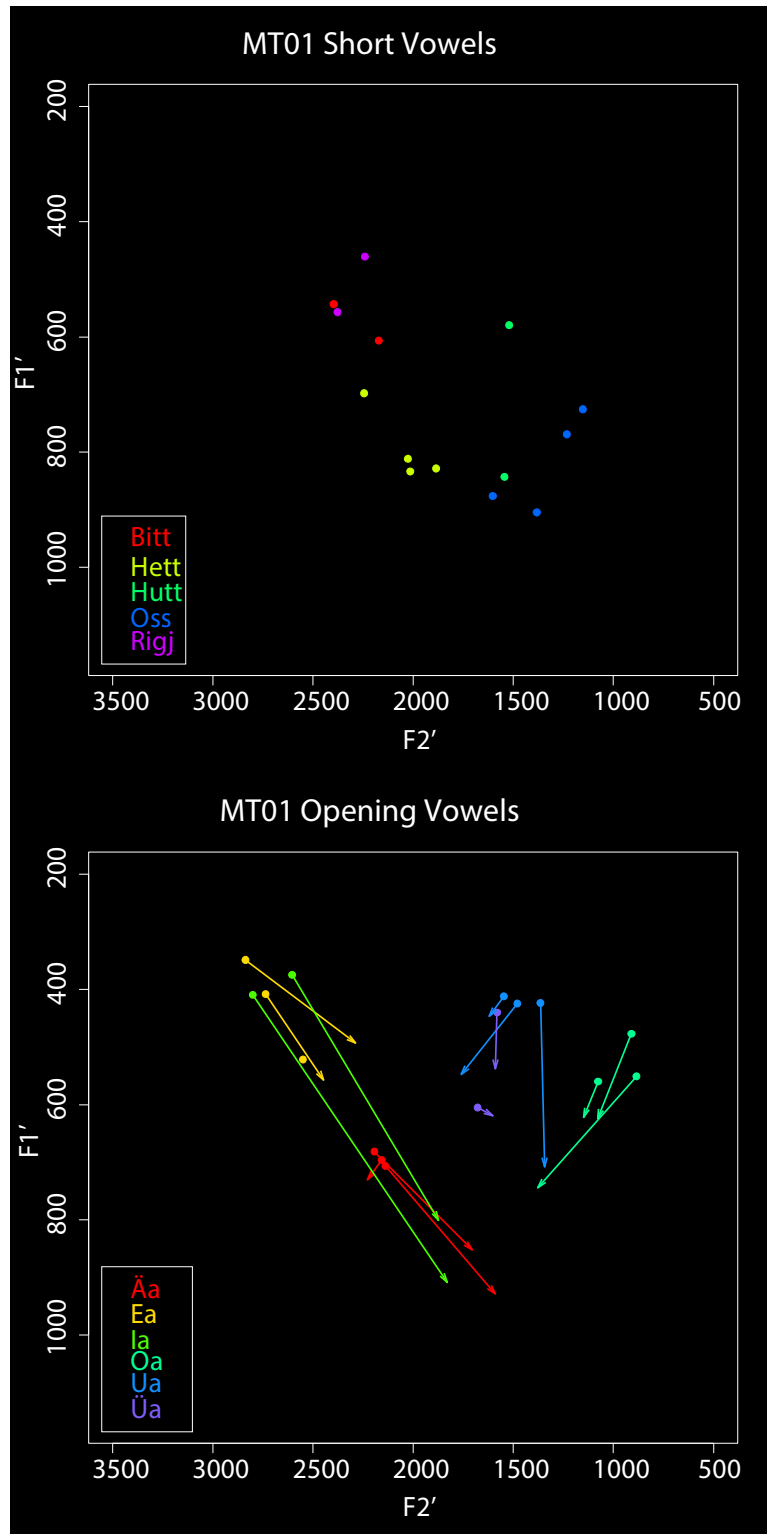


Figure 4.6 MT01 Normalized Vowels

Like Herman Rempel, MT01 does not have a high back vowel. His HOS class is a mid-high back vowel. He has mostly monophthong realizations of the TAUSS class with a mid-low nucleus. His ÄKJ and BIET classes have nearly merged, but they still remain separate. The nuclei of his HEET and HOOT

classes tend to have a high F1. In some tokens, the nucleus of the HEET class has centralized close to the value of the HAB class. The RIGJ class has not separated from the BITT class. There is very little overlap in the realization of the HETT and OSS classes, but where they do overlap, it is close to the acoustic space shared with the HAB class. MT01 has a very central, almost back, realization to the nucleus of ÜA class. His EA and IA classes are merged. The nucleus of the OA class has risen, but the nucleus of the ÄA class remains low.

Table 4.6 shows the traditional dialect features produced by MT01.

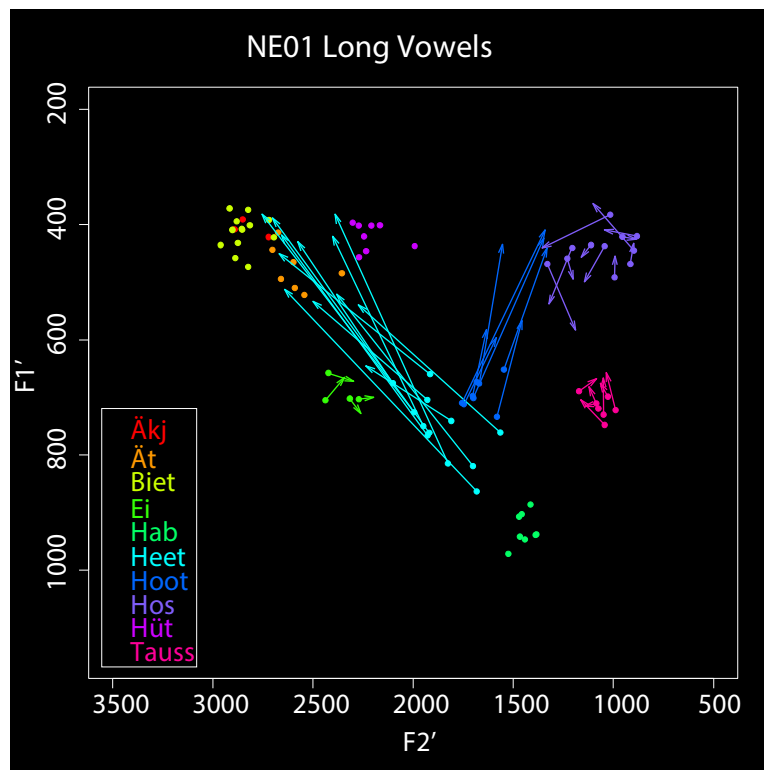
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	7
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.6 MT01 Traditional Dialect Features

The only dialect tokens which MT01 produced were related to the use of the final *-n*. He is classified as a Molotschna speaker based on the content of a conversation we had about the pronunciation of the word *bleiw* 'blue' and the lack of variation in that form that he found in Southern Mexico.

4.1.7 NE01

Speaker NE01 is from Belize. She began to learn English around age 9 and is now a fluent speaker. She mentioned that in Belize, Plautdietsch is strongly associated with the family and usage at home, but it is increasingly a trend that parents will only want to talk to their children in English. Figure 4.7 shows the normalized formant values of NE01 by vowel class.



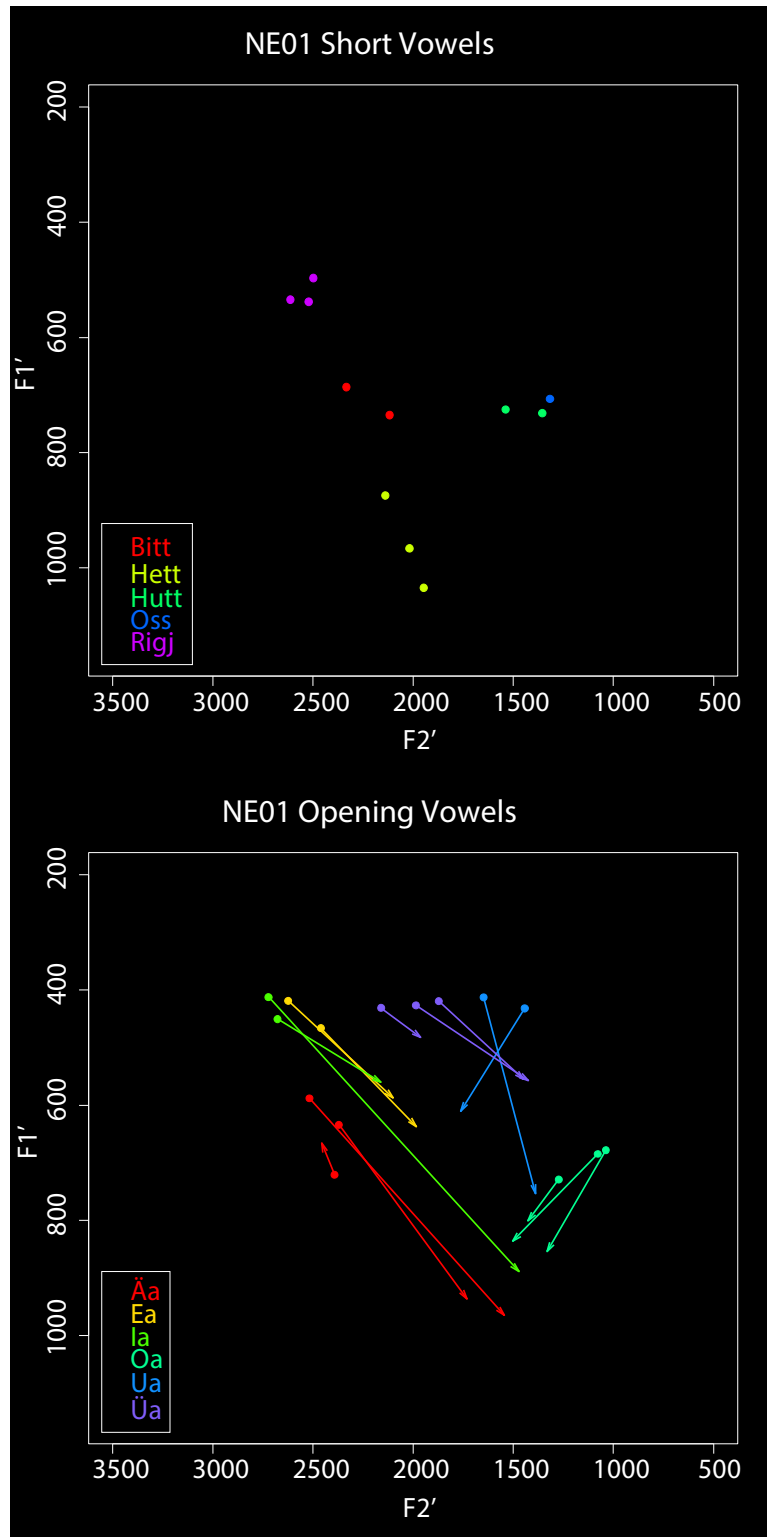


Figure 4.7 NE01 Normalized Vowels

NE01 has only monophthong realizations of the EI and TAUSS classes, both of which are mid-low vowels. Her HOS class is a high back vowel. The nucleus of her HEET class is central and has fallen below the nucleus of the EI class. The nucleus of her HOOT class also appears to be falling. Her ÄKJ and

BIET classes have merged. There is an overlap between the HUTT and OSS classes because she produces a high F1 in the HUTT class. All of her realizations of the HETT class are lower than the nucleus of her EI class. Her BITT class has fallen to a position lower than that of most other speakers in Southern Mexico, but her RIGJ class remains in the position of the original BITT class. Her IA and EA classes are merged. While the nuclei of the ÄA class have risen, the OA diphthong remains mid-low. The nucleus of the UA diphthong is beginning to centralize bringing it closer to the nucleus of the ÜA diphthong.

Table 4.7 shows the traditional dialect features used by NE01.

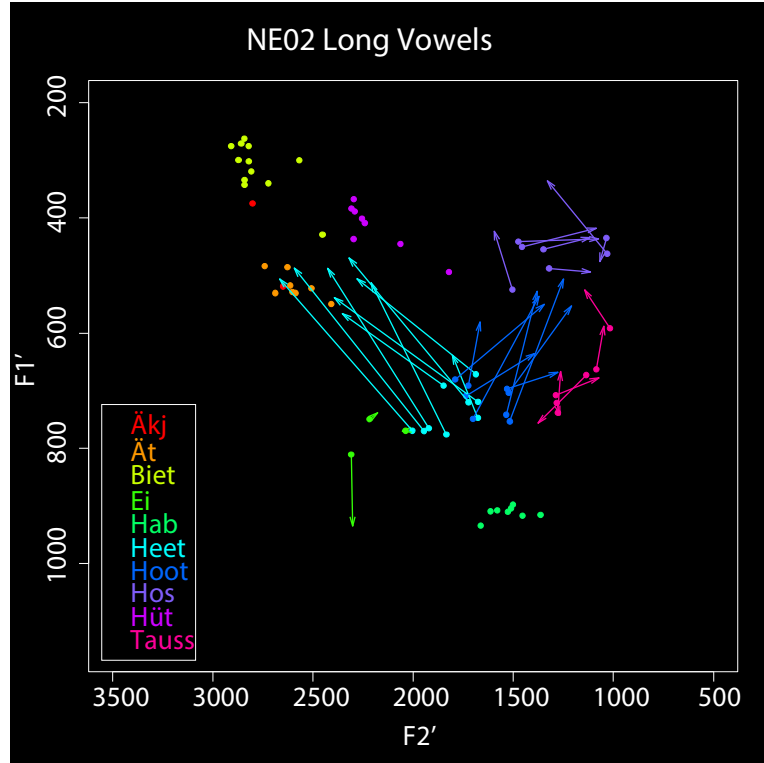
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	16
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.7 NE01 Traditional Dialect Features

The only dialect feature produced by NE01 was the final *-n*.

4.1.8 NE02

Speaker NE02 is from Belize. She is also fluent in Standard German. Figure 4.8 shows the normalized formant values of NE02 by vowel class.



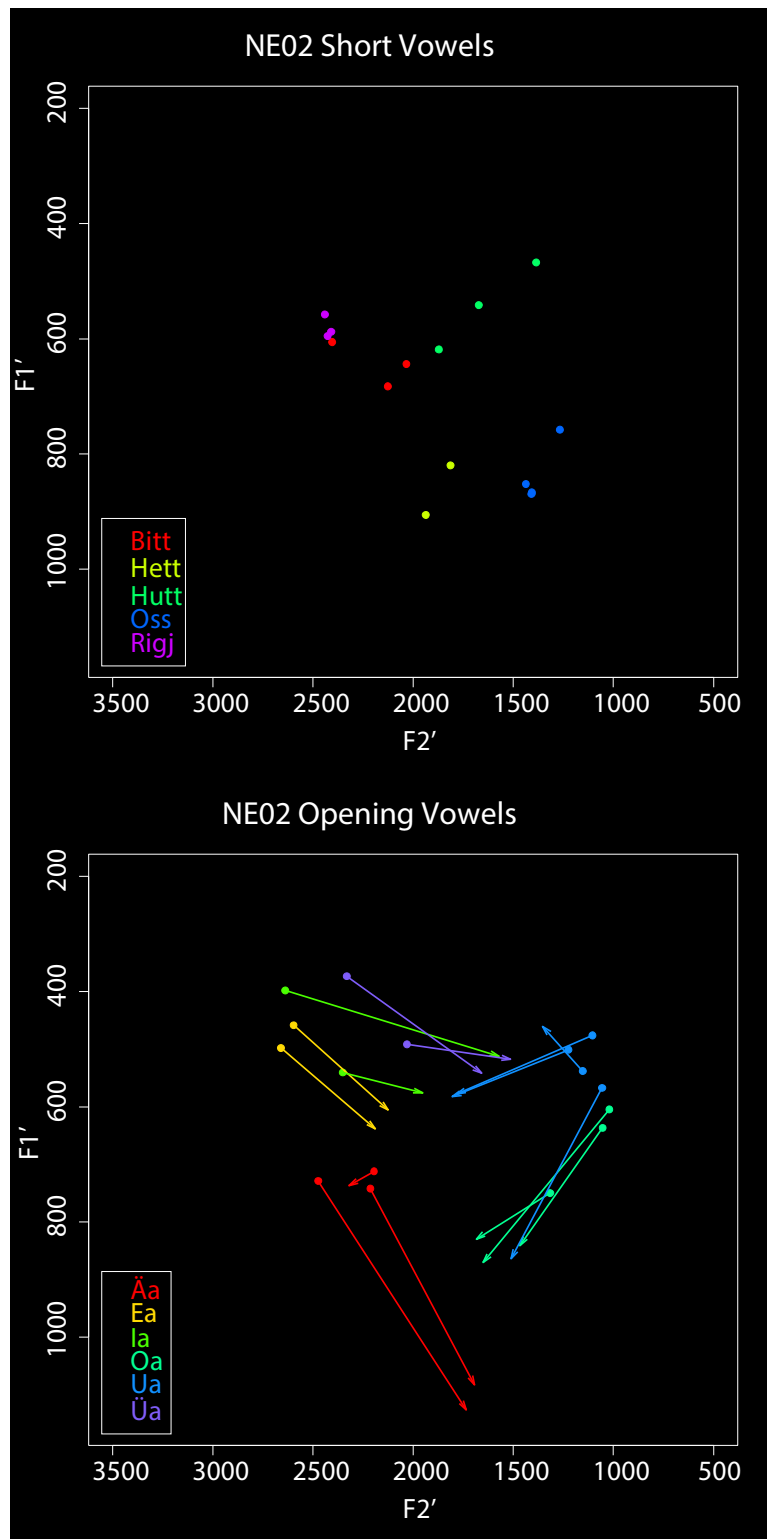


Figure 4.8 NE02 Normalized Vowels

NE02 has mostly monophthong realizations of the EI and TAUSS classes. The nucleus of the TAUSS class is visibly in the process of rising from a mid-low vowel to a mid-high vowel. The space of her BIET class and ÄKJ class are very close together. She has a high back vowel for the HOS class, but it is lower

than the high back vowel that many other speakers in Mexico have. The nucleus of the HEET class is central and close to a schwa. The RIGJ class has not separated from the BITT class. The BITT class contains raised monophthong allophones before palatal consonants. She has some overlap in her EA and IA classes. Some of the nuclei of her UA class have not risen to the high back position and consequently there is partial overlap with the nuclei of the OA class which has risen.

Table 4.8 shows the traditional dialect features of NE02.

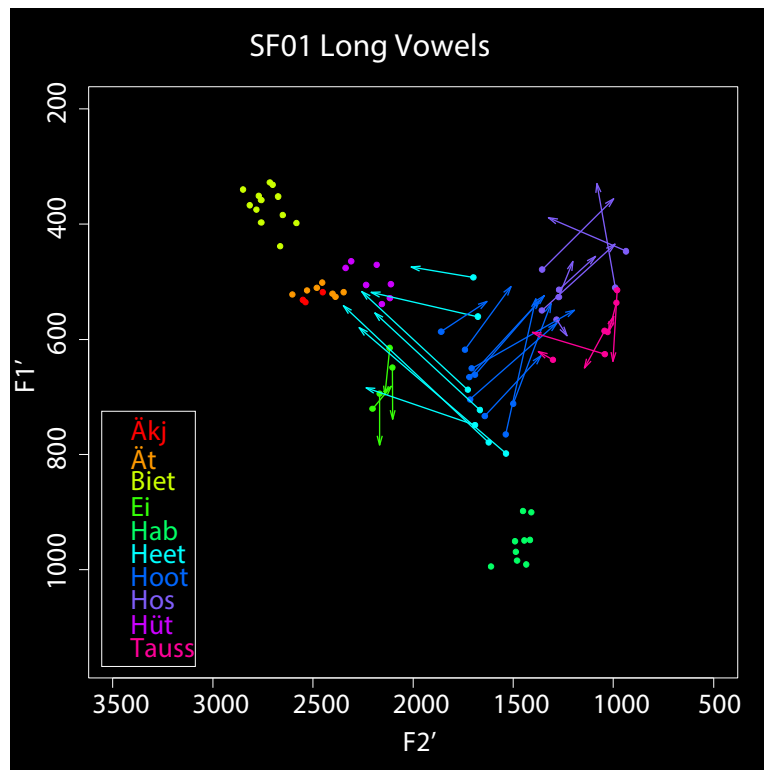
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	4
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.8 NE02 Traditional Dialect Features

The only dialect feature produced by NE02 is the final *-n* feature.

4.1.9 SF01

Speaker SF01 is from Mexico. She is also fluent in Standard German. Figure 4.9 shows the normalized formant values of SF01 by vowel class.



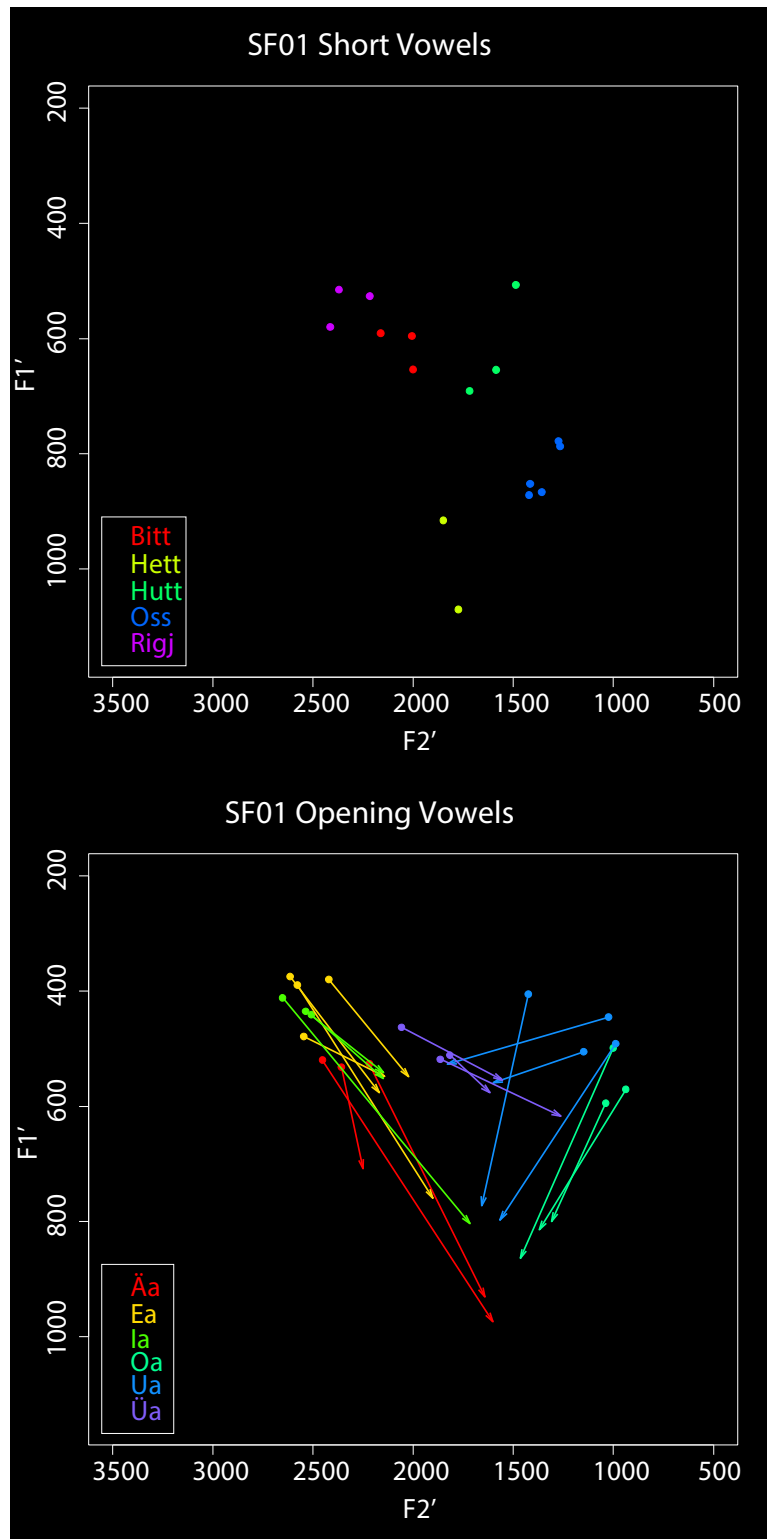


Figure 4.9 SF01 Normalized Vowels

SF01 is one of the few Mexican speakers who maintains a distinction between the ÄKJ and BIET classes. Her Ei and Hos classes have both monophthongized. The Hos and TAUSS classes are in the

process of rising, but she still lacks a true high back vowel. The nucleus of the HEET class is central, but it is in the process of lowering. The RIGJ class has not separated from the BITT class, it is only a raised allophone. The HETT class is a low front vowel. Both her ÄA and OA classes have risen, but her UA class hasn't completely risen. This results in some overlap between her OA and UA classes. Her Ea and Ia classes have merged.

Table 4.9 shows the traditional dialect features of SF01.

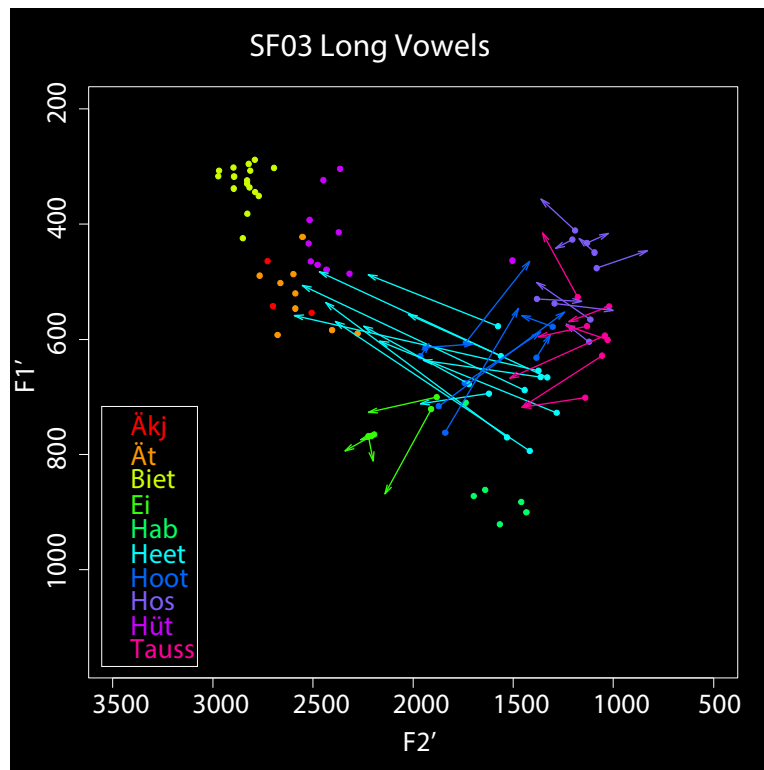
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	3
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.9 SF01 Traditional Dialect Features

The only dialect tokens that she produced are ones associated with the final *-n* feature .

4.1.10 SF03

Speaker SF03 is from Northern Mexico. She is also fluent in Standard German, English, and Spanish. Figure 4.10 shows the normalized formant values of SF03 by vowel class.



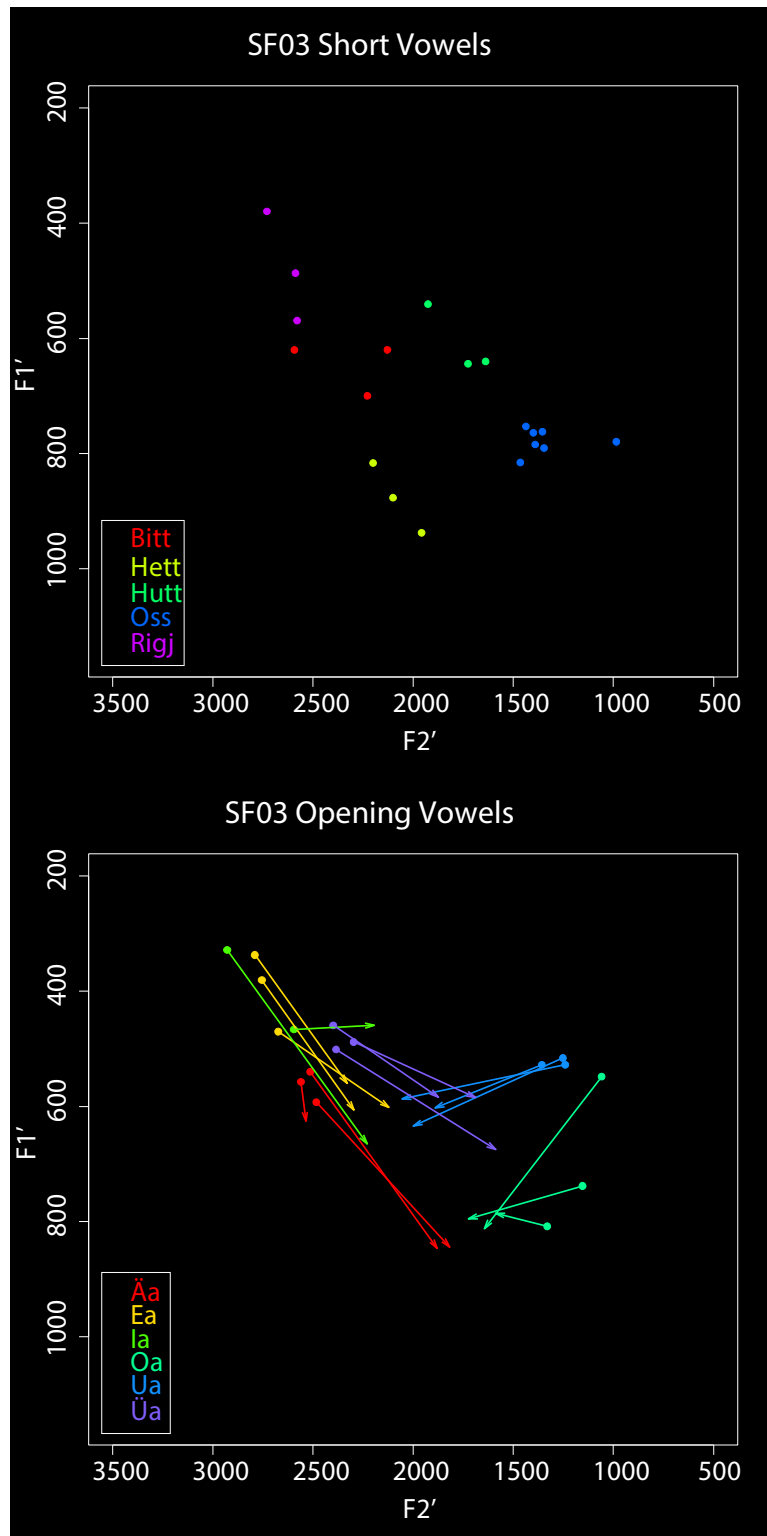


Figure 4.10 SF3 Normalized Vowels

SF03 has separate ÄKJ and BIET classes. Her EI and TAUSS class are mostly monophthongs. The nucleus of her HEET class has mostly fallen to a mid-low back position. Her HOS and TAUSS classes are both in the process of rising. Most of the members of her HÜT class are front vowels, but she produces one

token which is a back vowel. All of her realizations of the HETT class are low front vowels. The RIGJ class has separated from the BITT class and is pronounced as a diphthong. Her BITT class is in the process of falling. Her EA and IA classes are merged. The nuclei of the ÄA class have risen, and the nuclei of the OA class are in the process of rising. Her UA class has not fully risen, but it has begun to centralize which distinguishes it from some of the tokens of the OA class.

Table 4.10 shows the traditional dialect features used by speaker SF03.

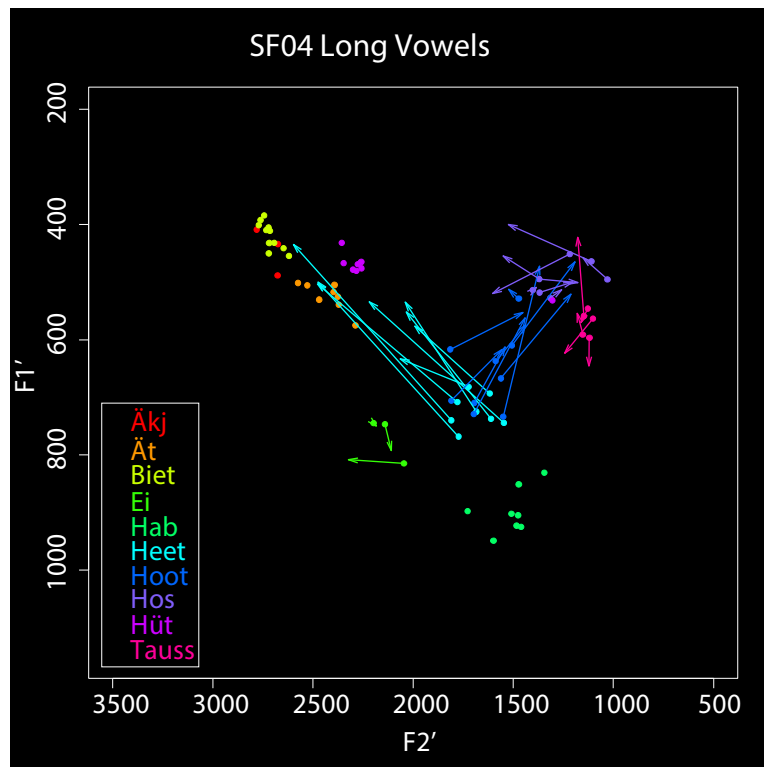
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	3
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.10 SF03 Traditional Dialect Features

The only dialect tokens that she produced are associated with the final *-n* feature.

4.1.11 SF04

Speaker SF04 is a Chortitza speaker from Southern Mexico. He is related to SF06, both of whom are fluent in Standard German. He and his older brothers have memories of their father moving the family out of the Old Colony and of the Old Colony's reaction. They all have memories of the Old Colony members shunning the family in various ways when they went to conduct business in their villages. Figure 4.11 shows the normalized formant values of SF04 by vowel class.



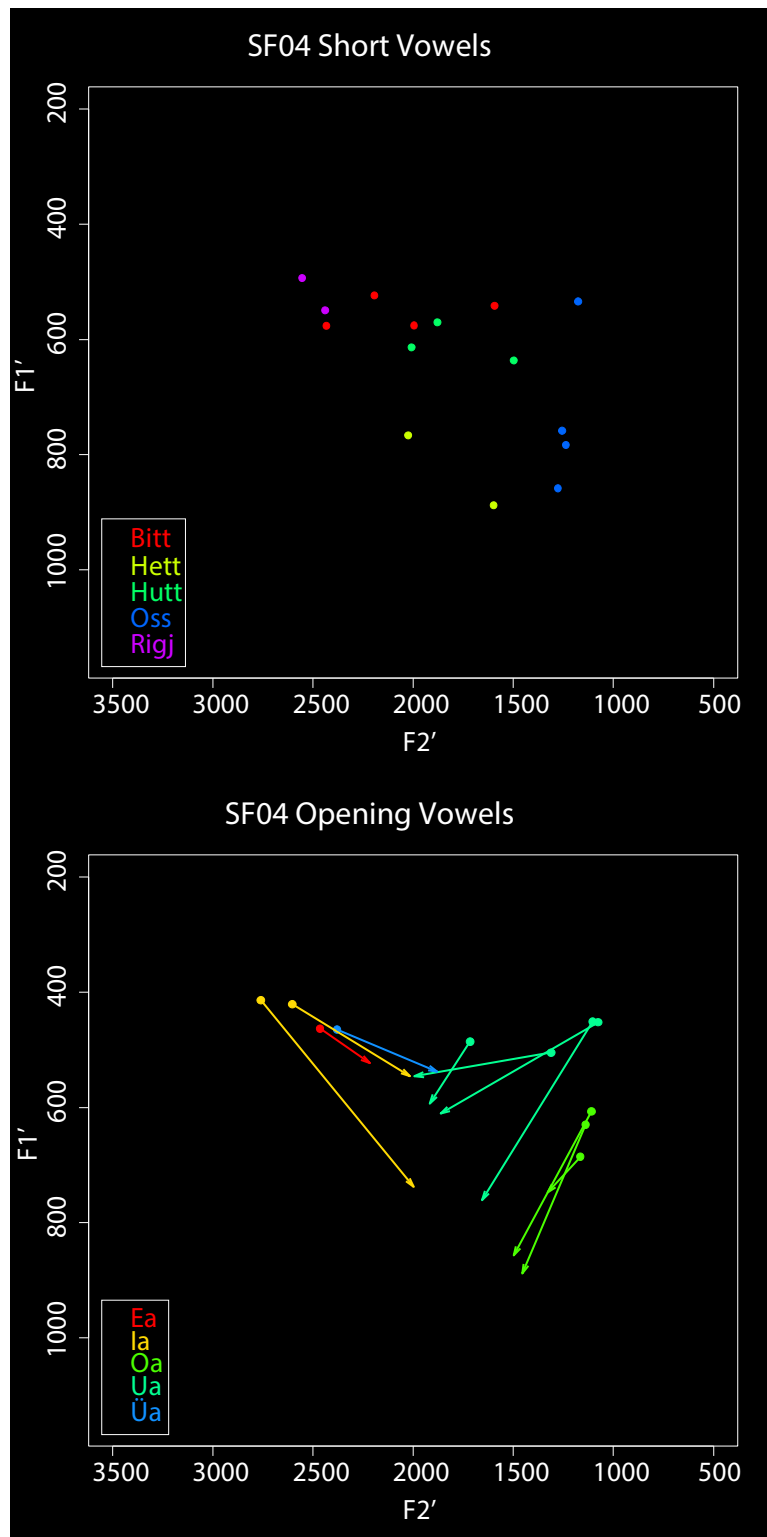


Figure 4.11 SF04 Normalized Vowels

SF04 has complete overlap of his ÄKJ and BIET classes. His TAUSS and Ei classes are both monophthongs. The TAUSS and HOS classes are both in the process of rising. The HEET class nucleus is lowering and backing, and the HOOT class nucleus is lowering. Many of the realizations of his short

vowels are heavily centralized, but he still has some front realizations of the BITT and HETT classes. The RIGJ class has separated from the BITT class and is pronounced as a diphthong. One of the realizations of his HETT class is very close to the realization of the HAB class. His EA and IA classes are merged. He has a clearly separate pronunciation of the UA and OA classes, but the position of his OA class in the overall system is difficult to judge because he did not produce any tokens of the ÄA class.

Table 4.11 shows the traditional dialect features used by speaker SF04.

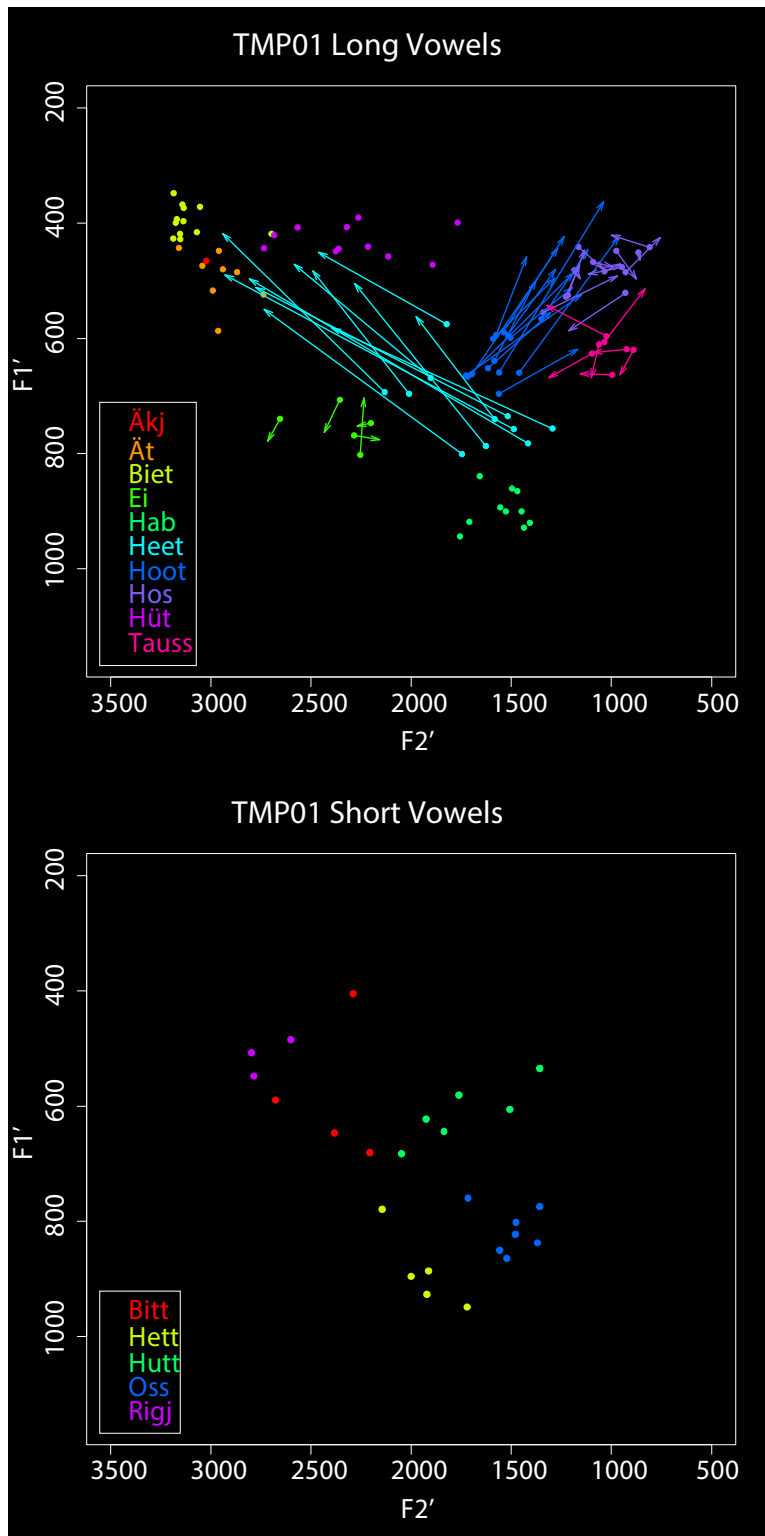
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	3
WGmc <i>*aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.11 SF04 Traditional Dialect Features

It is interesting to see that although SF04 grew up in the Old Colony, much like ES01, he did not produce any tokens of the Chortitza final *-n* during the elicitation session. Even in conversations outside of the elicitation session, he did not produce the final *-n*.

4.1.12 TMP01

Speaker TMP01 is a Chortitza speaker from Northern Mexico. He is the only active Old Colony member who agreed to participate. He is known for being very friendly towards outsiders and even uses modern technology (e.g. computers, phones, and printers) except for motor vehicles and things associated with entertainment. Everyone in the region is aware that he does this, but they enjoy the services that he provides to the community, so they do not interfere. Figure 4.12 shows the normalized formant values of TMP01 by vowel class.



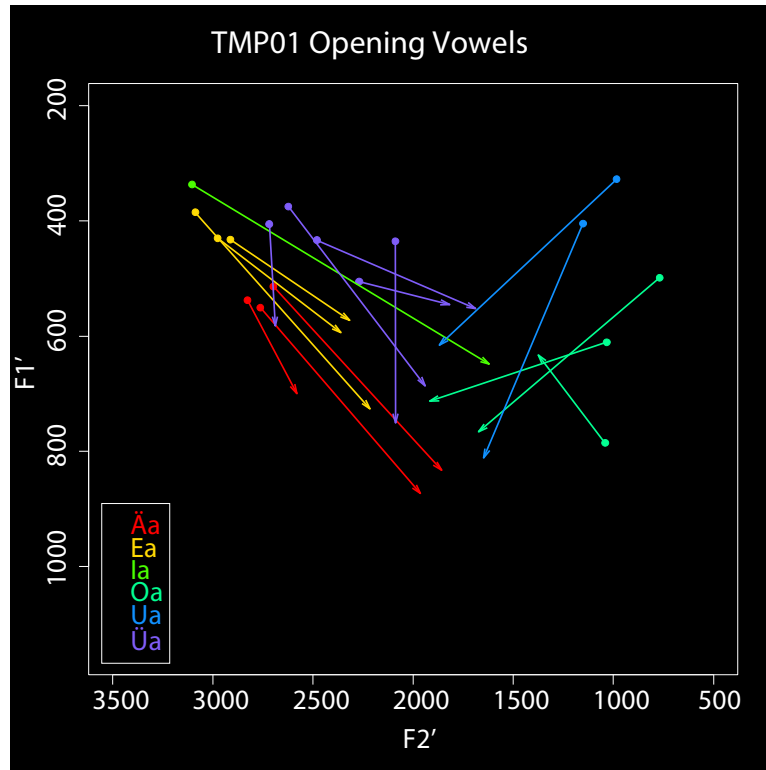


Figure 4.12 TMP01 Normalized Vowels

TMP01 has a near merger of his ÄKJ and BIET classes. He mostly produces monophthongs in the HOOT and TAUSS classes. The HOS class is a high back vowel, but it has a higher F1 than the high back vowel of other Mexican speakers. His TAUSS class has begun to rise to the position of a mid-high back vowel. The nucleus of the HEET class has both central and mid-low back realizations. The RIGJ class has separated from the BITT class and is pronounced as a diphthong. His BITT and HETT classes are in the process of lowering. The HETT class is beginning to encroach on the space of the HAB class. The EA and IA classes are nearly merged. The nucleus of the UA class is at a high back position, and the nuclei of both the ÄA and OA classes have risen.

Table 4.12 shows the traditional dialect features produced by TMP01.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	6	8
WGmc * <i>aaw</i>	N/A	N/A
Dialect <i>oa</i>	N/A	N/A

Table 4.12 TMP01 Traditional Dialect Features

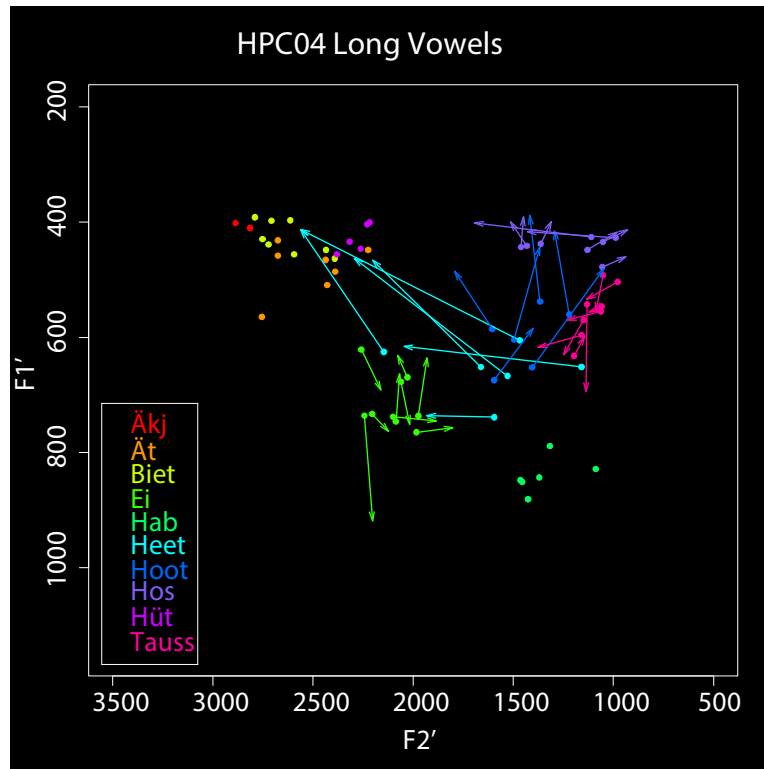
The only dialect tokens produced by TMP01 were in the final *-n* feature. In our conversations outside of the elicitation session he also produced the Chortitza variant of the WGmc **aaw* and the Dialect OA class, and used almost exclusively the final *-n*.

4.2 Winter, Spring Elicitation 2014 (Southern Mexico)

In January of 2014, the survey tool was altered to include more information about traditional dialect traits and a picture based task was developed in order to address the problem that potential participants might not be literate or fluent in either Standard German or any of the common contact languages.

4.2.1 HPC04

Speaker HPC04 is a Chortitza speaker from Canada who moved to Mexico. She is a fluent speaker of English. Figure 4.13 shows the normalized formant frequencies of HPC04 by vowel class.



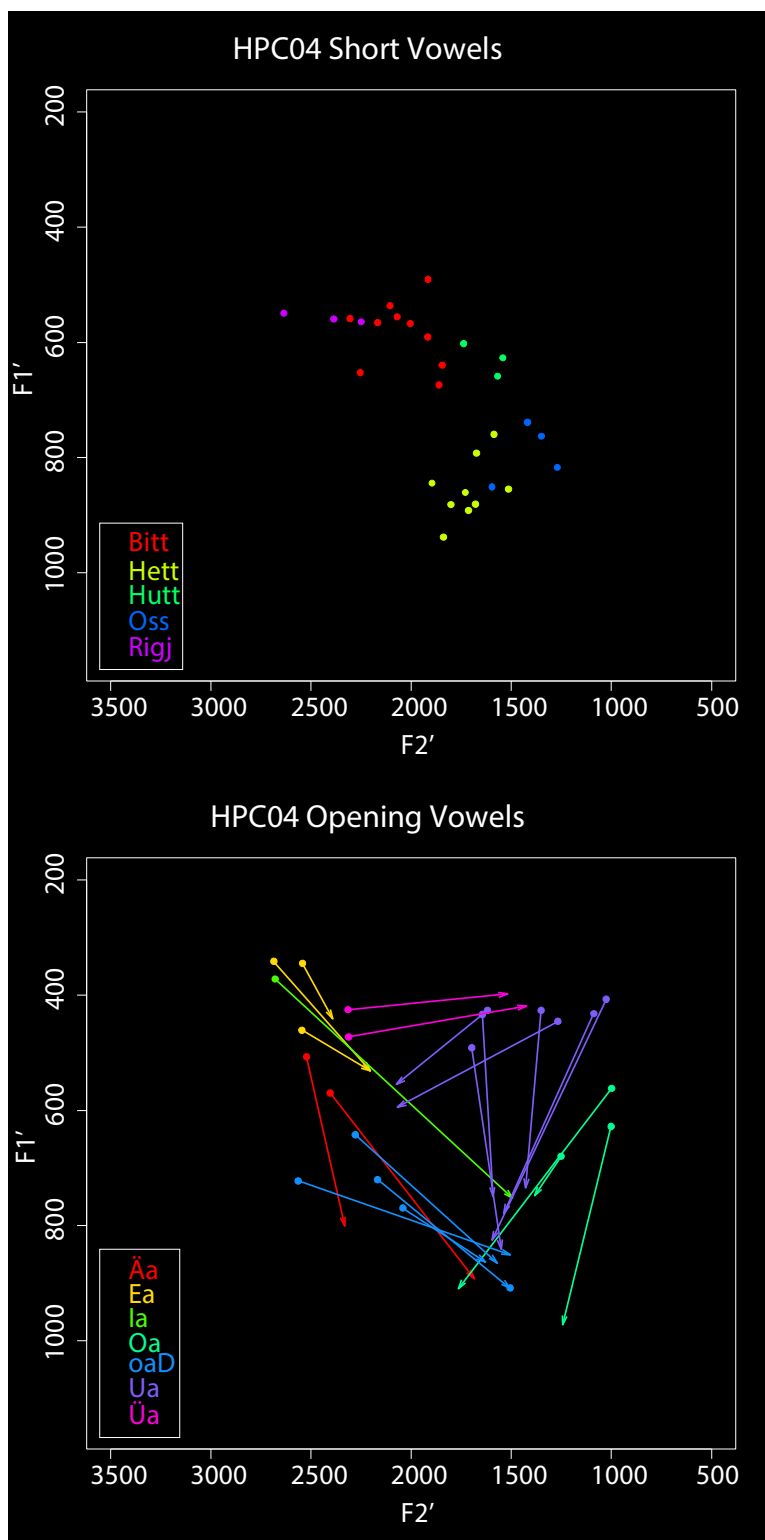


Figure 4.13 HPC04 Normalized Vowels

HPC04 has mostly monophthong reflexes in the TAUSS and HOS classes. Her realization of the HOS class is a high back vowel and the TAUSS class is a mid-high back vowel. Her ÄKJ and BIET classes have merged. The RIGJ class has begun to separate from the BITT class. Her HETT class is mostly lower than

the nuclei of the Ei class and has centralized. Her EA and IA classes have merged. The nuclei of the ÄÄ and OA classes have risen. Something that is revealed by the presence of Dialect OA reflexes in her speech is that the space vacated by the ÄÄ diphthongs has been filled by the Dialect OA class. Some of the nuclei of her UA class have begun to centralize.

Table 4.13 shows the traditional dialect features used by HPC04.

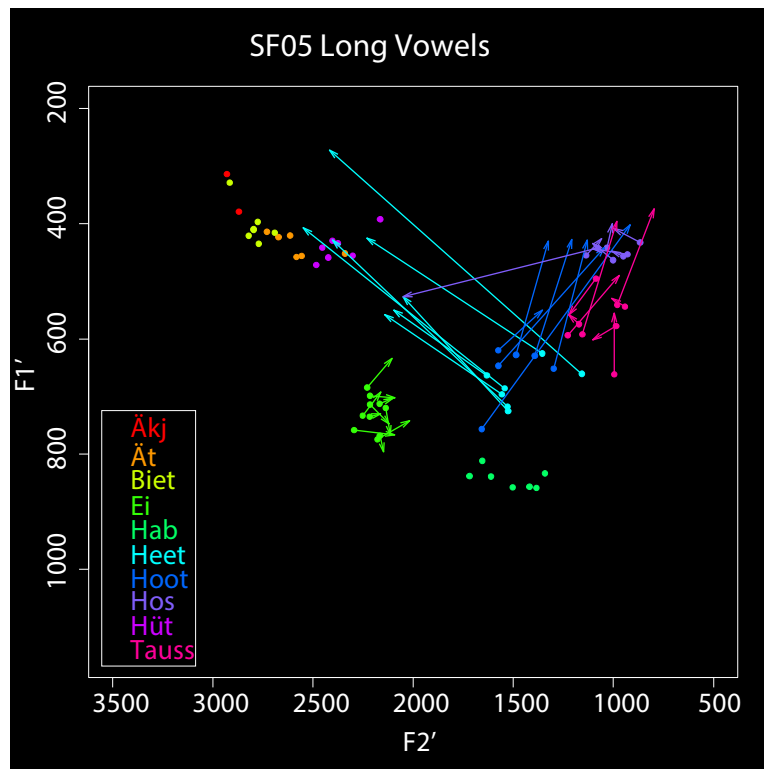
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	10	15
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	5	5

Table 4.13 HPC04 Traditional Dialect Features

Like many speakers in Southern Mexico, she uses predominantly Chortitza features except for the final *-n* which shows some variation.

4.2.2 SF05

Speaker SF05 is a Chortitza speaker from Northern Mexico. She is also a fluent speaker of Standard German and knows some English. Figure 4.14 shows the normalized formant values of SF05 by vowel class.



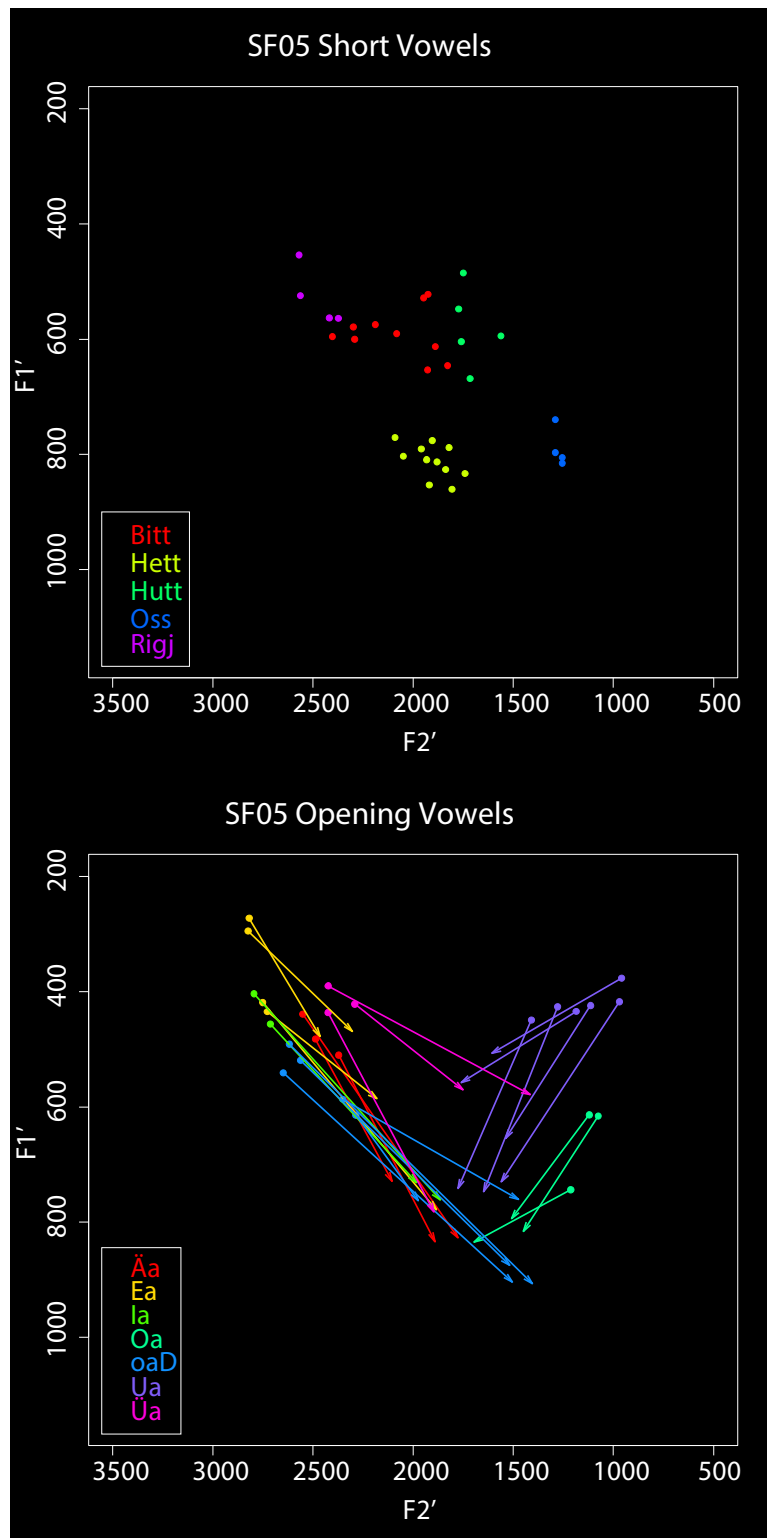


Figure 4.14 SF05 Normalized Vowels

SF05 has monophthong reflexes of the Ei class and mostly monophthong reflexes of the TAUSS class. The TAUSS class has risen to a mid-high vowel, but the HOS class is slightly lower than the high back position. Her ÄKJ and BIET classes have merged. The RIGJ class has begun to separate from the BITT

class. The realization of her HETT class is a low front vowel. Her EA and IA classes have merged. The nucleus of the OA class has not risen and remains in the mid-low back position. The nucleus of the ÄA class has risen and many of her nuclei in the Dialect OA class have also risen. The nucleus of the UA class is a high back vowel.

Table 4.14 shows the traditional dialect features of SF05.

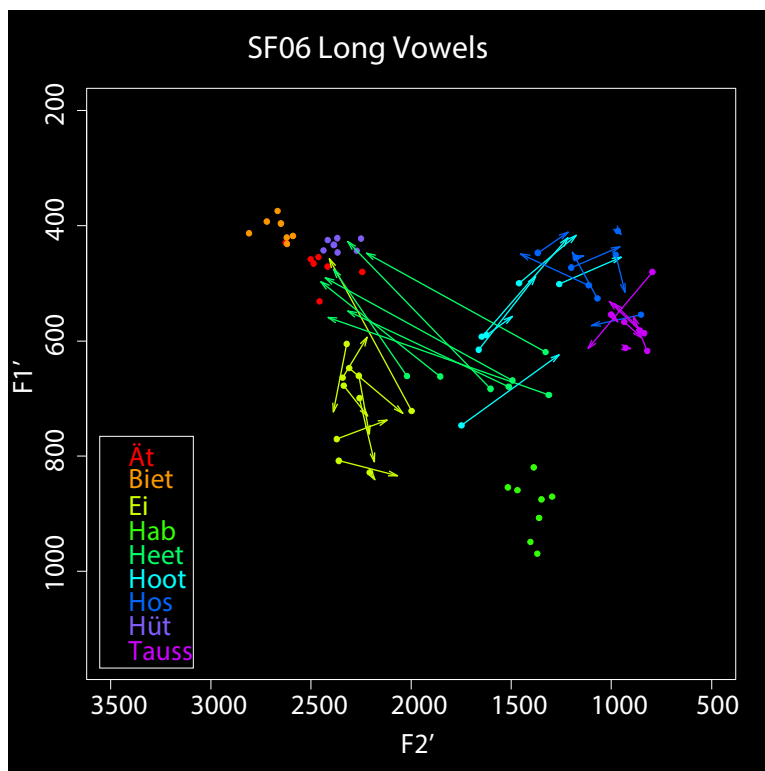
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	12	12
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	5	5

Table 4.14 SF05 Traditional Dialect Features

SF05 uses only Chortitza features in her speech.

4.2.3 SF06

Speaker SF06 is a Chortitza speaker from Southern Mexico. She is related to SF04 and is a fluent speaker of Standard German. Unlike her older brothers, she is young enough that she did not have to experience the abrupt departure from the Old Colony directly. Figure 4.15 shows the normalized formant frequencies of SF06 by vowel class.



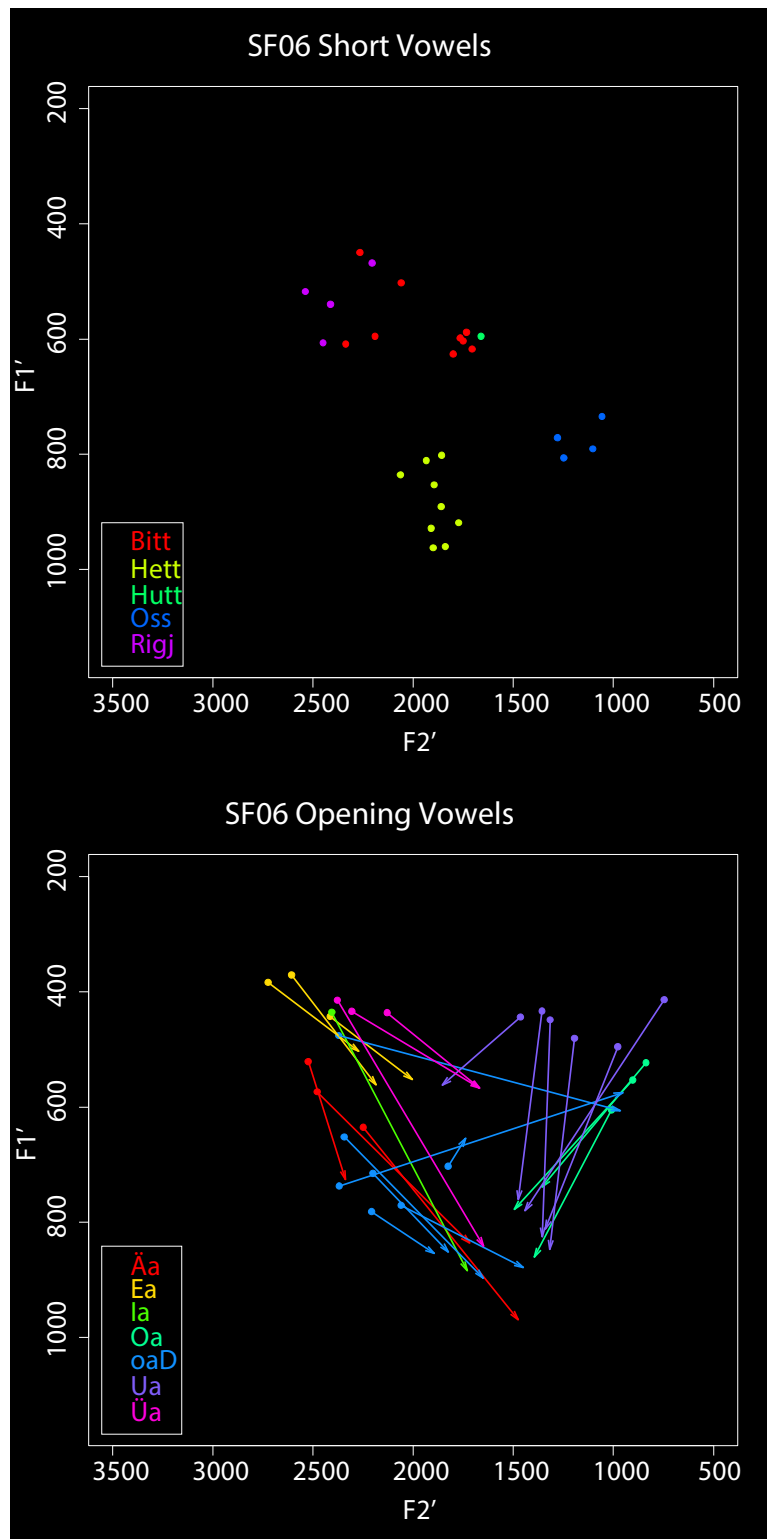


Figure 4.15 SF06 Normalized Vowels

SF06 has some monophthong reflexes in the E1 class, but she also produces some tokens which might be considered the conservative value for this class. Her ÄKJ and BIET classes are separate, but are near merged. She has a high back realization of the HOS class and her TAUSS class is a mid-high back vowel.

The nucleus of the HEET class is mostly central, but some nuclei are moving back. Many of her short vowels are central. The RIGJ class has begun to separate from the BITT class, but for the most part, it is still a member of the BITT class. Her HETT class varies considerably from mid-low front vowel to low central vowel coming close to the space of the HAB class. Her OSS class remains distinct from her HAB class. Her EA and IA classes have merged. The nucleus of the ÄA class has risen and the nucleus of the Dialect OA class is mostly fully front. The Dialect OA class has closing allophones before historically voiced velars (with the exception of *Doag* 'days' which is an opening o-bound diphthong). The nucleus of the UA class has begun to centralize and the nucleus of the OA class has risen to a mid-high position.

Table 4.15 shows the traditional dialect features used by SF06.

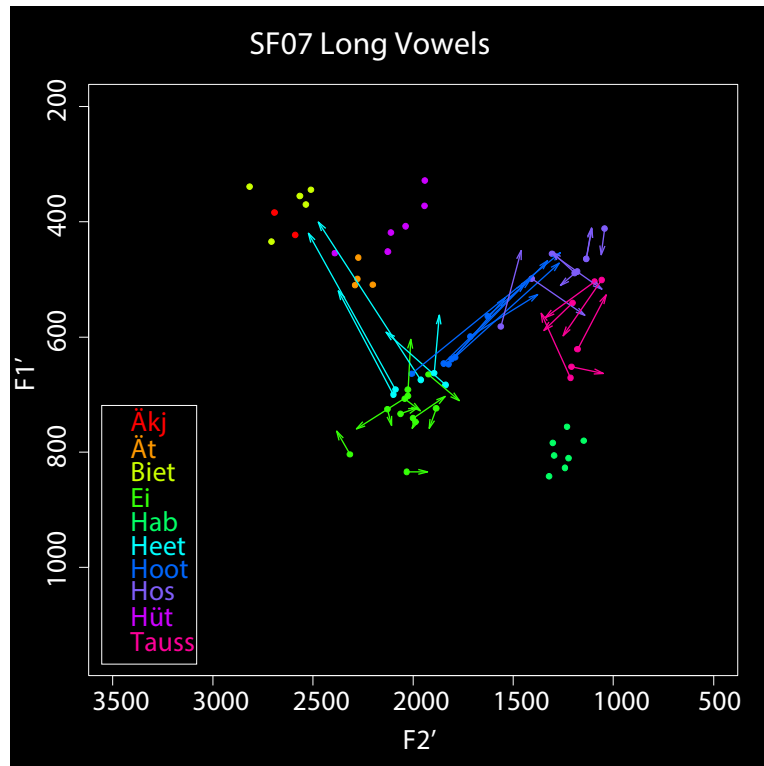
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	10	11
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.15 SF06 Traditional Dialect Features

SF06 uses almost exclusively Chortitza features. Unlike SF04, this generalization can be extended to the final *-n* feature.

4.2.4 SF07

Speaker SF07 is a Chortitza speaker from Northern Mexico. He is also a fluent speaker of Spanish. Figure 4.16 shows the normalized formant values of SF07 by vowel class.



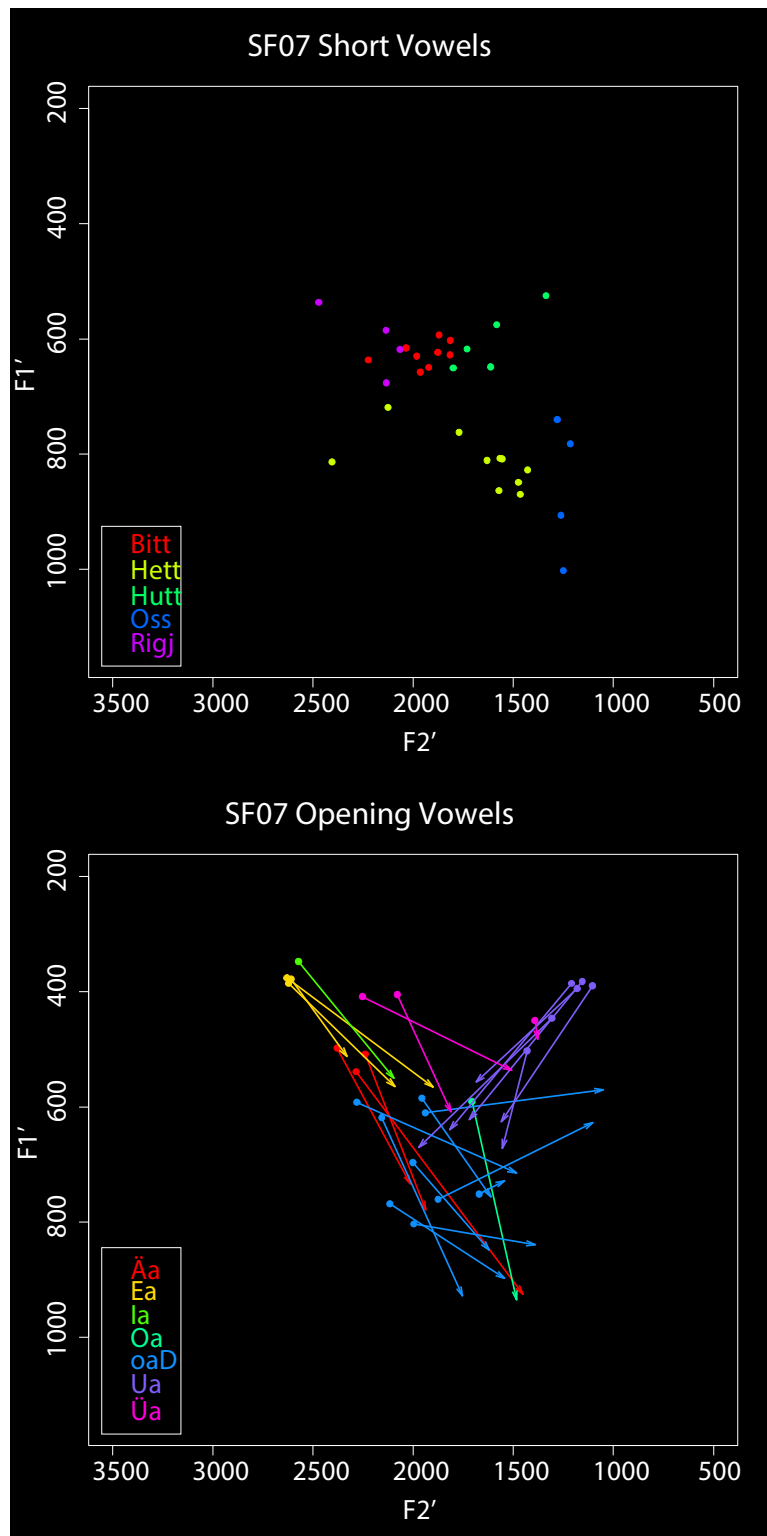


Figure 4.16 SF07 Normalized Vowels

SF07 has mostly monophthong reflexes of the EI and TAUSS classes. His ÄKJ and BIET classes are merged. The Hos class has not fully risen to the high back position, but the TAUSS class has risen to the mid-high back position. One of the unique features of SF07's speech is the movement in the low vowel

space. The HAB class has filled the position left open by the TAUSS class and subsequently many of his realizations of the HETT class have filled the position of the HAB class. The RIGJ class has not separated from the BITT class. The EA and IA classes are merged. One of his reflexes of the ÜA class was realized as a back vowel, but this class usually has a high F2. The nucleus of the UA class has mostly risen to the high back position. The nucleus of the ÄA class has risen and the nucleus of the Dialect OA class is in the process of rising. The Dialect OA class has a closing allophone before historically voiced velars. He produced only one token of the OA class which was highly centralized.

Table 4.16 shows the traditional dialect features used by SF07.

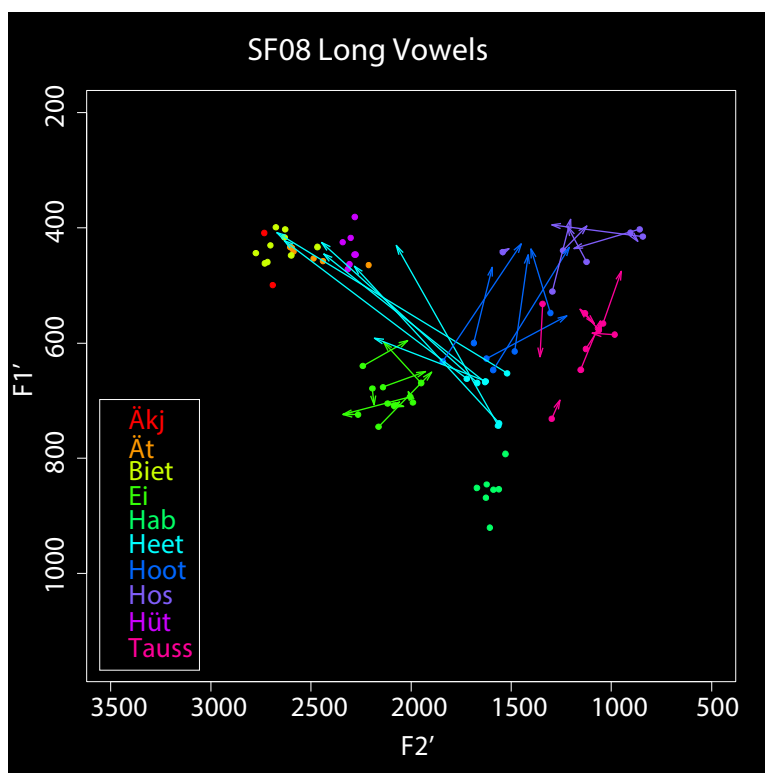
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	30	31
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	11	11

Table 4.16 SF07 Traditional Dialect Features

SF07 uses almost exclusively Chortitza forms except for one token in the final *-n* feature.

4.2.5 SF08

Speaker SF08 is a Chortitza speaker from Southern Mexico. She is one of the more proficient female speakers of Spanish in her village. She is related to SF09 and their family is close to the family of SF10. Her family was the first family to leave the Old Colony of the region and start drawing other members to form a new village not based in the religious practices of the Old Colony. Figure 4.17 shows the normalized formant values of SF08 by vowel class.



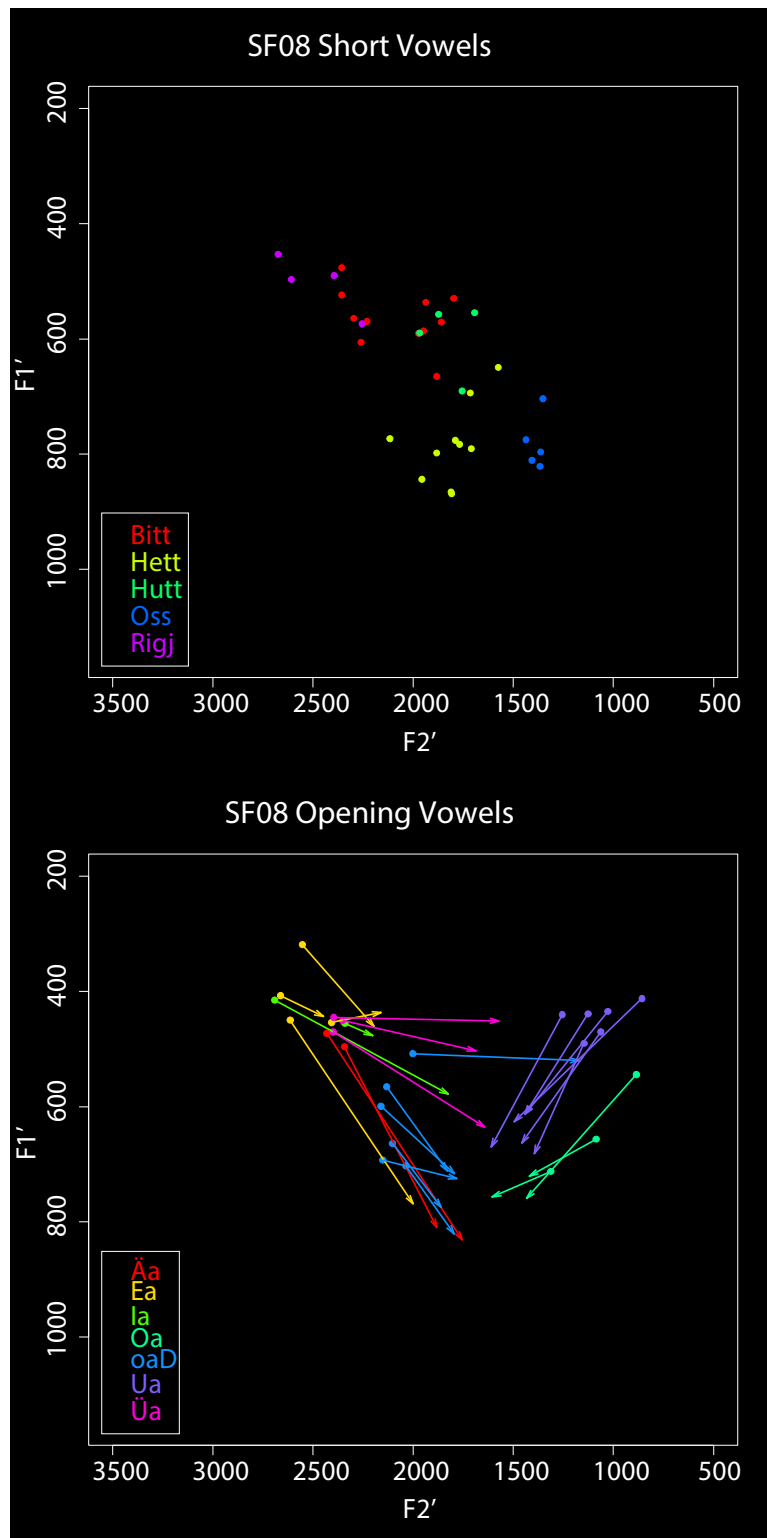


Figure 4.17 SF8 Normalized Vowels

SF8 has mostly monophthong realizations of the TAUSS and Ei classes. Many tokens of the TAUSS class have risen to the mid-high back position. The HOS class is a high back vowel. Her ÄKJ and BIET classes

have fully merged. The RIGJ class has separated from the BITT class and is produced as a diphthong. SF08 has a very central pronunciation of her HETT class that sometimes overlaps with the central pronunciation of the HUTT class. The nucleus of the ÄA class has risen and the nucleus of the Dialect OA class is in the process of rising. The Dialect OA class has a mid-high o-bound allophone before historically voiced velars. The nucleus of the OA class has not fully risen, but the nucleus of the UA class is now in the high back position.

Table 4.17 shows the traditional dialect features used by SF08.

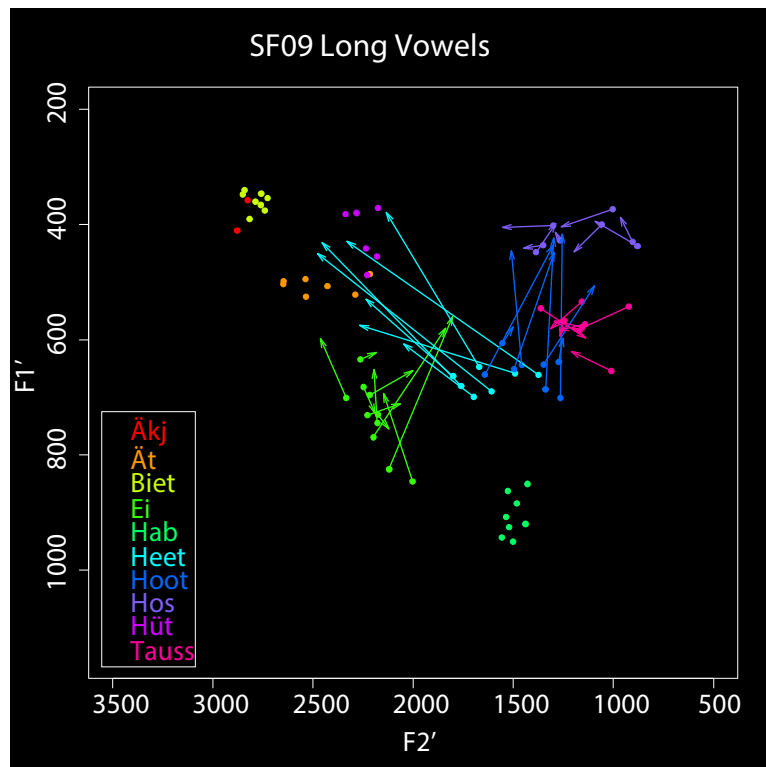
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	7	9
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.17 SF08 Traditional Dialect Features

She uses mostly Chortitza forms except for a couple of tokens in the final *-n* feature.

4.2.6 SF09

Speaker SF09 is a Chortitza speaker from Southern Mexico. He is a relative of SF08. As was mentioned above his family was one of the first in the region to leave the Old Colony to form a new village around a different less conservative denomination. His family is close to the family of SF10. Figure 4.18 shows the normalized formant values of SF09 by vowel class.



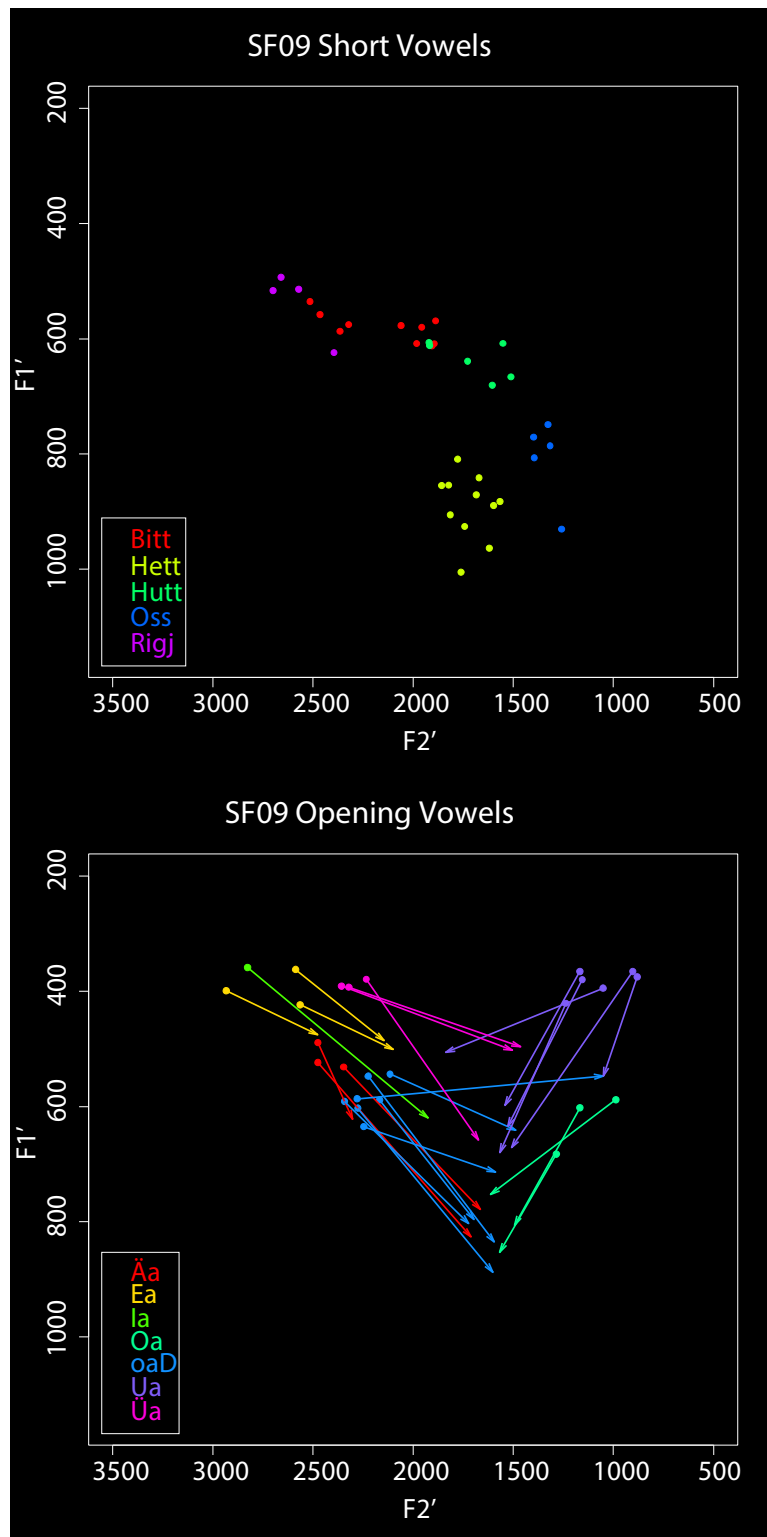


Figure 4.18 SF09 Normalized Vowels

SF09 has a high back HOS class. Many of his tokens in the TAUSS class are monophthongs, but only some of the tokens in the EI class are monophthongs. His HEET class has central nuclei. The short vowels have mostly centralized with the exception of the RIGJ class which has split from the BITT class.

The HETT class is realized much lower than the nuclei of the EI class and sometimes overlaps with the HAB class. The nucleus of the ÄA class has risen to a mid-high position and the Dialect OA nucleus is in the process of rising. There is a closing diphthong allophone of the Dialect OA class before historically voiced velars. The EA and IA classes have merged. The nucleus of the OA class has risen to the mid-high back position and the nucleus of the UA class has risen to the high back position.

Table 4.18 shows the traditional dialect features used by SF09.

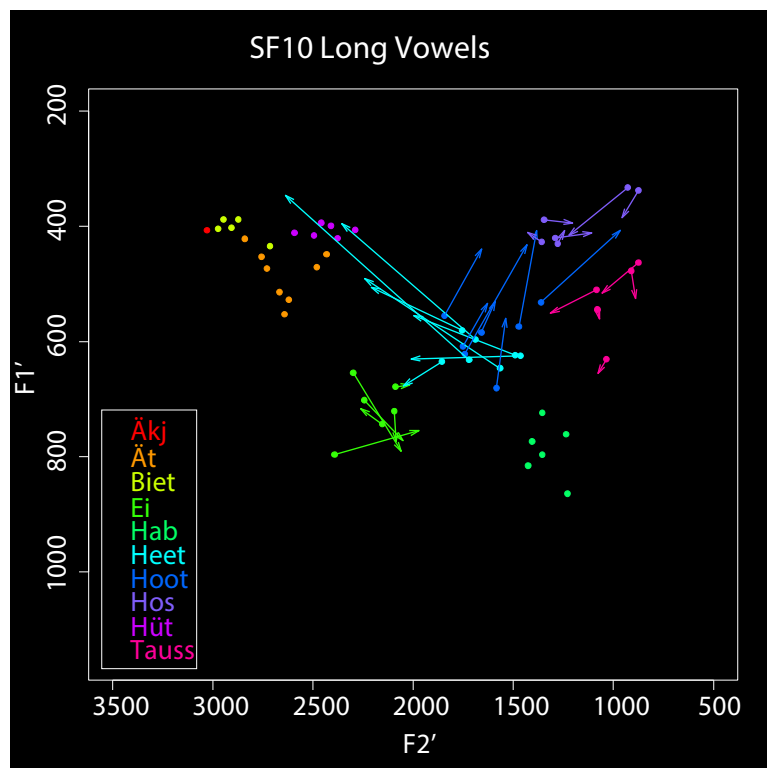
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	16	17
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.18 SF09 Traditional Dialect Features

SF09, like many speakers surveyed in Southern Mexico, only varies in usage of the final *-n* feature.

4.2.7 SF10

Speaker SF10 is a Chortitza speaker from Central Canada. She is a member of the *Rückwanderung* group. Her grandmother comes from an Old Colony group in Northern Mexico, but her family eventually moved back into Canada. Her family frequently travels between Canada and Mexico. Her family is close to the family of SF08 and SF09. Figure 4.19 shows the normalized vowel frequencies of SF10 by vowel class.



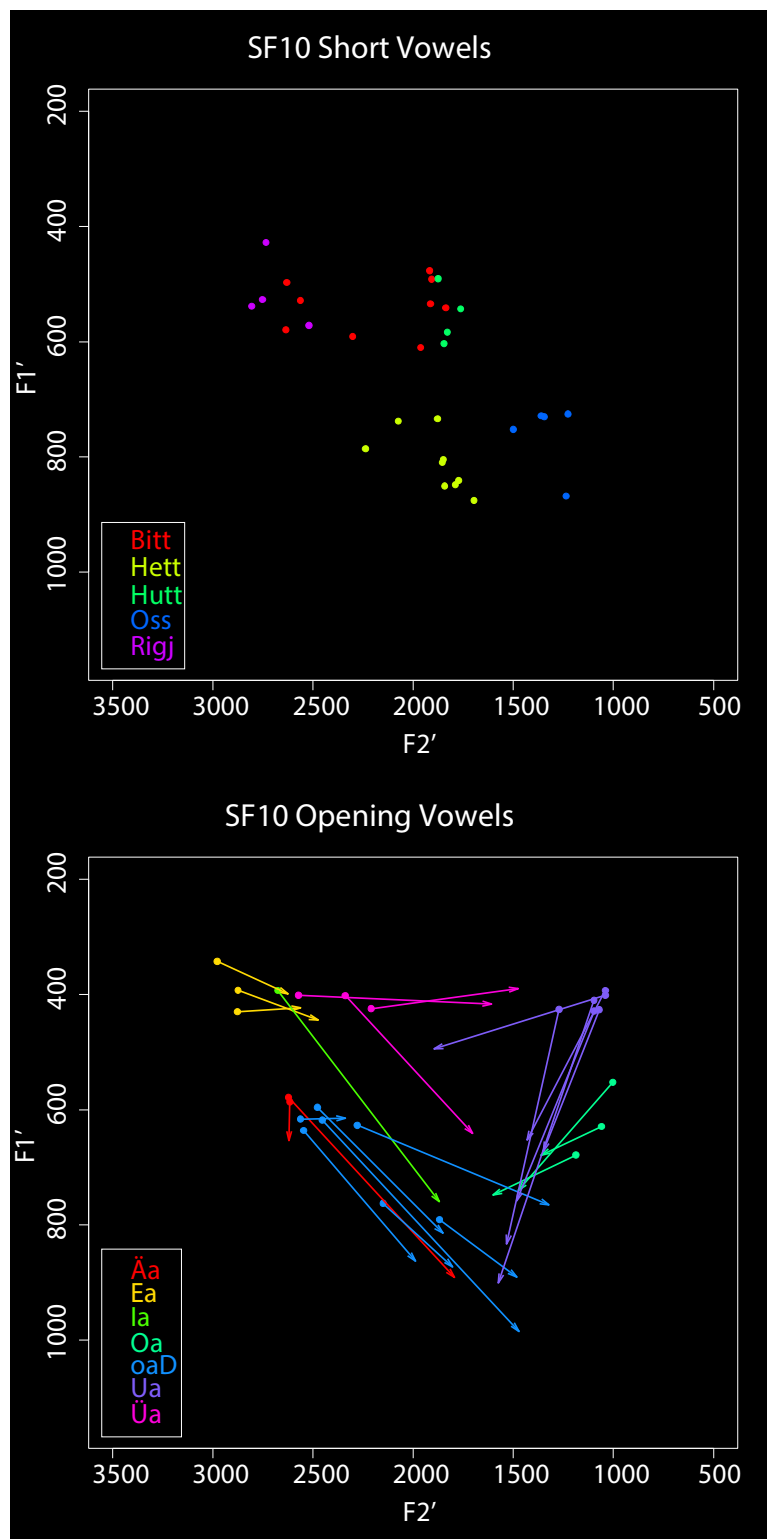


Figure 4.19 SF10 Normalized Vowels

SF10 has mostly monophthong realizations in the TAUSS and EI classes. Her ÄKJ and BIET classes are merged. Her HOS class is a high back vowel and the TAUSS class is usually realized as a mid-high back vowel, but some tokens have not risen. The nucleus of the HEET class is central. The RIGJ class has not

separated from the BITT class. The BITT class is usually central and the HETT class is centralizing and falling. The EA and IA classes have merged. The nucleus of the UA class has risen to the high back position and the nucleus of the OA class is in the process of rising. The Dialect OA class has a closing allophone before historically voiced velars.

Table 4.19 shows the traditional dialect features used by SF10.

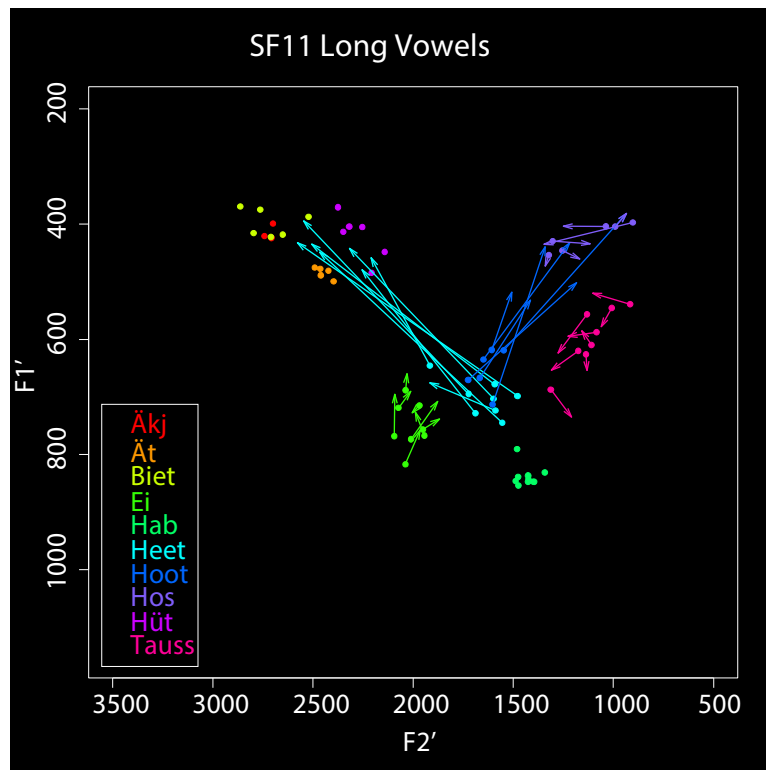
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	11	11
WGmc <i>*aaw</i>	4	4
Dialect <i>oa</i>	8	8

Table 4.19 SF10 Traditional Dialect Features

SF10 uses exclusively Chortitza forms.

4.2.8 SF11

Speaker SF11 is a Molotschna speaker from Southern Mexico. He is originally from a Sommerfeld community, but currently lives in a Kleine Gemeinde community. Figure 4.20 shows the normalized formant values of SF11 by vowel class.



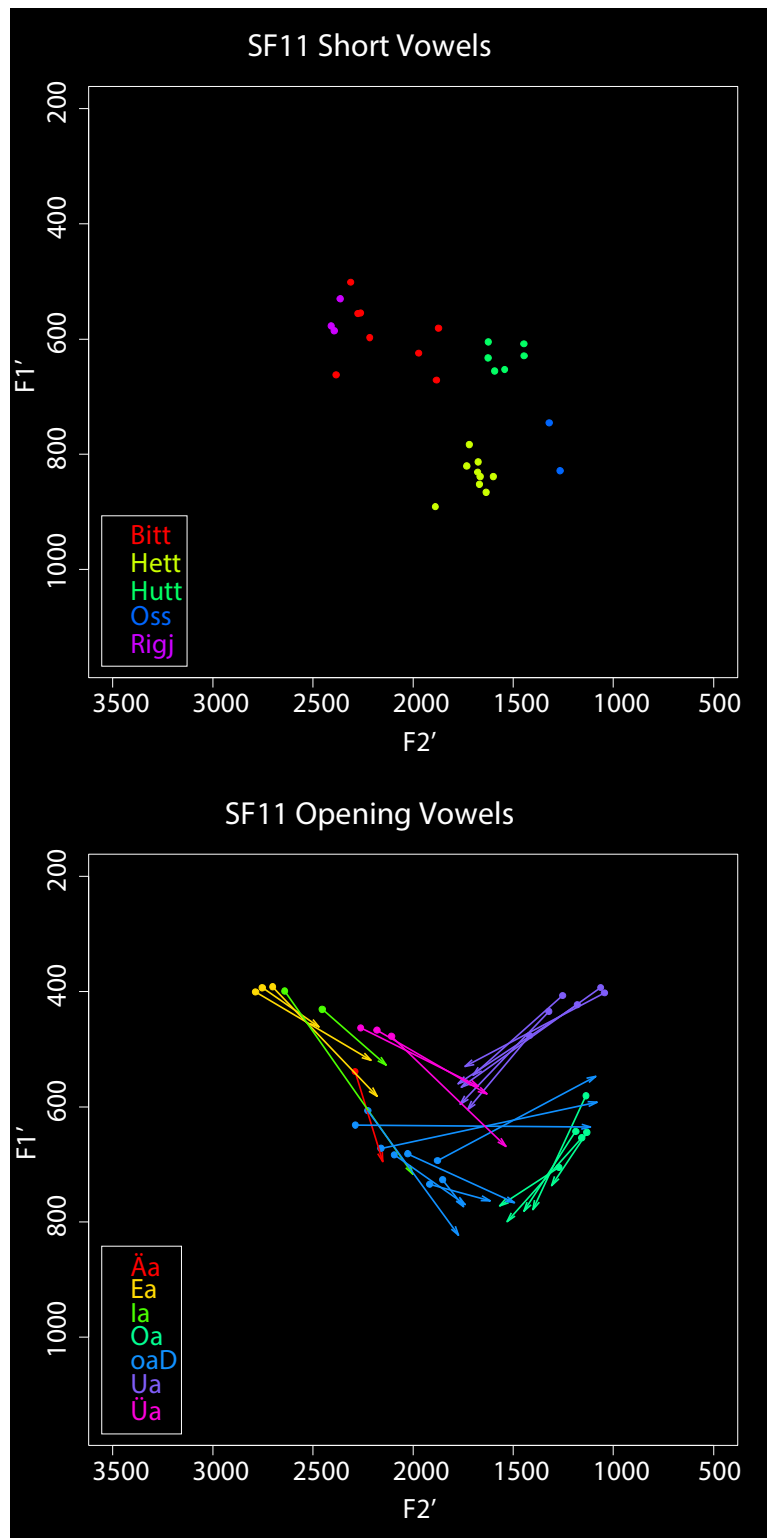


Figure 4.20 SF11 Normalized Vowels

SF11 has monophthong realizations of the EI and TAUSS classes. The TAUSS class is visibly in the process of rising to the mid-high position. The HOS class is a high back vowel. The nucleus of the HEET class is central and in the process of lowering. The RIGJ class has not separated from the BITT class. The

HETT class is lower and more central than the nucleus of the Ei class. The EA and IA classes have merged. The nucleus of the ÄA class has risen and the nucleus of the closing diphthong allophones of the Dialect OA class are also in the process of rising. The closing diphthong allophones of the Dialect OA class developed before historically voiced velars. The nucleus of the UA class is in the high back position and the nucleus of the OA class is in the process of rising.

Table 4.20 shows the traditional dialect features used by SF11.

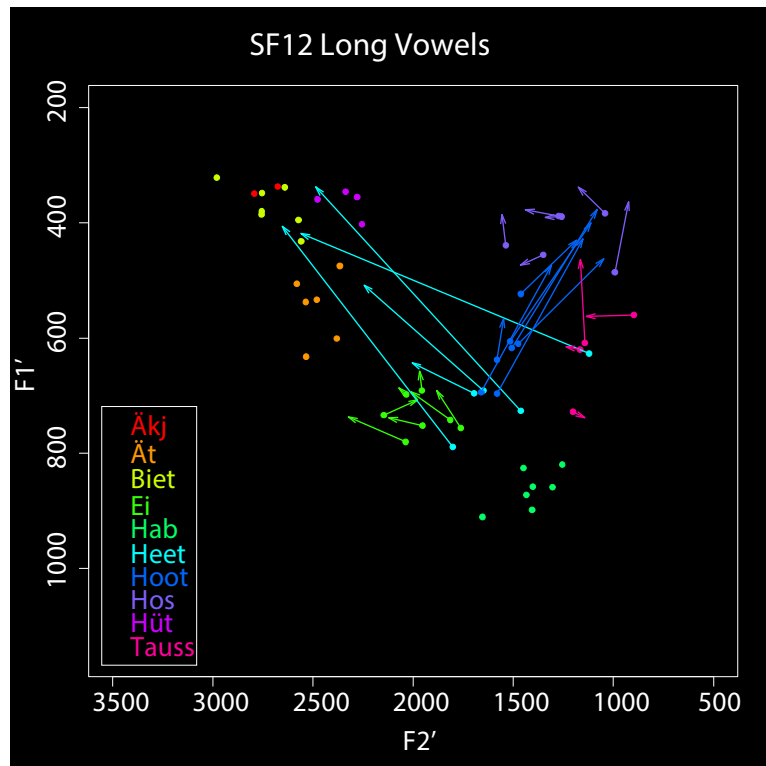
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	2	23
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.20 SF11 Traditional Dialect Features

Even though SF11 did not grow up using the Chortitza variety, he consistently produces Chortitza forms for most of his traditional dialect features. The only feature where he does not consistently use the Chortitza form is the final *-n* feature.

4.2.9 SF12

Speaker SF12 is a Chortitza speaker from the largest Old Colony village in Southern Mexico. He moved out as a young man and currently lives in a Kleine Gemeinde community. He is a fluent speaker of Spanish and frequently engages in speaking Spanish. Figure 4.21 shows the normalized formant values of SF12 by vowel class.



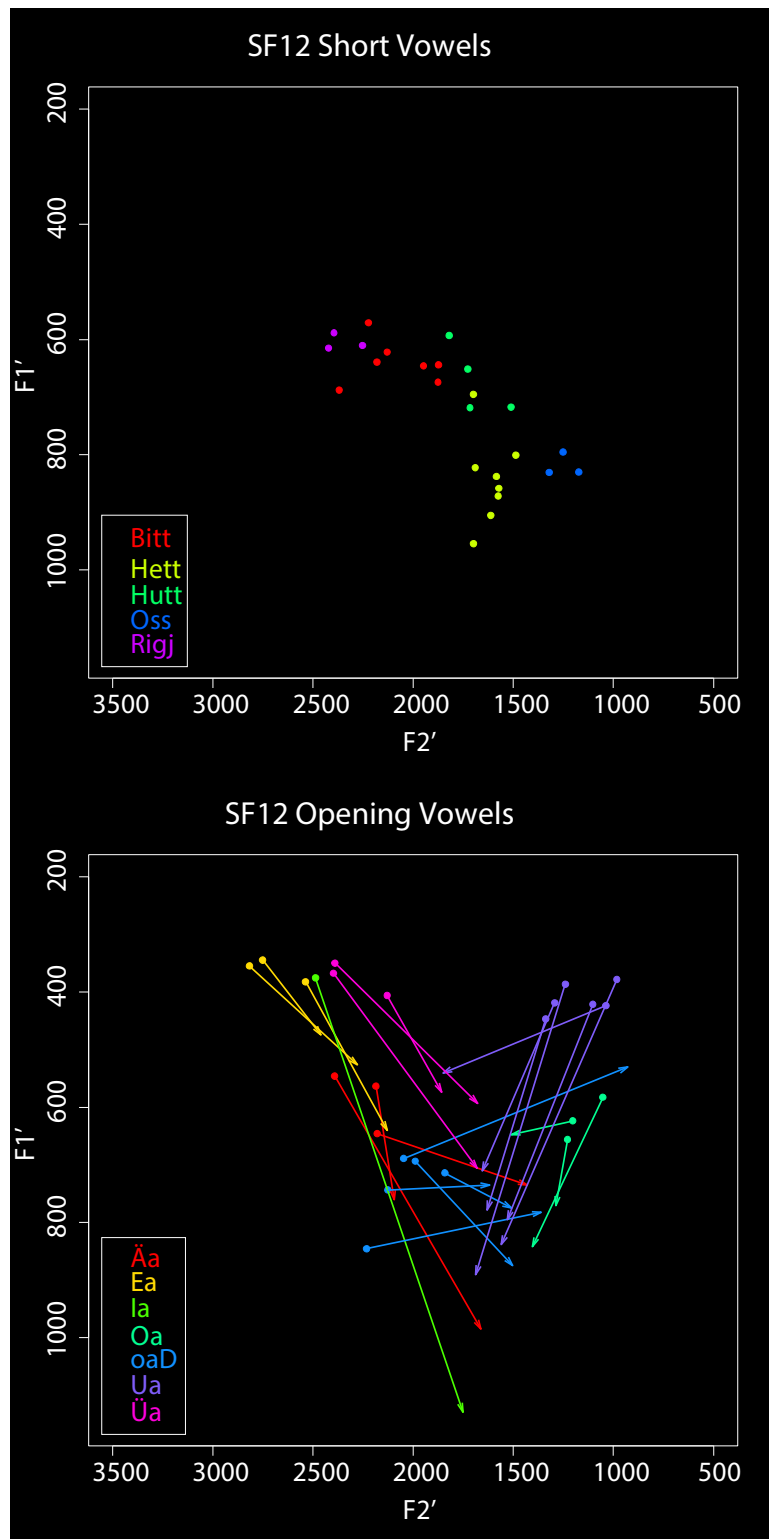


Figure 4.21 SF12 Normalized Vowels

SF12 has mostly monophthong realizations of the TAUSS and E1 classes. The HOS class is a high back vowel and the TAUSS class has mostly risen to a mid-high back position. The ÄKJ and BIET classes are

merged. The nucleus of the HEET class is usually central, but in some cases it is a mid back vowel. Like some Mexican participants, he shows heavy centralization of short vowels, but his realizations of the short front vowels are considerably lower than most other Mexican participants. The RIGJ class has not separated from the BITT class, and both classes have begun to lower. The HETT class is usually a low central vowel. The EA and IA classes have mostly merged. The nucleus of the UA class is a high back vowel. The nucleus of the ÄA class has risen and the Dialect OA class is in the process of rising. SF12 has a closing allophone of the Dialect OA class before historically voiced velars.

Table 4.21 shows the traditional dialect features of SF12.

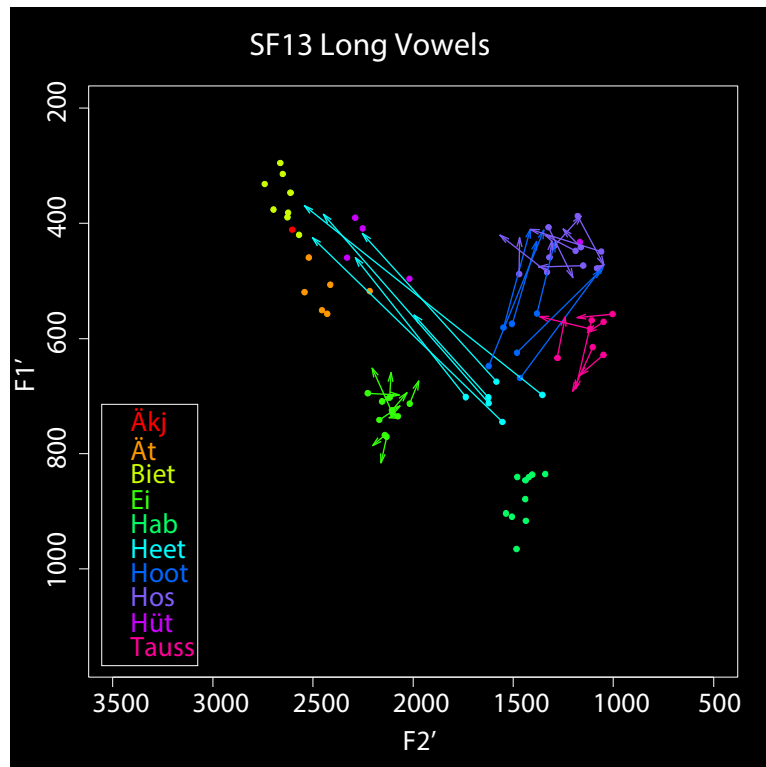
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	6	21
WGmc * <i>aaw</i>	4	4
Dialect <i>oa</i>	8	8

Table 4.21 SF12 Traditional Dialect Features

Much like ES01 and SF04, SF12 shows a pattern of mixed usage of the final *-n*, sometimes avoiding the Chortitza form that he grew up with.

4.2.10 SF13

Speaker SF13 is a Chortitza speaker from Southern Mexico. He is related to some of the Molotschna and Chortitza speakers in the village that he lives in. He is a fluent speaker of Spanish. Figure 4.22 shows the normalized formant values of SF13 by vowel class.



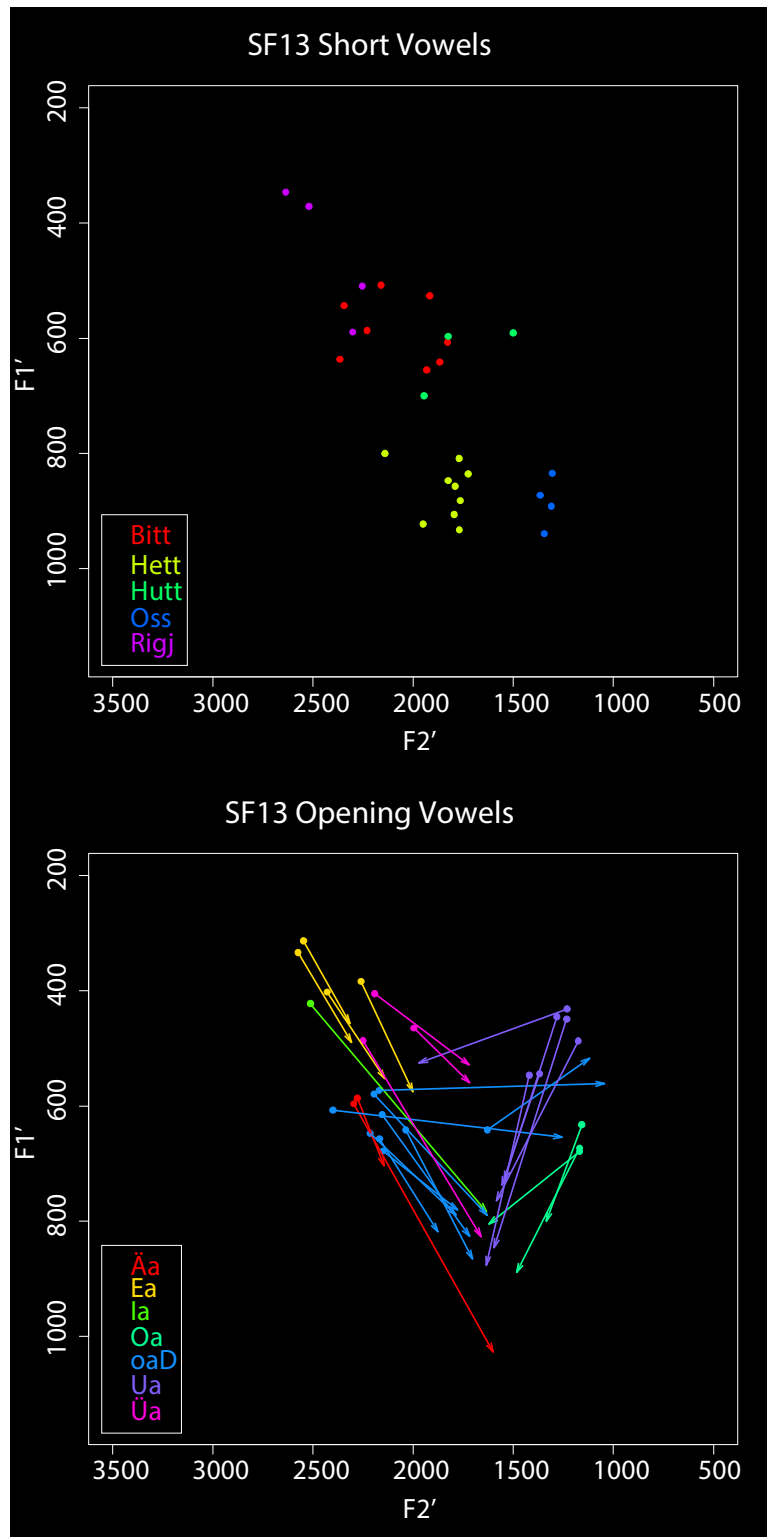


Figure 4.22 SF13 Normalized Vowels

SF13 has monophthong realizations of the EI and TAUSS classes. The HOS class is coming close to the position of a high back vowel. The ÄKJ and BIET classes are merged. SF13 usually pronounces the HÜT class with a high front vowel, but he has one back token in the word *Blüs* 'blouse' (cf. Spanish *blusa*

'blouse' [blusa]). The RIGJ class has begun to separate from the BITT class and is pronounced as a diphthong. The members of the RIGJ class that have not separated from the BITT class have begun to lower with the rest of the BITT class. The HETT class is almost always realized as a low vowel. Some Tokens of the BITT class are heavily centralized and overlap with the HUTT class. The EA and IA classes are merged with the historical EA class exhibiting a lower F1 than the historical IA class. The nuclei of the ÄA and OA classes have both risen to a mid-high position. The Dialect OA class has allophones before historically voiced velars which are either o-bound or closing.

Figure 4.22 shows the traditional dialect features used by SF13.

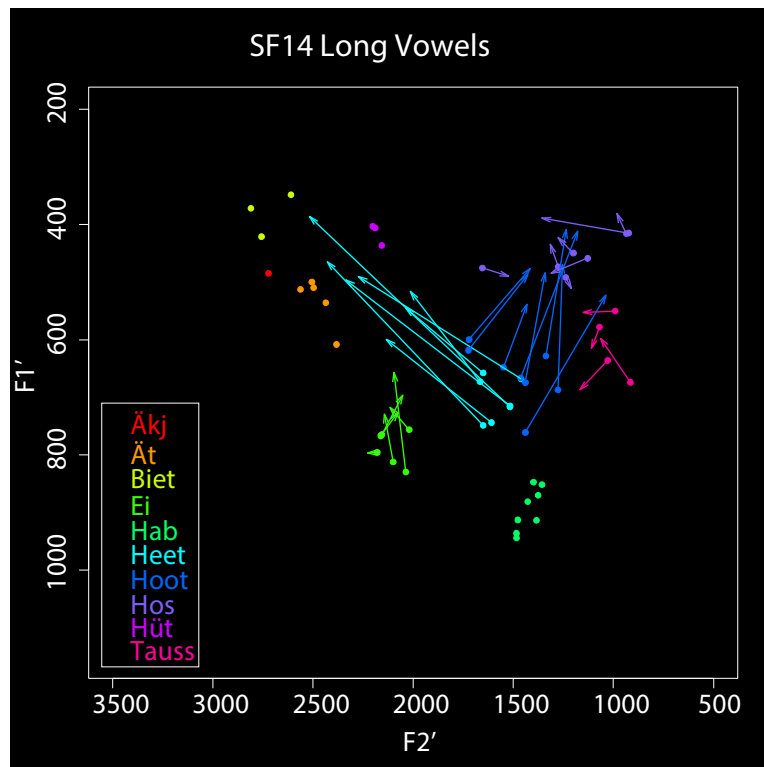
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	14	15
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	9	9

Table 4.22 SF13 Traditional Dialect Features

SF13 uses almost exclusively Chortitza variants with the exception of one Molotschna $-ə$.

4.2.11 SF14

Speaker SF14 is a Chortitza speaker from the oldest Old Colony village in Southern Mexico. He is fluent in Spanish, but has a preference for speaking Low German. He currently lives in a Kleine Gemeinde community. Figure 4.23 shows the normalized formant values of SF14 by vowel class.



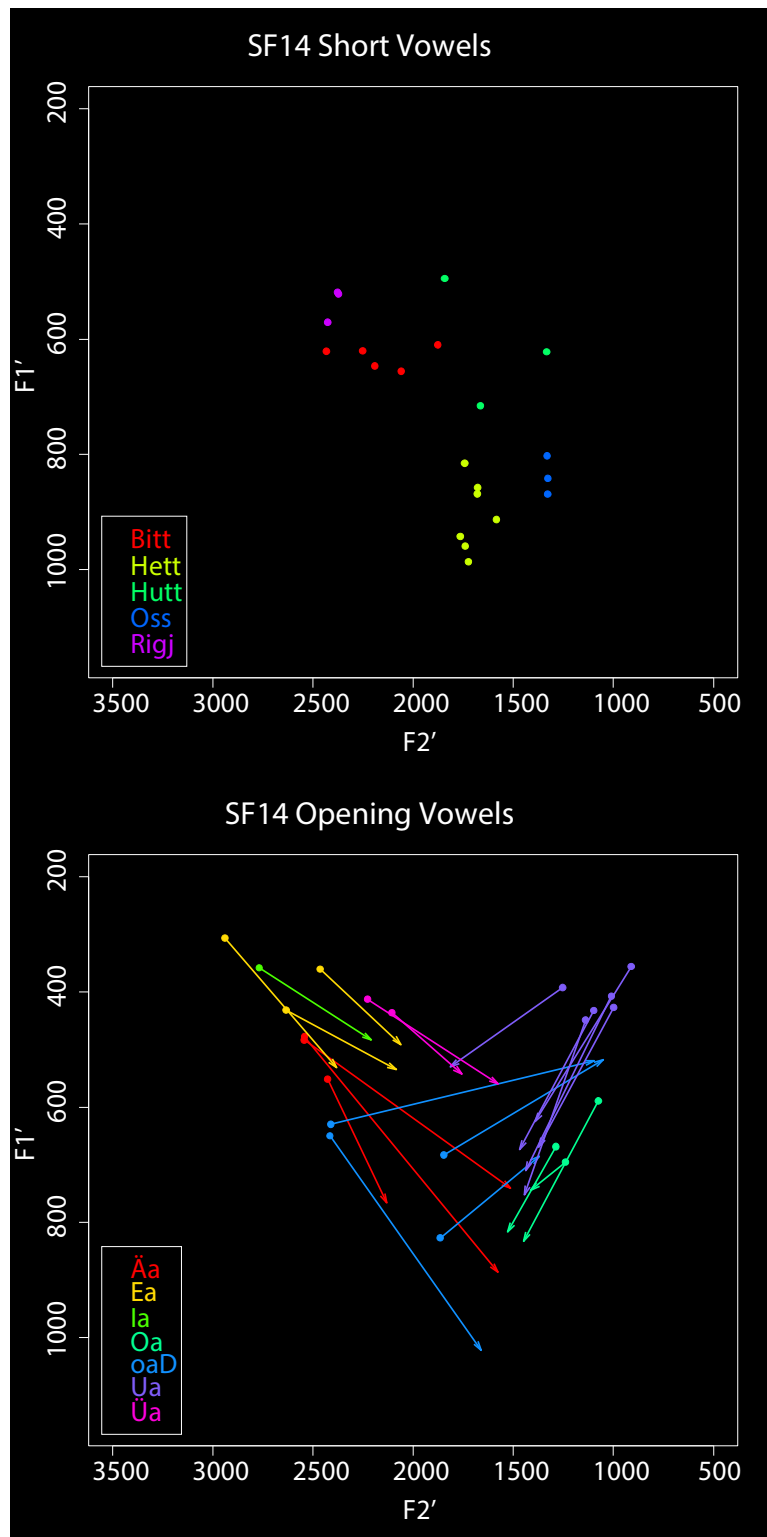


Figure 4.23 SF14 Normalized Vowels

SF14 has mostly monophthong realizations of the EI and TAUSS classes. The HOS class is a high back vowel and the TAUSS class has risen to the mid-high back position. The BIET and ÄKI classes are either merged or near merged. The nucleus of the HETT is central. The nucleus of the HOOT class is central,

but some tokens indicate that the class is lowering. The RIGJ class has begun to separate from the BITT class and is sometimes realized as a diphthong. The HETT class is usually realized as a low central vowel. The EA and IA classes have merged. The nucleus of the ÄA class has risen to the mid-high position, but the nucleus of the OA class has not. The Dialect OA class has a closing allophone before historically voiced velars. The nucleus of the UA class has risen to the high back position.

Table 4.23 shows the traditional dialect features used by SF14.

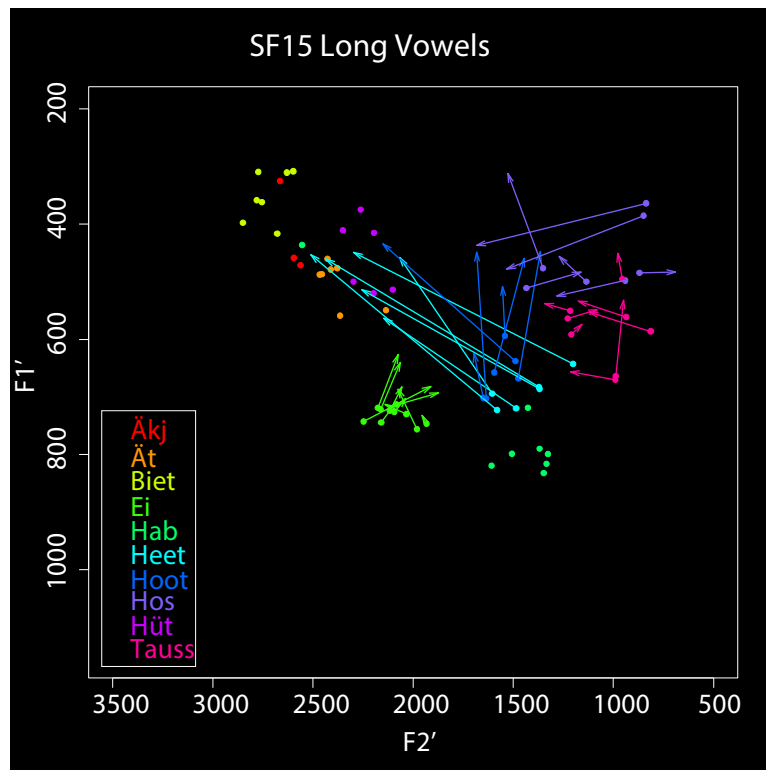
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	19	19
WGmc <i>*aaw</i>	4	4
Dialect <i>oa</i>	7	7

Table 4.23 SF14 Traditional Dialect Features

SF14 uses exclusively Chortitza forms.

4.2.12 SF15

Speaker SF15 is a Molotschna speaker from Southern Mexico. She is also a fluent English speaker and spent some time in Texas. Figure 4.24 shows the normalized formant values of SF15 by vowel class.



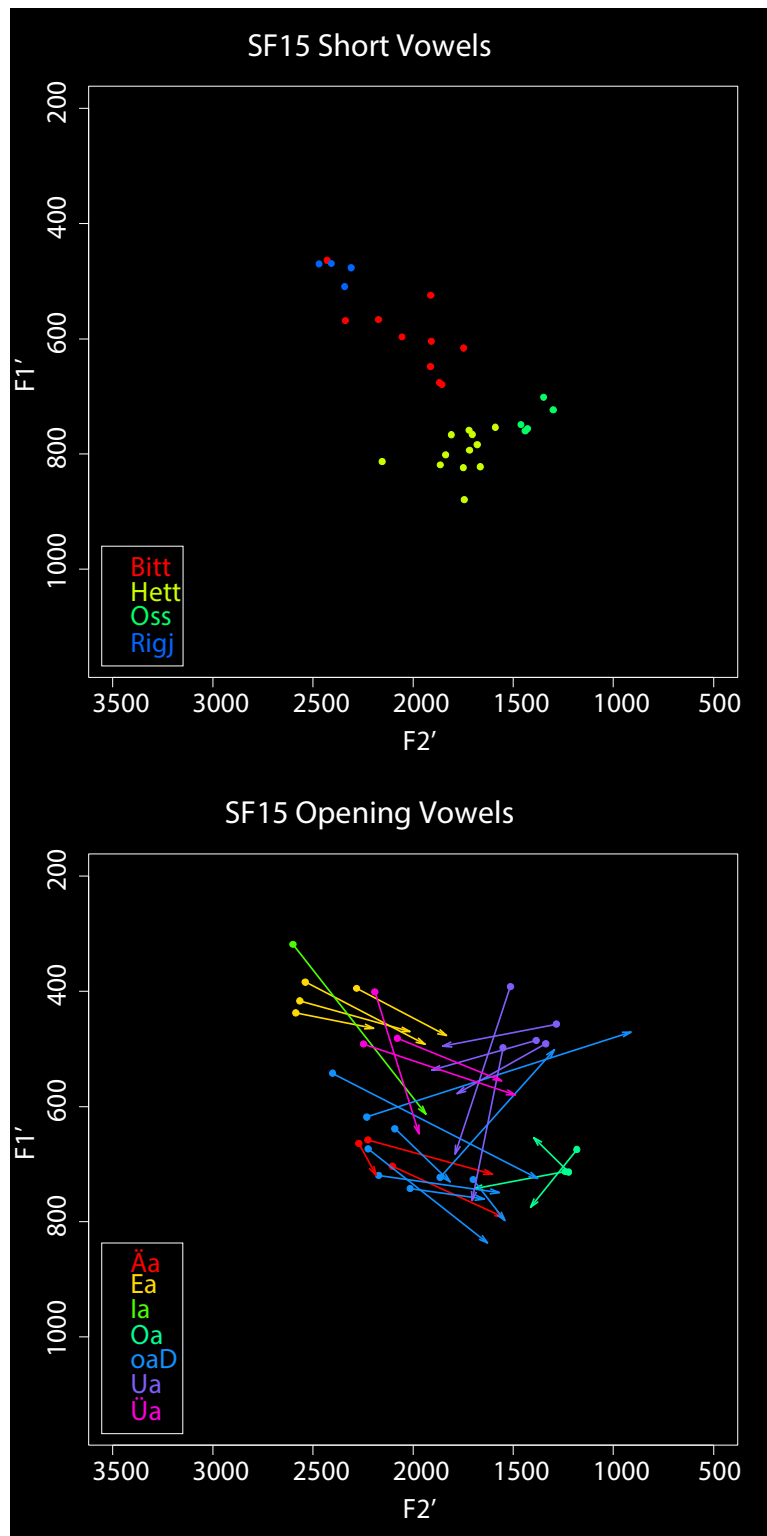


Figure 4.24 SF15 Normalized Vowels

SF15 has some monophthong realizations of the EI and TAUSS classes. Some tokens of the HOS class are in a high back position, but many are in between a high back vowel and a mid-high back vowel. The nucleus of the TAUSS class also varies in height ranging from a mid back vowel to a mid-high back

vowel. Some nuclei in the HEET class are central, but others are moving back and lowering. The ÄKJ and BIET classes are merged. The RIGJ class has not separated from the BITT class and forms part of a larger group of allophones of the BITT class before palatal segments. The HETT class is a low front vowel and sometimes pushes into the space of the HAB class. The BITT class is in the process of falling. The EA and IA classes have merged. The nucleus of the UA class has risen, but the nuclei of the OA and ÄA classes have not risen. The nucleus of the Dialect OA class is in the process of rising. There is a closing allophone of the Dialect OA class before historically voiced velars.

Table 4.24 shows the traditional dialect features used by SF15.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	2	15
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.24 SF15 Traditional Dialect Features

She has mostly Chortitza dialect features except in the final *-n* feature.

4.3 Summer Elicitation 2014 (Kansas)

During the summer of 2014 one month was dedicated to gathering data in the state of Kansas. This is the home of the oldest Molotschna settlement in the US and it is also the home to a newer influx of Mennonites from Latin America. The second elicitation tool was used in this area along with the picture elicitation task. Many speakers in this region from both migration groups are acutely aware of the loss of the language and were more willing to share information about their history and culture which they felt should be preserved.

Religious groups present in the region vary by location. In central Kansas, the major groups are the Krimmer Mennonite Brethren (KMB), the Mennonite Brethren, and the General Conference Mennonite Church. In Western Kansas, the major groups are the Rheinländer, Old Colony, Grace Fellowship, Mennonite Evangelical Center (MEC), and the Gospel Mennonite Church (AMC). There are some Holdeman Mennonites in both Central and Western Kansas, but I was not able to meet with any of them during the time there.

Many people in this area are much more aware of variations in pronunciation of Mennonite Low German than people in Southern Mexico. The main reason for the heightened awareness is the fact that this region is not as homogeneous as the Southern Mexican community.

4.3.1 KS01

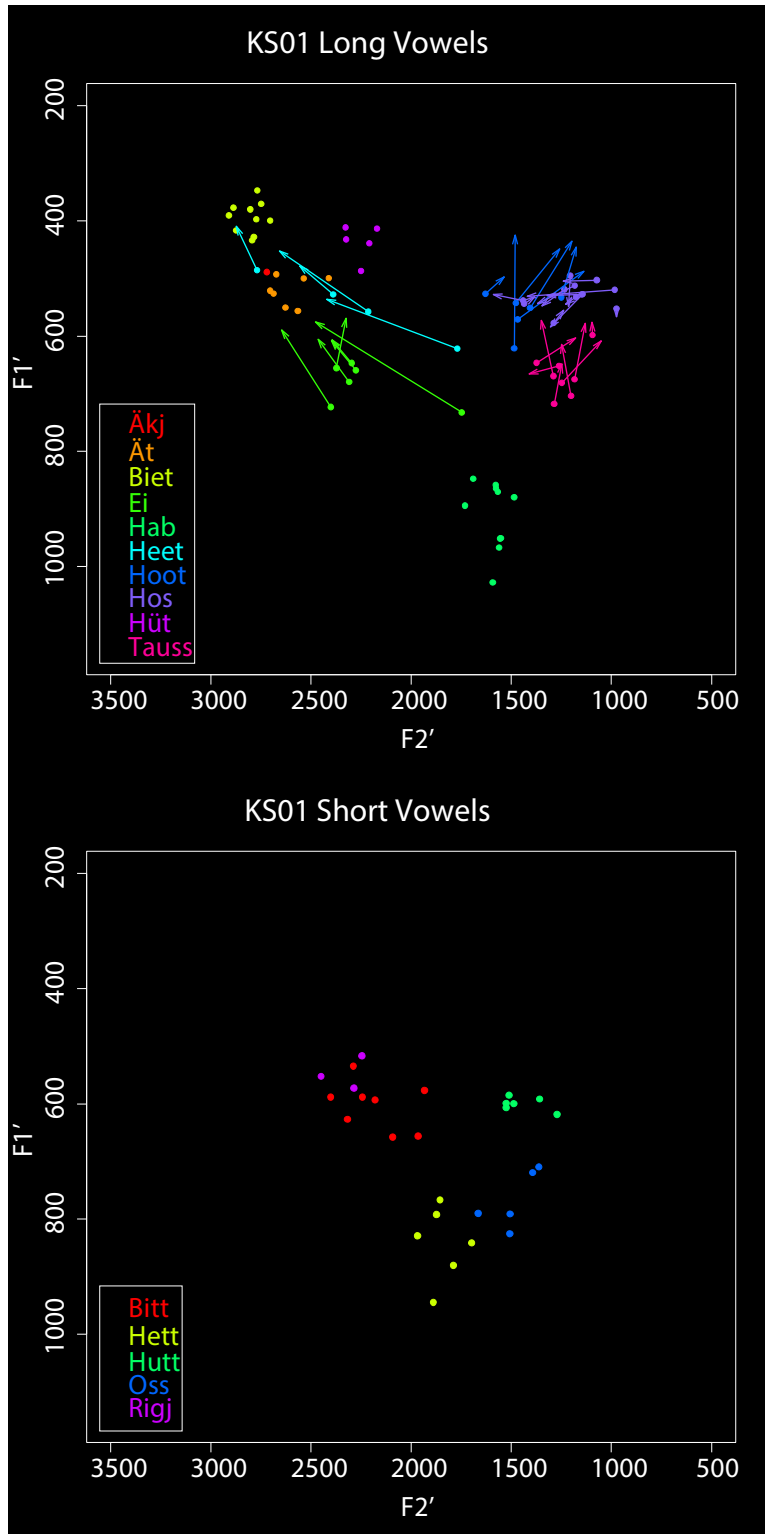
Speaker KS01 is a Molotschna speaker from Nebraska. He speaks Plautdietsch with his wife. He also speaks Plautdietsch with Mexican Chortitza speakers as a medical translator and interpreter in other parts of Kansas. He has passed off most of these duties to KS09, but is still active in the production of medical literature.

KS01 can remember thinking in Low German until he enrolled in college. He remembers his community slowly switching to English. High German was used in church until he was in high school when it switched to English.

KS01 recognizes two main variations in pronunciation of Low German: final *-n* vs *-ə* and pronunciation of the words like 'blue'. He reports that pronunciation of the word 'blue' as either *blau* or

bliew can vary from family to family. On the other hand, he reports that use of final *-n* is Old Colony specific, but use of final *-ə* is New Colony. He reports that Manitoba has *-n* in some places, and that final *-n* is generally not found in Kansas and Nebraska.

Figure 4.25 shows normalized formant values for KS01 by vowel class.



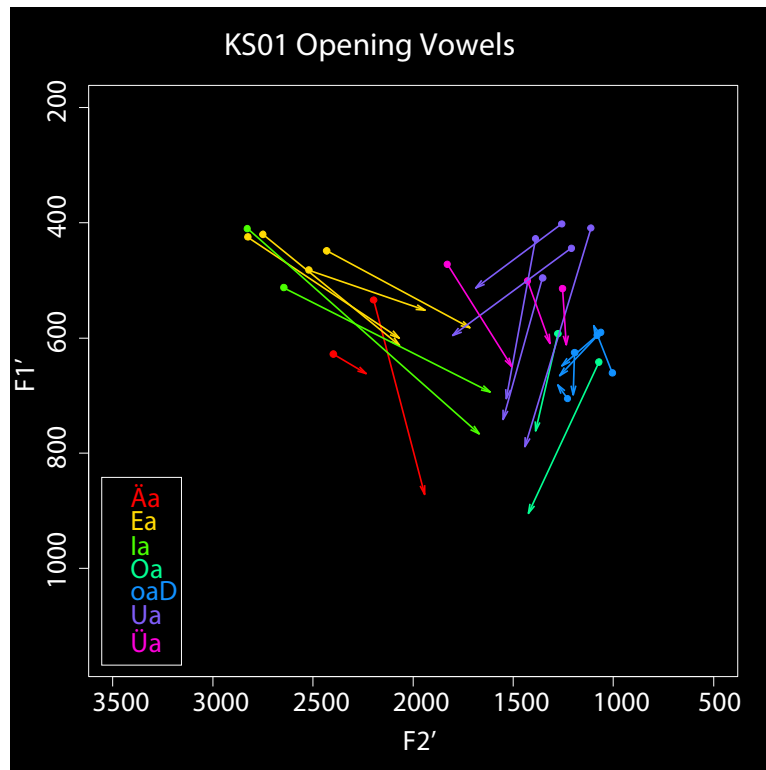


Figure 4.25 KS01 Normalized Vowels

Speaker KS01 has monophthong realizations of the TAUSS class and some monophthongs in the Ei class. The HEEt class is split between tokens with a central nucleus and tokens with a mid-high front nucleus. Much like Herman Rempel and MT01, KS01 lacks a high back vowel. There is considerable overlap in the nuclei of the HOS and HOOT classes, but the main difference between the two is the nature of the off-glide. The off-glide of the HOOT class is always rising, while the off-glide of the HOS class is sometimes centralizing. KS01 has some centralization of the HETT and OSS classes, but for the most part, they are higher than the HAB class. His EA and IA classes are merged. The nucleus of the ÄA class has risen to a mid-high front position. The nucleus of the ÜA class ranges from central to back, but its F1 is always higher than the F1 of the UA class. The Dialect OA class has a similar F1 range as the regular OA class, but the off-glide does not fully centralize.

Table 4.25 shows the traditional dialect features used by KS01.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	25
WGmc * <i>aaw</i>	3	3
Dialect <i>oa</i>	0	5

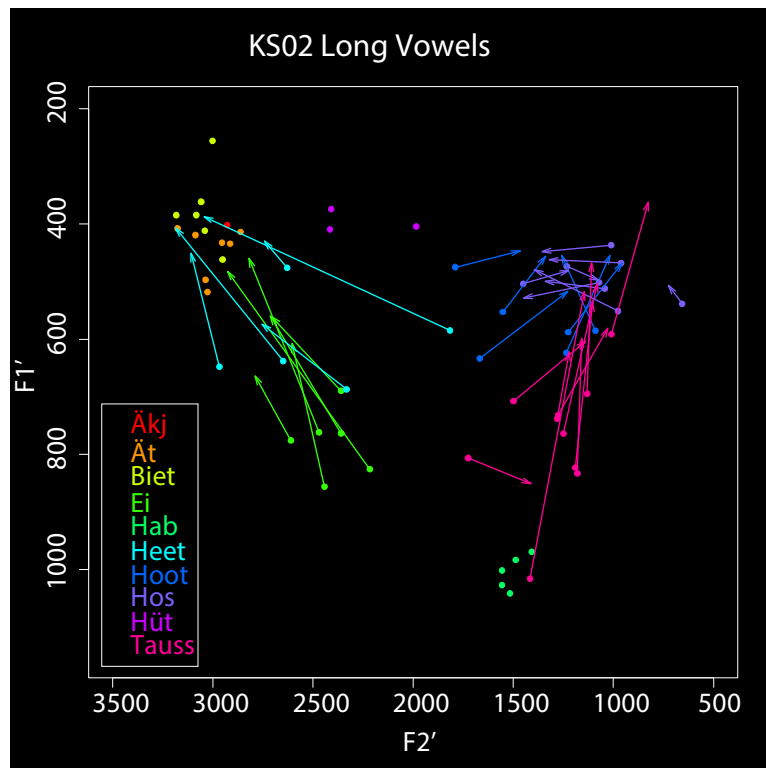
Table 4.25 KS01 Traditional Dialect Features

KS01's speech aligns closely with the traditional Molotschna dialect except for his WGmc **aaw* reflexes. Although I did not include the frontness of Middle Low German *ū* as a traditional dialect feature, it should be noted in Figure 4.25 that this reflex is split. The monophthong reflex has a high F2

relative to the centralizing diphthong reflex.

4.3.2 KS02

Speaker KS02 is a Molotschna speaker from Central Kansas. Her grandfather was a Chortitza speaker who used the final $-n$ instead of $-\partial$. She asserts that Gnadenu Low German was no different than the Molotschna variety that she grew up with (Bareg 1960 provides an account of Plautdietsch spoken in the Gnadenu village). She attended school in English, but had at least one month of school in High German each year. Figure 4.26 shows the normalized formant values of KS02 by vowel class.



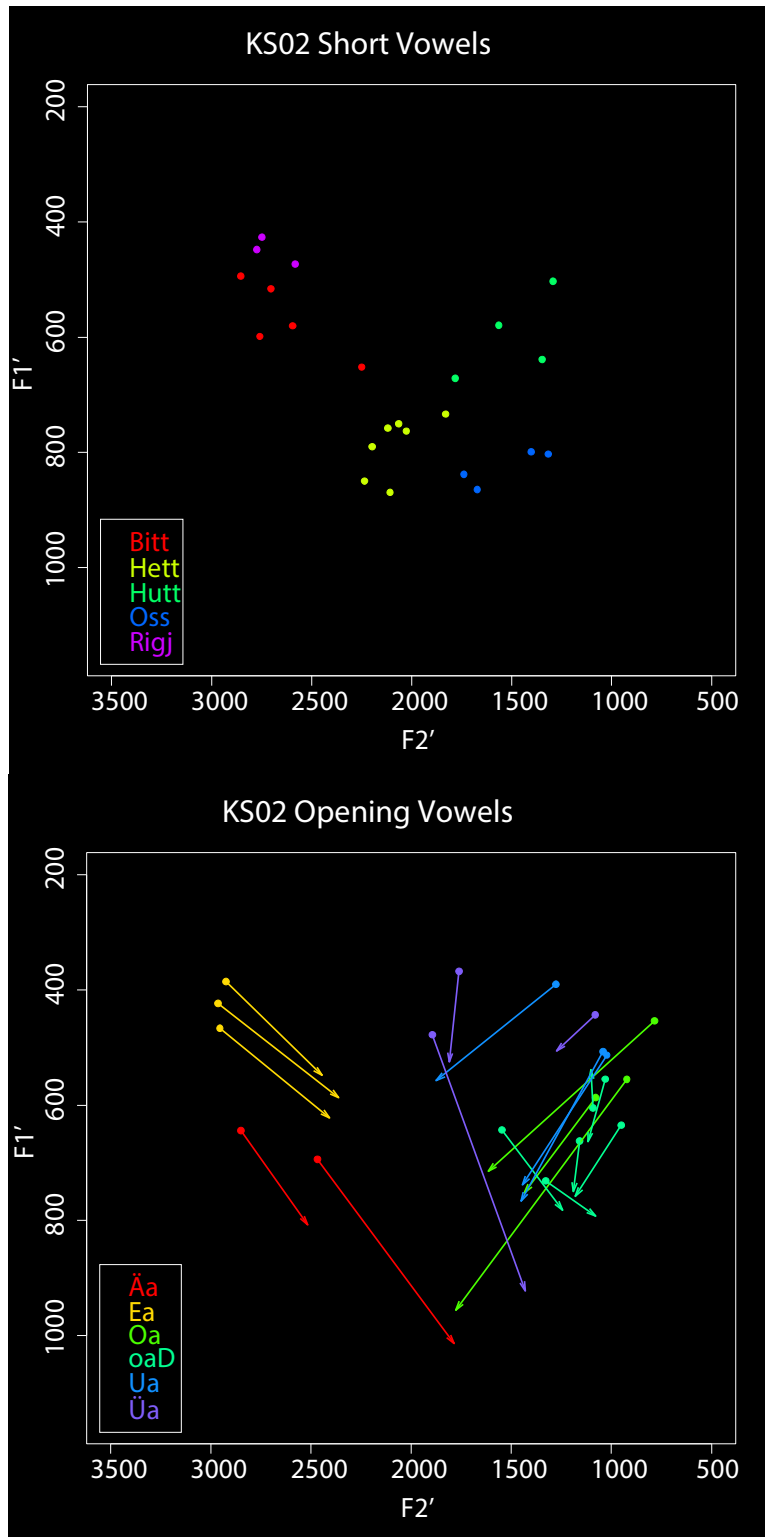


Figure 4.26 KS02 Normalized Vowels

KS02 has only diphthong realizations in the Ei and TAUSS classes. The nucleus of the HEET class varies between a front and central vowel. The nucleus of the HOOT class is usually central, but sometimes it is back. The HOOT class is always a closing diphthong. The HOS class has some overlap with the HOOT

class, but it usually has a lower F1 and higher F2 than the Hoot class and it does not always have a closing off-glide. The BIET and ÄKJ classes are near merged. The HETT class is a mid-low vowel with a nucleus close to the nucleus of the EI class. In some cases the HETT class is centralized, but for the most part it remains distinct from the HUTT class. The UA class has a notably higher F1 in the words *Stua* 'store' and *Flua* 'floor'. The ÜA class is usually central, but there is one back token in the word *Büak* 'book'. The nucleus of the OA class has risen higher than the nucleus of the ÄA class. The Dialect OA class is always a back vowel and there is very little movement in the off-glide.

Table 4.26 shows the traditional dialect features used by KS02.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	26
WGmc * <i>aaw</i>	1	2
Dialect <i>oa</i>	0	6

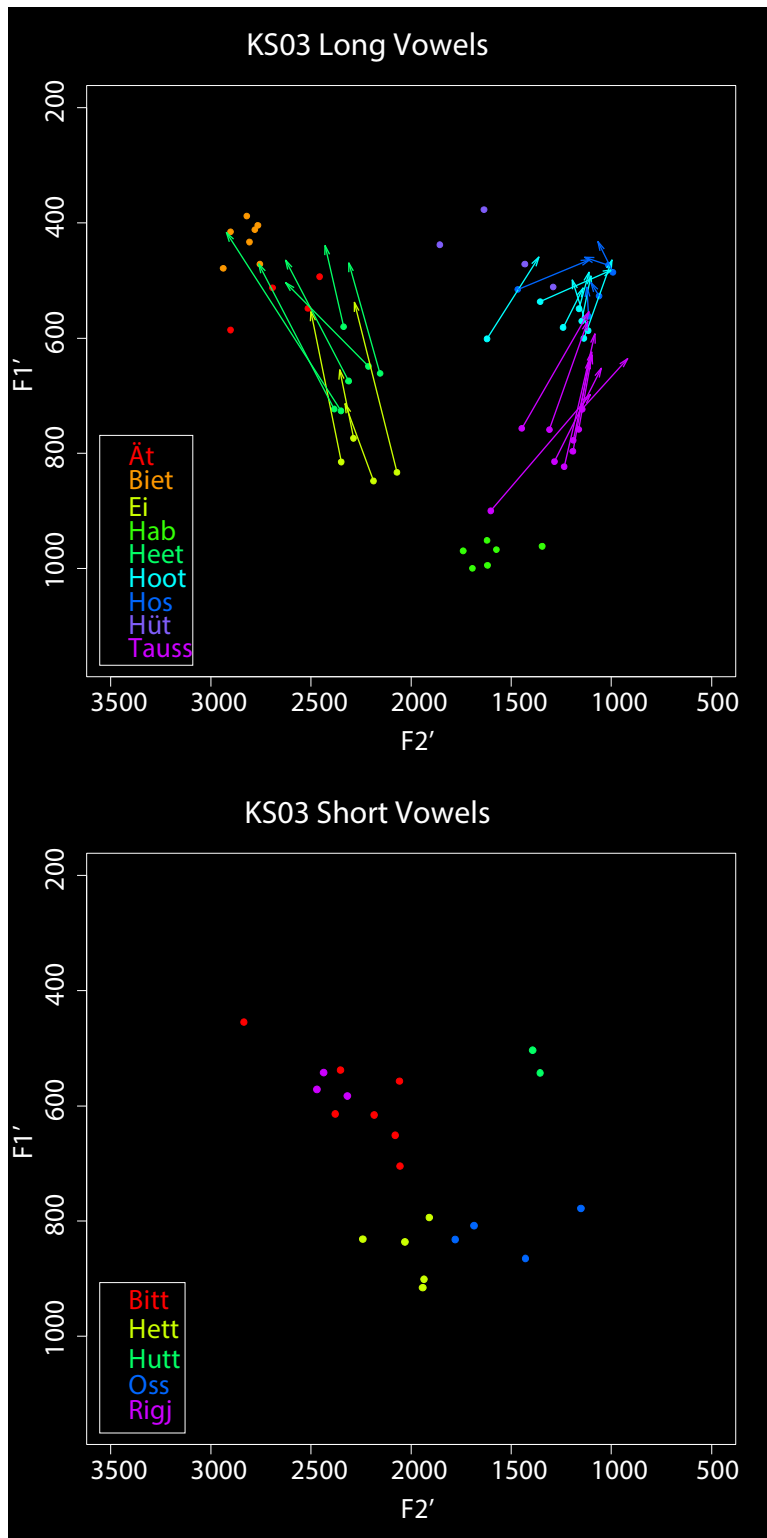
Table 4.26 KS02 Traditional Dialect Features

KS02 is a rather traditional Molotschna speaker. She does not use the final *-n* of the Chortitza group and has back reflexes of WGmc **aaw* and the Dialect OA class.

4.3.3 KS03

Speaker KS03 is a Molotschna speaker from Nebraska. He can also speak Spanish which he used for travel in Mexico. After a long period of not using Low German, he had forgotten how to speak it, but could understand it. During a trip to Mexico he found himself unable to respond in Low German until one morning he realized that he was speaking Low German to himself in the mirror. He has been able to maintain his ability to speak the language since that trip.

He is aware of the speakers from Mexico that have come to settle in Southwestern Kansas. He mostly recognizes variation in the production of the final *-n* feature (i.e., *-a* and *-ə* vs *-n*). Figure 4.27 shows the normalized formant values of KS03 by vowel class.



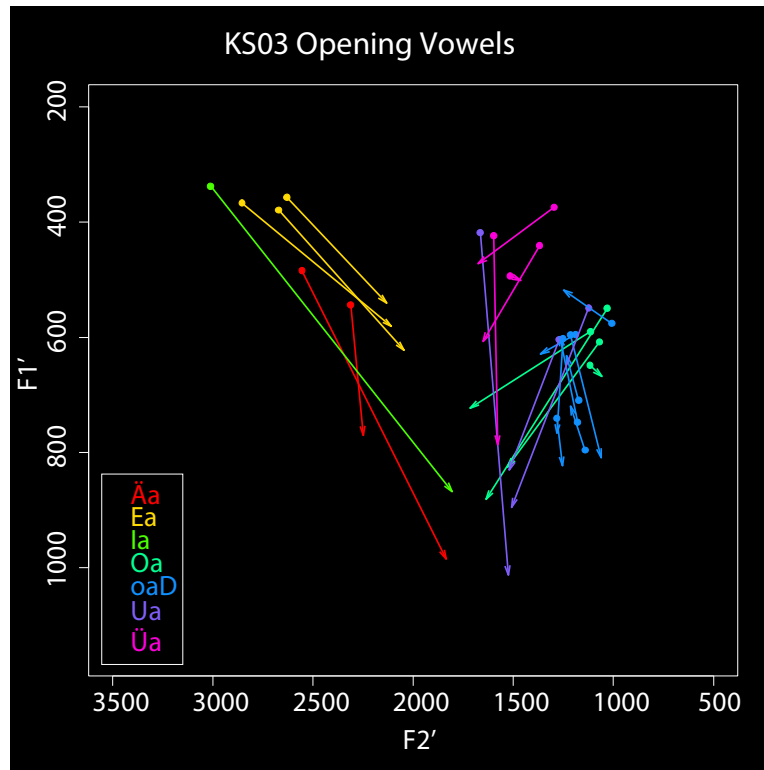


Figure 4.27 KS03 Normalized Vowels

KS03 has exclusively diphthong tokens in the Ei and TAUSS classes. KS03 did not produce any tokens of the ÄKJ class. The HÜT class is a high central vowel, but sometimes it comes close to the nucleus of the HOS class. KS03 lacks a high back vowel. The HOS and TAUSS classes have considerable overlap with each other, but the HOS class usually has lower F1 in the nucleus than the HOOT class. The RIGJ class and the BIET class are not fully separate from each other. The HETT class is a low front vowel which sometimes comes close to the nucleus of the Ei class. The HUTT class is not heavily centralized. The EA and IA classes are in separate, but close spaces. The nucleus of the ÄÄ class is mostly between the nucleus of the ÄT class and the HEET class. The UA diphthong overlaps with the ÜÄ diphthong in the word *Stua* 'store' but overlaps with the OA diphthongs in the word *wua* 'where' and *Flua* 'floor'. All Dialect OA classes are back and at the same height as the OA class. Some of the tokens in the Dialect OA class are monophthongs.

Table 4.27 shows the traditional dialect features used by KS03.

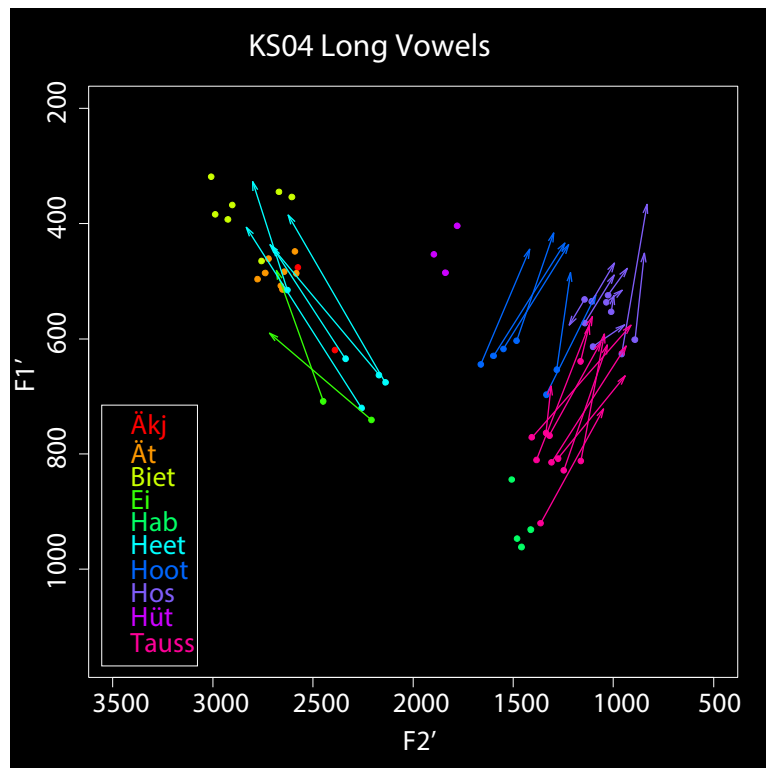
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	12
WGmc * <i>aaw</i>	0	3
Dialect <i>oa</i>	0	8

Table 4.27 KS03 Traditional Dialect Features

KS03 uses almost exclusively Molotschna forms except for the word *foake* 'often'. This is one of the two words which most frequently had a Chortitza value for otherwise uniformly Molotschna speakers.

4.3.4 KS04

Speaker KS04 is a Molotschna speaker from Central Kansas. She grew up speaking Low German and learned to speak English before she entered school from her older sisters who were already in school. She still speaks Low German at home with her husband, but she has begun to mix it with English. She is aware that there is variation in the pronunciation of final *-n*, but there also variation in the realization of the vowel in the word *koake* 'to cook'. Realizations can be either [ky^vkə], [kɔ^vkə], or [kɔ^hkə]. It is unclear what the latter variations correspond to. Figure 4.28 shows the normalized formant values of KS04 by vowel class.



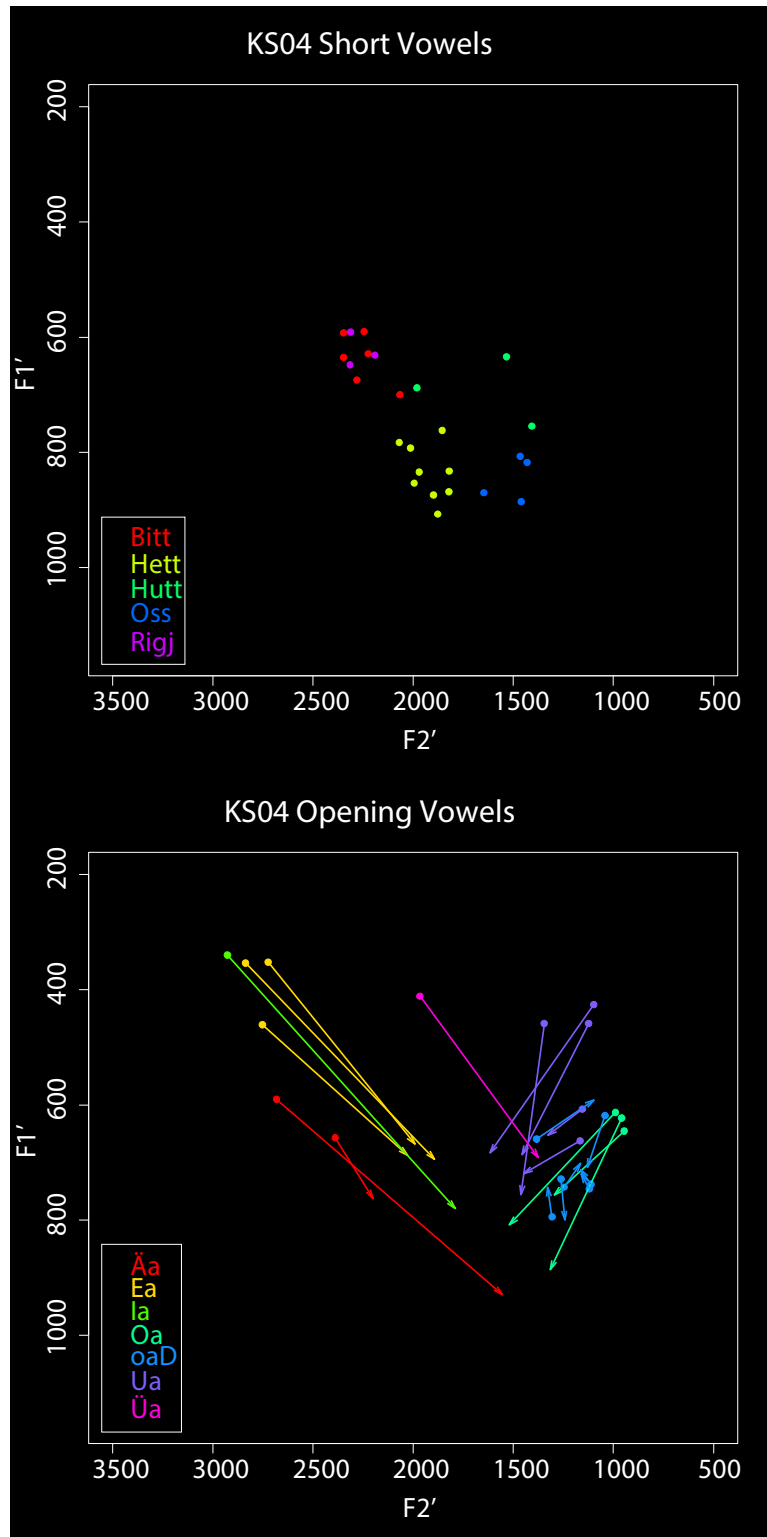


Figure 4.28 KS04 Normalized Vowels

KS04 uses monophthongs in the Ei and TAUSS classes. The nucleus of the TAUSS class is considerably lower than the nucleus of the Ei class and at times overlaps with the HAB class. KS04 does not have a high back vowel. The nuclei HOS and HOOT classes have roughly the same range for F1 and differ

primarily in terms of F2. The HÜT class is a high central vowel. The ÄKJ and BIET classes remain separate. The HUTT class is centralized in some words, but is otherwise a back vowel. The RIGJ and BITT classes have not split. The EA and IA classes have merged. The nucleus of the UA class has risen to a high back position except for in the words *wua* 'where' and *Flua* 'floor'. The OA class differs from the Dialect OA class mostly in terms of the off-glide. Most tokens of the Dialect OA classes are monophthongs, but the OA class is always a diphthong.

Table 4.28 shows the traditional dialect features used by KS04.

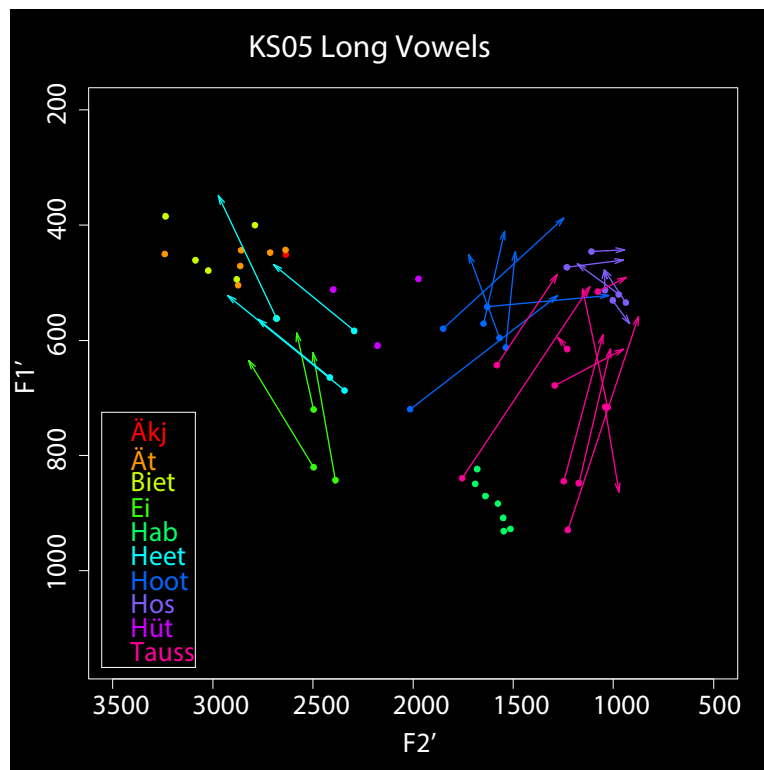
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	11
WGmc * <i>aaw</i>	0	4
Dialect <i>oa</i>	0	7

Table 4.28 KS04 Traditional Dialect Features

KS04 uses exclusively Molotschna forms.

4.3.5 KS05

Speaker KS05 is a Molotschna speaker from Central Kansas. She learned Low German at home, but her generation did not learn High German. She and her husband still speak Low German. Her children can speak Low German, but their spouses and children cannot. She remembers that World War II was a turning point for language maintenance. People were told explicitly to not speak “German”. She recognizes variation in pronunciation of the word *Woage* 'wagon' which is realized as either [vo:ɤə] or [vo^ɐɤə]. Figure 4.29 shows the normalized formant values of KS05 by vowel class.



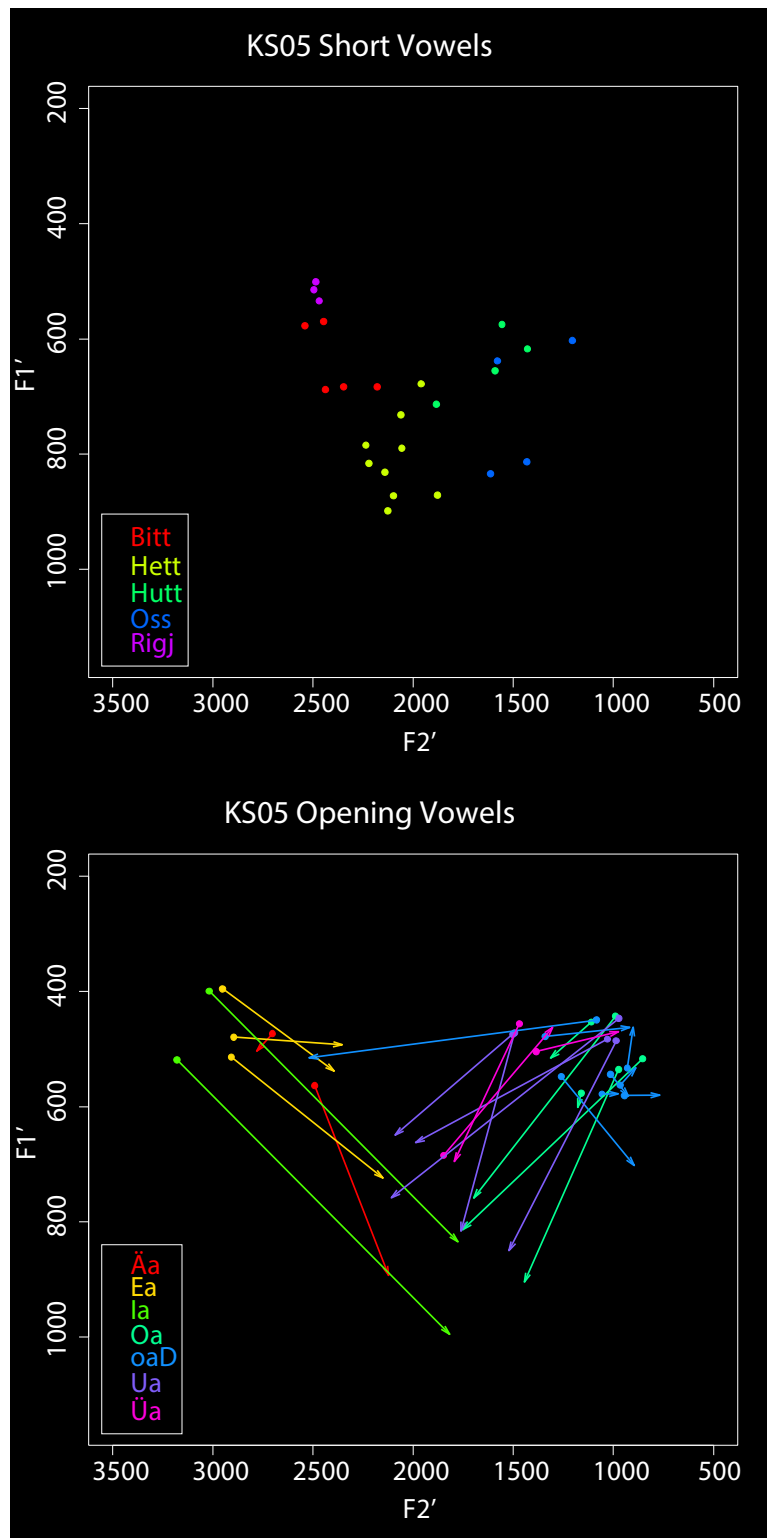


Figure 4.29 KS05 Normalized Vowels

KS05 has predominantly diphthong realizations of the TAUSS class and only diphthong realizations of the E1 class. The nucleus of the HEET class is beginning to centralize, but remains mostly front. The

HÜT class is not only central, but it has begun to lower. There is no overlap between the ÄKJ and BIET classes. KS05 lacks a high back vowel; the HOS class is a mid-high back vowel. The HOOT class has a central nucleus and usually closes during production of the off-glide. The TAUSS class has many members with a nucleus close to the F1 of the HAB and OSS classes. KS05 has centralization of her short vowels. Some tokens of the OSS class are closer to the tokens of the HUTT class (e.g. *Oss* 'ox' and *Holt* 'wood'). The HETT class has a spread from a mid-low to low position. The EA and IA classes have merged. The nucleus of the Üa class is usually produced with a slightly fronted mid-high back vowel. There is no distinction between the UA and OA classes. While there are some monophthong tokens of the Dialect OA class, this is not a trait which separates it from the regular OA class which also has monophthongs.

Table 4.29 shows the traditional dialect features used by KS05.

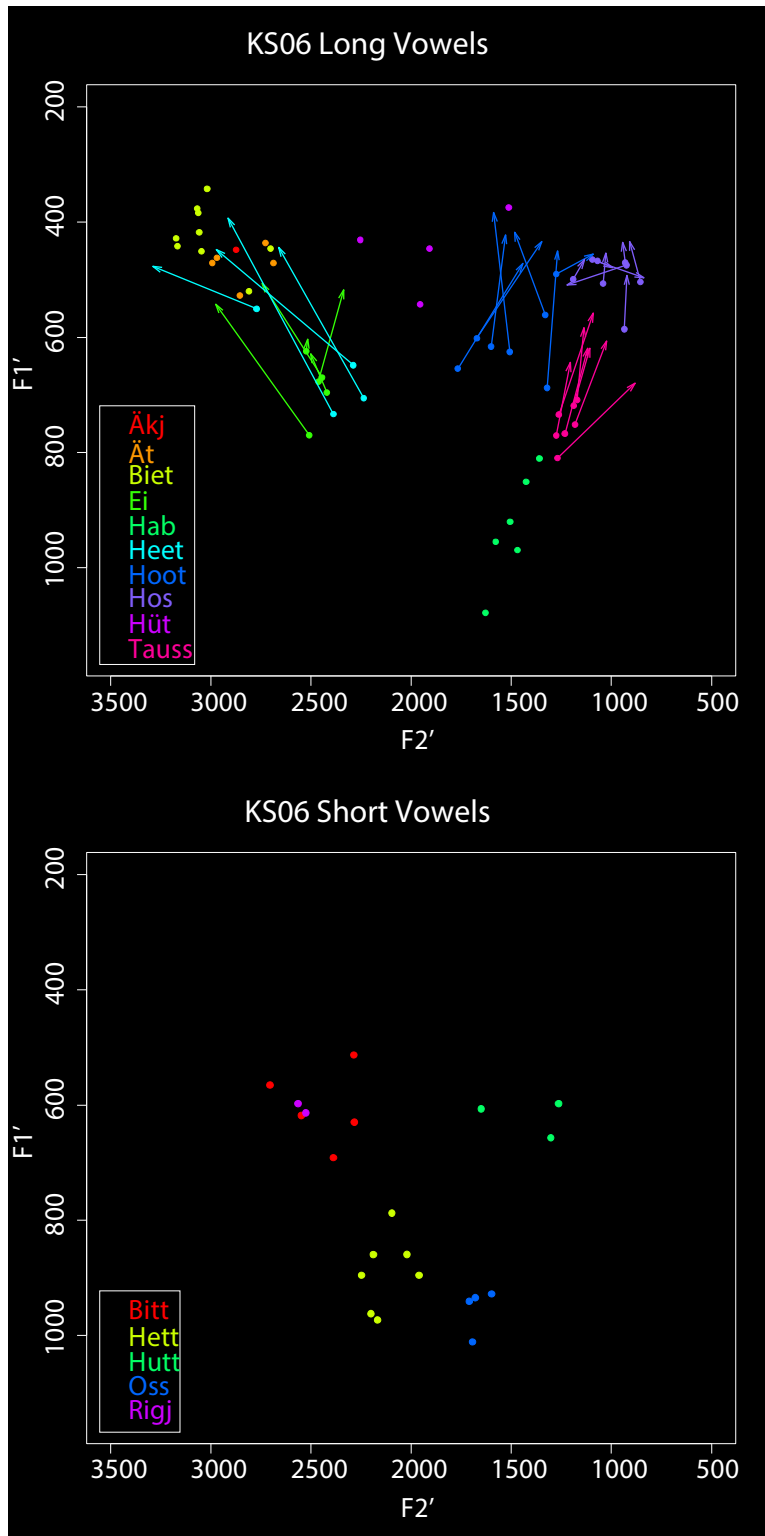
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	15
WGmc * <i>aaw</i>	0	5
Dialect <i>oa</i>	0	8

Table 4.29 KS05 Traditional Dialect Features

KS05 is consistent in his uses of Molotschna features except for use of the final *-n* in the word *foake* 'often'.

4.3.6 KS06

Speaker KS06 is a Molotschna speaker from Central Kansas. She learned Low German at home, but both she and her brother learned to speak English before entering school. Her husband speaks Low German differently than she does, but in their view it is family specific variation. Figure 4.30 shows the normalized formant values of KS06 by vowel class.



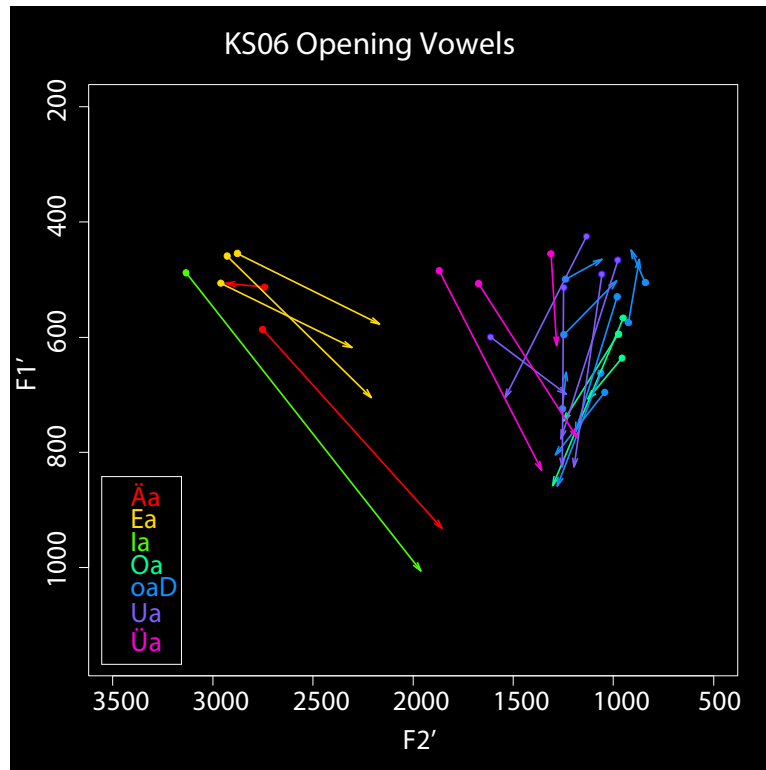


Figure 4.30 KS06 Normalized Vowels

KS06 has only diphthong realizations of the EI and TAUSS classes. The nucleus of the TAUSS class is sometimes close to the HAB class. The nucleus of the EI class has a similar F1 to the HEET class, but the HEET class tends to have a lower F2. The ÄKJ class comes close to the space of the BIET class. The HÜT class is a central vowel. The HOOT class has a central nucleus which is slightly lower than the HOS class. The HOS class has a higher F1 than the other high vowel classes. The short vowels all form distinct categories except for the RIGJ and BITT classes which have not split. The EA and IA classes are near merged. The ÄA class has one allophone which is notably higher than the other in the word *Wäakj* 'week'. The ÜA, OA, and Dialect OA classes are all in the process of rising. The lowest member of the ÜA class is the word *Rüak* 'smoke'.

Table 4.30 shows the traditional dialect features used by KS06.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	21
WGmc <i>*aaw</i>	0	2
Dialect <i>oa</i>	0	8

Table 4.30 KS06 Traditional Dialect Features

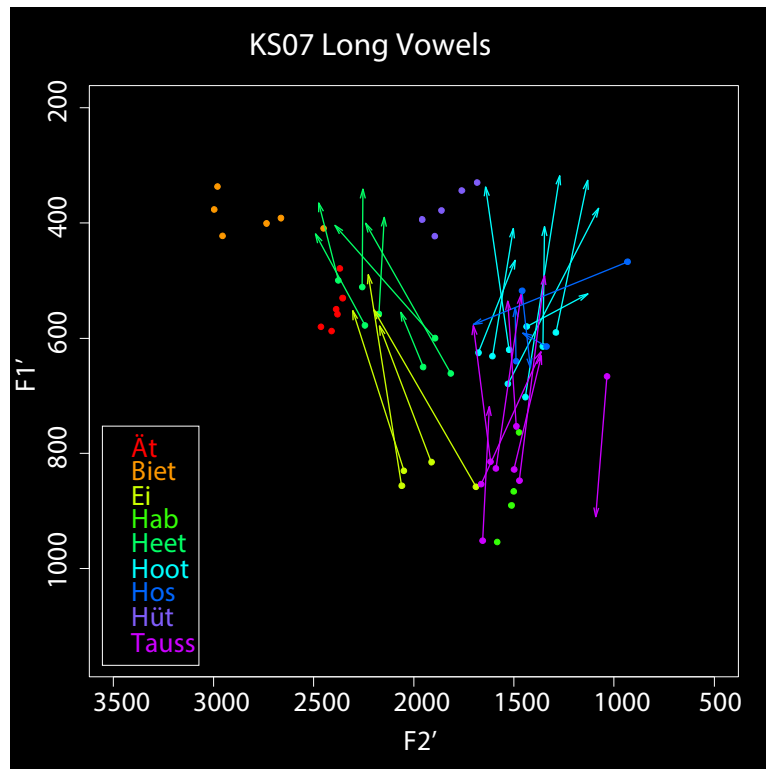
KS06 uses exclusively Molotschna features.

4.3.7 KS07

Speaker KS07 is a Molotschna speaker from Minnesota. He also speaks High German and English. He

feels that some of the people in Kansas have a different type of Low German than what he grew up with in Minnesota. He feels most of this variation is family specific combined with community specific variation.

During our conversation, KS07 remembered that World War II was a turning point for the use of German and even expressing being German. He vividly recounted anti-German protests that were held in his hometown with the goal of intimidating people of German descent. Figure 4.31 shows the normalized formant values for KS07 by vowel class.



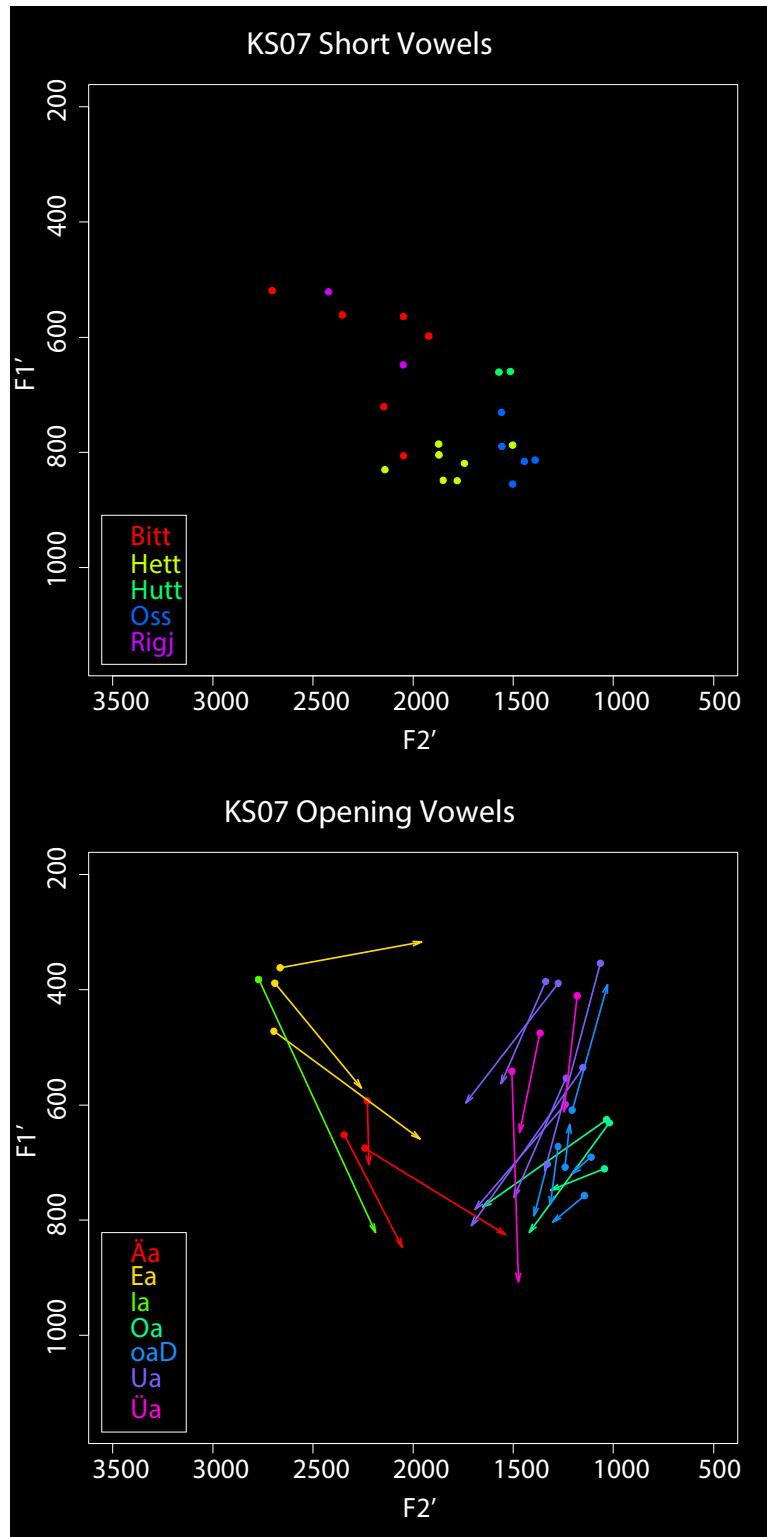


Figure 4.31 KS07 Normalized Vowels

KS07 has only diphthong realizations of the EI and TAUSS classes. The EI class differs from the HEET class mostly in terms of F1 of the nucleus. The nucleus of the HOS and HOOT class are nearly indistinguishable from each other. The HÜT class is a high central vowel. KS07 has a high degree of

centralization of his short vowels. The EA and IA classes are merged. The nucleus of the UA class has risen to a high back position and the nucleus of the ÜA differs only in terms of centralization. The OA and Dialect OA classes differ mostly in terms of the off-glide. The OA class is always an opening diphthong, but the Dialect OA class has realizations of a closing diphthong, opening diphthong, and monophthong.

Table 4.31 shows the traditional dialect features used by KS07.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	0	13
WGmc * <i>aaw</i>	0	3
Dialect <i>oa</i>	0	6

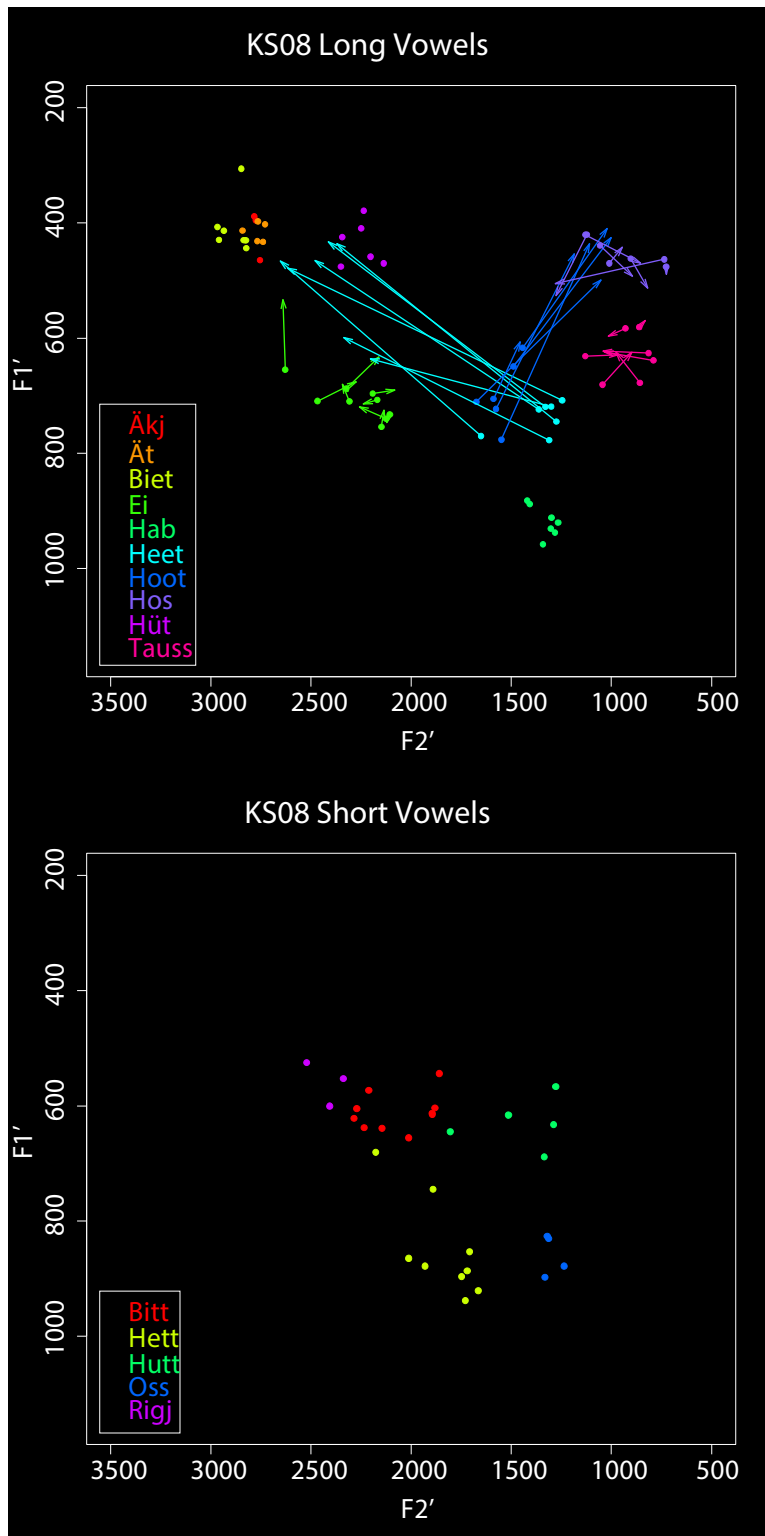
Table 4.31 KS07 Traditional Dialect Features

KS07 uses exclusively Molotschna features.

4.3.8 KS08

Speaker KS08 is from Central Canada. She currently speaks a Chortitza variety, but remembers that her pronunciation changed when she began interacting more with members of the Northern Mexican speech community. She is related to KS09.

KS08 recognizes two variable features in Low German. One involves the difference between final *-n* and *-ə*. She now uses *-n* but remembers that she used to use *-ə*. She also recognizes variation of the root vowel in the word *foake* 'often'. She originally used the root vowel [fo^ok-], but now uses something closer to [fɛ:k-]. She believes that this variation is sometimes sub-regional because there is a location in Northern Mexico, Jagüeyes, where people use the root form of *foake* that she used to use. Figure 4.32 shows the normalized formant values for KS08 by vowel class.



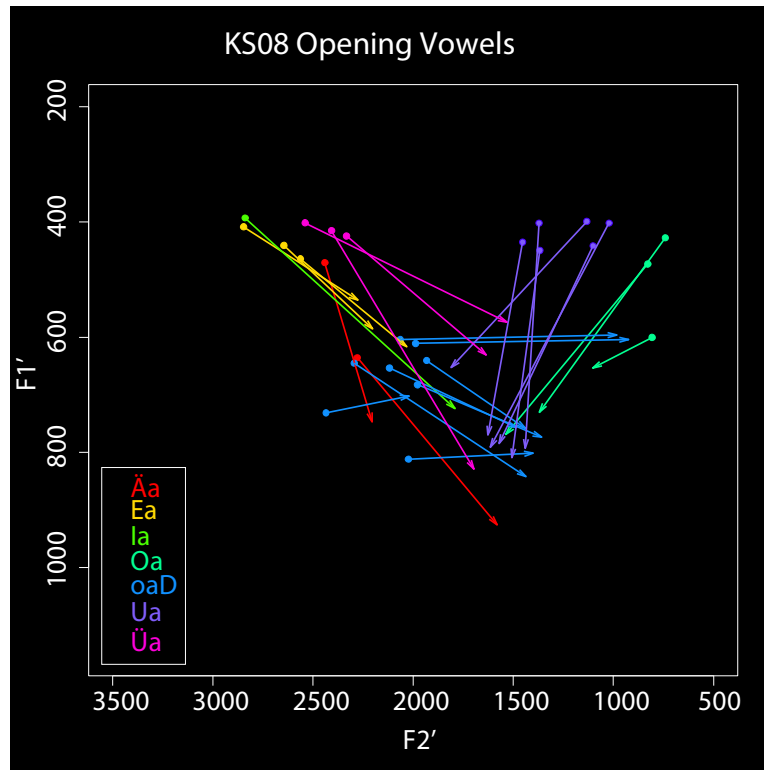


Figure 4.32 KS08 Normalized Vowels

KS08 has mostly monophthong tokens in the EI and TAUSS classes. The TAUSS class is a mid-high vowel and the HOS class is nearing a high back vowel. The HEET and HOOT classes both have central nuclei. The ÄKJ and BIET classes have merged. The RIGJ class forms part of a larger group of front allophones of the BITT class before palatal segments. The HETT class is usually a low front vowel, but in some cases, it is a mid-low front vowel near the nucleus of the EI class. The EA and IA classes have merged. The UA class is a high vowel, but it is slightly centralized in comparison to the raised nuclei of the OA class. The Dialect OA class has an o-bound allophone before historically voiced velar consonants.

Table 4.32 shows the traditional dialect features used by KS08.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	6	8
WGmc * <i>aaw</i>	4	4
Dialect <i>oa</i>	8	8

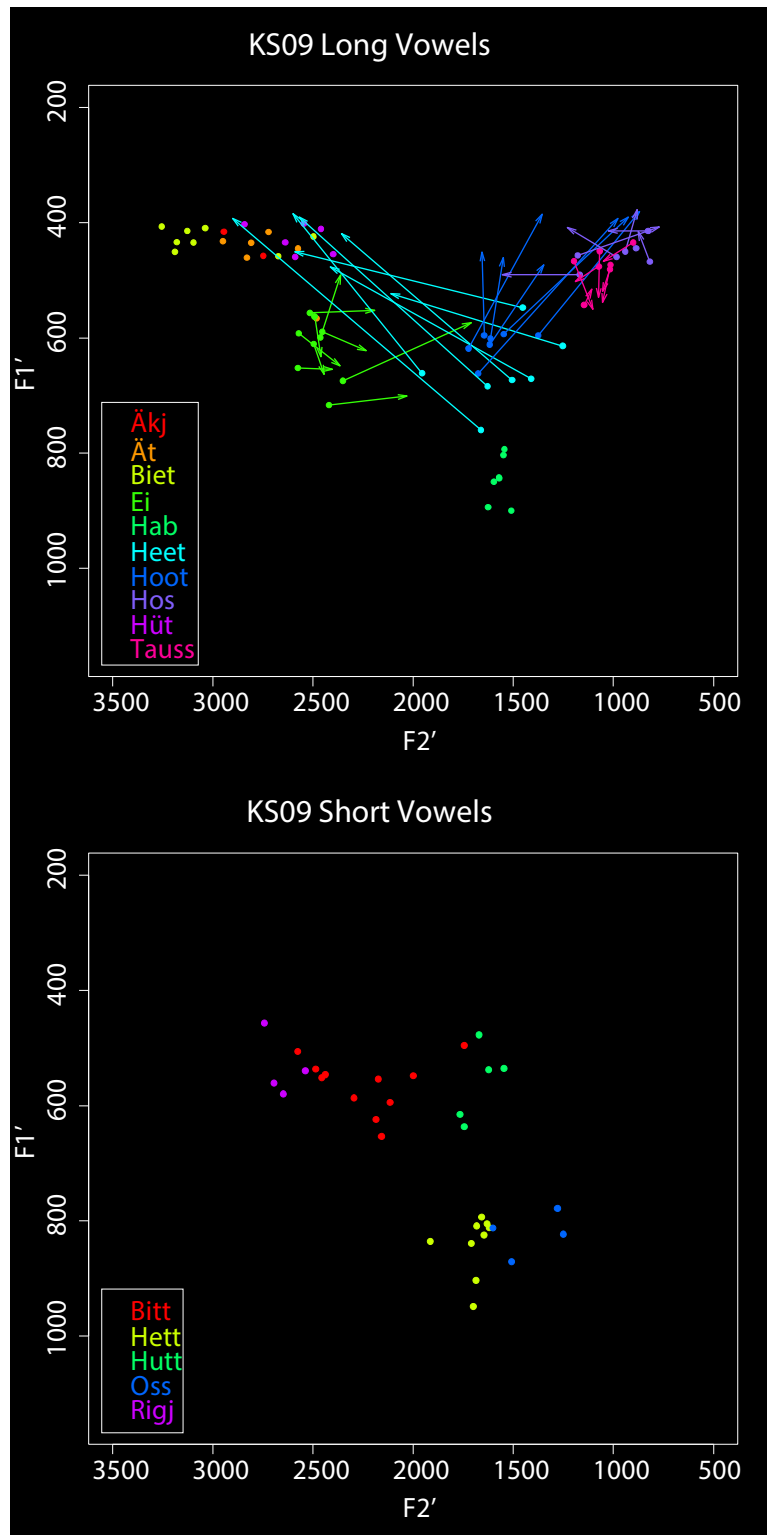
Table 4.32 KS08 Traditional Dialect Features

KS08 uses almost exclusively Chortitza values except for the final *-n* which is sometimes *-ə*.

4.3.9 KS09

Speaker KS09 is a Chortitza speaker who grew up in Northern Mexico, Texas, and Southwest Kansas. She is acquainted with KS01 and is a relative of KS08. She remembers when she found out that

members of KS01's group lived in the same state and was surprised that they could speak Low German also. She learned English in kindergarten. She recognizes the same variation in pronunciation as KS08, and says much of the variation is related to region. According to her, one of the main differences between the US and Mexico is the heavy mixing of English into Low German in the US. Figure 4.33 shows the normalized formant values of KS09 by vowel class.



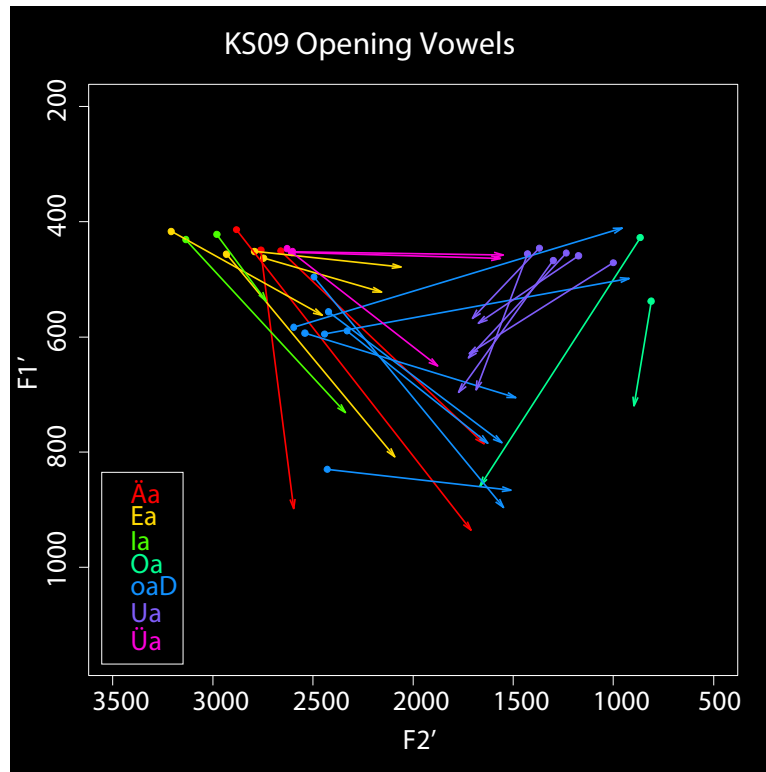


Figure 4.33 KS09 Normalized Vowels

KS09 has monophthong realizations of the TAUSS class and most of the EI class. The BIET and ÄKJ classes slightly overlap, but they remain distinct from other vowel classes in the high front vowel space due to F3. KS09 has a high back vowel in the HOS class and the TAUSS class is nearing a high vowel. All nuclei of the HEET class are central, but some are beginning to push back and lower. The RIGJ class is beginning to separate from the BITT class and is sometimes realized as a diphthong. The BITT and HETT classes show some degree of centralization. The EA and IA classes are merged. The nucleus of the ÄÄ class has risen from a low-mid vowel to a higher position. The nuclei of the UA and OA classes differ primarily in the degree of backness. The Dialect OA class has a closing allophone before historically voiced velar segments.

Table 4.33 shows the traditional dialect features used by KS09.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	10	10
WGmc * <i>aaw</i>	4	4
Dialect <i>oa</i>	7	7

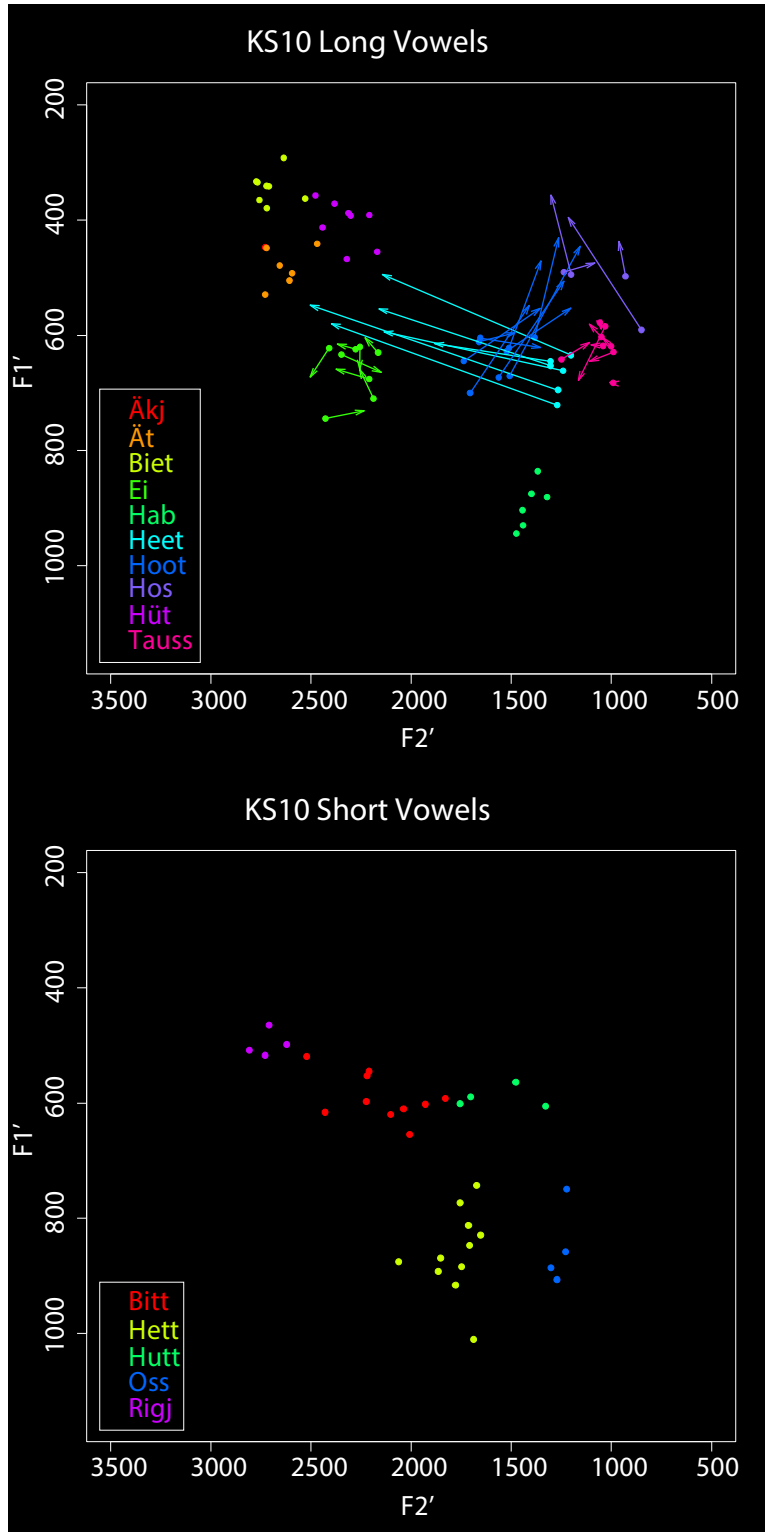
Table 4.33 KS09 Traditional Dialect Features

KS09 uses exclusively Chortitza values.

4.3.10 KS10

Speaker KS10 is a Chortitza speaker from Bolivia. She learned High German in school. She views

variation in pronunciation to be linked to region and congregation. In her view, [oʰ] is a variant of the vowel in words like *moaken* 'to make' specific to the Mexican Sommerfeld congregation. Figure 4.34 shows the normalized formant values for KS10 by vowel class.



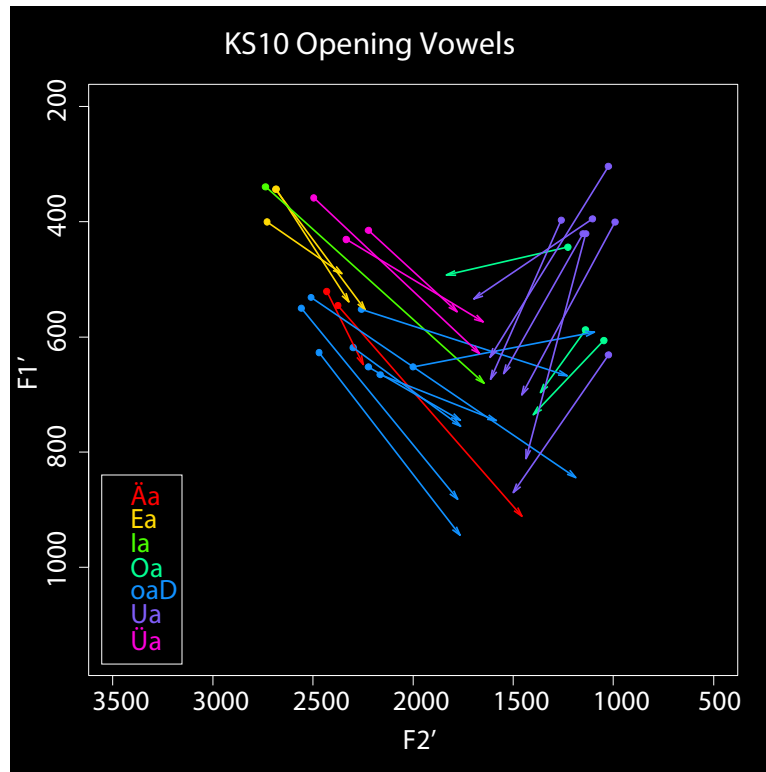


Figure 4.34 KS10 Normalized Vowels

KS10 has monophthong reflexes of the EI and TAUSS classes. The BIET and ÄKJ classes remain separate. KS10 lacks a high back vowel, the HOS class is a mid-high back vowel. The nuclei of the HEET class have low F2 and sometimes overlap with the space of the TAUSS class. The RIGJ class has separated from the BITT class and is realized as a diphthong. All other short vowel classes show some degree of centralization. The HETT class is a low vowel. The EA and IA classes have merged. The nucleus of the ÄA class has risen and many of the nuclei of the Dialect OA class have also risen. The UA class ranges from a mid-low vowel to a high back vowel with the highest F1 in the word *Wuat* 'word'. The nucleus of the OA class is usually mid-low vowel with the exception of the word *foat* 'he drives'. The simple past form *fuad* 'drove' might be influencing the height *foat* 'he drives'.

Table 4.34 shows the traditional dialect features used by KS10.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	18	18
WGmc * <i>aaw</i>	4	4
Dialect <i>oa</i>	8	8

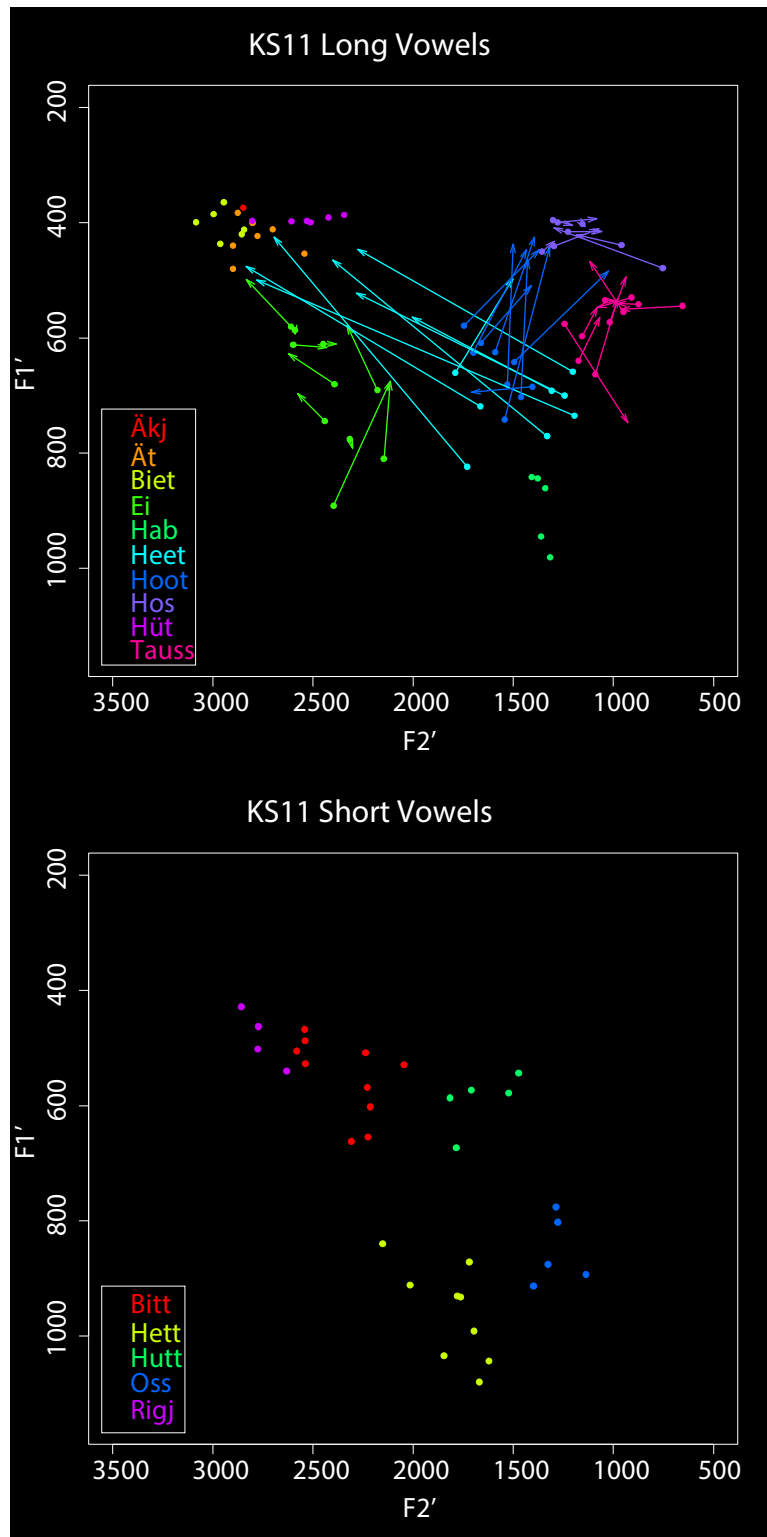
Table 4.34 KS10 Traditional Dialect Features

KS10 uses exclusively Chortitza forms.

4.3.11 KS11

Speaker KS11 is a Chortitza speaker from Northern Mexico. She can use a little bit of Spanish, but is

more comfortable with Low German and High German. She recognizes variation in pronunciation that is congregation specific. According to her, the Sommerfeld congregation pronounces words like *råde* 'to speak' differently by not using a final *-n*. According to her, the Sommerfeld also alter words like *tortilla* by changing it to *tortilli* (referred to as “shortening” by KS11). Figure 4.35 shows the normalized formant values of KS11 by vowel class.



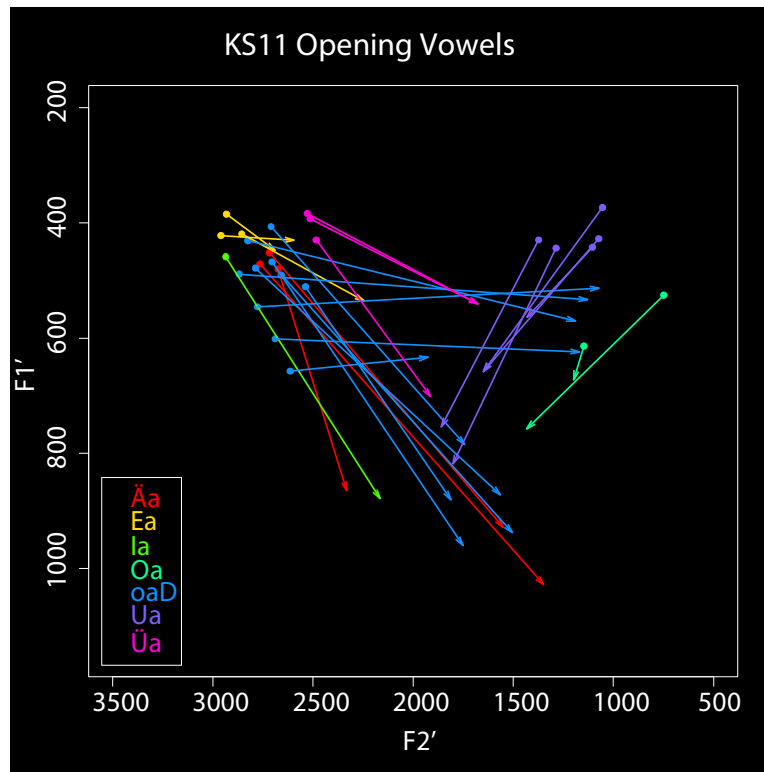


Figure 4.35 KS11 Normalized Vowels

KS11 has mostly monophthong reflexes of the TAUSS and EI classes. The HOS class is usually a high back vowel. The nucleus of the TAUSS class is in the process of rising. The nucleus of the HEET class is sometimes central, but it is moving back towards the space below the TAUSS class. The ÄKJ and the BIET class are merged. The HETT class is a low front vowel, and the OSS class is mostly in the space that was vacated by the TAUSS class. The RIGJ class has separated from the BITT class and is realized as a diphthong. The BITT class is beginning to fall, but there are some high allophones before voiceless palatal stops. The EA and IA classes are near merged. Differences in the F3 of ÄA class keep it separate from the EA and IA classes. The nucleus of the UA class has risen to the high back position. The Dialect OA class has two variants. The first variant is homophonous with the ÄA class. The other variant is an o-bound diphthong occurs before historically voiced velar segments.

Table 4.35 shows the traditional dialect features used by KS11.

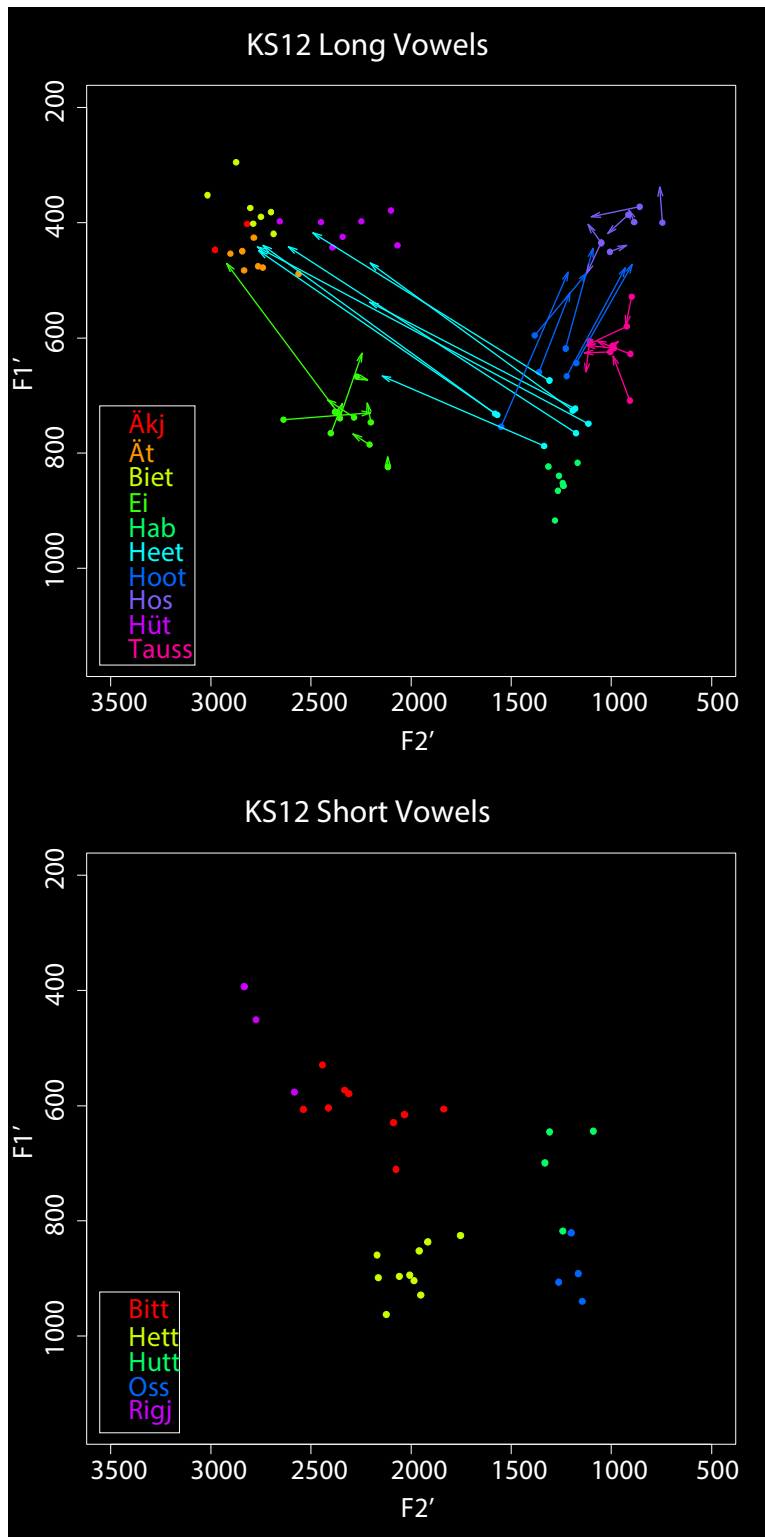
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	18	19
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	10	10

Table 4.35 KS11 Traditional Dialect Features

KS11 uses almost exclusively Chortitza forms with the exception of variation in the final *-n*.

4.3.12 KS12

Speaker KS12 is a Chortitza speaker from Northern Mexico. He can speak Low German, High German, Spanish, and some English. In his view, some people speak differently according to region, but he is not aware of anything that he would consider to be an accent. Figure 4.36 shows the normalized formant values of KS12 by vowel class.



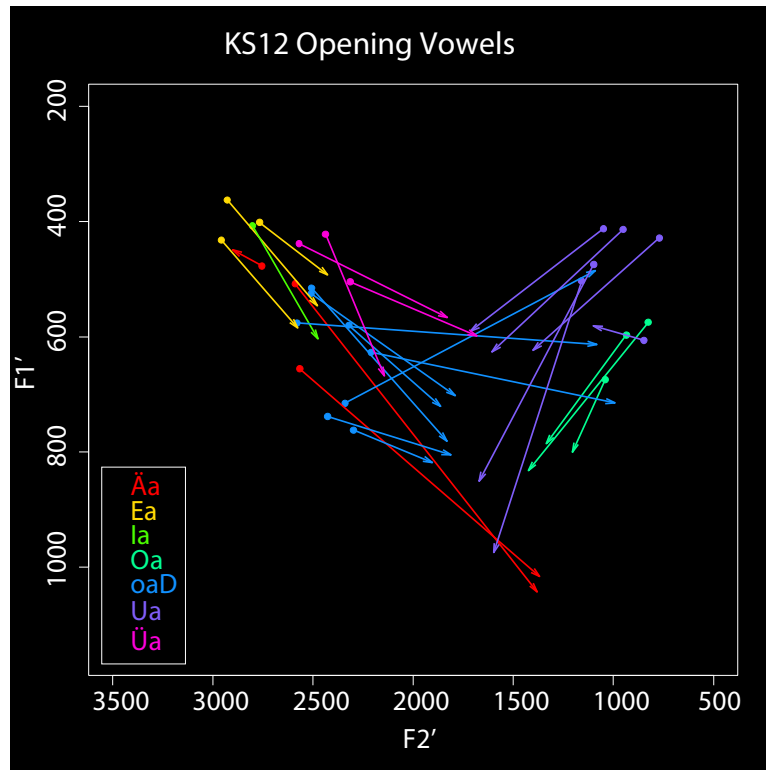


Figure 4.36 KS12 Normalized Vowels

KS12 uses monophthongs in the TAUSS class and mostly monophthong tokens in the EI class. The HOS class is a high back vowel. The ÄKJ and BIET classes are near merged. The nucleus of the HEET class is sometimes central, but is also lowering and pushing closer to the space of the HAB class. The BITT and RIGJ classes are mostly separate and the RIGJ class is usually produced as a diphthong. The HETT class is a low front vowel which is lower than the nucleus of the EI class. The EA and IA classes are merged. The ÄÄ class is in the process of rising, but it also has a monophthong allophone in the word *Wäakj* 'week'. The UA class is a high back vowel, but one word, *Wuat* 'word', has an F1 value like that of the OA class. The off-glide of the Dialect OA class is always opening, but there is an o-bound allophone which occurs before historically voiced velar segments.

Table 4.36 shows the traditional dialect features used by KS12.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	14	14
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	8	8

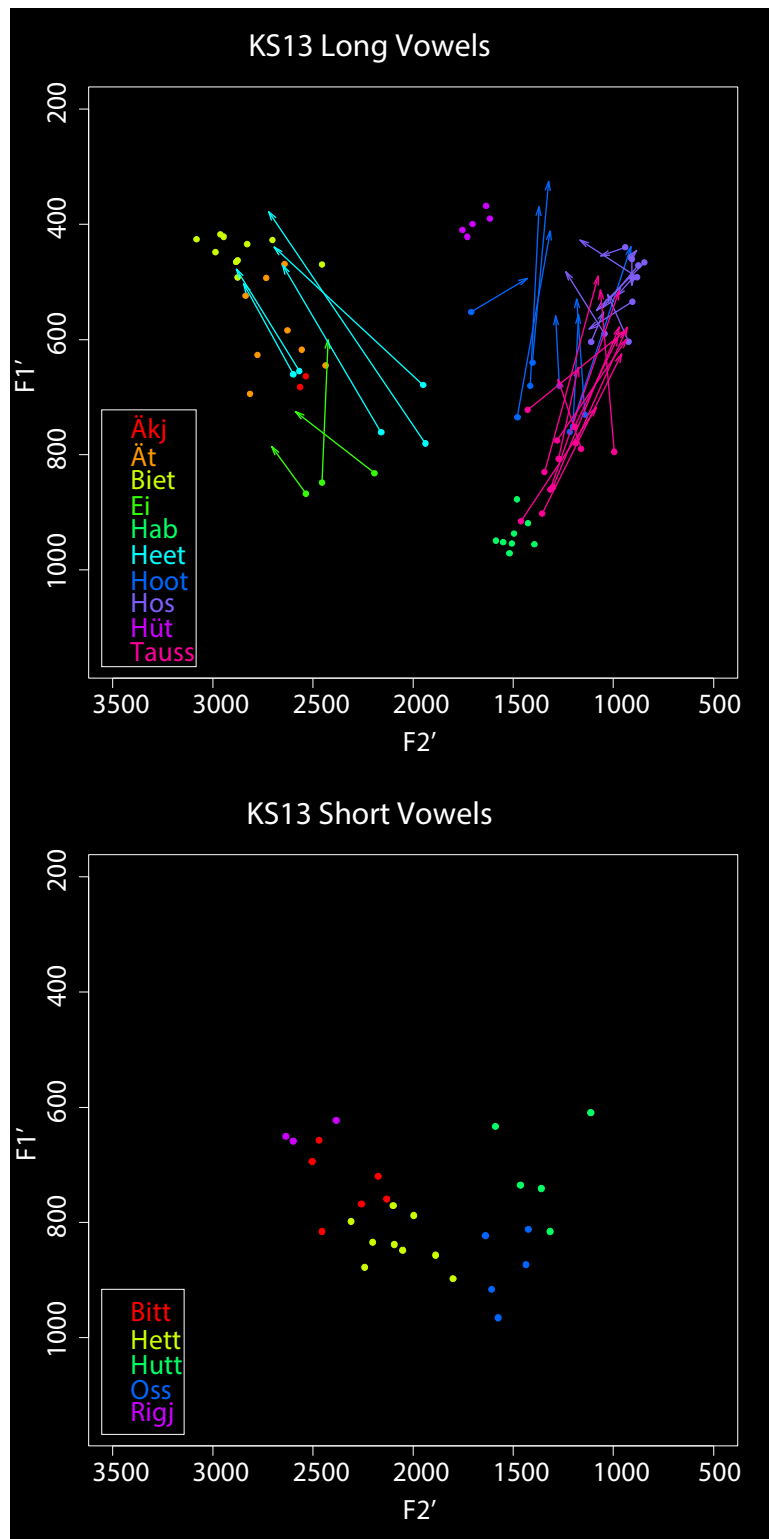
Table 4.36 KS12 Traditional Dialect Features

KS12 uses exclusively Chortitza values.

4.3.13 KS13

Speaker KS13 is a Molotschna speaker from central Kansas. She learned English at school and is also

fluent in High German. She has not noticed any variation in pronunciation. Figure 4.37 shows the normalized formant values of KS13.



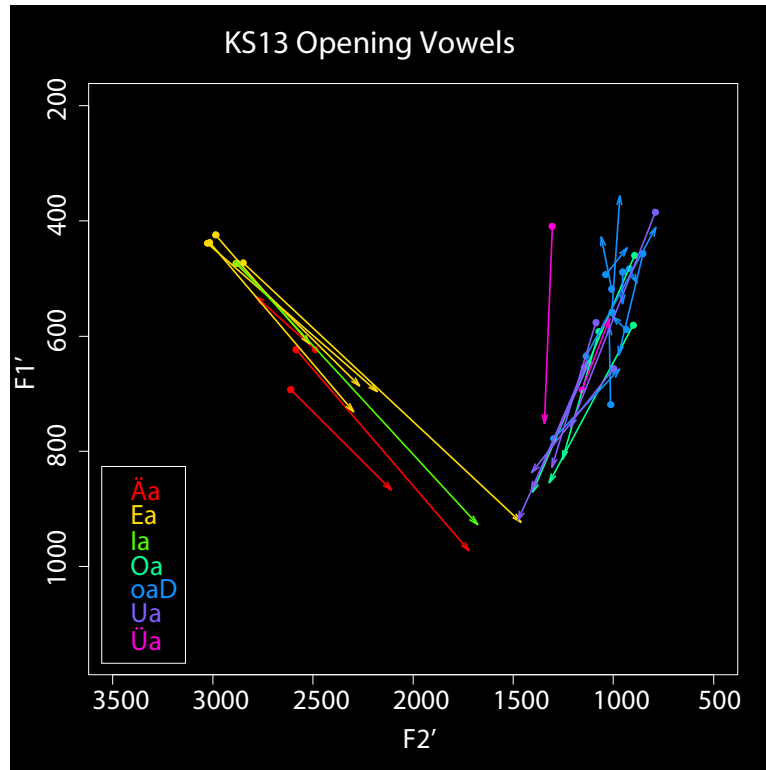


Figure 4.37 KS13 Normalized Vowels

KS13 has exclusively diphthong realizations of the EI and TAUSS classes. The ÄKJ class remains far apart from the BIET class. The HÜT class is a high central vowel. KS13 lacks a high back vowel. The HOS class is a mid-high vowel. The nucleus of the HEET class is sometimes front, but there is evidence that it is beginning to centralize. The nucleus of the TAUSS class shares some space with the HAB class. The high short vowels all tend to have a higher F1 than other speakers in her group. The BITT class has many mid tokens, and the HUTT class is beginning to encroach on the space of the OSS class. The HETT class is generally a mid-low vowel, but some of the tokens are centralized. The EA and IA classes have merged. The UA class has three members with an F1 closer to the OA class' F1 value: *Stua* 'store', *Flua* 'floor', and *wua* 'where'. The Dialect OA class differs from the OA class primarily in terms of the off-glide. Many tokens of the Dialect OA class are closing diphthongs, but the OA tokens are all a-bound opening diphthongs.

Table 4.37 shows the traditional dialect features used by KS13.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	29
WGmc * <i>aaw</i>	0	5
Dialect <i>oa</i>	0	10

Table 4.37 KS13 Traditional Dialect Features

KS13 uses almost exclusively Molotschna forms except for final *-n* in the word *foake* 'often'.

4.4 Summer Elicitation 2015 (California, Texas)

During the summer of 2015, one month was dedicated to research in West Texas and half a week was spent in central California. During these two trips, the second elicitation form was used with the picture naming task. The period spent recruiting and eliciting in California was much shorter than at other locations because prior to recruiting, I had presented work to native and heritage speakers about Low German. Recruitment in this area was fairly easy given people's familiarity with my research, but it was difficult to find speakers who still remember growing up with the language. Mennonite denominations in California are similar to those found in Central Kansas because majority of the community in California comes from central Kansas, Nebraska, and Oklahoma. Many of the people in California have gone through central Kansas at some point because of the faith based higher education system which exist there.

Recruitment in Texas took more time, but high turnout was facilitated by the openness of people in this community to share their culture and to learn about others. The religious groups present in Texas are the same as the groups present in Southwest Kansas and Southern Mexico, but some Canadian groups have also begun to exert influence in the area (e.g. Canadian Sommerfeld). There have been many splits within the Mennonite groups in the area, but my time spent in West Texas both during this field trip and one during winter of 2007 indicated that the only new congregations that gain traction are ones that are less conservative.⁴⁴ Nonetheless, there is still a steady population of people who attend the well established conservative congregations due to a steady influx of people from Latin America looking to do seasonal work.

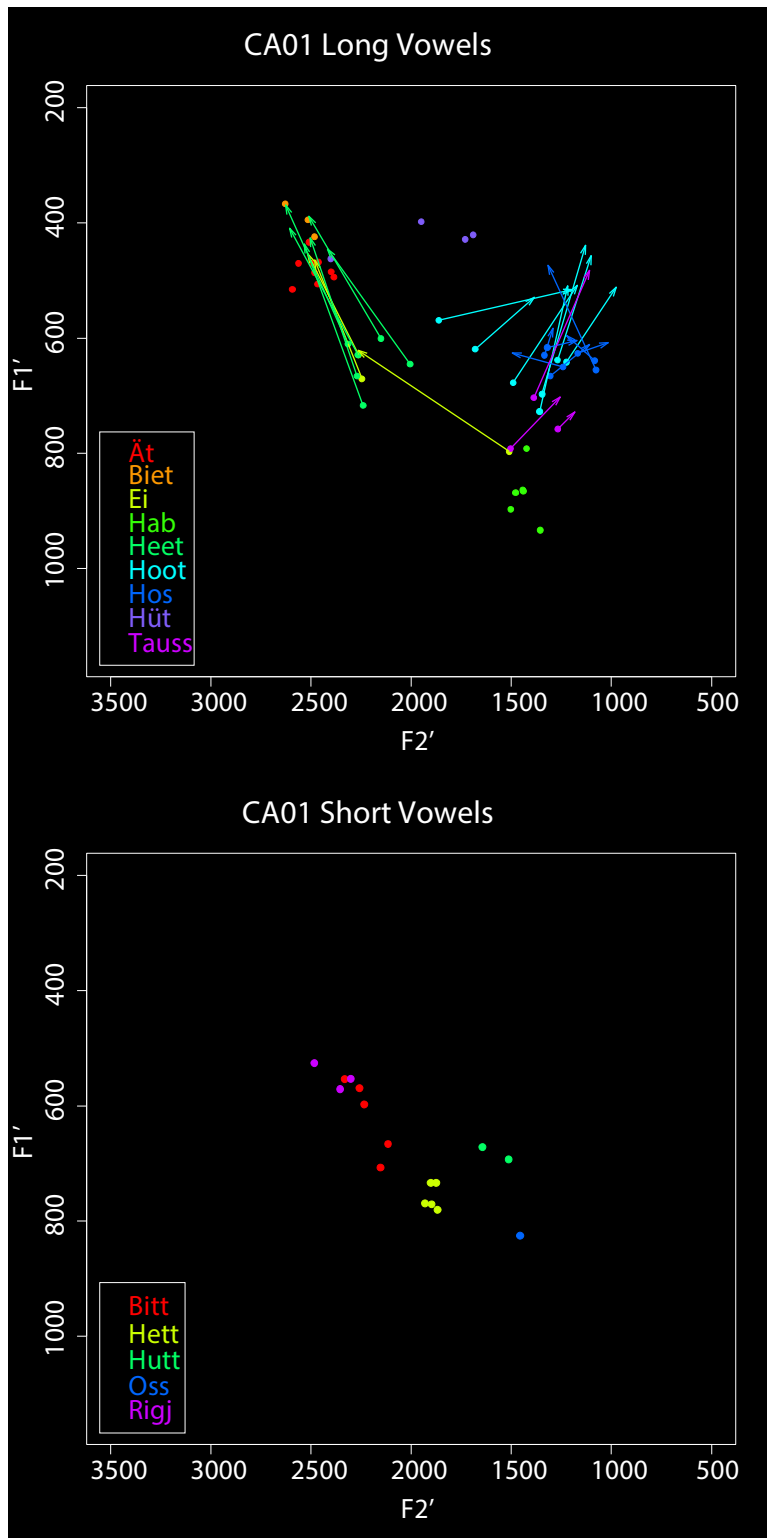
4.4.1 CA01

Speaker CA01 is a Molotschna speaker from Oklahoma. He is the 2nd generation in his family to be born in the US. He learned English at home, but he still learned both High German and Low German. He spoke Low German frequently in his youth but as an adult he speaks it infrequently. According to him, no one distinguished Chortitza vs Molotschna when he was growing up. He assumes that this might be because the vast majority of the people were Molotschna and Chortitza were a minority group.

Around World War II his family switched its linguistic behavior. Away from the house, his family would use English only, but they would still speak in Low German close to home. As he got older, he noticed a resurgence in the use of Low German.

He is aware of other Low German speaking groups and has been in contact with some of them. There is a group of Low German speakers from Mexico that now live in his hometown, but they had not entered Oklahoma while he still lived there. He has traveled to both Europe and Central Asia as an adult and encountered Mennonite Low German speakers in both Russia and Kazakhstan. He had no problems communicating with them in the Low German that he learned growing up. Figure 4.38 shows the normalized formant values of CA01 by vowel class.

⁴⁴ I was told in 2007 that one split involved a pastor who wanted the congregation to behave more conservatively. The pastor allegedly told members of the congregation that God could only understand Plautdietsch and Standard German, so they could not use any other language in church services. I was told this congregation did not last very long.



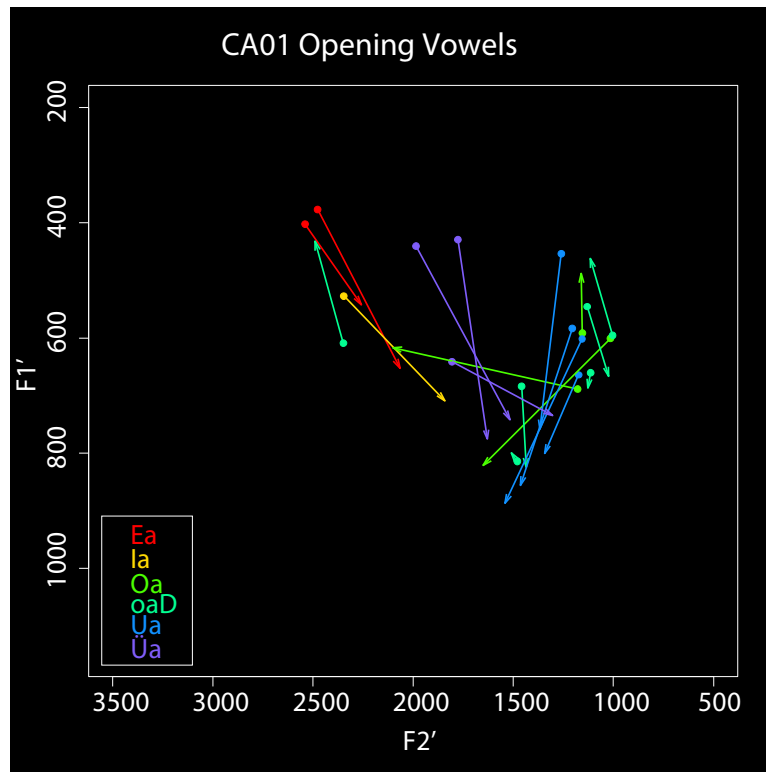


Figure 4.38 CA01 Normalized Vowels

CA01 has diphthong realizations of the EI class and some diphthong realizations of the TAUSS class. The EI class has a common variant found among speakers from Kansas who did not participate in the study, production of the EI nucleus with the HAB vowel. CA01 usually has a front nucleus in the HEET class, but some tokens are beginning to centralize. The HÜT class is a high central vowel. CA01 has some overlap between the HOS class and the HOOT class, but in general, the HOOT class is either more central, or lower. The position of the HÜT and HOS classes in the acoustic space helps highlight the lack of a high back vowel in the overall system. All of the short vowels tend to show some centralization except for the RIGJ class. The HETT class is a mid-low front vowel. CA01 does not appear to have a merged EA and IA class, but they are in fact merged. The historical EA class is produced with a lower F1 than the historical IA class. Many nuclei of the UA class have not risen and have a pronunciation closer to OA. The higher F1 is most evident in the word *wua* 'where', and less so in the words *Flua* 'floor' and *Stua* 'store'. The OA class is not always produced with a centralizing/opening diphthong. In the word *Boat* 'beard', there is a monophthong realization of the class, and in the word *Oabeid* 'work' there is an e-bound diphthong. Many of the Dialect OA tokens are monophthongs. There is even one Chortitza form from the word *Noagel* 'nail'. This might be due to English influence because although the English form and Chortitza form sound similar, the Chortitza form is usually an o-bound diphthong, not an i-bound diphthong (i.e. English [neɪ] vs Plautdietsch Chortitza [new]).

Table 4.38 shows the traditional dialect features used by CA01.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	4	13
WGmc * <i>aaw</i>	0	1
Dialect <i>oa</i>	1	6

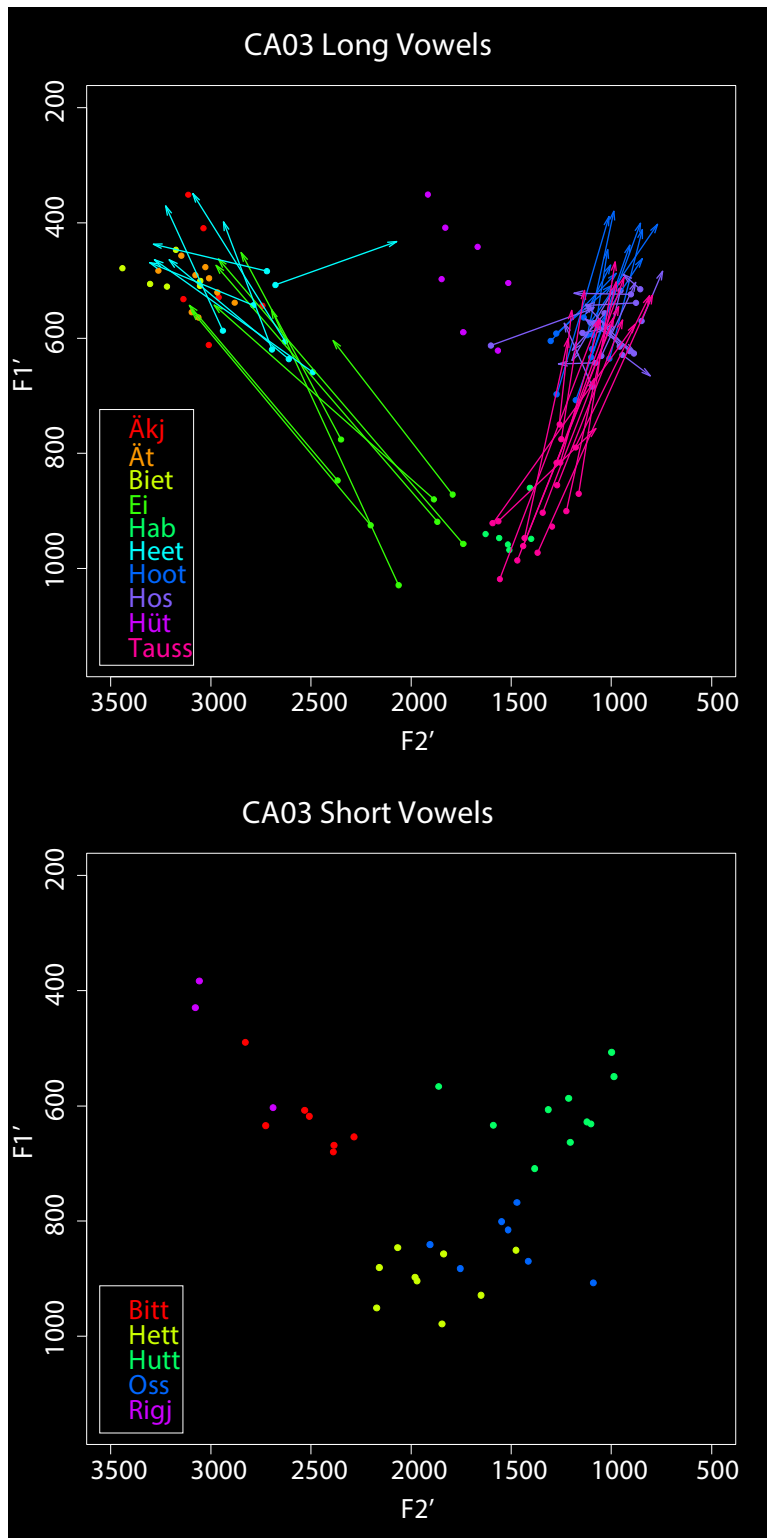
Table 4.38 CA01 Traditional Dialect Features

CA01 used several Chortitza forms of final *-n* and one front variant of Dialect OA. The final *-n* form did not match any of the frequently Chortitza forms for other speakers.

4.4.2 CA03

Speaker CA03 is a Molotschna speaker from Central Kansas. She spoke Plautdietsch frequently in her youth and with her husband until his death. She recognizes two dialects: Chortitza vs Molotschna. Chortitza is characterized by the use of final *-n* and Molotschna use final *-ə*. She recognizes variation in the pronunciations of the word 'blue', but does not seem to equate this with Chortitza vs Molotschna. She views the Mexican Old Colony as having a particularly strong accent.

CA03 has clear memories of Mexican Plautdietsch speakers who entered California in a time which she placed as around 1980s, but she couldn't remember the exact years. The community from Mexico used her congregation's church as a meeting place when they first arrived because they didn't have their own worship space. She eventually befriended one of the members of this group and helped with childcare (e.g., setting up doctor's appointments which needed to be done in English). She recalls that the group vanished suddenly and she was not able to maintain contact because of their abrupt departure. She assumed that they must have moved to Steinbach, MB, but is not sure.



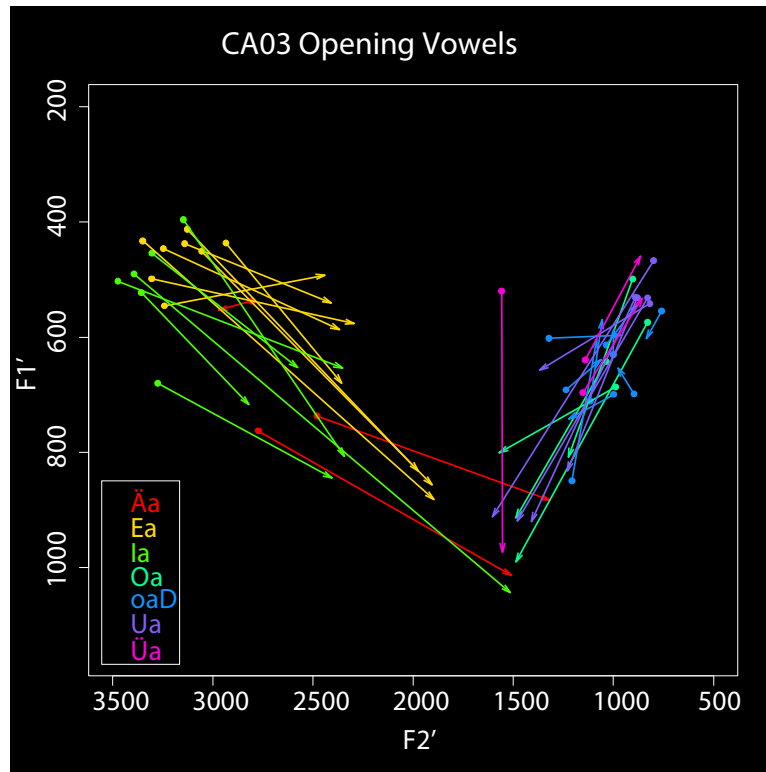


Figure 4.39 CA03 Normalized Vowels

CA03 has only diphthong realizations of the EI and TAUSS classes. The nuclei of these two classes come close to the HAB class. She lacks a true high back vowel in her vowel space. The HOS and HOOT classes are both mid-high vowels, but the HOOT class tends to have a lower nucleus than the HOS class. The Hoot class is also slightly more centralized than the HOS class except for in the word *aunfote* 'to grab onto' where there is a fronted allophone. The HOOT class is always an u-bound closing diphthong whereas the HOS class only sometimes exhibits this characteristic. The ÄKJ and BIET classes sometimes overlap, but she still has the conservative pronunciation of the ÄKJ class that matches the ÄT class. The HÜT class is a high central vowel. CA03 exhibits some centralization in the HETT class, but for the most part, this vowel class is front. The BITT class has not begun to fall in her speech. The EA and IA classes are merging. There are two tokens of the EA class which exhibits the conservative pronunciation described by Herman Rempel. The words *beleare* 'to teach' and *Peat* 'horse' both have a lower F2 and F3 than most other members of the EA and IA classes. In some cases, the ÜA class exhibits closing diphthongs in the words *Rüak* 'smoke' and *Büak* 'book'. Many of the tokens of the Dialect OA class are monophthongs. The nuclei of the OA and UA classes have significant overlap, but the OA class still has tokens which begin at the mid-low position.

Table 4.39 shows the traditional dialect features used by CA03.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	45
WGmc * <i>aaw</i>	0	9
Dialect <i>oa</i>	0	10

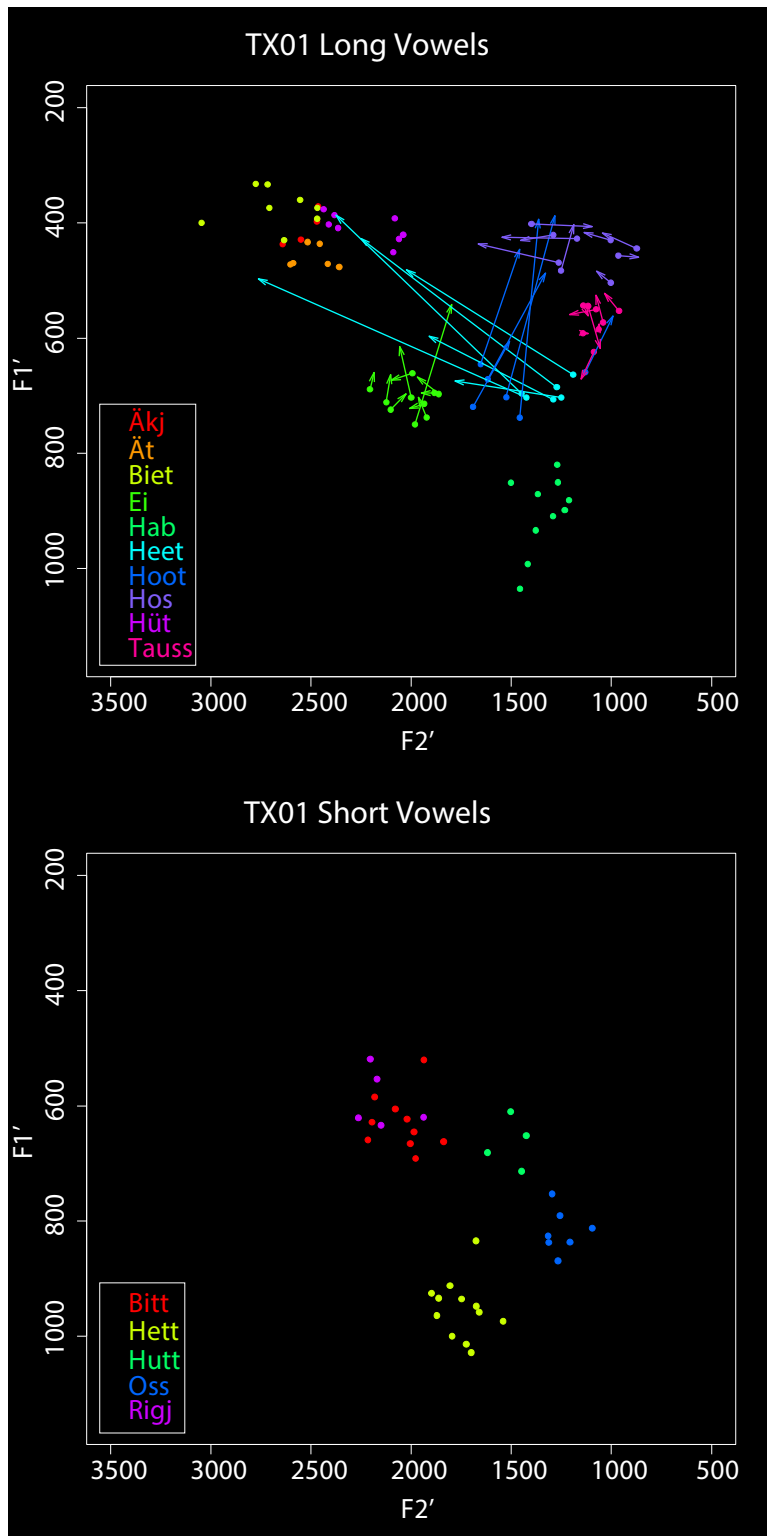
Table 4.39 CA03 Traditional Dialect Features

CA03 was very conscious that she did not know some of the dialect forms of WGmc **aaw*. At one point during the interview she said she never knew whether to use the front or back variant because she grew up around both. She was also very conscious of the fact that she used a final *-n* in the word *foake* 'often'. She said that there was some implied movement which is why this word was different than other words with final *-n* variation.

4.4.3 TX01

Speaker TX01 is a Chortitza speaker from Bolivia. He grew up with Low German and High German and is fluent in Spanish. He learned to speak English when he moved to the US and started working.

He recognizes many variations in speech, some of which are congregation specific and others which are age specific. Use of final *-ə* instead of final *-n* in words like *rāde* 'to speak' is a trait that he associates with the Sommerfeld congregation (a practice called *kort Rāden* 'short speech' by TX01). Additionally, there is some variation in pronunciations of words like *Noagel* 'nail'. He reported that almost all younger speakers in Bolivia use the pronunciation [nɛwl], but he remembers that some older speakers used to say [no^ɐɣl]. Another difference that he has noticed is lexical in nature. Older Bolivian speakers tend to say the number 1½ as *aunderthaulf* 'the other half' but younger speakers says *eenenhaulf* 'one and half'. Figure 4.40 shows the normalized formant values for TX01 by vowel class.



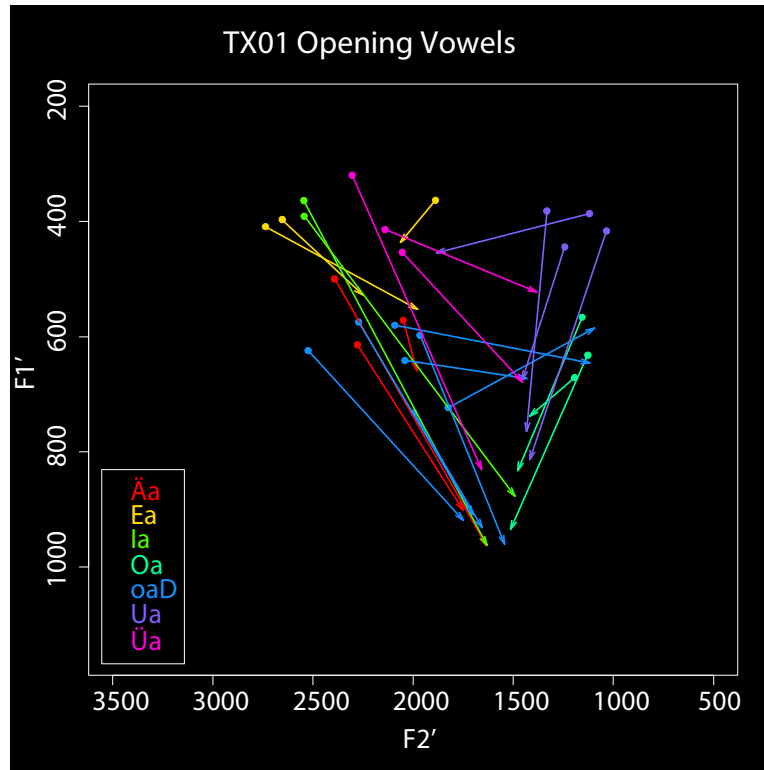


Figure 4.40 TX01 Normalized Vowels

TX01 uses a monophthong realization of the TAUSS class and almost always has a monophthong realization of the EI class. The TAUSS class has risen to a mid back position while the EI class is still a mid-low front vowel. The HOS class is nearing the high back position. The ÄT and BIET classes have significant overlap but are differentiated by F3. The ÄKJ class has partially merged with the BIET class. The nuclei of the HOOT and HEET classes are mostly central, but there are some back realizations of the HEET class. There is one back realization of the HOOT class in the word *toop* 'together'. The HETT class is in the process of centralizing. The BITT and RIGJ classes have not split. The EA and IA classes are merged. The nucleus of the UA class is now a high back vowel. The nuclei of the ÄA and OA classes are in the process of rising. The Dialect OA class has an o-bound allophone before historically voiced velar segments.

Table 4.40 shows the traditional dialect features used by TX01.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	20	20
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	7	7

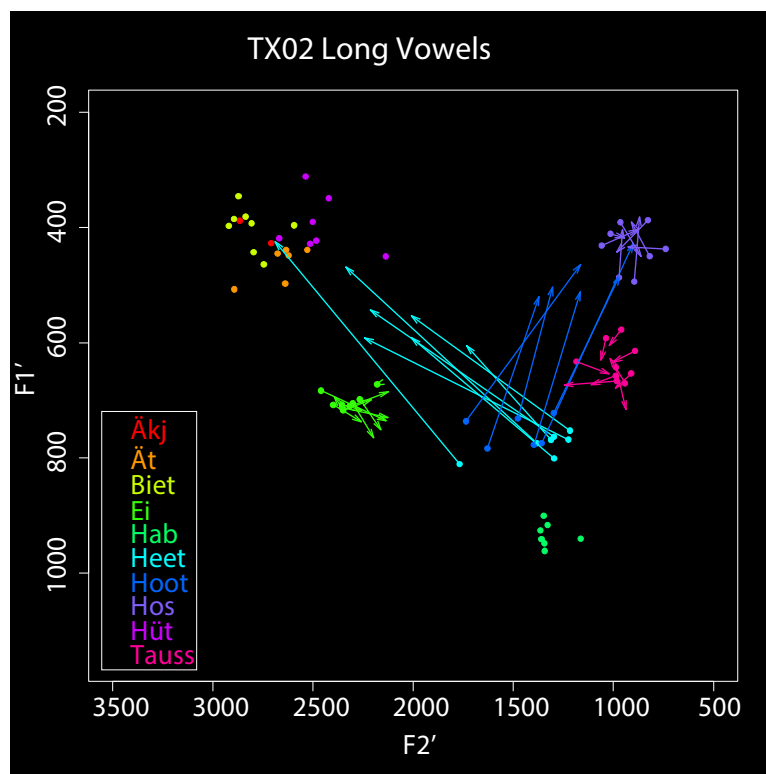
Table 4.40 TX01 Traditional Dialect Features

TX01 uses only Chortitza features.

4.4.4 TX02

Speaker TX02 is a Chortitza speaker from Northern Mexico who grew up in Texas. Her family was one of the first families to enter Texas from Mexico in the 1970s. Growing up she learned Low German at home and High German in school, but like most women in her community, she did not learn Spanish.

She recognizes several variations in pronunciation which she associates with the Sommerfeld congregation. In words like *moake* 'to make' and *koake* 'to cook', the Sommerfeld differ in three ways: the stressed vowel is [o^v] instead of a front vowels, the final segment is $-\partial$ instead of $-n$, and the medial [k] is more “pronounced” (i.e., it is still velar and has not debuccalized).⁴⁵ They often pronounce the word *Doag* 'days' as [dɔ^vg] and *blau* 'blue' as [blɔ:]. The Sommerfeld accent is more reminiscent of a High German accent to her. In words like *Abraham*, the Sommerfeld use a vowel closer to the Standard German *a* instead the Old Colony *au*. Figure 4.41 shows the normalized formant values of TX02 by vowel class.



⁴⁵ Many of the Chortitza speakers that I worked with gottalized word medial *k*.

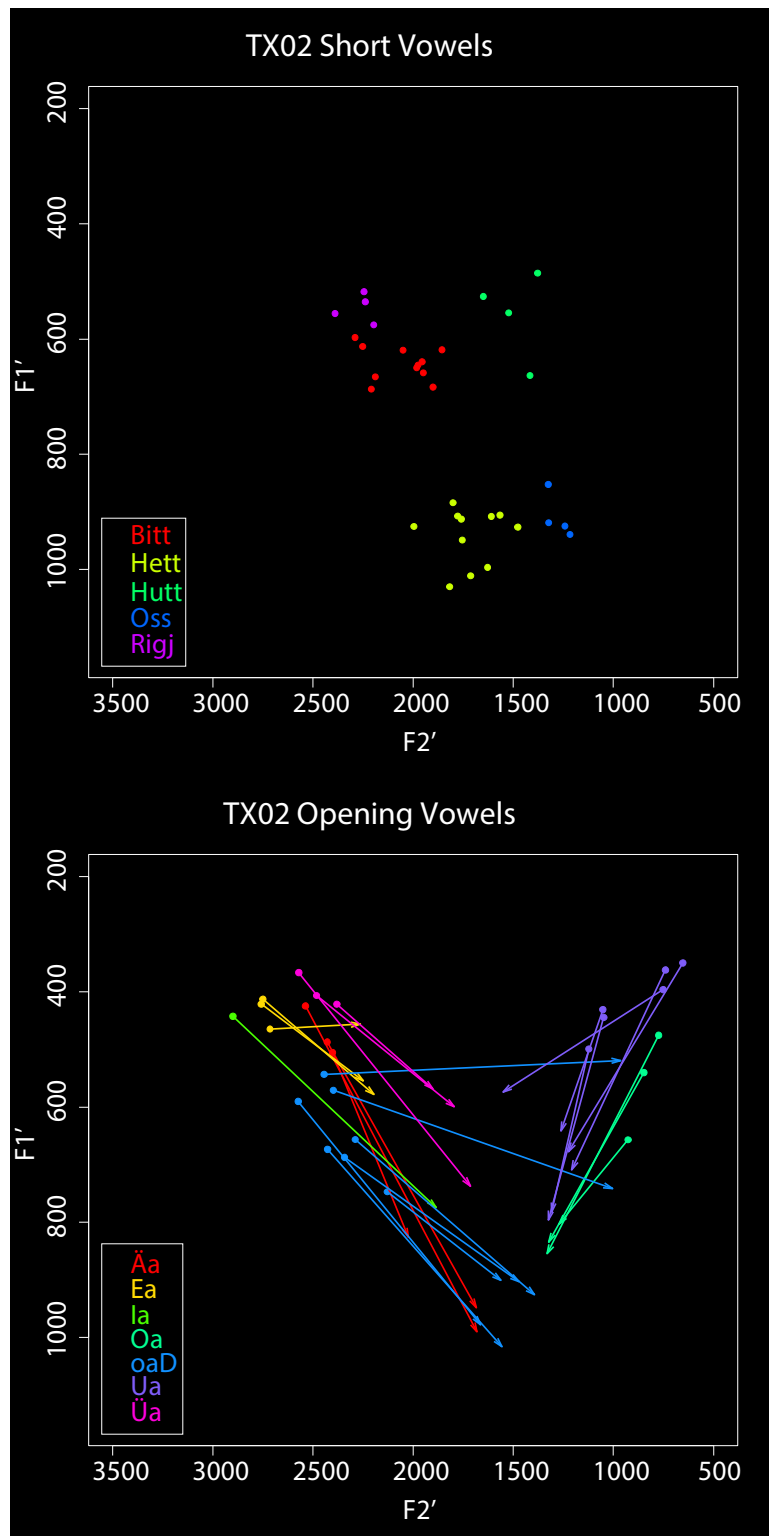


Figure 4.41 TX02 Normalized Vowels

TX02 has only monophthong tokens in the EI and TAUSS classes. The HOS class is nearing a high back vowel (see the UA class for comparison). The ÄKJ and BIET classes are merged. The nucleus of the HEET class has mostly centralized, but it has also begun to lower and push to the back of the vowel

space. The BITT and HETT classes maintain separate regions of the acoustic space. The HETT class is a low front vowel which is in the process of centralizing. The EA and IA classes have merged. The nucleus of the ÄA class has risen to a high front position, but is differentiated from the other classes by F3. The nucleus of the UA class has risen to a high back position. The nucleus of the OA class is in the process of rising. The Dialect OA class has o-bound allophones before historically voiced velar segments.

Table 4.41 shows the traditional dialect features used by TX02.

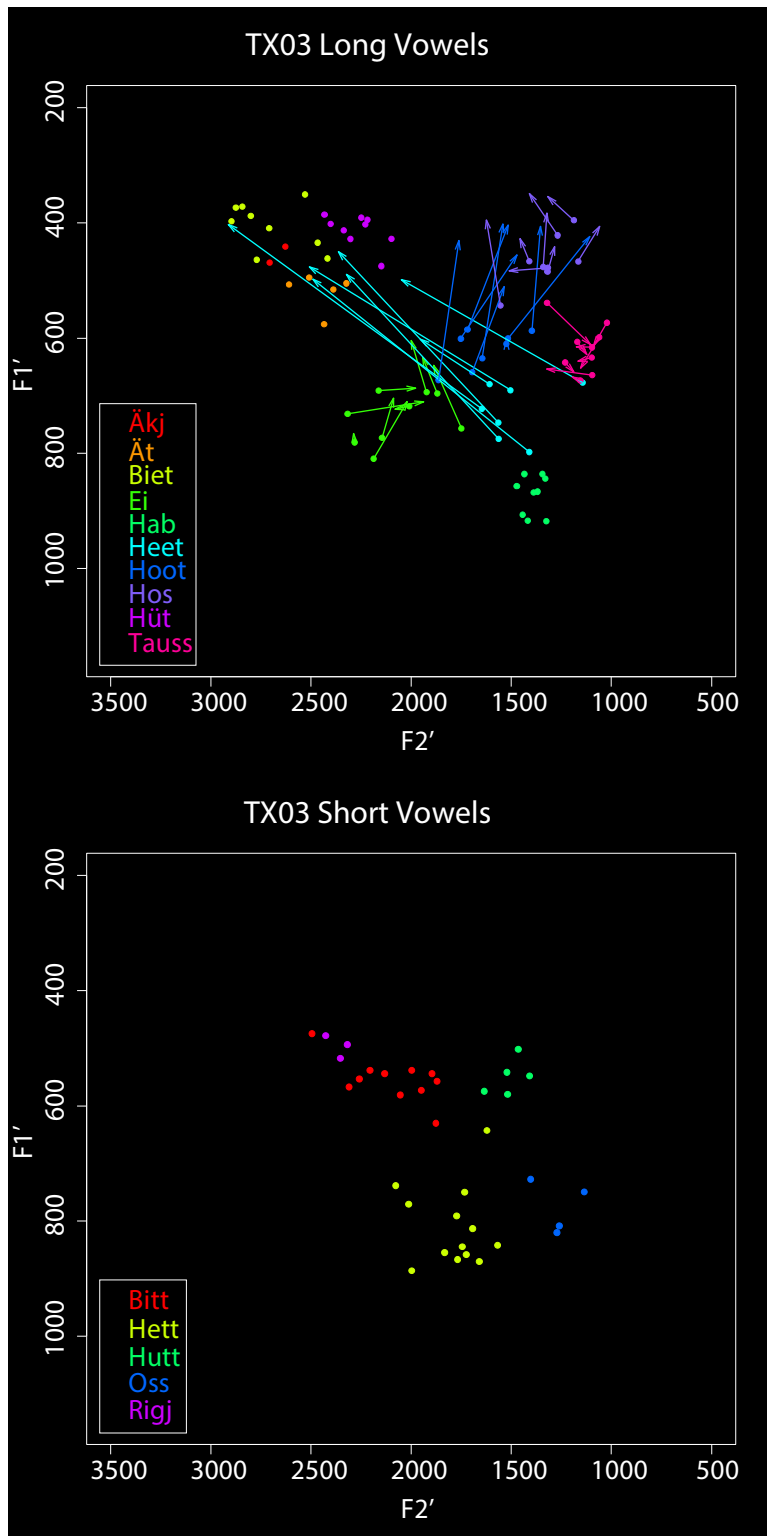
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	12	12
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.41 TX02 Traditional Dialect Features

TX02 uses exclusively Chortitza forms.

4.4.5 TX03

Speaker TX03 is a Chortitza speaker from Texas whose family is from Northern Mexico. He learned English around age 6 from reading comic books and subsequently learned to read Standard German in school. He recognizes two ways of speaking that he believes are congregation specific. According to him, the Old Colony uses *-n* at the ends of words, *er* as the stressed vowel in words like *koake* 'to cook', and *eiw* in words like *bleiw* 'blue'. The Sommerfeld use final *-e*, *oa* as the stressed vowel in words like *koake* 'to cook', and *au* in words like *blau* 'blue'. Figure 4.42 shows the normalized formant values of TX03 by vowel class.



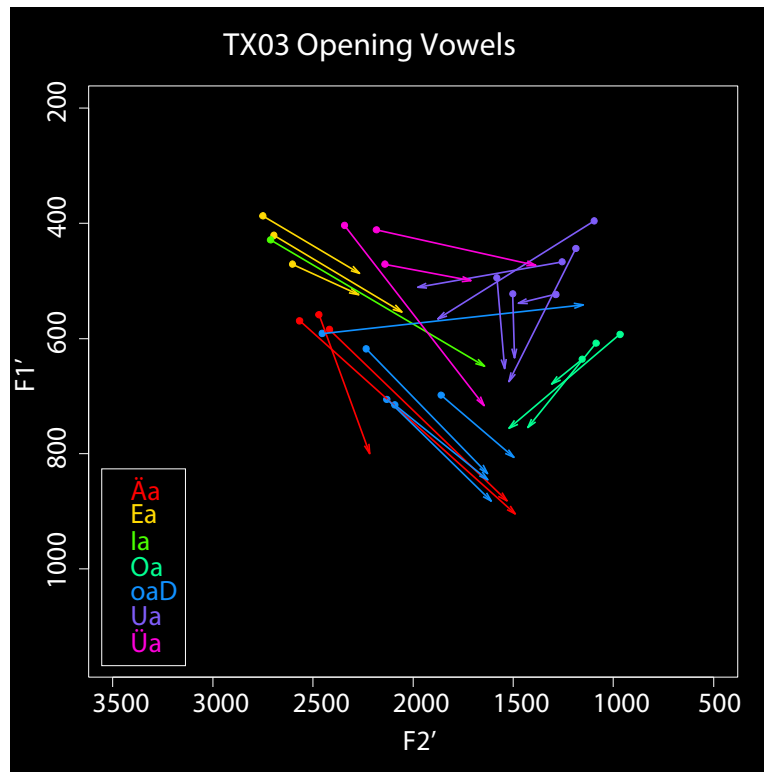


Figure 4.42 TX03 Normalized Vowels

TX03 uses only monophthong tokens in the EI and TAUSS classes. The HOS class is a high back vowel. The ÄKJ and BIET classes are near merged. The nucleus of the HOOT class is a central vowel. The nucleus of the HEET class is also centralized, but has begun to lower and in some cases move back. The HETT class is a low front vowel and the BITT class has not started lowering. One member of the HETT class is heavily centralized. The EA and IA classes are merged. The nucleus of the UA class is sometimes a high back vowel, but also shows some centralization. The Dialect OA class has an o-bound allophone before historically voiced velar segments.

Table 4.42 shows the traditional dialect features used by TX03.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	19	19
WGmc * <i>aaw</i>	5	5
Dialect <i>oa</i>	8	8

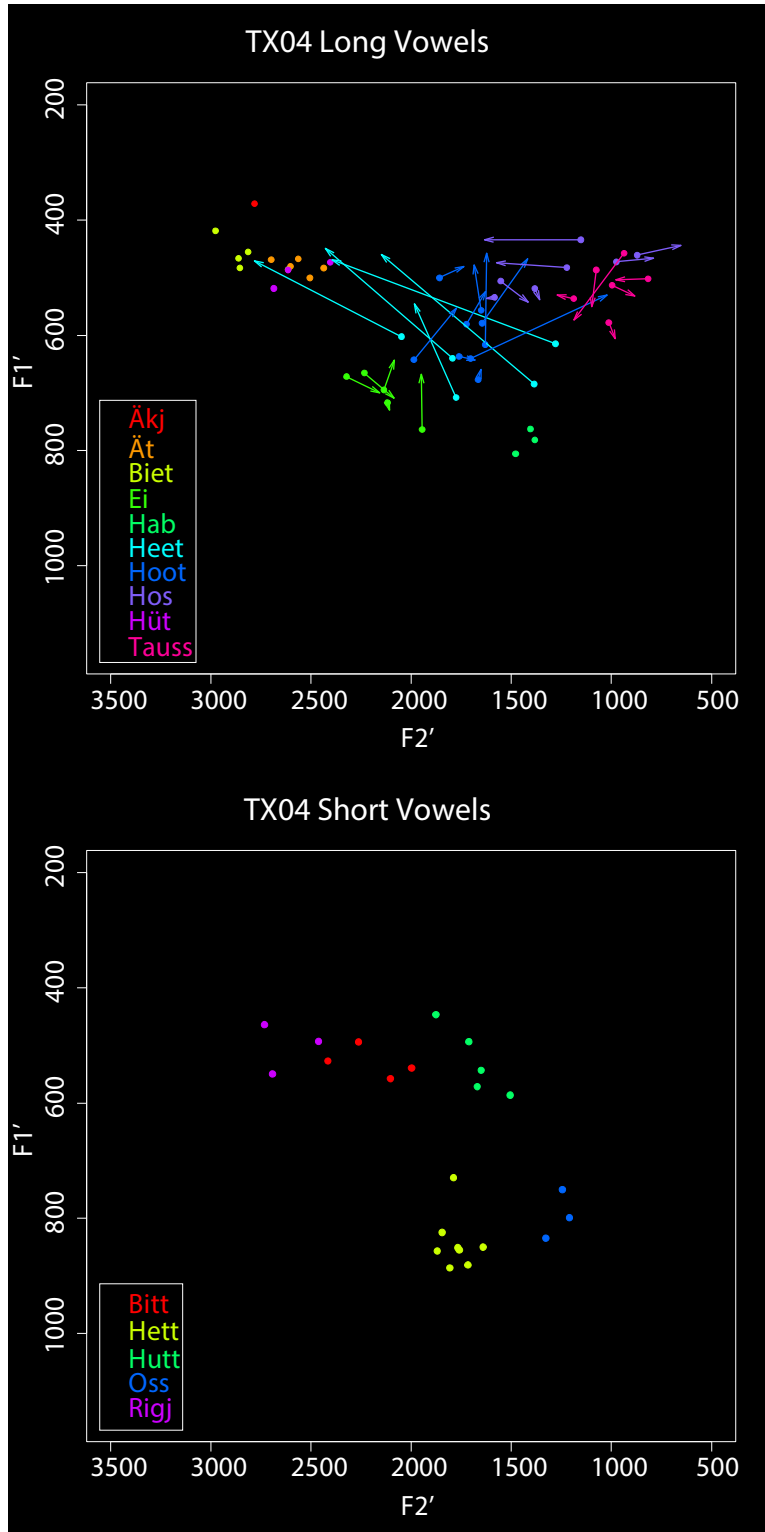
Table 4.42 TX03 Traditional Dialect Features

TX03 uses exclusively Chortitza features.

4.4.6 TX04

Speaker TX04 is a Chortitza speaker from Texas whose family is from Northern Mexico. She learned English at a young age from her siblings, but did not learn High German. She only speaks in Low German at home.

She recognizes variation in pronunciation in words like *foare* 'to drive'. She normally says [fo^v.m], but others say [fo^vrə]. She views the [fo^vrə] variant to be specific to the Sommerfeld congregation. Figure 4.43 shows the normalized formant values of TX04 by vowel class.



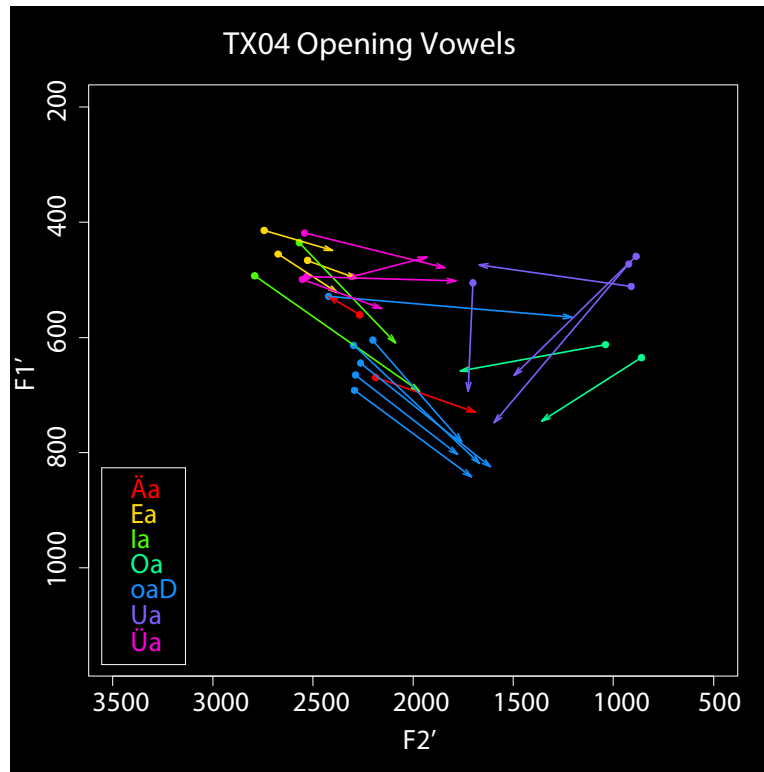


Figure 4.43 TX04 Normalized Vowels

TX04 has only monophthong realizations of the EI and TAUSS classes. The TAUSS class is a mid-high back vowel and is encroaching on the space of the HOS class. The HOS class is usually a high back vowel, but in some contexts, it is centralized (usually before alveolar plosives). The nucleus of the HOOT class is central. The nuclei of the HEET class are usually central, but there are some tokens exhibit a high F2. The BIET and ÄKJ classes are merged. The RIGJ class is beginning to separate from the BITT class and is sometimes pronounced as a diphthong. The HETT class is a low front vowel. The EA and IA classes are merged. The nucleus of the UA class is usually a high back vowel, but sometimes it is central. The ÄA class has a high allophone before palatals like in the word *Wäakj* 'week'. The Dialect OA class has an o-bound allophone before historically voiced velar segments.

Table 4.43 shows the traditional dialect features used by TX04.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	24	24
WGmc <i>*aaw</i>	3	3
Dialect <i>oa</i>	8	8

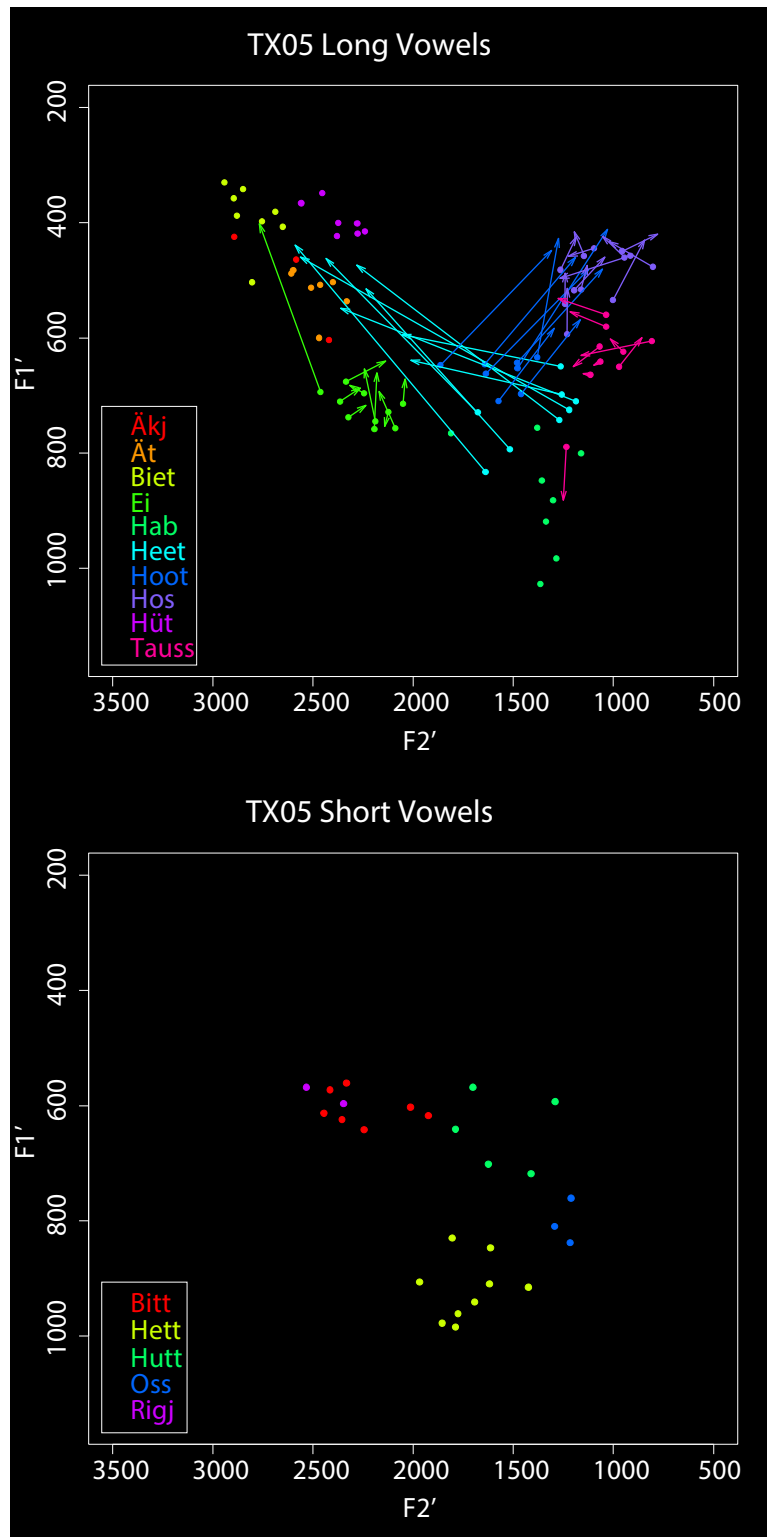
Table 4.43 TX04 Traditional Dialect Features

TX04 uses exclusively Chortitza forms.

4.4.7 TX05

Speaker TX05 is a Chortitza speaker from Northern Mexico. When he was younger, he only spoke Low

German, but now that he lives in the US he mostly speaks English. He knows some Spanish. He recognizes two ways of speaking. According to him, one way of speaking is associated with the Sommerfeld congregation, and the other is used by everyone else. The variation concerns the use of the vowel <oa> and the final ending on some words. The Sommerfeld also have some lexical differences. Figure 4.44 shows the normalized formants of TX05 by vowel class.



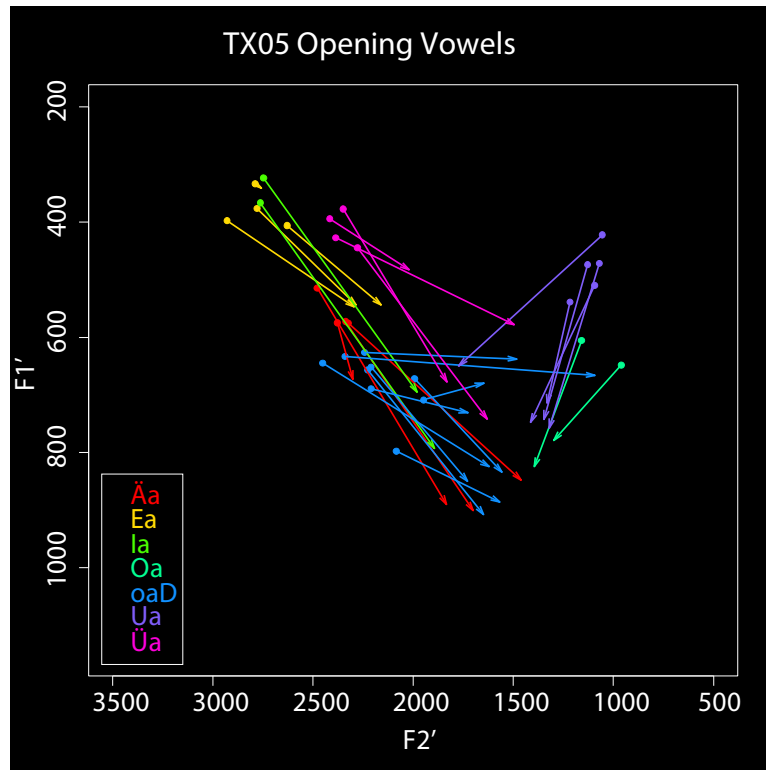


Figure 4.44 TX05 Normalized Vowels

TX05 uses mostly monophthong realizations of the EI and TAUSS classes. The BIET and ÄKJ classes are mostly merged, but there are still some tokens of the ÄKJ class which are between the ÄT and BIET classes. The HOS class is nearing the position of a high back vowel. The nucleus of the HOOT class is a central vowel. The nucleus of the HEET class has centralized but is in the process of moving back and lowering. The BITT and RIGJ classes haven't fully separated. The HETT class is a low front vowel. The EA and IA classes have merged. The nucleus of the UA class is moving to the position of a high back vowel. The nucleus of the ÄA class has risen from the mid-low position, but the nucleus of the OA class has not. The Dialect OA class has an o-bound allophone before historically voiced velar segments.

Table 4.44 shows the traditional dialect features used by TX05.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	36	36
WGmc <i>*aaw</i>	6	6
Dialect <i>oa</i>	10	10

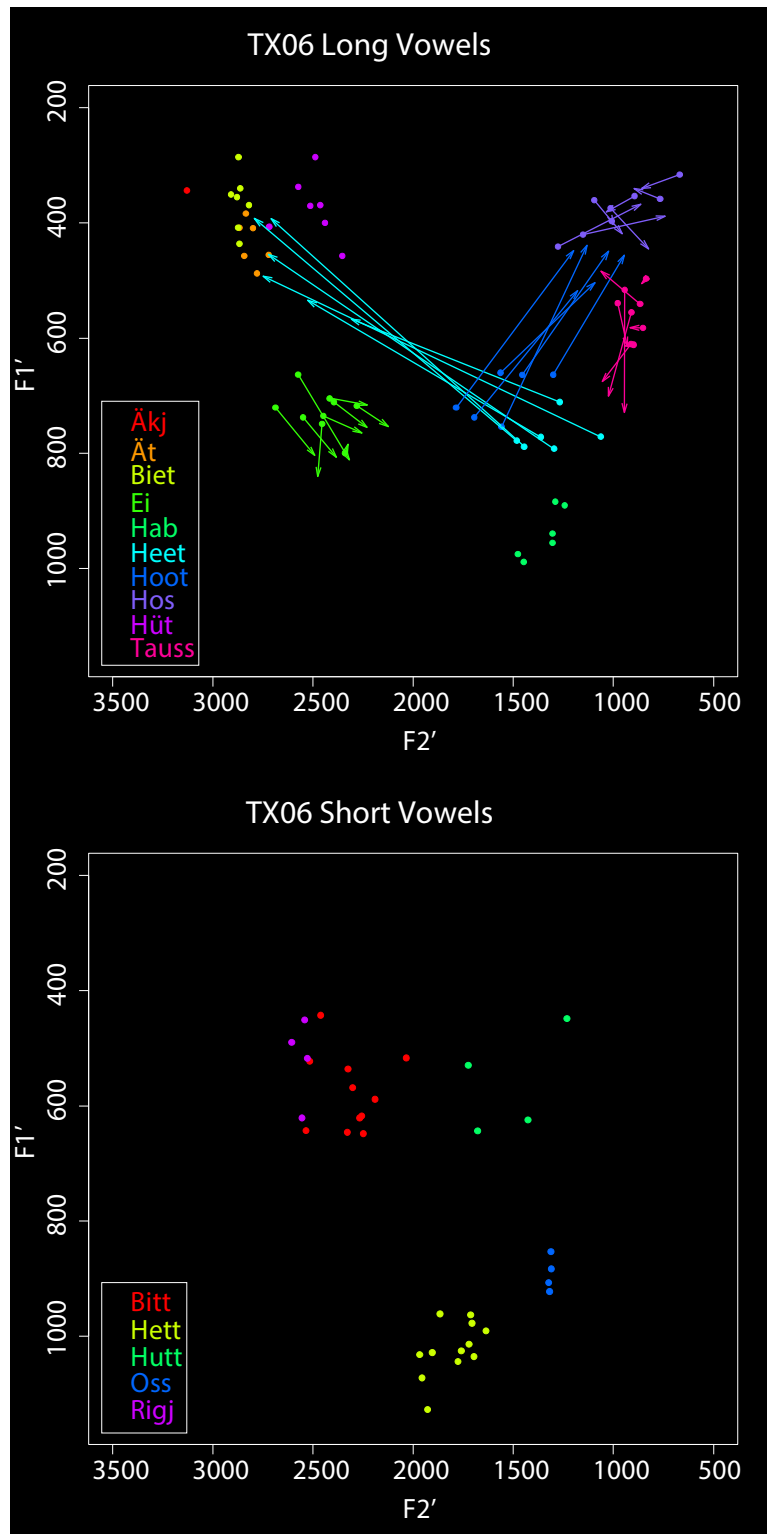
Table 4.44 TX05 Traditional Dialect Features

TX05 uses exclusively Chortitza forms.

4.4.8 TX06

Speaker TX06 is a Chortitza speaker who grew up in Central Canada and Texas. Her family is from Northern Mexico and she is a member of the *Rückwanderung* group. She learned Low German at home

and in school, but all of her books were in High German. She recognizes two speech patterns, both of which are associated with congregations: Sommerfeld and Old Colony. Speaking like a member of one congregation or the other depends on whether or not a speaker uses an *-n* at the end of certain words.



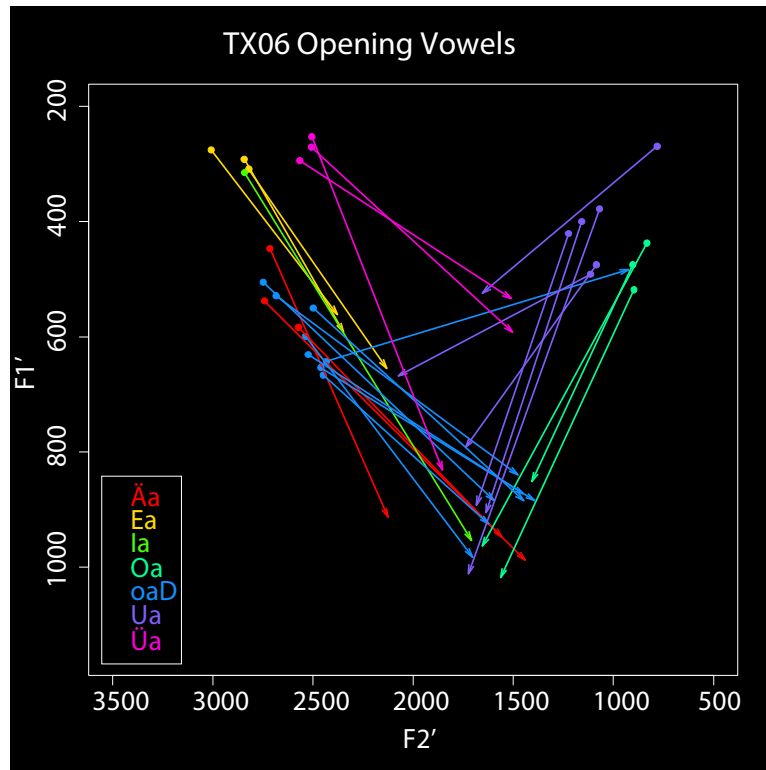


Figure 4.45 TX06 Normalized Vowels

TX06 uses almost exclusively monophthong tokens in the EI and TAUSS classes. The nucleus of the TAUSS class is visibly in the process of rising. The HOS class is a high back vowel. The nucleus of the HEET class is moving to the mid-low back position. The ÄKJ and BIET classes are merged. The HAB class of TX06 is similar to the HAB class of SF07, it is moving to the low back position. The HETT class is a low central vowel. The BITT class has not begun to lower. The EA and IA classes are merged. The nucleus of the UA class is in the process of rising. Tokens of the UA class which haven't risen are differentiated from the OA class by a higher F2. The Dialect OA class has an u-bound allophone before historically voiced velar segments.

Table 4.45 shows the traditional dialect features used by TX06.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	15	15
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.45 TX06 Traditional Dialect Features

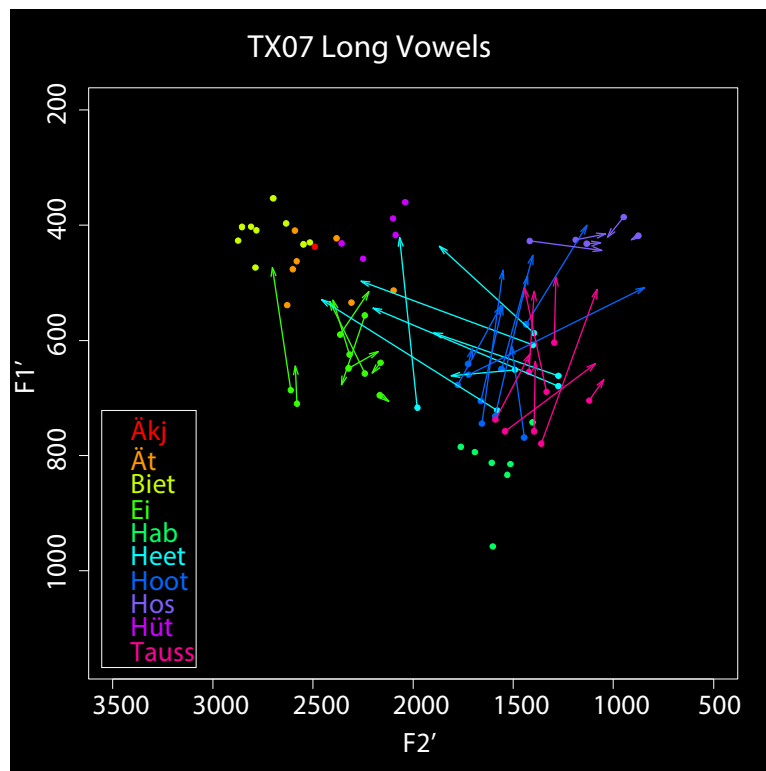
TX06 uses exclusively Chortitza forms.

4.4.9 TX07

Speaker TX07 is a Chortitza speaker from North Rhine-Westphalia. She learned High German at home and in school. She recalls that she must have picked up Low German from her grandparents, who

were from Russia. The older generation around her spoke Russian in addition to High German and Low German. The older generation has vivid memories of life during the *trudarmija* 'labor army' period of Russian settlement (see Nieuweboert 1998:6 for more discussion on this topic).

The variation in pronunciation recognized by TX07 is exhibited by different relatives of hers. In the verb *moake* 'to make', there is variation between use of either a front vowel or a back vowel, but both of her parents used the final *-n*. There is also variation in the word *Kjäkjel* 'chick' between use of the vowel [i:] and [e:] and she reports using both. Figure 4.46 shows the normalized formant values of TX07 by vowel class.



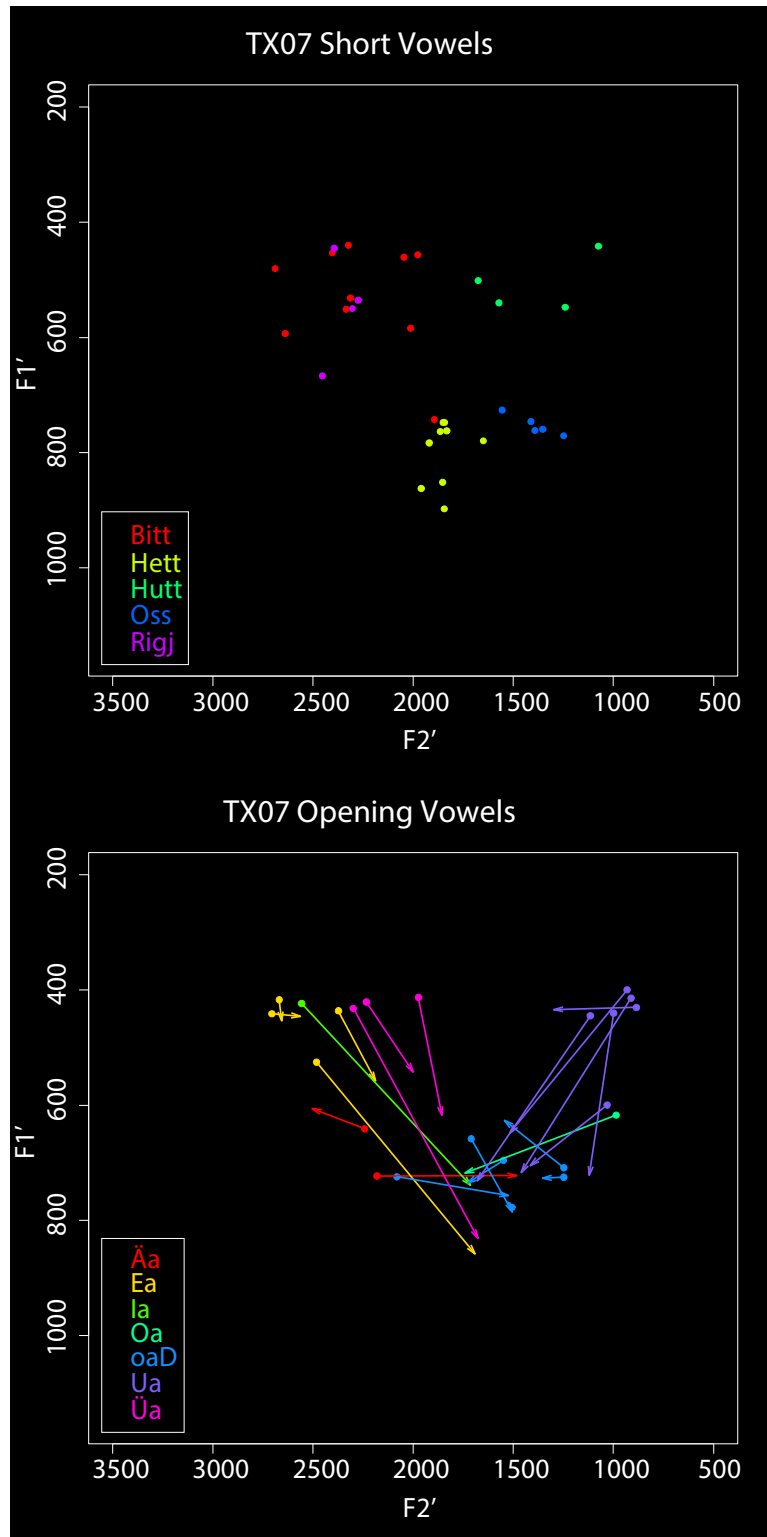


Figure 4.46 TX07 Normalized Vowels

TX07 has both diphthong and monophthong tokens in the E1 and TAUSS classes. The HOS class is a high back vowel. The nucleus of the HEET class is sometimes central but it usually exhibits low F2. The only token of the ÄKJ class that she produced during the interview is a member of the ÄT class, but she did

say that she uses both the ÄT and BIET realization of the ÄKJ class in the word *Kjäkjel* 'chick'. The nucleus of the HOOT class appears to be in the process of falling towards the HAB class. The BITT class mostly maintains a separate space from the HETT class except for in the word *Blits* 'lightening' where it is a low vowel. The RIGJ class has not separated from the BITT class. The EA and IA classes are merged. The UA class is a high back vowel. The nuclei of the OA and ÄA classes are still mid-low vowels with the exception of the mid-high allophone of ÄA in the word *Wäakj* 'week'. The Dialect OA classes exhibit a mixture of both front and back nuclei.

Table 4.46 shows the traditional dialect features used by TX07.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	18	19
WGmc * <i>aaw</i>	4	4
Dialect <i>oa</i>	5	8

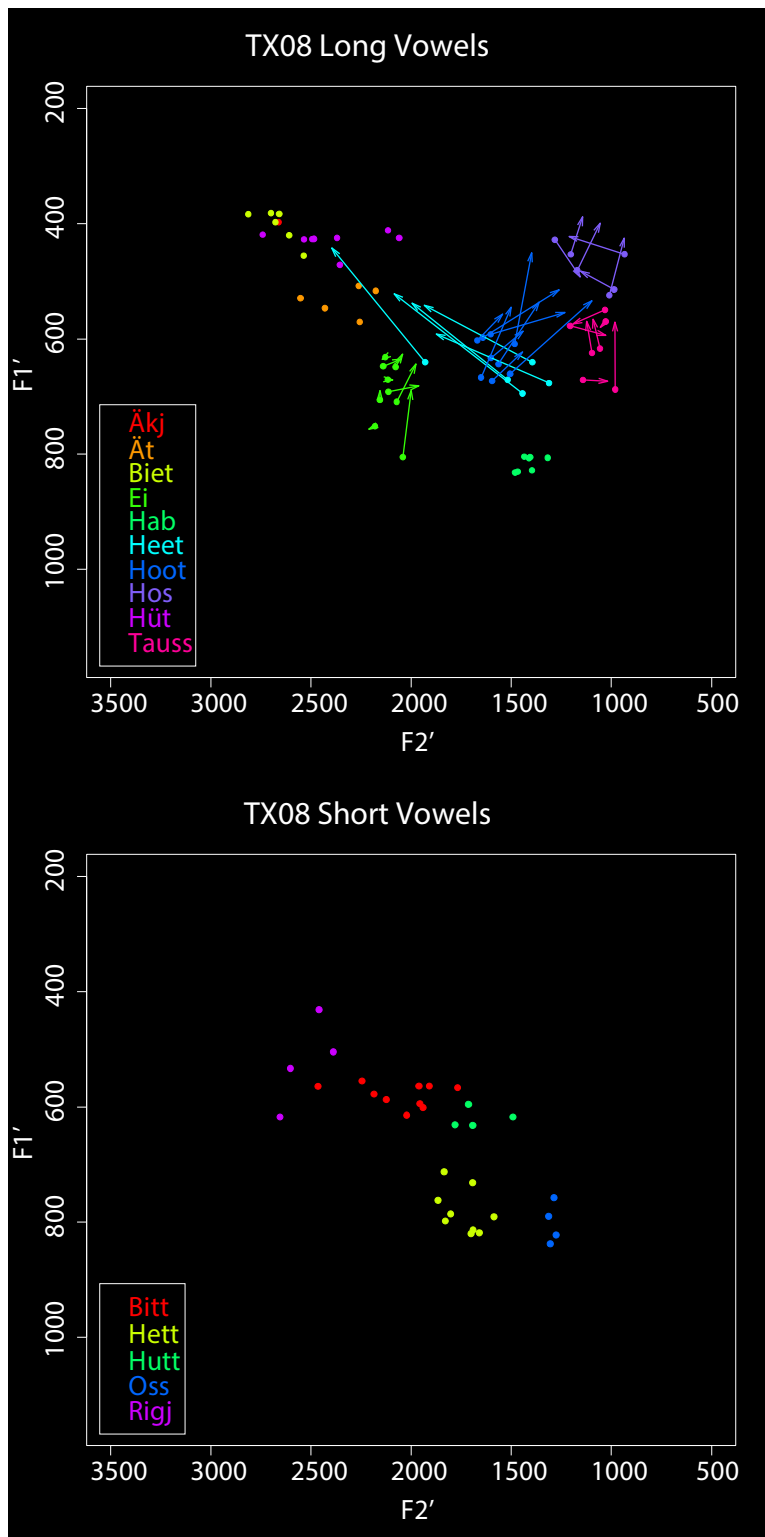
Table 4.46 TX07 Traditional Dialect Features

TX07 has a pattern of use that is not generally observed in the other Chortitza groups surveyed, a single word can have a Molotschna vowel, but a Chortitza suffix (e.g., *foake* [fkɔ:n] 'often' and *moake* [mɔ:kn] 'to make'). While this pattern is common among US Molotschna speakers, among Chortitza speakers, the reverse is usually observed.

4.4.10 TX08

Speaker TX08 is a Chortitza speaker from Northern Mexico. He learned High German at home. One of his parent is a native High German and English speaker from Canada, and the other is a native Low German speaker from Northern Mexico. He learned Low German from his friends. He learned both Spanish and English in school.

He recognizes variation in pronunciation in the use of final *-e* or *-n* at the ends of words as in *doone* 'to do' and in the phrase *wi woare no de Staut foare* 'We will drive to the city.' Figure 4.47 shows the normalized formant values of TX08 by vowel class.



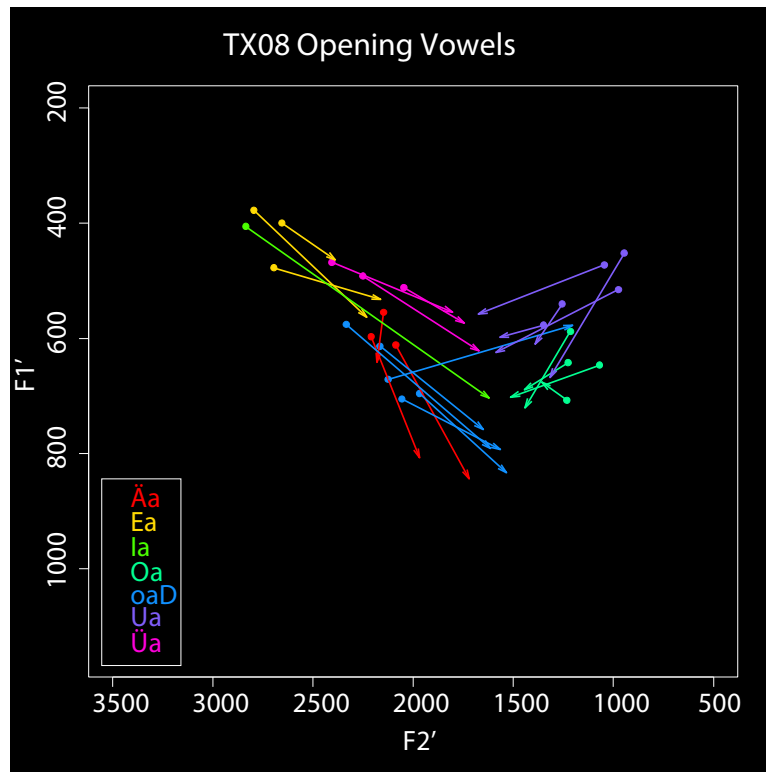


Figure 4.47 TX08 Normalized Vowels

TX08 uses almost exclusively monophthong variants of the Ei and TAUSS classes. The nucleus of the HEET class has some conservative tokens with high F2, but for the most part the vowel class is central and beginning to move back. The BIET and ÄKJ classes are merged. The HOS class is a high back vowel. The BITT class has a tendency to be centralized.. The RIGJ class is usually realized as a diphthong. The HETT class is a low central vowel which does not share space with the BITT class. The EA and IA classes are merged. The UA class is a lower high back vowel. The nuclei of the ÄA and OA classes are mid vowels. The Dialect OA class has a closing allophone before historically voiced velar segments.

Table 4.47 shows the traditional dialect features used by TX08.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	25	25
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	7	7

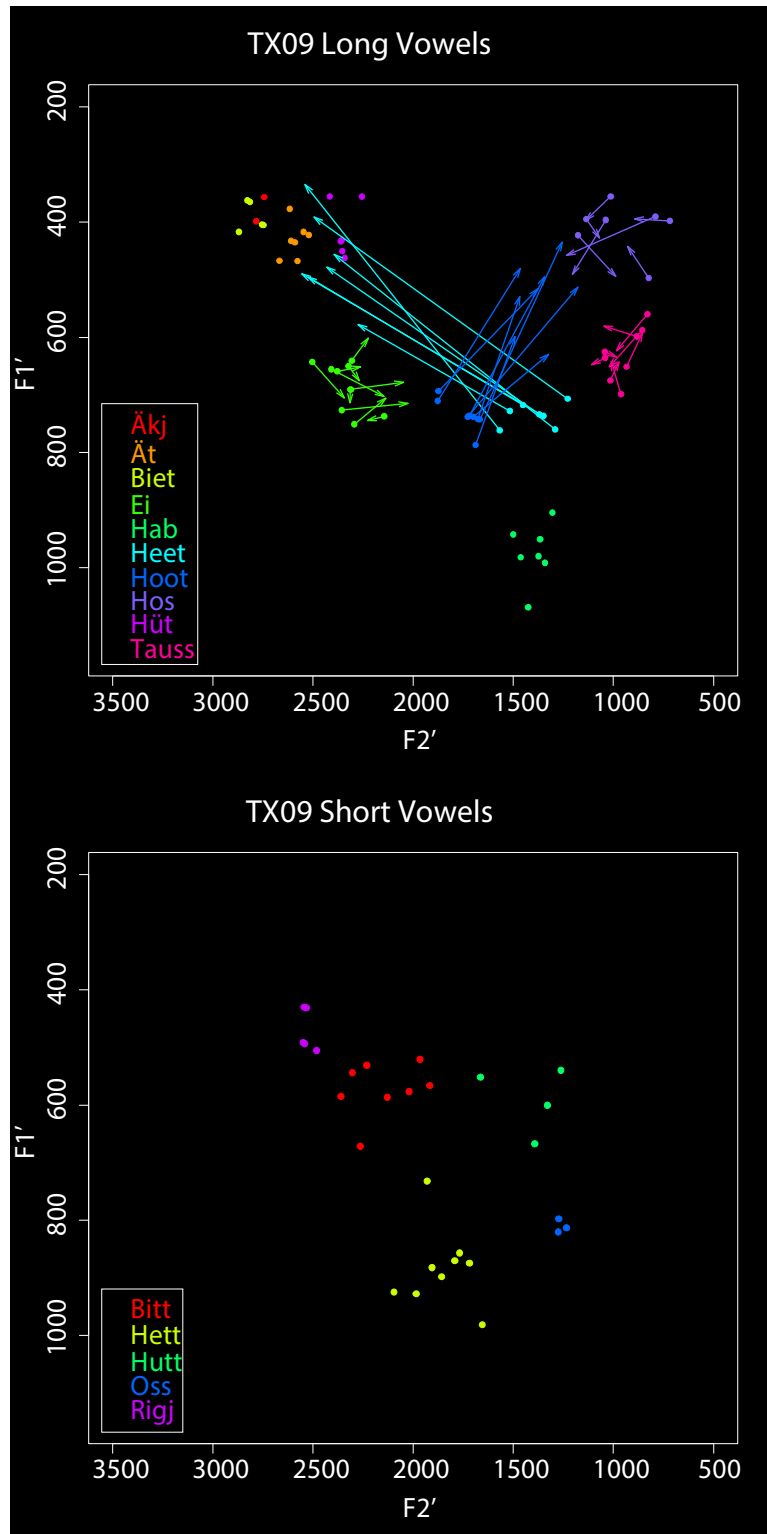
Table 4.47 TX08 Traditional Dialect Features

TX08 uses exclusively Chortitza features.

4.4.11 TX09

Speaker TX09 is a Chortitza speaker who was born in Northern Mexico, but raised in Central Canada. She is a member of the *Rückwanderung* group. She spoke Low German at home, but was highly aware that other people thought it wasn't cool to be Low German. She spoke English at school. She

recognizes an variation in pronunciation based on the use of either a final $-n$ or $-ə$. According to her, the Sommerfeld are the ones who use final $-ə$. Figure 4.48 shows the normalized formant values of TX09 by vowel class.



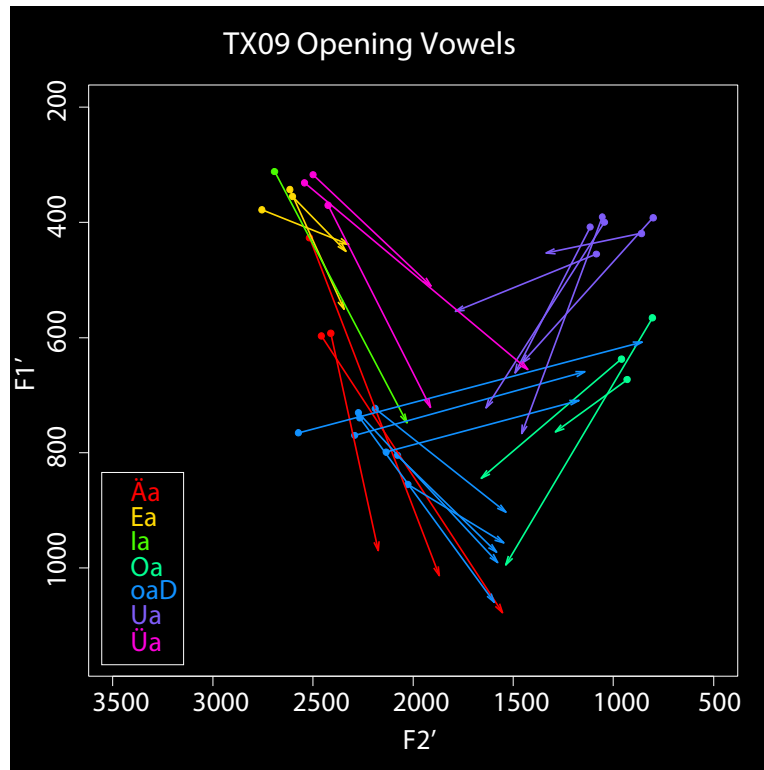


Figure 4.48 TX09 Normalized Vowels

TX09 uses monophthong variants of the EI and TAUSS classes. The HOS class is a high back vowel. The ÄKJ and BIET classes are merged. The nuclei of the HEET class is moving towards the back vowel space. The short vowel classes all maintain separate space. The RIGJ class is beginning to separate from the BITT class. The EA and IA classes are merged. The nucleus of the UA class is a high back vowel. The nucleus of the ÄA class has a mid-high allophone in the word *Wäakj* 'week'. The Dialect OA class has a closing o-bound allophone before historically voiced velar segments.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	23	24
WGmc <i>*aaw</i>	5	5
Dialect <i>oa</i>	8	8

Table 4.48 TX09 Traditional Dialect Features

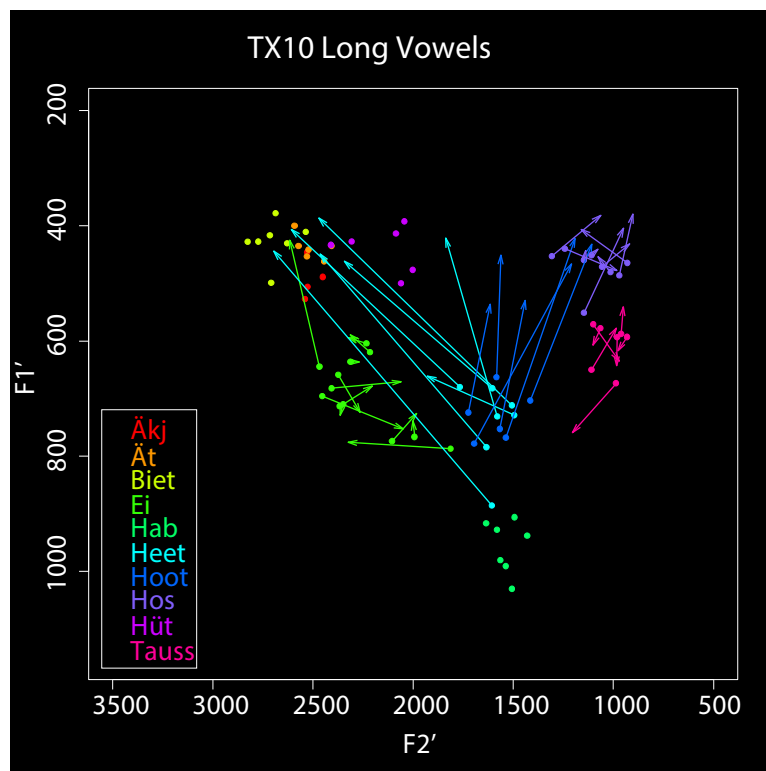
TX09 uses almost exclusively Chortitza features except for variation in the use of final *-n*.

4.4.12 TX10

TX10 is a Molotschna speaker from Jagüeyes region of Northern Mexico. She is related to TX11. She learned Low German at home and High German in school. She began to learn English in the 2nd or 3rd grade. She picked up some Spanish from work.

She recognizes many variant speech patterns, but there is always a binary distinction based on one's congregation: either Kleine Gemeinde or Old Colony. The Kleine Gemeinde use a back vowel

and $-ə$ in the words *moake* 'to make' and *koake* 'to cook', whereas the Old Colony uses a front vowel and $-n$. Lexical variation includes the Kleine Gemeinde *Tüt* 'bag', *Peas* 'peas', *purple* 'purple', and *Jell/Jelly* 'jelly' vs the Old Colony *Lusch* 'bag', *Oafte* 'peas', *rootbleiw* 'purple (lit. red-blue)', and *Ssoppsel* 'jelly (lit. sopper)'.⁴⁶ She views the Sommerfeld as using a variety which lies between the Kleine Gemeinde and Old Colony patterns. In words like *moake* 'to make', they use the front vowel of the Old Colony, but the final $-ə$ of the Kleine Gemeinde. She feels that the variation used to be more pronounced and had much clearer divisions, but they began to soften because of people mingling with members of the other groups. Figure 4.49 shows the normalized formant values of TX10 by vowel class.



⁴⁶ Although TX10 said that the Old Colony says *Oafte* 'peas', Zacharias 2009 indicates that the Old Colony form would have a final $-n$.

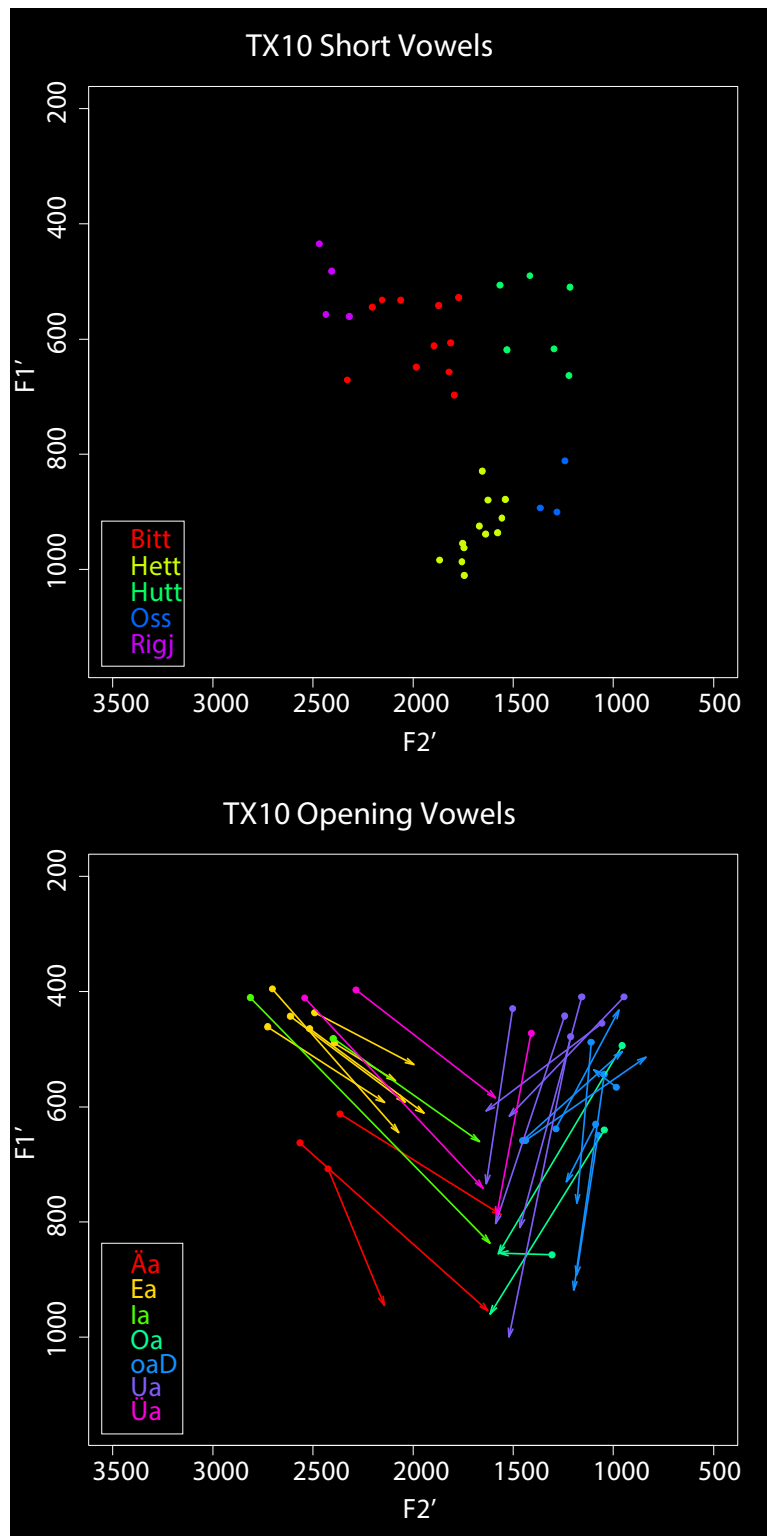


Figure 4.49 TX10 Normalized Vowels

The E_I and TA_USS classes usually have monophthong realizations. The HO_S class is a high back vowel. The Ä_KJ class is mostly still a member of the Ä_T class. The nucleus of the HE_ET class has centralized, and in some cases has begun to lower to the position of the HA_B class. The H_ET_T class is usually a low

front vowel, but is beginning to centralize. The RIGJ class has not separated from the BITT class. TX10 is aware that some speakers have a separation between the two, but insists that she uses the conservative form. The EA and IA classes have merged. The nucleus of the ÜA class has a more back realization in the word *süa* 'sour' but a more front realization in the words *Rüak* 'smoke' and *Büak* 'book'. For many Molotschna speakers from central Kansas, this relationship is reversed where 'sour' has a higher F2, but 'book' and 'smoke' have a lower F2 and sometimes a higher F1. The nucleus of the ÄA and OA classes are usually mid-low vowels, but the OA class appears to be in the process of rising. The nucleus of the ÄA class has a mid-high allophone in the word *Wäakj* 'week'. The Dialect OA class has closing allophones before historically voiced velar segments.

Table 4.49 shows the traditional dialect features used by TX10.

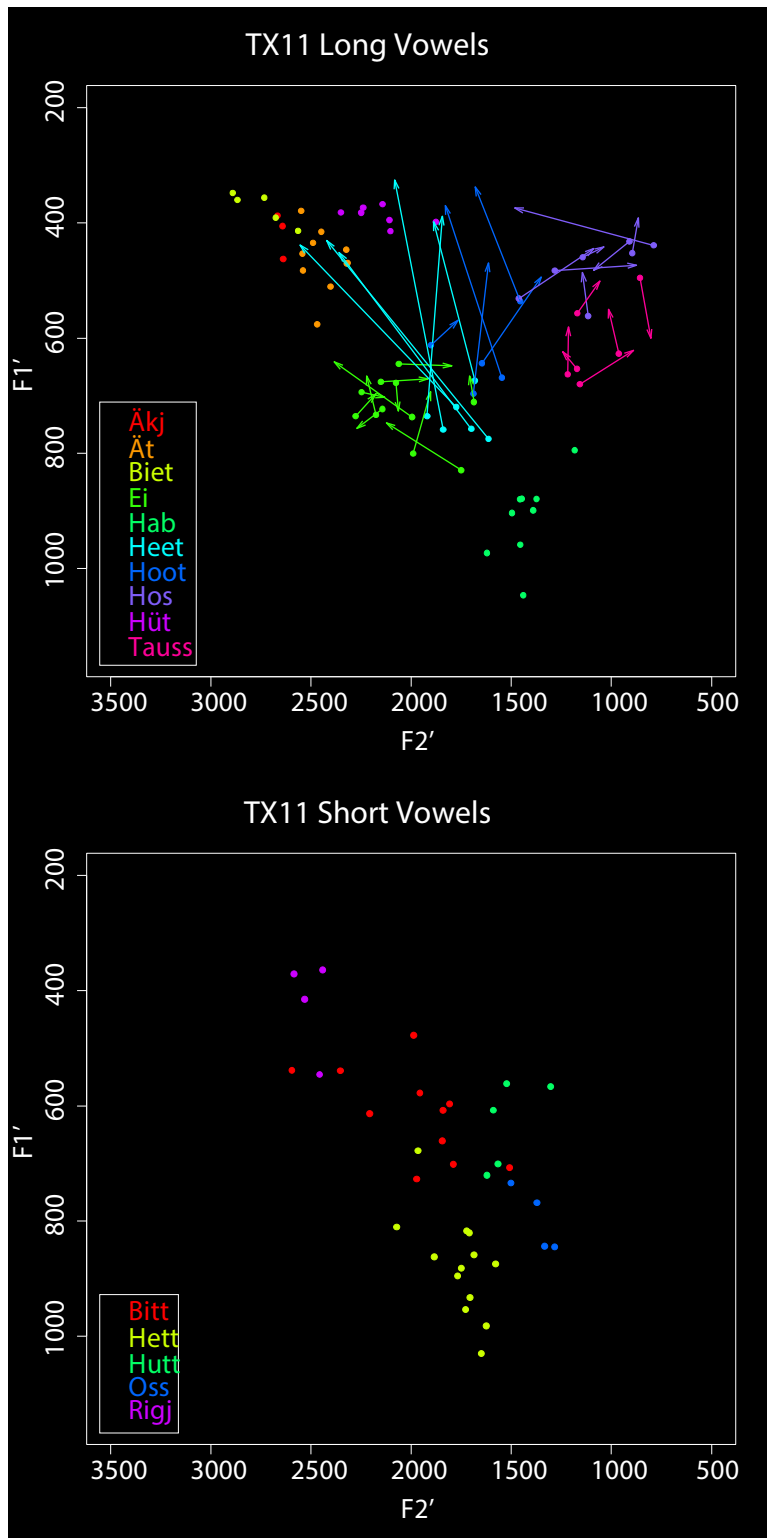
Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	2	21
WGmc <i>*aaw</i>	6	6
Dialect <i>oa</i>	0	12

Table 4.49 TX10 Traditional Dialect Features

The only traditional Molotschna forms used consistently by TX10 is the Dialect OA class. She is fairly consistent in her use of the final *-ə*. She only uses Chortitza reflexes of WGmc **aaw*.

4.4.13 TX11

TX11 is a Molotschna speaker from Central Canada who grew up in the Jagüeyes region of Northern Mexico. She is related to TX10. She learned Low German at home and picked up English on her first day of school in Canada. When she moved to Mexico, she had to switch to High German in school. During our session, she agreed with all of the statements made by TX10 about variation in pronunciation. Figure 4.50 shows the normalized formant values of TX11 by vowel class.



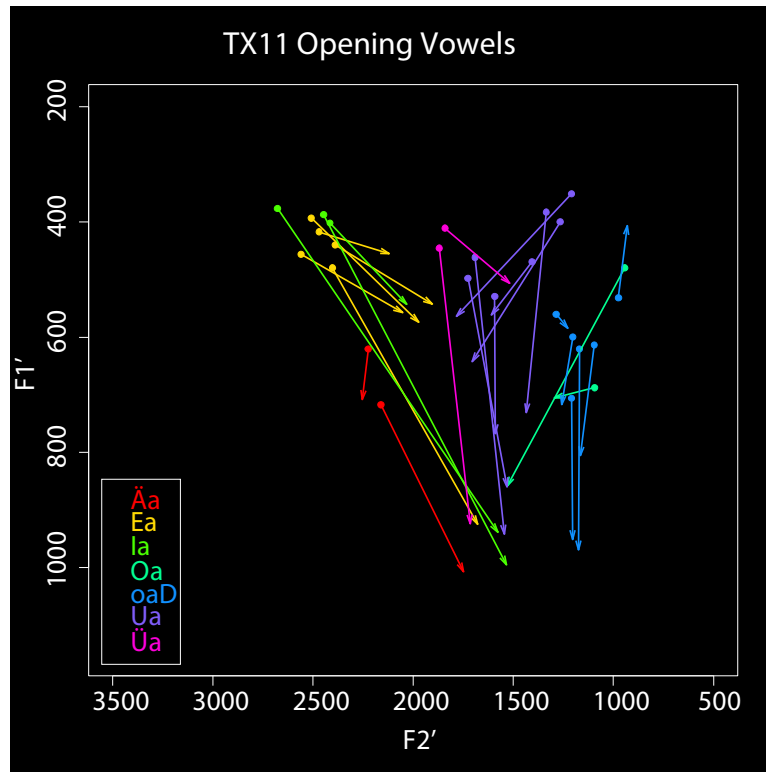


Figure 4.50 TX11 Normalized Vowels

TX11 has both diphthong and monophthong tokens in the EI and TAUSS classes. The nucleus of the TAUSS class is in the process of rising. TX11 lacks a high back vowel in the HOS class. She has variable pronunciation of the ÄKJ class in the word *Äkj* 'oak'. Sometimes she pronounces this word with the BIET class vowel and sometimes with the ÄT class vowel. The nucleus of the HETT class is centralized, but it sits rather close to the front of the vowel space. The HETT and BITT classes are both in the process of lowering. The RIGJ class is beginning to separate from the BITT class. The EA and IA classes are merged. The nucleus of the OA class is in the process of rising, but remains distinct from the UA class in terms of F2. The Dialect OA class has allophones before historically voiced velar segments that are either closing or o-bound.

Table 4.50 shows the traditional dialect forms used by TX11.

Dialect Feature	Chortitza Count	Total
Final <i>-n</i>	1	18
WGmc * <i>aaw</i>	6	6
Dialect <i>oa</i>	2	11

Table 4.50 TX11 Traditional Dialect Features

TX11 is fairly consistent in using Molotschna forms for the Dialect OA class and the final *-ə*. She was aware of using both Chortitza and Molotschna forms for some of the members of the Dialect OA class. She only used Chortitza reflexes of WGmc **aaw*.

4.5 Summary of Individual Findings

The previous sections have provided an account of the individual participant's backgrounds, vowel classes, and traditional dialect features. One of the most salient differences between the speakers from Mexico and those from other regions is the loss of the language within recent memory.

Within the normalized formant values shown there is considerable variation in the realization of the EI and TAUSS classes. While many speakers in the Central US and California have diphthong realizations of these two classes, speakers from other regions tend to have monophthong pronunciations. The monophthongs in the TAUSS class range from mid-low vowels to mid-high vowels. The HOS class is the highest back monophthong for most speakers, but some speakers lack a true high back vowel. Speakers who have a mid-high realization of the HOS class sometimes exhibit partial overlap with the HOOT class which is in the process of centralizing. Other speakers who already have a fully centralized nucleus of the HOOT class sometimes show indications of the nucleus lowering into the vowel space of the HAB class. Within the front vowel system, the HEET class has the most variable nucleus, but it is always a closing i-bound diphthong. In many speakers from the Central US, the nucleus is either mid-front or beginning to centralize. Speakers in other regions have either a central nucleus or one which has moved to the mid-back position towards the TAUSS class or down towards the HAB class. The ÄKJ class is originally an allophone of the ÄT class before palatals, but for some speakers, it has become a member of the BIET class. The HAB class does not show much variation, but the variation that it does exhibit for some speakers indicates that it is moving back into the space vacated by the monophthong TAUSS class. The HÜT class does not always correlate directly to local dialect form. Nonetheless, the realizations are interesting because very few speakers actually have a back realization of the HÜT class. Many speakers of the traditional Molotschna variety have a central member of this class. The centrality or frontness of this class also does not always correspond to the frontness of the ÜA diphthong's nucleus.

Within the short vowel system, there are many speakers that exhibit centralization of all short vowels except for the RIGJ class. The most common developments in the short vowel space are in the front vowels. For many speakers, there are higher allophones of the BIET class immediately preceding palatal consonants. For some of these speakers, the RIGJ class, which has a historically voiced palatal segment, has separated from the BITT class by changing the monophthong to a diphthong [ei]. The non-palatal allophones of the BITT class are falling to a mid vowel for some speakers. The HETT class is usually the lowest vowel in the front vowel space, but for some speakers, it has changed from a mid-vowel to a low vowel. The speakers with a low HETT vowel sometimes exhibit the further innovation that the HETT vowel is beginning to centralize to the low central position. The OSS vowel sometimes varies when the HAB class pushes into its space, but for the most part, it is not a very active class.

Within the falling diphthong system there is a lot of variation in part based on whether the person is a traditional Molotschna or Chortitza speaker. For almost all speakers the EA and IA classes were completely merged. Many speakers have raising of the ÄA class nucleus to the mid-high position from the mid-low position. The nucleus of the OA class also varies in this respect. Unfortunately there is no clear pattern that emerges which says that the raising of one class is contingent on the raising of the other. The UA class sometimes has not risen from the mid-high position to the high back position. The most common words where the vowel was still low were *wua* 'where', *Stua* 'store', and *Flua* 'floor', but not *Ua* 'ear'. The nucleus of the ÜA class is usually a high central vowel or a high front vowel, but sometimes it is a mid-back monophthong. This is found most frequently in the words *Rüak* 'smoke' and *Büak* 'book', but not *süa* 'sour'. The Dialect OA class does vary by dialect affiliation, but what has not been described in previous sources is the exact nature of the variation aside from front vs back nuclei. In reality, there are some speakers who exhibit closing or o-bound allophones before historically voiced velar segments regardless of whether they use the Chortitza or Molotschna variety.

Within the traditional dialect traits there are a variety of patterns. In Southern Mexico, the split mostly appears to be whether someone belongs to the Old Colony or is in some way affiliated with the Old Colony. If someone was formerly affiliated with the Old Colony, they might use the Chortitza forms if the schism is not within recent memory. The Old Colony forms in Southern Mexico are mostly dependent on use of the Chortitza final *-n*. Usage of other Chortitza forms do not indicate one's affiliation with the Old Colony. This picture is roughly the same in much of Northern Mexico and parts of the US where Mexican groups have immigrated with the exception of the Jagüeyes region of Chihuahua. In the Jagüeyes region, not speaking like an Old Colony member also includes the use of the Molotschna variant of the Dialect OA class. Within the central US and California, speaking like an Old Colony member mostly means use of the final *-n*, even though Molotschna speakers often use the final *-n* in the word *foake* 'often' and sometimes *Owe* 'oven'. Central Canadian speakers who are Chortitza speakers often consistently use the conservative Chortitza reflex of WGmc **aaw* and the Dialect OA class, but some have acquired the Molotschna *-ə*.

In summary, this chapter has provided insight to the individual variation found across the Plautdietsch speaking community from Canada to Bolivia. The next chapter will focus on the statistical findings of all speakers grouped together.

Chapter 5 Group Findings

The previous chapter presented the responses and results of individual speakers. This chapter discusses the statistical results of the normalized formant frequencies and traditional dialect features. The data presented in this chapter will be relevant to assessing the view that variation in Plautdietsch is only interpretable through micro-social interactions (i.e., individuals interacting with individuals) rather than macro-social properties (i.e., region and traditional dialects). If it is the case that this view is correct, the results of hierarchical clustering should not be interpretable based on macro-social categories. The clusters which develop from the dendrograms should only be interpretable based on micro-social interaction if they are interpretable at all.

There are two types of statistical results which are discussed for each category under investigation: descriptive summaries and hierarchical clustering. Although Chapter 3 focused on the methodology of hierarchical clustering, descriptive statistics are presented to show which features vary the most across the speaker population.

5.1 Group Vowel Analysis

5.1.1 Vowel Summary Statistics

This section provides an overview of summary statistics of vowels across all speakers sampled. The findings in this section are presented by vowel class. All vowel classes which were sampled as diphthongs are only presented with information about readings from the nucleus of the diphthong. All reported findings in this section round formant values to the nearest tenth.

Long vowels represent the largest category of vowels in the dataset. In total, there are 3,441 long vowel tokens. Table 5.1 presents a summary of the mean, standard deviation, and coefficient of variation (CV) of F1 and F2 of long vowels across all speakers.⁴⁷

⁴⁷ The coefficient of variation is a standardized measurement of variation in the data. $CV = (\sigma/\mu)*100$. This measure is provided in order to highlight variation in production independent of the formant's frequency range (e.g. front vowels may naturally have a higher SD than back vowels, F1 may naturally have a higher SD than F2).

Vowel Type	Vowel Class	Tokens		Mean	SD	CV (%)
Long	BIET	420	F1	390.2	49.5	12.7
			F2	2814.3	164.9	5.9
	ÄKJ	100	F1	438.9	71.4	16.3
			F2	2746.9	169.4	6.2
	ÄT	342	F1	494.4	52.9	10.7
			F2	2591	204.3	7.9
	HEET	354	F1	696.6	70.2	10.1
			F2	1698.3	381	22.4
	HÜT	317	F1	425	46.7	11
			F2	2243.8	252.6	11.3
	HAB	378	F1	889	68.1	7.7
			F2	1466	134.9	9.3
	HOS	414	F1	478.5	64.3	13.4
			F2	1112.3	192.2	17.3
HOOT	384	F1	651.2	62.7	9.6	
		F2	1564.6	183.4	11.7	
TAUSS	377	F1	651.9	110.5	17	
		F2	1130.4	179	15.8	
Ei	355	F1	729.8	70.3	9.6	
		F2	2203.4	189.9	8.6	

Table 5.1. Summary of Long Vowels

The vowel class with the highest degree of variability in the F1 range is the TAUSS class. The second most variable vowel is the ÄKJ class. ÄKJ is variable in part because it is in the process of merging with the BIET class. The HOS class has the third highest amount of height variation. This vowel is visibly in the process of rising for some speakers to fill a high back position in the vowel space. The BIET class has a moderate amount of variation, but for most speakers, the F3 of the BIET class distinguishes it from the ÄT class. F1 variation in the HEET class is due to the nucleus is lowering as it moves in the vowel space. The HAB, HOOT, and Ei classes have the least amount of F1 variation.

The long vowel class that has the most variation in F2 is not the class associated with the traditional dialect feature, but rather the HEET class. In addition to lowering in the vowel space, the HEET class has centralized and backed. The HÜT class has the fifth highest variation in F2 after the HOS, HOOT, and TAUSS classes. Figure 5.1 provides a visualization of the information in Table 5.1 in the form of a box and whiskers plot.

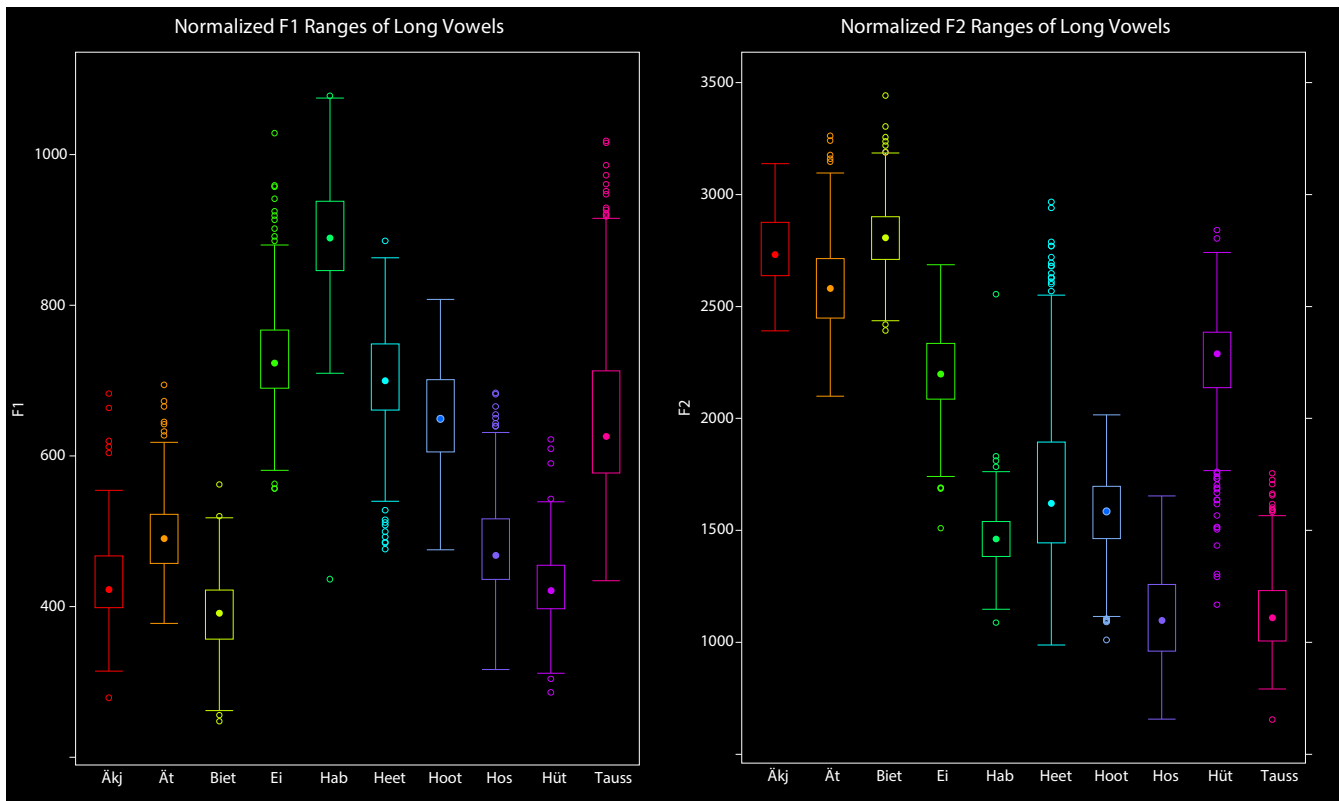


Figure 5.1 Box and Whiskers Plot of Long Vowel Frequencies

There are 1,359 short stressed vowel tokens. Table 5.2 presents a summary of the mean, standard deviation, and coefficient of variation of F1 and F2 of short stressed vowels across all speakers.

Vowel Type	Vowel Class	Tokens		Mean	SD	CV (%)
Short	BITT	358	F1	595.4	65.1	10.9
			F2	2165.8	244.9	11.3
	RIGJ	167	F1	525.5	66.9	12.7
			F2	2497.3	198.6	8
	HETT	402	F1	862.2	81.9	9.5
			F2	1834.3	183.4	10
	HUTT	209	F1	611.6	71.9	11.8
			F2	1568.1	213.5	13.6
	Oss	223	F1	816.6	67.6	8.3
			F2	1363.3	145.4	10.7

Table 5.2 Summary of Short Stressed Vowel

All of the short vowels show considerable variation in F1 and F2 values. The vowel with the most variation in F1 is the RIGJ class which is currently in the process of splitting from the BITT class. The

BITT class is currently in the process of lowering, and those members of the RIGJ class which have not split from the BITT class are also lowering. The second most variable F1 is in the HUTT class which is also lowering. The most variable F2 values are in the BITT and HUTT classes, which are in the process of centralizing. Figure 5.2 provides a visualization of the information in Table 5.2.

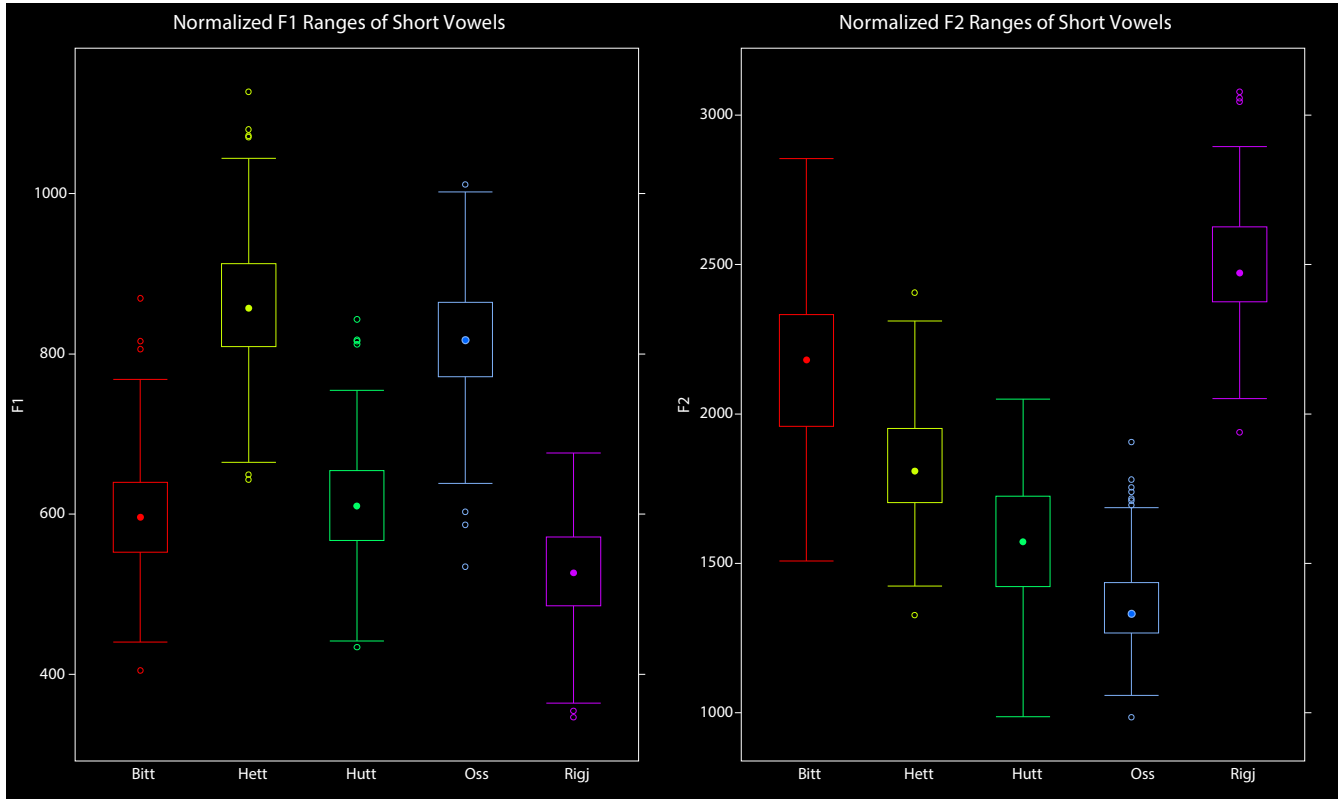


Figure 5.2 Box and Whiskers Plot of Short Vowel Frequencies

There are 1,201 opening diphthong tokens. Table 5.3 presents a summary of the mean, standard deviation, and coefficient of variation of F1 and F2 of opening diphthong nuclei across all speakers. Frequencies for the off-glides are not given because off-glides tend to have less specific articulatory targets than nuclei (see Bussmann 2004).

Vowel Type	Vowel Class	Tokens		Mean	SD	CV (%)
Opening Diphthong	IA	78	F1	417.2	63.2	15.1
			F2	2754.5	257.5	9.3
	EA	163	F1	411.1	51.7	12.6
			F2	2724.3	212.3	7.8
	ÄA	130	F1	574.5	78.4	13.6
			F2	2437	187.3	7.7
	ÜA	145	F1	440.3	67.7	15.4
			F2	2138.4	393.5	18.4
	UA	251	F1	452.7	64.7	14.3
			F2	1166	200.6	17.2
	OA	155	F1	615.7	81.3	13.2
			F2	1068.4	151.9	14.2
	Dialect OA	279	F1	640.1	88.3	13.8
			F2	1882.2	558.3	29.7

Table 5.3 Summary of Opening Diphthongs

All of the opening diphthongs show considerable variation in F1. All of the classes are rising except for the IA class which has effectively merged with the EA class. The most variation in F2 is found in the traditional Dialect OA class, which shows the most variation across all vowels.⁴⁸ The second most variation in F2 is found in the ÜA class. As stated in Chapter 2, all else being equal, tokens of the ÜA class which developed from Middle Low German (MLG) *ūr* should have the same stressed reflex as monophthongs which developed from MLG *ū*. On average, the HÜT class is fronter than the ÜA class and shows less variability in F2 than the ÜA class. The UA and OA classes have a considerable amount of F2 variation in part to the prevalence of fronter allophones following alveolar segments for some speakers. Figure 5.3 shows a visualization of the information summarized in Table 5.3.

⁴⁸ The Dialect OA class tends to have either a very high or very low F2. Herman Rempel is a Chortitza speaker with an intermediate central value.

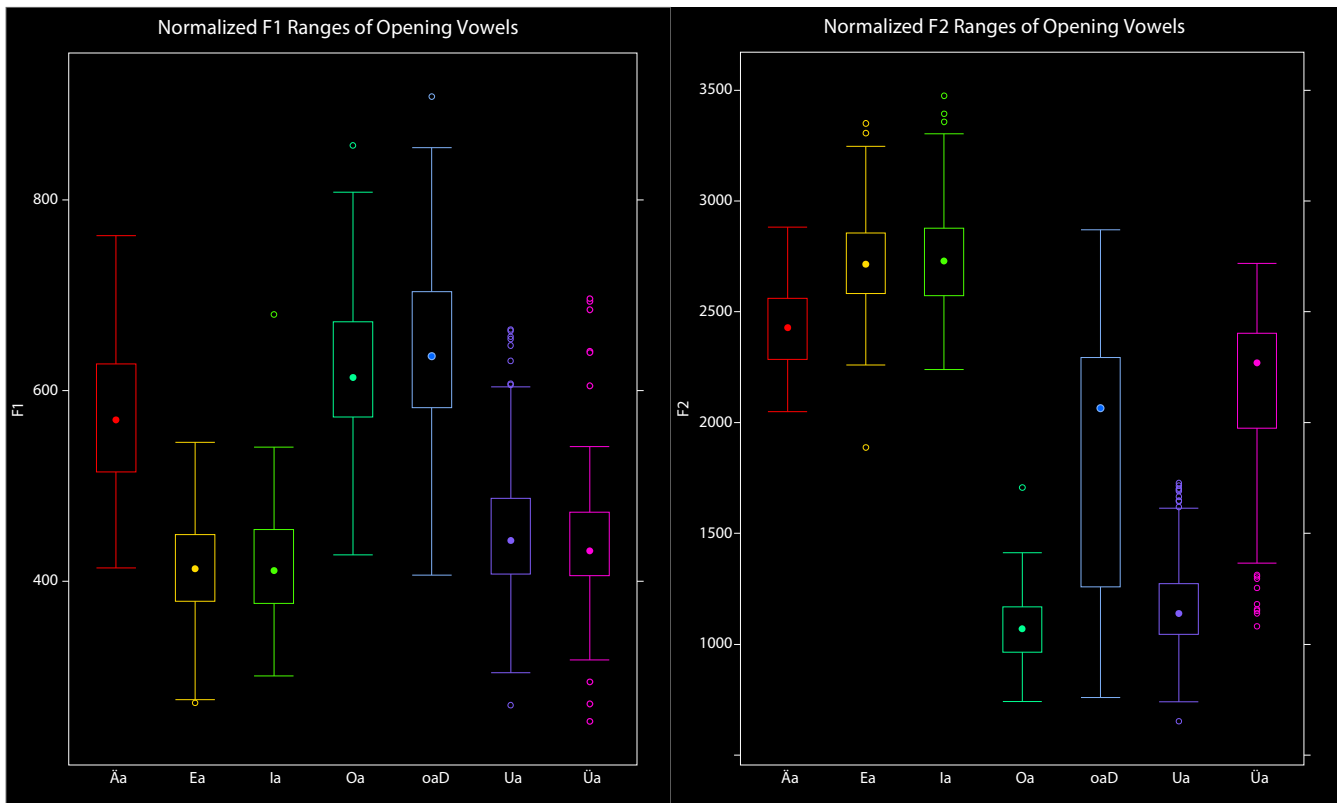


Figure 5.3 Box and Whiskers Plot of Opening Diphthong Frequencies

In summary, there are many vowels in the system which show a high degree of variability. The most variable vowel is the Dialect OA class, but other vowels with a high degree of variation are not a part of the traditional dialect feature system. In the long vowel system, the TAUSS and HEET classes exhibit more variation than the HÜT class, which is associated with a traditional dialect feature. In the short stressed vowel system, the HETT and HUTT classes show a high degree of variation. Within the opening diphthong system, although the traditional Dialect OA class has the most variation, other classes not associated with the traditional dialect feature system also show high amounts of variation (e.g. the ÄA, OA, and UA classes).

5.1.2 Hierarchical Clustering of Vowel Categories: All Speakers

This section shows the results of hierarchical clustering of all sampled speakers. Not all speakers produced all vowel categories for a variety of reasons: the first survey tool did not test for variation of the Dialect OA class, but also there are some vowel classes that weren't produced because speakers had difficulty remembering the words in these classes (especially the ÄKJ, HUTT, and IA classes). Vowel classes not included for analysis are ÄKJ, HUTT, IA, ÄA, and Dialect OA.

Figure 5.4 shows the euclidean distance clustering of all speakers sampled and the associated p-value of each cluster assigned from multiscale bootstrap resampling.⁴⁹ All p-values are given as percentages in red.

⁴⁹ The presence of SF07 with the removed categories seems to effect the result of the clustering. Without him present in the clustering analysis, there is an exclusively US-Canadian clade with 86% support. The Mexican clade also has 80% support without the presence of SF07.

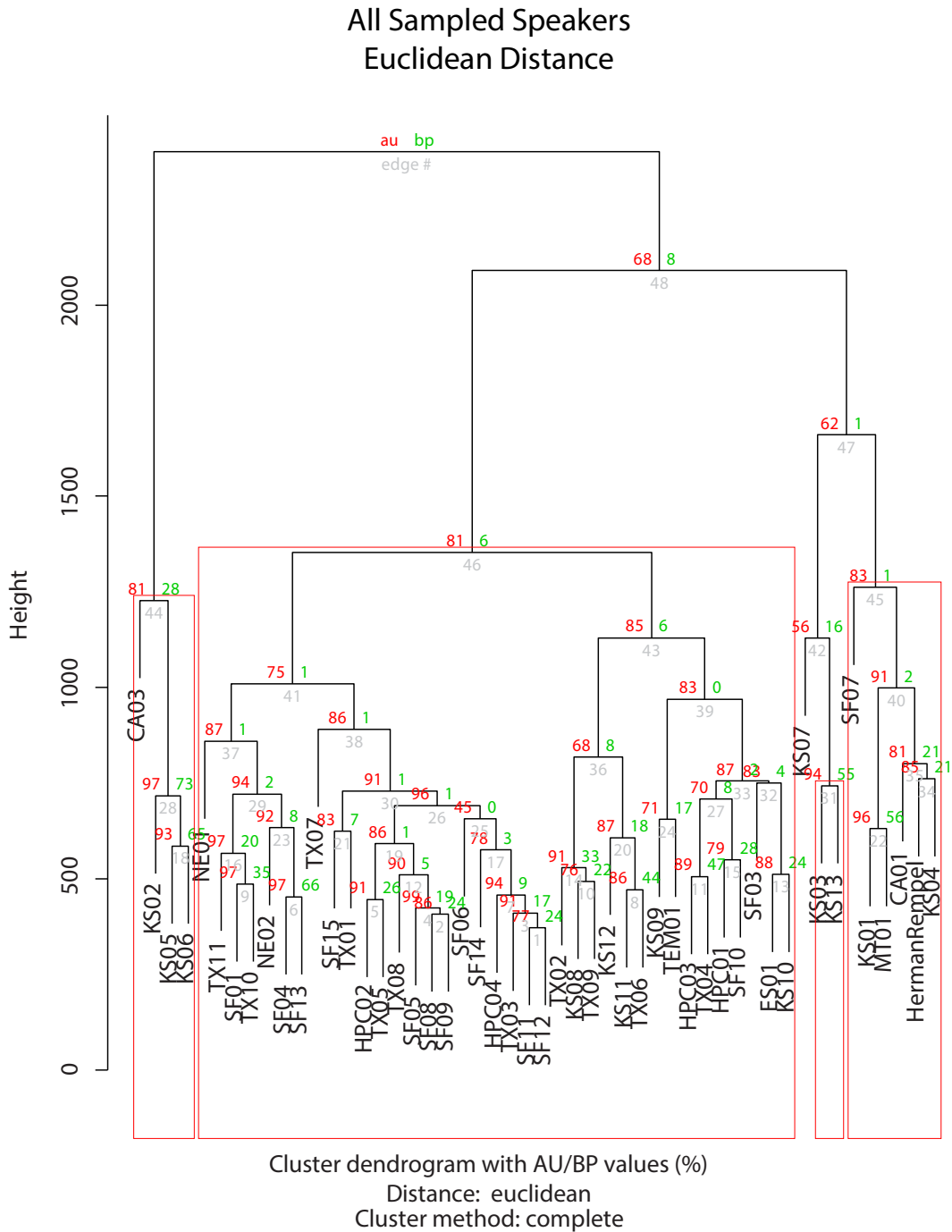


Figure 5.4 Euclidean Distance Dendrogram of All Speaker's Vowel Production

The euclidean distance method indicates that the vowel systems in the Mexican, Bolivian, and Texan groups differ from the vowel systems of Canadians and speakers from the Central US. The only exception is speaker SF07 who is from Mexico, but who has many conservative features of his speech. Within US and Canadian groups, there are two major clusters. The cluster with CA03, KS02, KS05, and KS06 is exclusively female, but it also contains the oldest speakers. The second cluster with KS01, MT01, CA01, Herman Rempel, KS04, and SF07 is predominantly male (with the exception of KS04). On average, the second cluster is younger than the first cluster. Ultimately it is unclear which social

factors are behind the formation of these two clusters because the most robust cluster with KS03 and KS13 is neither gender nor age specific.⁵⁰

Within the “Mexican” cluster, there are four profiles of participants. The first, and largest profile, is those who are associated with Mexico and live either within the country or near it. The other profiles are:

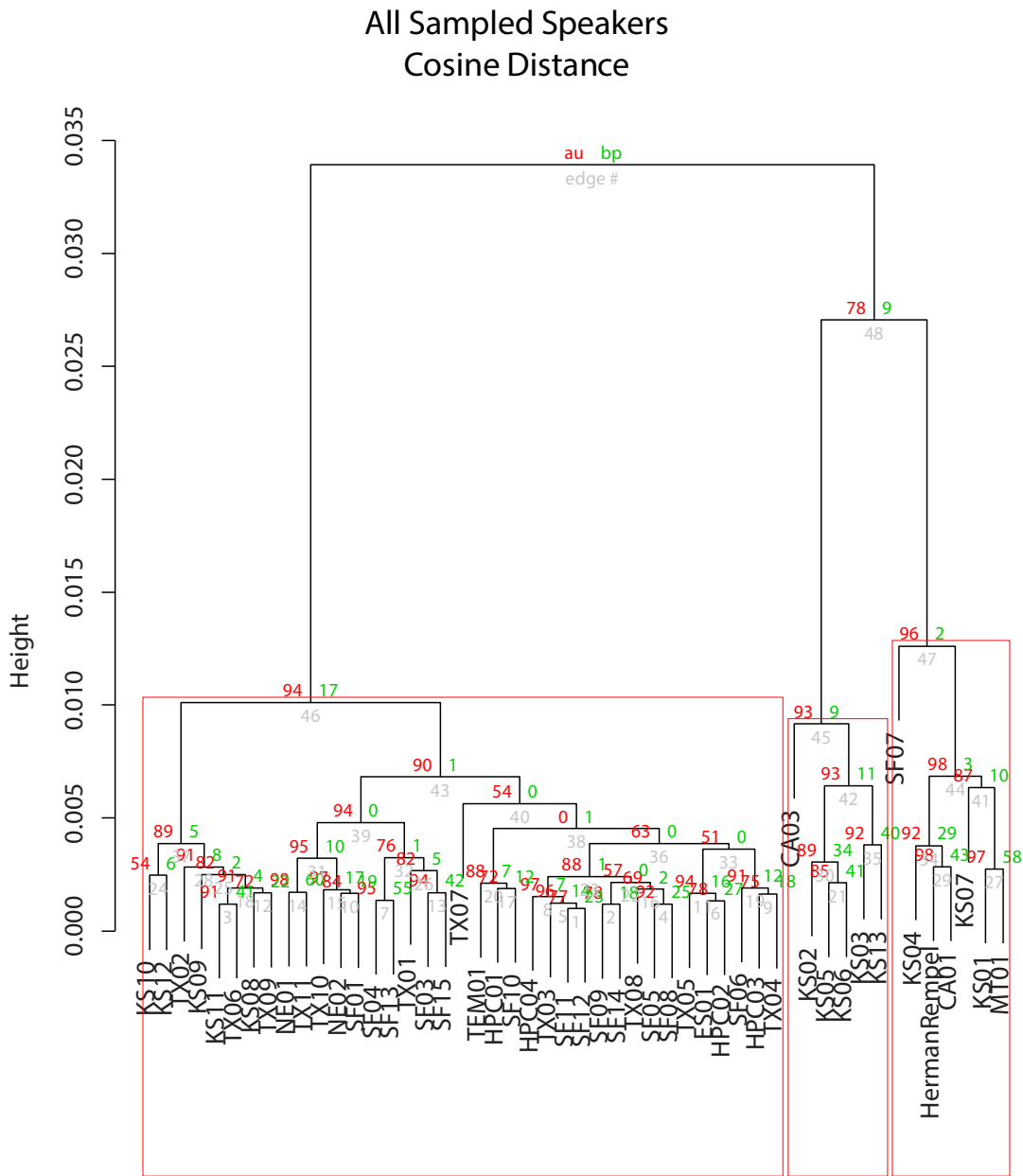
- A) Speakers living in Southwest Kansas from Bolivia and Mexico (KS09, KS10, KS11, and KS12)
- B) Canadian speakers who are members of the *Rückwanderung* group that reentered Canada from Mexico (SF10, TX06, TX09)
- C) Speakers from other locations that eventually settled in areas heavily populated by speakers from the Mexican groups (HPC04, KS08, TX07, TX11).

Although these four profiles can be described, there does not appear to be any impact of these profiles on the sub-clusters detected in the Mexican clade.

Figure 5.5 shows the cosine distance clustering of all speakers sampled and the associated p-value of each cluster assigned from multiscale bootstrap resampling.⁵¹ The p-value is given as percentages in red.

50 If the cluster is gender specific, the normalization technique might have failed to factor out gender differences among participants. Because there are not more speakers from this region, it is difficult to say whether there is a problem with the normalization technique, whether there are differences in use between men and women, or whether there are differences in use among different age groups in the population that are independent of gender.

51 Once again, the presence of SF07 seems to alter the structure of the resulting tree. Without him present, the cosine distance method produced an exclusively US-Canadian clade with 96% support. This clade contained two subgroups which roughly corresponded to the gender of the speakers with the exception of KS03 in the female clade and KS04 in the male clade.



Cluster dendrogram with AU/BP values (%)
Distance: cosine
Cluster method: complete

Figure 5.5 Cosine Distance Dendrogram of All Speaker's Vowel Production

The dendrogram produced in Figure 5.5 is very similar to the dendrogram of Figure 5.4. This method's resulting dendrogram indicates that the sampled vowel systems of Central US and Canadian groups differ from the Mexican, Bolivian, and Texan groups. The only exception to this generalization is speaker SF07 who has the most Canadian/US-like vowel system of all Mexican speakers.

The US and Canadian speakers are neatly divided into clusters of male vs female speakers. Once again, it is not clear if the clusters are truly gender based or age based. Within the Mexican clade, there are two emerging groups: one associated with speakers who are living in the US and one

associated with speakers who are living in Mexico. The division is not based on actual residence in either location because many of the younger speakers from Mexico who are living in the US fall into the group with people from Southern Mexico and Northern Mexico. The group of people living in the US includes the cluster of Canadian, Mexican, and Bolivian speakers living in Kansas in addition to the earliest settlers from Northern Mexico into the US (TX02, KS09). Although there are some speakers living in Texas who are older than TX02, they were not part of the early group of immigrants that left Mexico to found new settlements in the US. They entered the US after the early groups had already established themselves. These later settlers in Texas all cluster with the groups that are physically located in Mexico.

5.1.3 Hierarchical Clustering of Vowel Categories: All Vowel Classes

This section presents a version of the hierarchical clustering that only groups speakers who produced all 22 vowel classes under investigation. In this section only 35 of the 50 speakers are represented in the dataset. Figure 5.6 shows the euclidean distance dendrogram of the 35 speakers sampled.

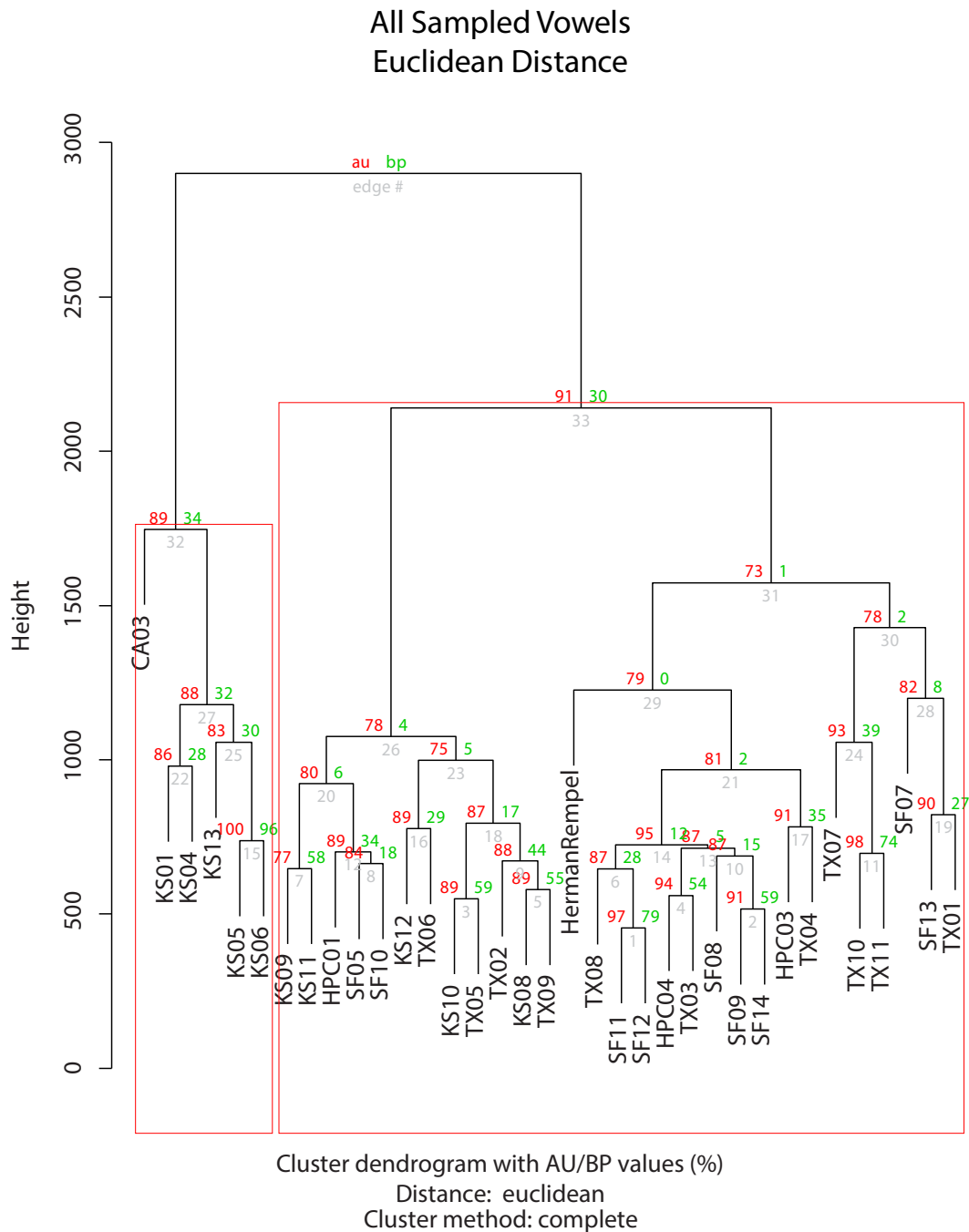


Figure 5.6 Euclidean Distance Dendrogram of Full Plautdietsch Vowel System

The structure of this dendrogram is different than the structure of the previous two dendrograms. Figure 5.6 shows that there is a US clade which is distinct from the Canadian-Mexican clade. Within the Canadian-Mexican clade, there are two major branches, but both of them have under 80% support. Figure 5.7 shows the same set of speakers, but this time with the cosine distance metric.

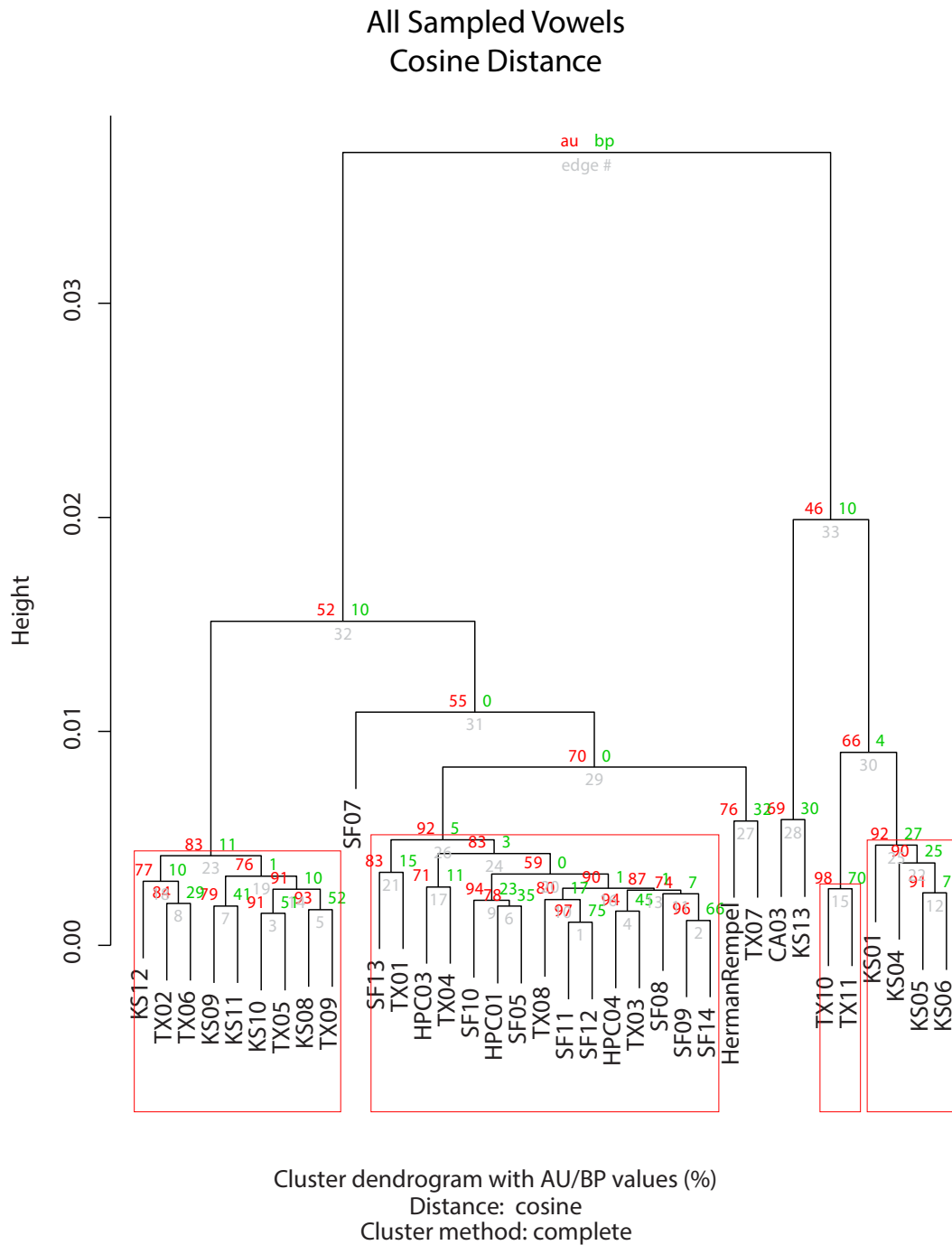


Figure 5.7 Cosine Distance Dendrogram of Full Plautdietsch Vowel System

Figure 5.7 is somewhat similar to Figure 5.6 except for the movement of the mother-daughter pair TX10 and TX11 to the side which otherwise exclusively consists of the descendants of the US 1874 immigration wave. The p-value associated with this clade is most likely weak because the vowel system of these two speakers is the closest to the Mexican vowel system except for their usage of traditional Dialect OA. The US cluster immediately below the grouping with TX10 and TX11 has strong support. Within the predominantly Mexican cluster, there are several observable patterns. Herman Rempel (a Canadian), TX07 (a German), and SF07 (a Mexican with a somewhat Canadian

pronunciation style) do not truly cluster with other members of the group. Other than this, the structure of the first major Mexican sub-cluster matches one of the sub-clusters of Figure 5.5: Early settlers in the US from Mexico form a coherent group along with the later settlers who eventually made their way into the Kansas satellite community. All other connections with Mexico form a different subgroup.

5.1.4 Summary of Vowel Clustering

In summary, both the vowel clustering which sampled all speakers and the vowel clustering that sampled only speakers who produced all vowel categories indicate that Mexican speech patterns are different than the speech patterns of the descendants from the earliest US settlements. There is evidence that the Canadian traditional dialect categories are most similar to the Mexican group (cf. Figures 5.6 and 5.7), but when the most variant traditional dialect class is removed, the Canadian system exhibits many of the same conservatisms of the US speaker population (cf. Figures 5.4 and 5.5). Speakers who are outliers to these generalizations are SF07, an older male from Mexico with a fairly conservative speech style in some respects, and TX07, a younger female from Germany who learned Plautdietsch from her Russian grandparents and then later entered a satellite Mexican community in Texas.

While all clustering results indicate that region is an important variable affecting clustering results, only some techniques indicate that gender might be a relevant factor. Figures 5.4 and 5.5 indicate that there are gendered clusters, but these clusters also have a difference in the age of the speakers: the female clusters tend to be at the upper end of the sampled population's age spectrum and males in this cluster tend to be younger.

5.2 Traditional Dialect Features

5.2.1 Traditional Dialect Feature Summary Statistics

This section explores clustering of the traditional dialect features. Unlike the vowel system, the traditional dialect investigation only incorporates dialect indices that rely on discrete categories. Table 5.4 shows the three traditional dialect features under investigation and which values are classified as either Chortitza or Molotschna.

	Chortitza	Molotschna	Example
Dialect OA	[œæ], [ɛæ], [eæ] [ɛo], [ɛu]	[ɔæ], [oæ], [o:]	<i>koak</i> '(I) cook' <i>Foagel</i> 'bird'
Final <i>-n</i>	[n]	[ə]	<i>kjikje</i> 'to look'
WGmc * <i>aaw</i>	[eiw], [ɛ:w]	[au], [ɔ]	<i>Mau</i> 'sleeve'

Table 5.4 Traditional Dialect Features

Because I restricted this analysis to only discrete categories, consultants with mixed reflexes uttered two different dialect features within the same word (e.g. *koake* 'to cook' as either [kœkə] or [kœkɲ]). A mixed reflex could never be a value on a spectrum half way between a Chortitza value and a Molotschna value (e.g. MLG *ū* as either [y:], [ʉ:], or [u:]).

Table 5.5 provides the average, standard deviation, and coefficient of variation of all speaker's combined Chortitza Index.⁵²

⁵² Note that this information does not provide the standard deviation of any given individual's usage.

	Traditional Feature	Tokens	Mean	SD	CV (%)
Chortitza Index	Dialect OA	131	70.7	44.7	63.2
	Final <i>-n</i>	855	52.8	45.5	86.2
	WGmc <i>*aaw</i>	177	78.8	40.6	51.5

Table 5.5 Summary of Chortitza Index Across Traditional Dialect Features

Overall, the speaker population sampled shows a bias towards the production of traditional Chortitza features despite the fact that the proportion of ostensible dialects in the sampled population was roughly equal. The traditional dialect trait that shows the most variation across all sampled speakers is the final *-n*. The least amount of variation across speakers is in the reflex of WGmc **aaw* in words like *bleiw* 'blue', which for most speakers has a front vowel reflex.

In general, speakers tended to fit one of four profiles as shown in Table 5.6 below. A plus means that a speaker uses a high percentage of a given Chortitza feature, and a minus means that a speaker uses a low percentage of a given feature.

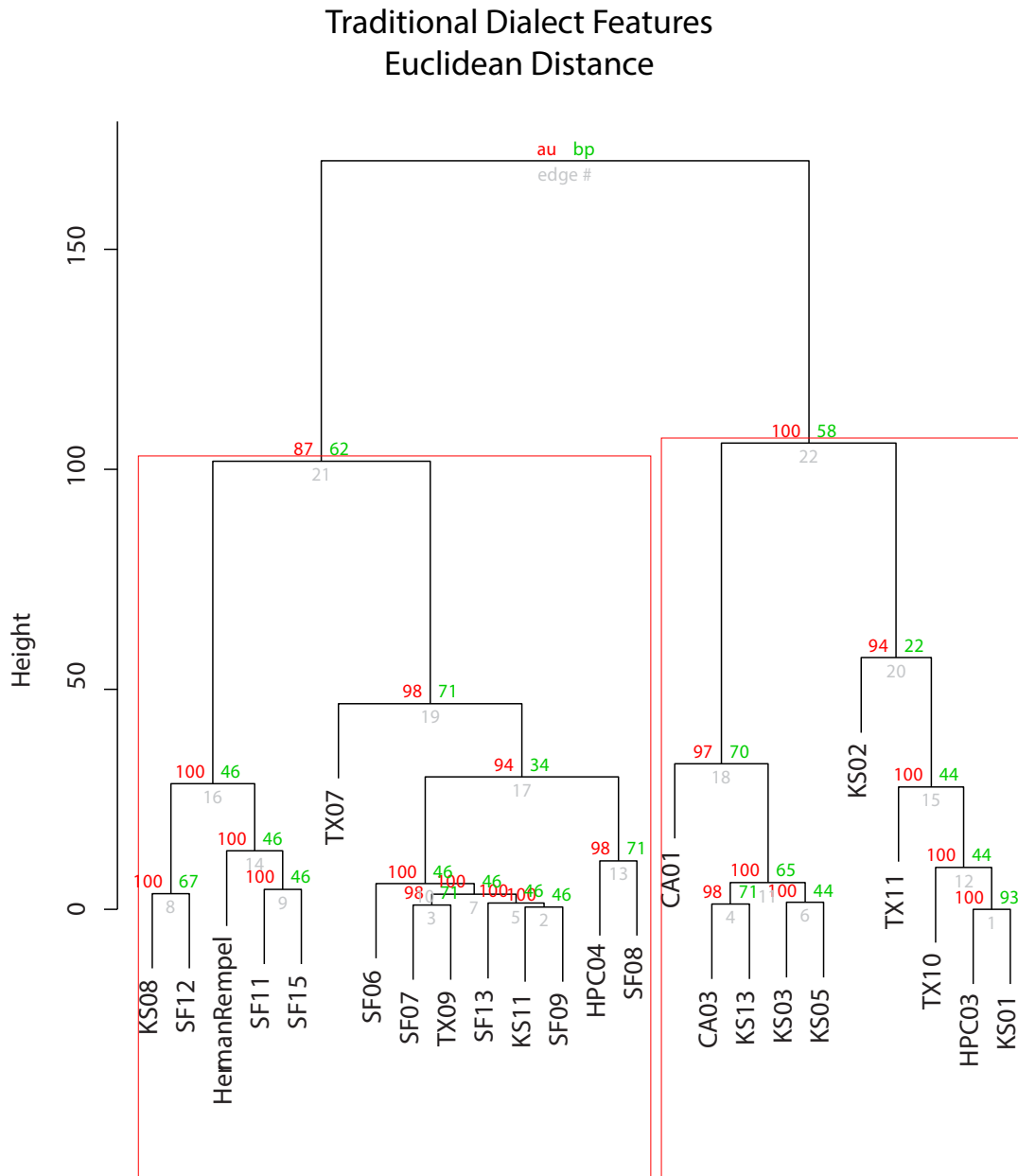
	Final <i>-n</i>	Dialect OA	WGmc <i>*aaw</i>
Traditional Molotschna	-	-	-
Molotschna A	-	-	+
Chortitza A	-	+	+
Traditional Chortitza	+	+	+

Table 5.6 Chortitza Index Profiles

Speakers who got a perfect score of 300 on the Chortitza index are KS09, KS10, KS12, SF05, SF10, SF14, TX01, TX02, TX03, TX04, TX05, TX06, and TX08. This group only includes speakers whose families have some sort of direct affiliation with the Mexican group. It notably excludes the Canadians who are not members of the *Rückwanderung* group. Speakers who produced all three dialect traits and received a score of 0 are KS04, KS06, and KS07, all of whom are descendants of the original Central US settlement.

5.2.2 Traditional Dialect Feature Clustering

The clustering analysis of traditional dialect features only includes those speakers who produced all three dialect traits and did not receive a perfect score of either 0 or 300. Figure 5.8 shows the euclidean distance dendrogram of these 24 speakers and the p-values of the clusters. Note that if participants with perfect scores could have been included in the chart, the traditional Molotschna speakers would be on the right hand side of the chart and the traditional Chortitza speakers would be on the left hand side.



Cluster dendrogram with AU/BP values (%)
Distance: euclidean
Cluster method: complete

Figure 5.8 Euclidean Distance Dendrogram of Three Dialect Features

There are two major groups in this chart. The rightmost group is the Molotschna cluster and the leftmost group is the Chortitza cluster. Within the Molotschna cluster, there are two major subgroups. The rightmost subgroup does not use the final *-n* but does have high usage rate of the front reflex of WGmc **aaw*. Some of these speakers also use front reflexes of Dialect OA. Speakers TX10 and TX11 are from the Jagüeyes region of Northern Mexico. This region is known for its lack of final *-n* and usage of back reflexes of the Dialect OA class. HPC03 is from Ciudad Cuactémoc and while she

consistently lacks the final *-n*, she only uses front reflexes of the Dialect OA class.⁵³ TX10, TX11, and HPC03 all use the front reflex of WGmc **aaw*. The leftmost Molotschna subgroup uses final *-n* occasionally (mostly in the word *foake* 'often'), and generally does not use the front reflex of WGmc **aaw*. All of these speakers have the back reflex of Dialect OA. Within the Chortitza Cluster, there are two main subgroups. The rightmost cluster includes speakers who use the front reflexes of Dialect OA and WGmc **aaw*, but they occasionally do not use the final *-n*. The leftmost subgroup contains speakers who consistently use the front reflex of Dialect OA and West Germanic **aaw*, but they either do not use the *-n* or have a high degree of variability in its usage.

Figure 5.9 shows the cosine distance dendrogram of the traditional dialect features. If perfect scores could be included in this dendrogram, people with a score of 300 would be on the right hand side of the tree and people with a score of 0 would be on the left hand side.

⁵³ During the interview, HPC03 only used one word with a reflex of the Dialect OA class, but many casual conversations with her and her family indicate that both she and HPC02 have consistent use of the front reflex of the Dialect OA class.

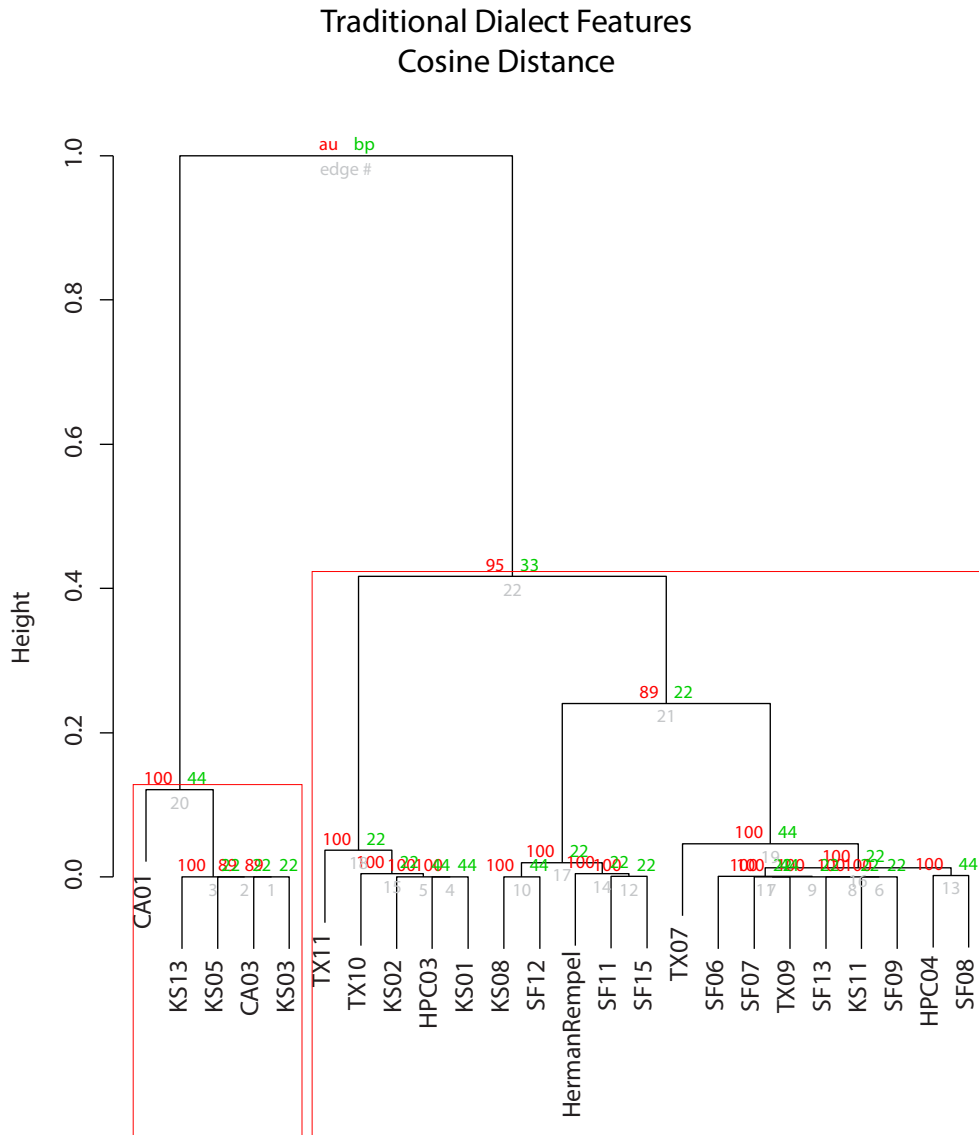


Figure 5.9 Cosine Dendrogram of Three Dialect Features

Figure 5.9 has the same four low level clusters that are found in Figure 5.8. The largest difference between the two figures is the treatment of the higher level clusters. Figure 5.8 groups majority of the speakers from the US in a separate cluster from Mexican and Canadian speakers unlike Figure 5.9. The two leftmost sub-clusters of the Mexican group contain all of the people who speak something that is considered to be an ostensible “Molotschna” variety for the Mexican group. Herman Rempel is in this group, but he classifies himself as a Chortitza speaker. The US born KS01 and KS02 are also found in this cluster and they consider themselves to be Molotschna speakers in the same way that CA01, CA03, KS03, KS05, and KS13 consider themselves to be Molotschna speakers. Members of the rightmost Mexican subgroup are considered to be speakers of an ostensible “Chortitza” variety who occasionally use Molotschna forms. The consultants from the US who appear in this group consider themselves to

be Molotschna speakers.

5.3 Summary

Clustering speakers by vowel classes, excluding the Dialect OA class, produces a pattern where speakers from Mexico and its daughter communities form a group to the exclusion of speakers from both the Canadian migration path that did not enter Mexico and speakers from the original US migration. Attempting to cluster speakers by production of the entire vowel system produced a result which indicates that all speakers from the Canadian migration path form a group separate from speakers of the original US migration path. Although at first glance these results might seem contradictory, they can best be understood as the Canadian group representing a midway point. On the one hand, Canadians who did not enter Mexico retained many conservative pronunciations of non-traditional dialect features that are also retained in the original US settlements. On the other hand, settlers in Mexico retained many of the traditional dialect features of their Canadian forefathers which are not characteristic of the original US settlement.

When we look at the clustering results for the traditional dialect categories, Figures 5.8 and 5.9 indicate that although there is variability in the use of traditional dialect features, these features tend to cluster regionally. Notably Canada and Mexico always cluster together, but sometimes the US and Mexico cluster together. Table 5.7 provides a revised version of Table 5.6 where the names of the dialect patterns have been replaced with names indicating the regions where particular patterns are found and whether they are considered to be Molotschna or Chortitza variants.

	Final <i>-n</i>	Dialect OA	WGmc * <i>aaw</i>
Traditional Molotschna	-	-	-
Jagüeyes Molotschna US Molotschna A	-	-	+
Canadian Chortitza General Mexican Molotschna	-	+	+
Traditional Chortitza	+	+	+

Table 5.7 Regional Chortitza Index Profiles

In the US, there is a variety of forms that are considered Molotschna. Occasional usage of the final *-n* in words like *foake* 'often' does not remove one from this category. Alternation between using the front or back reflex of WGmc **aaw* does not remove one from the Molotschna category either. There are many speakers who are aware of variation of this dialect feature, but seldom do they actually associate it with being either “Chortitza” or “Molotschna” in the same way they characterize usage of the final *-n* as being exclusively one or the other.

In Mexico, there are three patterns that are observed, only one of which is considered to be a Chortitza variety. In Mexico, failure to use final *-n* is what makes one a speaker of an ostensibly Molotschna variety, even though there are two such varieties. One of the two is specifically associated with a region in the state of Chihuahua known as Jagüeyes while the other is more generally used throughout Mexico to mark oneself as a non-Chortitza speaker. The Canadian Chortitza variety is specific to Canada because all interviews in the US revealed that in order to be a Chortitza speaker, one must use the final *-n*.

When one takes all of the dendrograms presented in this chapter into consideration, an image begins to emerge that runs counter to the view that Plautdietsch dialects in North America are not

differentiated by region. The data from these models suggest that early groups of immigrants to North America were distinct in their usage of traditional dialect forms, but had many shared features of their vowel pronunciation system. Innovations began to occur in places which were settled later in North America, Mexico and its daughter communities in particular. The innovations mostly ran their course through part of the vowel system. The innovations which occurred in the traditional dialect system did not occur at a large enough magnitude to separate the behavior of the new systems from the behavior of the older parent Canadian systems. When speakers from Mexico returned to the parent Canadian communities, they did not necessarily adopt the speech patterns of the older community, rather they maintained the innovations which mark their speech as separate from the Canadian speech style.

Chapter 6 Conclusion

The previous two chapters have presented the findings of an acoustic study of linguistic variation in the Plautdietsch language spoken in North America. This chapter concludes the present study by summarizing these findings. The findings are ordered with respect to the scope of linguistic inquiry. §6.1 summarizes the findings of this study that deal directly with linguistic variation in the Plautdietsch community and the relationship of this variation to the Mennonite Migration path. §6.2 summarizes the diffusion patterns of linguistic change in the North American speech-archipelago and discusses the role that distance plays in the diffusion of change. §6.3 discusses which factors possibly facilitated the actuation of linguistic change in Mennonite communities. Ultimately, social interaction seems to play an important role in facilitating actuation and crystallization of change in some Mennonite communities. Finally, §6.4 provides final remarks.

6.1 Quantifying Linguistic Variation in Plautdietsch

This study has shown that there are two distinct, but overlapping systems of linguistic variation in Plautdietsch. The “traditional dialect system” involves certain consonantal, vocalic, and morphological features. Many of the variables in this system fall into discrete categories of classification; either the speaker has the feature or they do not. The phonetic values of the traditional system align such that speakers of the Chortitza variety have [+FRONT] realizations of vowels, whereas speakers of the Molotschna variety have [-FRONT] realizations. There are some speakers who are canonical Chortitza speakers, and some speakers who are canonical Molotschna speakers, but it is frequently the case that people use both sets of features. Some speakers even alternate between Chortitza and Molotschna forms within a single word or within a given feature. Speakers of the language are highly aware of some features in the traditional system and are known to exploit them to position themselves socially within their local communities.

The vowel system is another system with considerable variation. Unlike the traditional dialect features, this system is gradient in nature. Speakers are not known to consciously manipulate the realizations of vowel classes except for those classes which are relevant to the traditional dialect features. Some speakers are aware that they have changed features of their vowel system, but they view the change as part of a larger linguistic shift to another community's norms (e.g. traditional dialect features and vocabulary are also included in this type of shift).

The results of statistical analysis of both systems in North America indicates a relationship between linguistic systems and migration, but the relationship is different for the two linguistic systems. The traditional dialect system tends to be conservative even when a group migrates. Some features of the traditional dialect system may be altered after migration, but the innovations are not robust enough to create new dialect types that are fully distinct from other preexisting dialect types. Central Canadian groups are predominantly from a Chortitza background and use mostly Chortitza features. Mexican groups originated predominantly from the Central Canadian Chortitza groups and have mostly enhanced the Chortitza features. Non-Chortitza groups in Mexico have adopted many of the Chortitza features of the original settlers, but they have not innovated forms that place them in a category independent of other Chortitza or Molotschna groups. Groups from the original US settlements are mostly from a Molotschna background and have retained their Molotschna features.

The vowel system also changes when new settlements develop, but usually the change spreads throughout the whole community regardless of how individual speakers position themselves in the traditional dialect system. When migration occurs, the sum of innovations in the vowel system sometimes creates a new type of vowel system that is detectable in statistical analysis (e.g. the

difference between the Mexican and US-Canadian clades). To illustrate the first point, Chortitza and Molotschna speakers in the US and Canada have similar vowel systems. The systems found in these two regions differ from the more conservative systems of their parent Russian communities that were described in the late 1920s (cf. Quiring 1928). The vowel systems of Mexican Mennonites developed away from the more conservative vowel systems of their parent Canadian community. Some of the developments in the Mexican system which differentiate it from the Canadian system appear to have saturated the community in a period of 44 years (from the time of initial settlement to Moelleken's documentation in 1966). This is not to say that linguistic innovations in vowel systems do not occur in parent groups, it is just that there is usually an observable spurt of developments in daughter communities. The difference between the Russian vowel systems of Quiring 1928 and Jedig 1966 suggest that there was a lot of development in the vowel systems of the parent Russian communities, but in fact the groups documented by Jedig are communities that postdate the forced movement and restructuring imposed by the Russian government in the 1930s. In Mexico, there is a range of variation in the vowel systems, but some of the variability is related to when people either emigrated from the community or moved to other parts of the country.

The results of the statistical tests have implications for the study of Plautdietsch dialectology. While it is true that there are some features of speech that require knowledge of micro-level social interaction to interpret, there are definable features of speech that only require macro-level social information to interpret (i.e., region). It is still not clear what role gender and age play in the development of these changes.

6.2 Linguistic Change Across Speech Islands

The innovations in the Plautdietsch community are of two types. The traditional dialect features tend to be at the level of consciousness and are socially evaluated by speakers. Innovations in the vowel system tend not to be at the level of consciousness of the speech community. These two types of changes tend not to spread across speech islands, but they do tend to spread within speech islands. Within a speech island, traditional dialect features spread when individuals decide to adopt elements associated with a particular sub-community, or when one sub-community assumes an overwhelming number of converts from another. Within a speech island, vowel features not associated with traditional dialect features spread independent of social evaluation.

Although there is no evidence that innovations in North America have diffused across speech islands, innovations do spread in other ways. It has been observed that speakers of one speech island sometimes move into close proximity of another speech island, but the two communities remain distinct for all intents and purposes. Sometimes innovations are carried directly from one speech community into the physical space of another community, but the two groups do not socially integrate and the innovation does not spread beyond the original carriers. Migrant workers from Latin America that reenter Canada come into contact with members of the parent Canadian community. Neither the parent community nor the daughter community take on each other's speech patterns. Speaker MT01 is a member of a Canadian community that accepted migrant workers, but none the less, his speech pattern fits within the systems observed in other Canadian populations (cf. Cox et al. 2013). The members of the Mexican *Rückwanderung* group have not adopted the more conservative speech style of other Canadians, rather they maintain the pronunciation specific to the groups that entered Latin America. The only observable cases of people adopting innovation is when Canadians move to Mexico with the intent of not moving back to Canada. In this case, the Mexican community does not change its norms, but the individual Canadians who decide to leave their old life style switch to the norms of the Mexican community around them. It is not clear in this case that they subsequently export the innovations to Canada.

The trend in adopting new speech patterns outlined above suggests that within North America, Mexico is not only a zone of innovation but it is also a socially prominent hub. Members of other groups adapt to the Mexican community when they decide to settle in Mexico, but when the conditions are reversed, members of the Mexican community are not known to reciprocate. The social prominence is due in part to the high birth rate, which effectively makes the Mexican speech community the largest and most mobile in North America, but also to the generally held view that Mexican and other Latin American groups maintain traditions more than the US and Canadian groups.

The social dynamics of long-distance speech communities are crucial to understanding the role that distance plays in the spread of linguistic innovations. It is clearly the case that physical distance does not prevent members of the Mennonite speech community from interacting with each other. In fact, modern technology is used by all denominations of Mennonites that were observed over the course of this investigation with the expressed purpose of keeping communities socially connected in spite of geographical distance. It seems to be more the case that social distance is the relevant factor in the spread of innovations. Whenever one group dissociates itself socially from another group, it is often the case that one of the two communities will also physically separate itself from another if they aren't already far apart. In the case of *Rückwanderung* group and migrant workers who reenter Canada, they do not fully integrate into the preexisting Canadian social structures. Those who do integrate into Canadian social structures still have a foot in the door with their social ties in Latin America. In the case of Canadians who decide to live among Mexican groups, there is usually some expressed desire to leave Canada behind and fully integrate with a new community. Canadians looking to leave Canada are the only groups that have been observed to adopt the speech style of others.

In the case of the Mennonite community in North America, the differences between the vowel systems appear to develop in a branching tree-like structure that is linked to migration, but in fact this tree structure is only possible because people consciously cut social ties. As observed in some groups, when social ties are fully repaired, linguistic change spreads in a wave-like fashion from an epicenter to new groups that are socially open to adopt new norms.

6.3 Actuation of Linguistic Innovation

One of the most difficult questions to answer with respect to language change is why innovations arise at a particular time. Given that there is inherently a wide range of variation in linguistic production and perception at any given time, it is a mystery as to why an innovation takes off at one time as opposed to any other time.

Some research into this topic suggests that actuation of linguistic change accompanies social reorganization, typical of periods of major social upheaval. Proponents of this view have proposed that in order to lay claim to one's position within a newly developing social structure, people in a given linguistic community exploit linguistic variation in order to identify themselves as members of one emergent community or another.

Within the case of the Plautdietsch speech community, the vowel shift appears to advance as new settlements are formed. As outlined in Chapter 1, new settlements are generally formed as a matter of rejection of an older social order. The Prussian community formed when Mennonites rejected forced conversion to Catholicism and persecution in the Netherlands. The Russian communities formed when Mennonites rejected conscription in Prussia. The US and Canadian communities formed when Mennonites rejected forced conscription and relocation in Russia. The Mexican communities formed when Mennonites rejected government interference in their education system. The Belizean, Bolivian, and US satellite communities formed when Mexican Mennonites rejected an overbearing system of internal government. All historical documents produced from within the Mennonite community indicate that each move came at a great financial and physical cost to the settlers involved. These

documents often frame settlement hardships as God's will to test the resolve of the settlers to remain steadfast in their faith. Effectively, resettlement is viewed in some communities as the development of a new religious order that is more devoted to the original spirit of the Mennonite religious movement than the group they are leaving.

In the different movements, different linguistic variables are altered. The move from Prussia to Russia mostly involved the development of the traditional dialect variables. These variables eventually became socially evaluated as representing the Old Colony and tradition or the New Colony and progress. In the initial move to North America from Russia, the social evaluation of the traditional dialect features continued to be highly salient. In the move from Canada to Mexico there are two conflicting social desires. On the one hand, Mexican Mennonites had a strong will to preserve “tradition”, but on the other hand there was also a strong will to break away from the supposed corruptness of the Canadian society they were leaving behind. This desire to disassociate from Canadian society was so strong that the Old Colony church that remained in Canada was effectively excommunicated by the Mexican church. It is not surprising that Mennonites in Mexico saw a marked increase not only in Chortitza forms used by their conservative Canadian predecessors, but also a marked increase in the vowel production that was not characteristic of Canadian Plautdietsch.

Another factor which aids the staying power of these linguistic innovations is likely related to the community's high birthrate. The high birth rate and selection of secondary caregivers for young children has consequences for the rate at which variation spreads through the community. In traditional larger Mexican families, the parents are usually the head of the household and do not live with older relatives (unless those relatives need assistance). The father, who usually works long hours away from the house, does not provide as much input as the mother, who is almost always at home. Older sons may work with the father, but the older daughters stay at home and are second in command to the mother. The oldest daughter is usually responsible for primary care of children if the mother is engaged in other chores. Sometimes if a mother feels overwhelmed with housework, she may make arrangements with another family to have one of their daughters come over and help with chores and childcare. Effectively, young children have a high amount of linguistic input from adolescent caregivers. If there is linguistic variation in the population, adolescent caregivers can reinforce the innovative variable as the norm to younger children before those children enter the school system and begin negotiating their place within their peer groups. After exiting the school system, those children return the favor to younger relatives or family friends.

6.4 Closing

This project has explored linguistic variation in North American Mennonite communities and its origins in social history and interactions between different Plautdietsch speech islands. I have provided evidence that regional norms have developed in Plautdietsch and not all linguistic variation within the community is family specific. In spite of regional norms which have developed in some communities, there is still the sense among members of the Plautdietsch community that they belong to a transnational speech community. The findings of this study indicate that while distance among groups does play a role in the spread of linguistic change, the most important type of distance which influences the diffusion of change is social distance.

There is still much work to be done on studying linguistic variation in Plautdietsch speech islands. There are still many other Plautdietsch communities that are not extensively documented with respect to phonetic variation. Although audio recordings exist for some of the communities in South America, those records are not publicly available and have not been released for phonetic analysis by the research team that recorded them. One of the biggest challenges in documenting Plautdietsch in the future will be finding appropriate funding. General ignorance about Mennonite populations is

detrimental to review processes. While many reviewers and editors acknowledge that research on this group is important because they are understudied, there are few specialists in the Mexican Mennonite population and few linguists who study Mennonites to serve as adequate reviewers. Reviewers who do not have sufficient knowledge about Mennonite populations and Mexican Mennonites are frequently assigned to review applications for grants, conference abstracts, and articles. There are no checks on the assumptions made by these reviewers and acceptance of any document is hangs in the balance of the reviewer's imagination. While this could easily be remedied by producing more scholarly material about different Mennonite communities, the desire of some Mennonites to hide from the public eye hinders efforts to produce information to educate the general population about their culture. Some Mennonites in such communities are aware that scholastic investigation mutually benefits their knowledge too, but these communities have a commonly held view that if someone doesn't know something intuitively, they should not have access to the knowledge. Some even joke "I don't like learning things, I just like knowing them". It is my experience that some funding sources for research in Latin America do not prioritize Mennonite communities as Latino populations of interest and therefore do not prioritize funding research to work with Mennonite communities. Given the large and ever increasing presence of Mennonites in Latin America it is unclear why.

Ultimately researching the linguistic variation in Plautdietsch communities benefits not only linguists, but also there is an immense value that these studies can provide to Plautdietsch speakers and their neighboring communities. The language contains a vast amount of information that is directly connected to the social history of the group. When properly analyzed, the connection between linguistic variation and social history can provide insights to the group's social positioning within the broader population and aid in the development of cultural exchange that is mutually beneficial to both Mennonites and the communities that they live in. Also, just as important, studies of this type can aid the population developing a broader awareness of their own history and language. This coming summer, one of the consultants that I met in Texas will be headed to Poland for the first time. Having grown up in the Mexican Old Colony, she always believed that Mennonites came from Germany and did not know that Mennonites were in the Netherlands and Poland. She only became aware of this fact long after her family moved to the United States and asked me many questions about this when we first met. I insisted that she take time to go to Fresno to learn more about Mennonite history in the archives at Fresno Pacific University. This spring, we were able to connect again with each other in Fresno. During this meeting, she had the chance to introduce herself to some members of the Mennonite community in California, including those involved in archiving Mennonite genealogy records. She has kept in touch with the group in Fresno and was invited on a trip to Poland to visit the cities where her ancestors lived approximately five generations ago. Other members of the community in Texas plan to keep abreast of her experiences in Poland with the hope that they too may gain more insight to their own history and origins.

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Appendix A
Settlement Tables

This appendix provides information about the known settlement times of different locations along the Mennonite migration path (Bergmann and Krahn 1955; Ens 1987; Francis and Bender 1955; Giesbrecht and Klassen 2011; Gingerich and Loewen 2013; Krahn 1957; Krahn 1959 a, b, c; Krahn and Haury 2009; Krahn and Sawatzky 2011; Miller and Troyer 1990; Moelleken 1994, Nieuweboer 1998; Regehr and Thiessen 2011; Sawatzky 1971; Sawatzky 1989). All settlement information includes the origin of the initial settlers, destination of the original settlers, date of original settlement, and if known the number of families that settled, and subsequent migration into the region.

Settlement	Source Location	Approximate Number of Initial Settlers	Subsequent Settlement
Chortitza 1789	Prussia	60 families	
Molotschna 1804	Prussia	365 families (first 3 years)	
Manitoba East Reserve 1874	Bergthal (Chortitza) Kleine Gemeinde (Molotschna) Chortitza Puchtin (close to Molotschna, en rout between Chortitza and Bergthal)	487 Bergthal families 53 Kleine Gemeinde 45 Chortitza 9 Puchtin families	Canada 1922-1929: Roughly 20,000-22,000 Russian Mennonites entered Canada in various provinces. No attempt to separate themselves from mainstream Canadian society Late 1940s-early 1950s: 7,000 eastern European refugees entered Canada. Played a role in urbanizing other Mennonites
Manitoba West Reserve 1874	Chortitza Fürstenland (Chortitza)	Initially 580 families Later Manitoba Bergthal 220 families	
Saskatchewan 1891	Manitoba Bergthal	5 families	
Kansas 1874	Crimea (Molotschna) Alexanderwohl (Molotschna) Prussia Swiss Volhina	600 families	

Settlement	Source Location	Approximate Number of Initial Settlers	Subsequent Settlement
Nebraska 1874	Molotschna	37 families	
Reedley 1904	Kansas, Nebraska	8 families	The dust bowl and availability of Russian Mennonites to leave Russia lead to the rapid expansion of the Reedley community in the 1930s (Moelleken 1994).
Northern Mexico 1921	Canada West Reserve	2,000 people in initial migrations. Increased to 7,000 leading up to the 1940s. primarily from Canada and a few from Russia and the US.	1940s about 800 people immigrated to North Mexico Canadian Sommerfelder Kleine Gemeinde approx. 109 families Manitoba Altkolonie 20 families Seskachewan Altkolonie 18 families Roughly 1,560 people from the 7,800 returned to their country of origin (Sawatsky 1971:97)
Belize 1958	Mexican Old Colony Mexican Sommerfelder Mexican Kleine G.	360 families	Canada, Northern Mexico
East Mexico 1950s	North Mexico (Sommerfelder, Old Colony, Kleine Gemeinde)	Unknown	
Southern Mexico 1983	Northern Mexico (Durango)	88 families	Durango Zacatecas Chihuahua Tamaulipas Belize
Altai (Slavgorod) 1908	Chortitza Molotschna ZagradoVka (Molotschna)	Unknown	1941: 475,000 ethnic Germans (including Mennonites) were deported to Siberia and

Settlement	Source Location	Approximate Number of Initial Settlers	Subsequent Settlement
			<p>Central Asia 1945: 200,000 ethnic Germans (including Mennonites) were deported to Siberia and Central Asia 1955: Some ethnic Germans resettled in Altai, but not in German villages</p>
<p>Germany 1929</p>	<p>Various Soviet Russian Locations</p>	<p>6,000 people</p>	<p>1985: Ethnic Germans are allowed to leave the Soviet Union to live in Germany. By 1993 roughly 2/3 of remaining Russian Mennonites had moved into Germany.</p>

Appendix B
Initial Plautdietsch Vowel Inventory Survey

This appendix provides information gathered in the initial stages of research comparing the vowel class membership across 4 different texts.

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
Total Vowels	23	19	20	14
Total Consonants	24?	24	24	20
Long Vowels	/î/ <i>frîan</i> 'free' <i>lîan</i> 'lend' <i>štîan</i> 'climb' <i>zîd</i> 'silk' <i>wîd</i> 'willow/pasture' (mnd. wîde) <i>frîdax</i> 'Friday' <i>lib</i> 'corpse' <i>wîf</i> 'wife' <i>blî</i> 'lead (Pb)' <i>fîl</i> 'file (tool)' <i>frî</i> 'free' <i>lîmən</i> 'to glue' <i>kwîmən</i> 'to languish (siechen)' <i>nîmodš</i> 'new-fahioned' <i>lîn</i> 'line/leash' <i>mîn</i> 'my' <i>dîn</i> 'your' <i>šwîn</i> 'swine' <i>šwînhōad</i> 'pig farmer' <i>wînaxtən</i> 'Christmas' <i>zîn</i> 'his' <i>rîp</i> 'ripe' <i>jrîpen</i> 'to grasp' <i>pîp</i> 'pipe' (as. pîpa) <i>drîst</i> 'bold' <i>fîst</i> 'crepitus ventris' (mnd. vîst) <i>îza</i> 'iron (Fe)' <i>îs</i> 'ice' <i>wîzən</i> 'to show' <i>wîza</i> 'show-er (hand on a clock)' <i>wîz</i> 'way, melody' <i>rîtən</i> 'to rip' <i>strît</i> 'conflict' <i>tît</i> 'time' <i>koprîtiŋ</i> 'headache' <i>šmîtən</i> 'fling, throw'	/i:/ [i:] long, close, unrounded front vowel	/î/ [i] High front unrounded; long and tense. <i>îl</i> 'leech' <i>šnît</i> 'it's snowing' <i>vît</i> 'far' <i>kodəri</i> 'slovenliness'	ie <i>iel</i> 'leech' <i>wiet</i> 'far' <i>frie</i> 'free' <i>liee</i> 'lend' <i>er'auf stiee</i> 'abdicate lit climb down' <i>Wied</i> 'willow' <i>Friedach</i> 'friday' <i>Wief</i> 'wife' <i>Blie</i> 'lead (Pb)' <i>Fiel</i> 'file' <i>nie</i> 'new' <i>Lien</i> 'line' <i>mien</i> 'my' <i>dien</i> 'your' <i>Schwien</i> 'swine' <i>Wienachte</i> 'Christmas' <i>sien</i> 'his' <i>riep</i> 'ripe' <i>jrîep</i> 'grasp' <i>Piep</i> 'pipe' <i>driest</i> 'bold' <i>Iesa</i> 'iron (Fe)' <i>Ies</i> 'ice' <i>wiese</i> 'to show' <i>Wies</i> 'way, melody' <i>Wiesa</i> 'hand on clock/indicator' <i>riete</i> 'rip' <i>Striet</i> 'conflict' <i>Tiet</i> 'time' <i>schmiete</i> 'throw' <i>riew</i> 'plentiful' <i>Twiewel</i> 'doubt' <i>riewe</i> 'to rub' <i>Schriewe</i> 'writer' <i>heare</i> 'to hire' looks centralizing combo <i>Ieda</i> 'udder' <i>sieme</i> 'to linger'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p>wīt 'far' (as. wīt) rīw 'wasteful/lavish' twīwəl 'doubt' rīwən 'to rub' šriwa 'writer' hīārən 'to rent' (mnd. hūren) īda 'udder' rīmən 'to empty' zīmən 'to line/seam' fəzīmən 'to omit/neglect' hīza 'houses' mīz 'mice' dīzlix 'dizzy' (mnd. dūsich numb) jīst 'infertile cow' (mnd. gūst) līz 'lice' klīta 'dumplings' krīts 'cross' (as. kruci) līd 'people' dīdən 'to interpret' bədīdən 'to mean' hīlən 'to howl' šīn 'barn' špri 'chaff' nī 'new' dīa 'expensive' fīa 'fire' štīa 'tax' dīsta 'dark' (as. thiustri) nīšīrix 'curious' dītš 'German' dīwəl 'devil'</p>			<p>fē'sieme 'to neglect' Hieza 'houses' dieslijch 'dizzy' jīest 'barren woman' Lies 'lice' Kjriets 'cross' Lied 'people' be'diede 'to mean' hiele 'to cry' Schien 'barn' Sprie 'chaff' dia 'expensive' should be centralizing Fia 'fire' should be centralizing diesta 'dark' Nieschea 'curious' Dietsch 'German' Diewel 'devil'</p>
	<p>/ê/ šēa 'scissors' centralizing špēna 'wood chips' šēpa 'shepherd' kēz 'cheese' mēd 'rent' brēf 'letter' šlēp 'slept' dēf 'thief' lēf 'dear' bēdən 'ask' hēdən 'protect' (as. hodian) mēd 'tired' kēl 'cool' špēlən 'to rinse' bēm 'trees'</p>	<p><i>Corresponds to /aɪ/</i></p>	<p>/ê/ [e] Higher mid front unrounded; long and tense. ētə 'ate (pst pl)' zēnə 't see' hēt 'hot' jēt '(I) pour' brēda 'brothers' šprē 'blackbird'</p>	<p>ee seene 'to see' heet 'hot' breeda 'brothers' spree 'blackbird' jeete 'to pour' Speena 'wood chips' Kjees 'cheese' Breef 'letter' Deep 'thief' leef 'dear' beede 'to bid' heede 'beware' meed 'tired' kjeel 'cool' speele 'to rinse' Beem 'trees' jreen 'green'</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>jrên</i> 'green' <i>jrēsən</i> 'to greet' <i>fēt</i> 'feet' <i>zēt</i> 'sweet' (as. swōti) <i>brêda</i> 'wider' <i>šprêdan</i> 'to spread' <i>šēf</i> 'skewed' <i>šrēf</i> 'wrote' <i>drēf</i> 'treib' (got. draif) <i>šlê</i> 'sloe' <i>tê</i> 'toe' (mnd. tēwe) <i>wê</i> 'Woe!' (interjection) <i>dêl</i> 'deal/portion' <i>hêlən</i> 'to heal' <i>zêl</i> 'soul' <i>hêmlix</i> 'secret' <i>bên</i> 'leg' <i>mênuŋ</i> 'opinion' <i>aulên</i> 'alone' <i>jâmên</i> 'mean' <i>klên</i> 'small' <i>štên</i> 'stone' <i>kêna</i> 'no one' <i>mênan</i> 'to mean' <i>jrêp</i> 'griff' (ahd. greif) <i>šlêp</i> 'flat sled' <i>zêp</i> 'soap' <i>êa</i> 'earlier' <i>mêa</i> 'more' <i>zêa</i> 'very' <i>šnê</i> 'snow' <i>twê</i> 'two' <i>hêš</i> 'hoarse' (mnd. hesch) <i>flêš</i> 'flesh' <i>hêt</i> 'hot' (as. hēt) <i>šwêt</i> 'sweat' <i>hêtən</i> 'to be called' <i>wêt</i> 'know' <i>nêdix</i> 'needed/essential' <i>blêd</i> 'timid' <i>dêpən</i> 'to baptize' <i>knêp</i> 'buttons' <i>kêpən</i> 'to buy' <i>flêda</i> 'lilac' <i>dêp</i> 'deep' <i>štêfkint</i> 'step-child' <i>fêdênən</i> 'to earn' <i>dênst</i> 'service' <i>lêt</i> 'song' <i>šêtən</i> 'to shoot' <i>jêtən</i> 'to pour' <i>bêstmalk</i> 'first milk of the cow after the			<i>jreete</i> 'to greet' <i>Feet</i> 'feet' <i>seet</i> 'sweet' <i>breeda</i> 'wider' <i>spreeda</i> 'to spread' <i>scheef</i> 'askew' <i>Schlee</i> 'sloe' <i>Tee</i> 'toe' <i>Deel</i> 'deal' <i>Wee</i> 'woe' <i>heele</i> 'to heal' <i>Seel</i> 'soul' <i>heemlich</i> 'secretly' <i>Meeninij</i> 'opinion' <i>au'leen</i> 'alone' <i>jemeen</i> 'common' <i>kjleen</i> 'small' <i>Steen</i> 'stone' <i>kjeena</i> 'no one' <i>meene</i> 'to mean' <i>jreep</i> 'handle' <i>Sleep</i> 'earth moving scoop' <i>Seep</i> 'soap' <i>ea</i> 'sooner' centralizing <i>mea</i> 'more' centralizing <i>sea</i> 'very' centralizing <i>Schnee</i> 'snow' <i>twee</i> 'two' <i>heesch</i> 'hoarse' <i>Fleesch</i> 'flesh' <i>heet</i> 'hot' <i>Schweet</i> 'sweat' <i>heete</i> 'to be called' <i>weete</i> 'to know' <i>needijch</i> 'necessary' <i>bleed</i> 'shy' <i>deepe</i> 'baptize' <i>Kjneep</i> 'buttons' <i>kjeepe</i> 'to buy' <i>Fleeda</i> 'lilac' <i>deep</i> 'deep' <i>Leet</i> 'song' <i>scheete</i> 'to shoot' <i>Beese</i> 'hollow reeds' <i>Jreewe</i> 'cracklings' <i>leewe</i> 'to love'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	calves' (mnd bēst) bēz 'rush Juncaceace' (mnd bēse) jrēwān 'cracklings' (mnd grēve) lēwa 'rather' lēwān 'to love'			
	/ē/ ēdik 'vinegar (mnd edec, got. akeit)' lēdst 'legtest' lēd 'legte' fēd 'vessels' lēpāl 'spoon' bēta 'better' kētāl 'kettle' hēfst 'lift' jlēza 'glasses' fājēfs 'in vain' krēft 'cancer' knēdān 'knead' prēdjān 'preach' štēlān 'steal' dēl 'board/hall' jēl 'yellow' mēl 'meal' nēmān 'to take' lēzān 'to read' frētān 'to eat (animal)' opjāfrētān 'eat up' jāzētān 'sat' fājētān 'forget' shwēwāl 'sulfur/brimstone' jēwān 'give' lēwa 'liver' lēwān 'to live' nēwāl 'fog' šmēdān 'to work in a blacksmith shop' šlēdān 'sled' jāšnēdān 'cut' špēlān 'to play' frēd 'joy' štēl 'stem'	/e:/ [e:] long, mid-close, unrounded front vowel <i>Some of these are under /eə/ like 'eat' and corresponds to orthographic äa</i>	/ē/ [ɛ] Mean mid front unrounded; long and lax. ētā 'to eat' zēnā 'to long for' fājēt '(I) forget' brēda 'boards' nē 'no'	ä äte 'to eat' brāde 'boards' nā 'no' ätikj 'vinegar' Fād 'kegs' Läpel 'spoon' bāta 'better' Kjätel 'kettle' Jläsa 'glasses' fe'jäfs 'in vain' Kjräft 'cancer' kjnāde 'to knead' prädje 'to preach' stāle 'to steal' Däl 'threshing floor' jäl 'yellow' Mäl 'meal' nāme 'to take' läse 'to read' fräte 'to devour' fe'jäte 'to forget' Schwāwelblit 'sulphur' jäwe 'to give' Lāwa 'liver' läwe 'to live' Nāwel 'fog' schmäde 'to work in a blackmith shop' schläde 'sled' jeschnāde 'cut' spāle 'to play' Fräd 'joy' Stäl 'handle'
	/ā/ 	/a/ [a:] ([æ:]) long open unrounded central (or front) vowel, and [ɐ] short mid-open to	/a/ [ʌ] Higher low central unrounded, short and lax, in unstressed position. ajent 'agent' kastrol 'saucepan'	a a'jent 'agent' Hiesa 'houses' Tap 'pots' wate 'whet'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
		open unrounded central vowel	<p><i>hīza</i> 'houses' [a] Low central, slightly fronted, short, lax before /p t k/, consonant clusters, and /r/. <i>tap</i> 'pots' <i>vatə</i> 'to whet' <i>mak</i> 'tame' <i>haft</i> '(he) has' <i>har</i> 'Lord, gentleman' [a¹] Low central, slightly fronted, with glide toward high front position before /c ç/. [a:] <i>ac</i> 'corner' <i>zaçt</i> 'says' Low central, slightly fronted, long, lax elsewhere. <i>ama</i> 'pail' <i>hab</i> '(I) have' <i>vadə</i> 'to bet' <i>flag</i> 'flag' <i>las</i> 'read (imp)' <i>ranə</i> 'to run' <i>valə</i> 'waves' <i>na</i> 'well (interjection)'</p>	<p>Harr 'lord' Akj 'corner' Ama 'pail hab 'I have' vade 'to wager' Flag 'flag' rane 'to run' na 'well'</p>
	<p>/û/ <i>lûd</i> 'loud' (as. hlût) <i>štûd</i> 'shrub' <i>zûən</i> 'to suck' <i>bûən</i> 'to build' (as. buan) <i>štrûf</i> 'shaggy/fuzzy' (as. strûf) <i>bûl</i> 'boil, bruise' <i>fûl</i> 'lazy' <i>fəfûlən</i> 'to rot/decay' <i>mûl</i> 'mouth' <i>ûl</i> 'owl' (mnd. ule, as. uwile) <i>šûliŋ</i> 'stash, hide out' (mnd. schulen, to be hidden) <i>dûmən</i> 'thumb' <i>rûm</i> 'space' <i>šûm</i> 'foam' <i>brûn</i> 'brown' <i>tûn</i> 'fence' <i>dûn</i> 'drunk' (mnd. dun swollen, drunk)</p>	/y:/ [y:] long, close, rounded front vowel	<p>/û/ [u]. High back rounded vowel in unstressed positions. <i>študent</i> 'student' <i>fēbrûa</i> 'February' [ʊ] High central rounded vowel, tense and long, in stressed position. <i>ûl</i> 'owl' <i>šnûvə</i> 'to blow the nose' <i>hût</i> 'skin' <i>trû</i> '(I) trust'</p>	<p>ü (stressed), u (unstressed), <i>Feeba'woa</i> 'February' centralizing <i>stu'dent</i> 'student' <i>hût</i> 'skin' <i>trûe</i> 'trust' <i>ütschnüwe</i> 'blow the nose' <i>Ûl</i> 'owl' <i>schnüwe</i> 'blow one's nose' <i>trûe</i> 'to trust' <i>fûl</i> 'lazy' <i>fēfûle</i> 'to rot' <i>Mûl</i> 'mouth' <i>Schülinj</i> 'on the shelter side' <i>Dûme</i> 'thumb' <i>Rûm</i> 'space' <i>Schûm</i> 'foam' <i>brûn</i> 'brown' <i>Tûn</i> 'fence' <i>dûn</i> 'drunk' <i>Düne</i> 'soft feathers'</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p><i>dûnən</i> 'down' <i>hûpən</i> 'to heap' <i>zûpən</i> 'to swill' <i>krûpən</i> 'creep' <i>rûp</i> 'caterpillar' <i>zûa</i> 'sour' <i>bûa</i> 'farmer' <i>šûa</i> 'rain shower' <i>mûa</i> 'wall' <i>trûa</i> 'grief' <i>lûs</i> 'louse' <i>tûšən</i> 'to swap' <i>krûs</i> 'curly' <i>klûtən</i> 'clod (of earth)' <i>brût</i> 'bride' (as <i>brût</i> wife) <i>bûten</i> 'outside' <i>hût</i> 'skin' <i>krût</i> 'cabbage, herb' <i>ût</i> 'out' <i>rût</i> 'window pane' (mnd <i>rûte</i> square) <i>jəbût</i> 'built' <i>nû</i> 'now' <i>jû</i> 'you guys' <i>dûw</i> 'dove' <i>hûw</i> 'hood' <i>šnûwən</i> 'to snort' (mnd. <i>shnuwen</i>) <i>drûw</i> 'grape' Note: Molotschna has <i>û</i> instead of <i>û̇</i>.</p>			<p><i>hûpe</i> 'to heap' <i>sûpe</i> 'to drink heavily' <i>krûpe</i> 'to creep' <i>Rûp</i> 'caterpillar' <i>sûa</i> 'sour' centralizing <i>Bûa</i> 'farmer' centralizing <i>Mia</i> 'wall' centralizing <i>trûa</i> 'grief' centralizing <i>Lûss</i> 'louse' <i>tûschen</i> 'swap' <i>krûss</i> 'curly' <i>Klûte</i> 'clod of earth' <i>Brût</i> 'bride' <i>bûte</i> 'outside' <i>Krût</i> 'cabbage' <i>ût</i> 'out' <i>Rût</i> 'window pane' <i>nû</i> 'now' <i>jû(nt)</i> 'y'all' <i>Dûw</i> 'dove' <i>Windrûw</i> 'grape' <i>Hûw</i> 'black lace cap worn by Mennonite matrons in the olden days'</p>
	<p>/õ/</p> <p><i>nõba</i> 'neighbor' <i>spõden</i> 'spade' <i>õdel</i> 'eagle' <i>lõden</i> 'load' <i>mõd</i> 'worm' <i>šõdən</i> 'damage' <i>fõda</i> 'father' <i>wõd</i> 'calf (leg)' <i>hõlə</i> 'catch/pick up' <i>tõm</i> 'tame' <i>hõma</i> 'hammer' <i>kõma</i> 'chamber' <i>nõmən</i> 'name' <i>hõn</i> 'rooster' <i>šwõn</i> 'swan' <i>šlõen</i> 'hit' <i>tõpjerõpt</i> 'snatched up' <i>õp</i> 'ape' <i>plõsta</i> 'plaster' <i>hõz</i> 'hare'</p>	<p>/o:/ [o:] long, close to mid-close, rounded back vowel, varying from [u:] to [o:]</p>	<p>/õ/ [õ] Mean mid back rounded, long and lax.</p> <p><i>õp</i> 'monkey' <i>fõt</i> '(I) grasp' <i>stõl</i> 'steel' <i>fõda</i> 'father' <i>jõ</i> 'yes'</p>	<p>o</p> <p><i>op</i> 'monkey' <i>stol</i> 'steel' <i>foda</i> 'father' <i>jo</i> 'yes' <i>Noba</i> 'neighbor' <i>Spodem</i> 'spade' <i>Odlə</i> 'eagle' <i>lode</i> 'to load' <i>Mod</i> 'maggot' <i>Schode</i> 'damage' <i>Wod</i> 'calf of the leg' <i>hole</i> 'to fetch' <i>tom</i> 'domestic' <i>Homa</i> 'hammer' <i>Koma</i> 'chamber' <i>nome</i> 'to name' <i>Hon</i> 'rooster' <i>Schwon</i> 'swan' <i>schlone</i> 'hit' <i>Plosta</i> 'paint bubbles on</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p>wōta 'water' yrōwān 'dig' šhnōwāl 'beak' brōdan 'fry' ōda 'vein' yrōd 'device/equipment' jnōd 'grace' štrōl 'beam/ray' kwōl 'agony/torture' mōn(t) 'moon' mōn 'poppy' mōndax 'Monday' yōnen 'to go' štōnān 'to stand' jāštōnān 'stood' špōn 'Spahn' nō 'near' šōp 'sheep' šlōpān 'to sleep' šlōp 'temple' ōs 'ox' short lōt 'let (imp)' zōt 'seed' nōtāl 'needle' nōjālōtān 'slackened' rōt 'advice' šrōt 'street' lōtān 'to let' ōwent 'evening' yōw 'chore' yō 'go (imp)' šlōp 'sleep (imp)' jāšlōpān 'slept'</p>			<p>wall' Hoz 'hare' Wota 'water' growe 'dig' Schnowel 'beak' brode 'fry' Oda 'vein' Jnod 'grace' Lijchstrol 'light ray' Kwol 'torture' Mon 'moon' Mon 'poppy' Mondach 'Monday' gone 'to go' stone 'stand' schlope 'sleep' Oss 'ox' short open o lote 'to let' Sod 'seed' Notel 'needle' Rot 'advice' Strot 'street' Owent 'evening' Gow 'talent'</p>
	<p>/ō/ ōlt 'old' spōlān 'cleave' wōlt 'forest' bōl(t) 'soon' hōltān 'stop' brōda 'brother' tomōd 'zu Mute' fōda 'fodder' fōdašt 'feeds' šōl 'school' špōlkā 'coil' štōl 'chair' blōm 'flower' krōm 'crumb' bōn 'bean' štōp 'level' rōpān 'to call' ōa 'ear' centralizing</p>	<p><i>Corresponds to /əu/</i></p>	<p>/ō/ [o] Higher mid back rounded; long and tense. ōlt 'old' fōt 'foot' štōl 'chair' fōda 'fodder' šō 'shoe'</p>	<p>oo oolt 'old' foot 'foot' stool 'chair' fooda 'fodder' schoo 'shoe' spool 'to cleave' Woolt 'forest' boolt 'soon' hoole 'to halt' Brooda 'brother' too'mood 'inclined to' School 'school' Spool 'spool' Stool 'chair' Bloom 'flower' Boon 'bean' Stoop 'stoop' roope 'to call'</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>môs</i> 'necessity' <i>hōstān</i> 'cough' <i>mōt</i> 'courage' <i>brōt</i> 'bread' <i>blōt</i> 'blood' <i>ȳōt</i> 'good' <i>hōt</i> 'hat' <i>ȳrōw</i> 'pit/hole' <i>prōw</i> 'test' <i>lōf</i> 'foliage' <i>dōf</i> 'deaf' <i>bōm</i> 'tree' <i>drōm</i> 'dream' <i>zōm</i> 'seam' <i>šōnān</i> 'to save, protect' <i>frō</i> 'glad' <i>štrō</i> 'straw' <i>dōp</i> 'baptism' <i>knōp</i> 'button' <i>kōf</i> 'purchase' <i>rōa</i> 'pipe/tube' centralizing <i>trōst</i> 'comfort' <i>ōstārn</i> 'Easter' <i>lōs</i> 'loose' <i>rōt</i> 'red' <i>dōt</i> 'dead' <i>pōt</i> 'paw' <i>šōt</i> 'lap' <i>šrōt</i> 'shred' <i>ȳlōwān</i> 'belief'			Ua 'ear' centralizing Muss 'must' short vowel hooste 'to cough' Moot 'courage' Broot 'bread' Bloot 'blood' goot 'good' Hoot 'hat' Groow 'pit' Proow 'test' Loof 'foliage' doof 'deaf' Boom 'tree' Droom 'dream' Soom 'seam' schoone 'to save for future use' froo 'glad' Stroo 'straw' Doop 'baptism' Knoop 'button' Eenkoop 'purchase' Rua 'tube' centralizing Troost 'comfort' Oostre 'Easter' looss 'loose' root 'red' doot 'dead' Poot 'paw' Schoot 'lap' Schroot 'fine particles' Gloowe 'beliefs'
	<i>Corresponds to /au/</i>	/ɔ:/ [ɔ:] long, open, rounded back vowel.	<i>Corresponds to /ou/</i>	<i>Corresponds to <au></i>
Short Vowels	/i/ <i>dik</i> 'thick' <i>wilt</i> 'wild' <i>bilt</i> 'picture' <i>lind</i> 'gelind' <i>wint</i> 'wind' <i>winta</i> 'winter' <i>biŋə</i> 'to bind' <i>driŋkən</i> 'to drink' <i>wiŋəl</i> 'diaper' <i>špriŋk</i> 'spring' <i>brinən</i> 'bring' <i>fiŋən</i> 'to find' <i>fiŋa</i> 'finger' <i>riŋk</i> 'ring' <i>šwiŋən</i> 'disappear' <i>šwind</i> 'speed'	/ɪ/ [ɪ] short unrounded mid-close front vowel	/i/ [ɪ] Lower high front unrounded; short and lax. Does not occur finally. <i>imfə</i> 'to vaccinate' <i>šnit</i> 'he cuts' <i>vit</i> 'white'n	i <i>witt</i> 'white' <i>impfe</i> 'vaccinate'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p> <i>špringən</i> 'jump' <i>hiŋən</i> 'behind' <i>himəl</i> 'heaven' <i>šnig</i> 'snail' <i>ligən</i> 'lie' <i>šnitst/šnit</i> 'cuts' <i>jripst/jript</i> 'grasps' <i>šmitst/šmit</i> 'throws' <i>bitst/bit</i> 'bites' <i>kniptst/knipt</i> 'pinches' <i>ritst/rit</i> 'rips' <i>rijst/rijft</i> 'rubs' <i>šrifst/šrift</i> 'writes' <i>šlikən</i> 'to creep' <i>štrikən</i> 'to withdraw/stroke' <i>zojlik</i> 'immediately' <i>rik</i> 'rich' <i>tix</i> 'cloth/towel' <i>flixst, flixt</i> 'flies' <i>lixst, lixt</i> 'lies' <i>lixt</i> 'light' <i>lixtən</i> 'to shine' <i>rikən</i> 'to smell' <i>kikəl</i> 'chick/fledgling' <i>frint</i> 'friend' <i>frintlix</i> 'friendly' <i>bist, bit</i> 'bites' <i>šitst, šit</i> 'shoots' </p>			
	<p> /e/ <i>trexta</i> 'funnel (lat. tractarius) <i>elrən</i> 'parents' <i>krenz</i> 'wreaths' <i>menš</i> 'men (ahd mannisco) <i>lenda</i> 'lands' <i>eŋəl</i> 'angel' <i>leŋ</i> 'length' <i>heŋ</i> 'hands' <i>beŋa</i> 'bands' <i>deŋkən</i> 'think' <i>šteŋəl</i> 'stalk' <i>zeŋgəl</i> 'singe' <i>weŋən</i> 'turn (as. werndian) <i>eŋ</i> 'narrowness' <i>eŋstən</i> 'to frighten (mnd engesten) <i>eln</i> 'older' <i>leŋa</i> 'longer' <i>zeldən</i> 'seldom' <i>welt</i> 'world' </p>	<p> /e/ [ɛ] short, unrounded, mid- open front vowel, [ə] short, slightly unrounded, mid- close to mid-open central vowel </p>	<p> /e/ [ɛ] Lower mid front unrounded; short and lax. Does not occur finally <i>entə</i> 'ducks' <i>het</i> 'heat' <i>zenə</i> 'to be' </p>	<p> e <i>ente</i> 'ducks' <i>hett</i> 'heat' <i>senne</i> 'to be' <i>fesch</i> 'fish' <i>jeft</i> 'poison' </p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>helpa</i> 'helper' <i>jelən</i> 'to be worth' <i>šelən</i> 'to scold' <i>jelt</i> 'money' <i>šmelten</i> 'melt' <i>reb</i> 'rib' <i>bedən</i> 'ask' <i>medax</i> 'Wednesday' <i>dreda</i> 'third' <i>jefst</i> 'you give' <i>ek</i> 'I' <i>pek</i> 'bad luck' <i>zelwa</i> 'silver' <i>wel</i> 'will' <i>welən</i> 'volition' <i>špel</i> 'game' <i>nemst</i> 'take' <i>šlem</i> 'bad' <i>šempən</i> 'to swear' <i>benən</i> 'inside' <i>ken</i> 'chin' <i>brenən</i> 'burn' <i>špenən</i> 'spin' <i>šep</i> 'ship' <i>deša</i> 'carpenter' <i>freš</i> 'fresh' <i>feš</i> 'fish' <i>beskə</i> 'a little' <i>lest</i> 'list' <i>mest</i> 'shit' <i>šmet</i> 'blacksmith' <i>beta</i> 'bitter' <i>šret</i> 'step' <i>het</i> 'heat' <i>met</i> 'with' <i>jlet</i> 'member'			
	/u/ <i>brukən</i> 'to need' <i>buk</i> 'belly' <i>luk</i> 'hole/gap' <i>duckən</i> 'to dive' <i>fəštukt</i> 'sprained' <i>štruk</i> 'shrub' <i>rux</i> 'rough' <i>uk</i> 'also'	/ʌ/ [ʌ] short, slightly rounded, close to mid-close central to back- central vowel	/u/ [ʊ ¹] Lower high back rounded, with glide to high front position before /ŋ̃/. <i>huŋ̃</i> 'dogs' <i>špuŋ̃ə</i> 'to plug (a melon)' [ʊ] Lower high back rounded; short and lax. Does not occur finally. <i>uk</i> 'also' <i>burnus</i> 'Russian-style fur over-coat' <i>muta</i> 'mother'	u <i>aunspunje</i> 'to test a watermelon for ripeness by cutting a small triangle or rectangle through the rind' <i>hunj</i> 'dogs' <i>uck</i> 'also' <i>burnuss</i> 'thick heavy overcoat' <i>mutta</i> 'mother' <i>buck</i> 'belly' <i>hunt</i> 'dog'
	/o/ <i>folt</i> 'fold'	/o/ [ɔ] short, rounded, mid-open	/o/ [ɔ̃] Higher low back rounded, short and lax,	o <i>holl</i> 'hollow'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p><i>foltən</i> 'fold' <i>kolt</i> 'cold' <i>zolt</i> 'salt' <i>jezoltzən</i> 'seasoned' <i>šchmolz</i> 'lard' <i>doxt</i> 'thought' <i>jədocht</i> 'thought' <i>broxt</i> 'brought' <i>jəbroxt</i> 'brought'</p>	back vowel	<p>before /l r/. <i>hol</i> 'hollow' <i>morjə</i> 'tomorrow' [<š] Higher low back, short and lax, somewhat fronted and less rounded elsewhere. Does not occur finally <i>os</i> 'ox' <i>hof</i> 'farmyard' <i>bodəm</i> 'bottom'</p>	<p><i>morje</i> 'tomorrow' <i>oss</i> 'ox' <i>hoff</i> 'yard' <i>boddem</i> 'bottom'</p>
	<p>/a/ <i>axt</i> 'eight' <i>dax</i> 'day' <i>paxtən</i> 'to lease' <i>max</i> 'like' <i>šlach</i> 'hit' <i>šlaxtən</i> 'slaughter' <i>flag</i> 'flag' <i>šwak</i> 'weak' <i>jəšmak</i> 'taste' <i>dak</i> 'roof' <i>zakən</i> 'sink' <i>fak</i> 'discipline' <i>aŋəl</i> 'hook' <i>laŋ</i> 'long' <i>taŋ</i> 'tongue' <i>maŋk</i> 'many' <i>aŋka</i> 'anchor' <i>opfangən</i> 'catch/collect up' <i>blax</i> 'tin' <i>raxt</i> 'right' <i>wax</i> 'way' <i>frax</i> 'frech' <i>šlaxt</i> 'bad' <i>lada</i> 'leather' <i>fada</i> 'feather' <i>wada</i> 'weather' <i>ladix</i> 'empty (mnd. leddich) <i>trafən</i> 'meet' <i>drak</i> 'filth/dirt' <i>waksəln</i> 'change' <i>lakən</i> 'to lick' <i>trakən</i> 'pull (mnd. trecken)' <i>kak</i> 'cheeky' <i>fal</i> 'skin' <i>halpən</i> 'help' <i>balən</i> 'bark' <i>malkən</i> 'to milk'</p>	Corresponds to long a	Listed under long a	Corresponds to long a

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>maldən</i> 'to report' <i>kala</i> 'cellar (as. kellere)' <i>šwal</i> 'the brink' <i>walk</i> 'withered' <i>zamp</i> 'mustard' <i>jana</i> 'yonder' <i>drašən</i> 'to thrash/flail' <i>basəm</i> 'broom' <i>zas</i> 'six' <i>brat</i> 'board/plank' <i>brakst</i> 'breaks' <i>frat</i> 'eats (animal)' <i>halpst</i> 'helps' <i>wada</i> 'again' <i>malk</i> 'milk' <i>šwamən</i> 'swim' <i>am</i> 'him' <i>an</i> 'them' <i>rand</i> 'ditch' <i>han</i> 'back' <i>ranən</i> 'to run' <i>špand</i> 'spider' <i>bat</i> 'until'			
	/ə/	(notes that this is sometimes considered a separate phoneme)	/ə/ [ɨ] High central unrounded, in non-final position. Occurs unstressed only. <i>fədvoulə</i> 'to go astray' <i>olət</i> 'old (N)' <i>ən</i> 'a, an (unstressed)' [ə] Mean mid central unrounded, in final position. Occurs only unstressed. <i>jēvə</i> 'give' <i>dešə</i> 'tables'	
Diphthongs	/iə/ <i>dīārən</i> 'to last' <i>sīārən</i> 'scrub' <i>dīārə</i> 'more expensive' <i>fīārən</i> 'to celebrate' <i>štīarn</i> 'to govern'	/iə/ the first element is a short [i], the second is a [ə]-like vowel	/iə/ [i ^ə] High front unrounded with [ə]-glide. Does not occur finally. <i>īacən</i> 'oaken' <i>šnīət</i> 'he laces' <i>vīət</i> 'host' <i>dīāç</i> 'dough'	ä , ie, ea <i>äkjnet</i> 'oaken' <i>däjch</i> 'dough' <i>tien</i> 'ten' <i>ead</i> 'earth' <i>peat</i> 'horse'
	/êə/ <i>pêət</i> 'horse' <i>hêət</i> 'hearth' <i>wêət</i> 'worth' <i>stêən</i> 'star' <i>šwêət</i> 'sword'	/eə/ the first element is a short [e], the second is a short [ə]-like vowel	/êə/ [e ^ə] Higher mid front, with [ə]-glide. Does not occur finally <i>êərə</i> 'honors' <i>mêəštə</i> 'most'	ea <i>eare</i> 'honors' <i>measchte</i> 'most' <i>kjeadel</i> 'fellow' Many of the correspondences from

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p><i>kēadl</i> 'fellow' <i>ēad</i> 'earth' <i>jēarn</i> 'gladly (gern)' <i>twēarm</i> 'twine' <i>blēajān</i> 'to bloom' (as. bloian) <i>kēaj</i> 'cows' <i>mēaj</i> 'effort/labor' <i>bēaka</i> 'books' <i>dēaka</i> 'towels' <i>klēaka</i> 'smarter' <i>zēakān</i> 'to search' <i>ēajān</i> 'to own' <i>blēakān</i> 'to bleach' <i>ēakal</i> 'acorn' <i>lēak</i> 'spawn' <i>špēak</i> 'spoke' (as. spēka) <i>rēakān</i> 'to reach/suffice' <i>tēakān</i> 'token/sign' <i>ēak</i> 'oak' (as. ek) <i>wēak</i> 'weak' <i>hēarān</i> 'to hear' <i>drēax</i> 'dry' <i>drēajān</i> 'to dry' <i>bādrēajān</i> 'to deceive' <i>bēajān</i> 'biegen' <i>flēajān</i> 'to fly' <i>flēaj</i> 'fly' <i>frēarān</i> 'to freeze' <i>fālēarān</i> 'to lose'</p>		<p><i>cēadl</i> 'fellow' <i>jēat</i> 'Gerd' (man's name)</p>	<p>Quiring 1928 show <ä> in Rempel's variety, even when preceding historically velar consonants.</p>
	<p>/ēā/ inconsistency in notation, writes examples as ēā, but lists under ēā <i>šmēā</i> 'dirt (ahd. smēro) <i>bēā</i> 'pear' <i>šwēā</i> 'a boil (ahd. swero)' <i>lēax</i> 'humble' <i>fēajān</i> 'to sweep' <i>wēaj</i> 'ways' <i>rēajān</i> 'rain' <i>zēajen</i> 'blessing' <i>rēaknān</i> 'to calculate' <i>brēakān</i> 'break' <i>štēakān</i> 'stick' <i>fāšprēakān</i> 'promise' <i>wēak</i> 'week' <i>jābēarān</i> 'to bear/give birth'</p>	<p><i>This phoneme is contained within /eē/</i></p>	<p>/ēā/ [ɛ̃] Mean mid front, with [ə]-glide. Does not occur finally. <i>ēarā</i> 'hers' <i>mēācā</i> 'girl' <i>jēat</i> 'it ferments'</p>	<p>äa <i>äare</i> 'hers' <i>mäakje</i> 'girl' <i>jäare</i> 'to ferment'</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>Corresponds with /ûâ/</i>	/yɐ/ the first element is a half-long [y], the second is a short [ɐ]-like vowel <i>Only two examples 'sour' 'farmer', probably a part of /uɐ/</i>	<i>Corresponds with /ûâ/</i>	üa <i>süa</i> 'sour' <i>büa</i> 'farmer'
	/ûə/ <i>lûärən</i> 'wait' <i>kûärən</i> 'to languish (siechen)' <i>bädûärən</i> 'to regret' <i>bälûärən</i> 'to overhear'	/uɐ/ the first element is a short [u], the second is a short [ɐ]-like vowel	/ûə/ [ʊ ^ə] High central rounded, with [ə]-glide. Does not occur finally. <i>ûärə</i> 'watches' <i>lûäd</i> '(he) waited' <i>rûäk</i> 'smoke'	üa <i>üäre</i> 'watches' <i>lûära</i> 'to wait' <i>rûiak</i> 'smoke'
	/ōə/ <i>bōät</i> 'beard' <i>šōäpən</i> 'sharpen' <i>ōäbeıt</i> 'work' <i>jeōäbeıte</i> 'worked' <i>γōäden</i> 'garden' <i>dōäf</i> 'may' <i>ōäft</i> 'pea' <i>zōäk</i> 'sarcophagus' <i>mōäkt</i> 'market' <i>štōäk</i> 'strong' <i>šnōäkən</i> 'to snore' <i>lōämən</i> 'to make a warning noise' <i>sōäp</i> 'sharp' <i>γōä</i> 'year' <i>ōäm</i> 'poor' <i>fewōärən</i> 'to stash' <i>afōärən</i> 'experience' <i>fōärən</i> 'travel' <i>šwōät</i> 'bacon rind' <i>šōäpt</i> 'he saves (money)' <i>hōät</i> 'hard' <i>kōät</i> 'cards' <i>štōäwən</i> 'die' <i>ōäwən</i> 'inherit' <i>nōäw</i> 'scar' <i>bōäx</i> 'mountain' <i>bōäjən</i> 'to recover/save' <i>wōäkeldax</i> 'work day' <i>wōäk</i> 'work' <i>wōärən</i> 'become' <i>fädōäwen</i> 'to spoil' <i>štōäwən</i> 'to die'	/oɐ/ the first element is a short [o], the second is a short [ɐ]-like vowel	/ōə/ [ɔ ^ə] Mean mid back rounded, with [ə]-glide. Does not occur finally. <i>ōäbeıt</i> 'work' <i>fōät</i> 'he drives' <i>špōärə</i> 'to save' <i>cōäš</i> 'cherry'	oa <i>oäbeıt</i> 'work' <i>kjoasch</i> 'cherry' <i>spoare</i> 'to save' <i>boat</i> 'beard' <i>aunschoape</i> 'sharpen'

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>kōaw</i> 'notch/nick' <i>hōad</i> 'shepherd' <i>kōak</i> 'church' <i>bōak</i> 'birch' <i>kōas</i> 'cherry'			
	/ôə/ <i>wōat</i> 'word' <i>ōat</i> 'place' address	'ears' 'away' 'spurs' 'pipes'	/ôə/ [o°] Higher mid back rounded, with [ə]-glide. Does not occur finally. <i>ôarə</i> 'ears' <i>fōat</i> 'away' <i>špōarə</i> 'spurs' <i>rōas</i> 'pipes'	ua <i>uare</i> 'ears' <i>fuat</i> 'away, scam' <i>spuare</i> 'spurs' <i>ruasch</i> 'pipes' <i>Wuat</i> 'word' <i>Uat</i> 'place'
	<i>Corresponds with long /ê/</i>	/əɪ/ the first element is a short [ə]-like vowel, the second is a short [ɪ]-like half-vowel	<i>Some tokens are under /e/ 'hot' 'ate' 'pour'</i>	<i>Corresponds to <ee></i>
	/ei/ <i>meista</i> 'master' <i>heista</i> 'magpie' <i>bleiw</i> 'blue' <i>yreiw</i> 'gray' <i>kleiw</i> 'claw/talon' <i>kleiwən</i> 'to scratch' <i>fəreiwən</i> 'to rest' <i>beid</i> 'both' <i>heid</i> 'heathen' <i>weid</i> 'willow/pasture' <i>weidən</i> 'to graze' <i>leidən</i> 'to manage/lead' <i>ei</i> 'egg' <i>heilix</i> 'holy' <i>rein</i> 'pure' <i>jeist</i> 'ghost' <i>reizen</i> 'travel' <i>weit</i> 'wheat' <i>beital</i> 'chisel' <i>jeiwa</i> 'slobber' (comp. ahd. <i>seifar</i> 'foam') <i>heiwən</i> 'to hew' (ahd. <i>houwan</i>) <i>meiw</i> 'sleeve' (mnd. <i>mouwe</i> , nl. <i>mouv</i>) <i>fədeiwən</i> 'to digest' <i>štreiən</i> 'to strew'	/ɛɪ/ the first element is a short [ɛ]-like vowel, the second is a short [ɪ]-like half-vowel; or: a long mid-open unrounded front vowel.	/ei/ [ɛ̃i] Higher low front unrounded vowel, with glide to high front position. (p.32) <i>eia</i> 'eggs' <i>deit</i> '(he) does' <i>forestei</i> 'forestry camp'	ei <i>eia</i> 'eggs' <i>diet</i> 'he does'
	<i>Corresponds to /ô/</i>	/œʌ/ the first element is a short	<i>Corresponds to /ô/</i>	<i>Corresponds to /oo/</i>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
		[ə]-like vowel, the second is a short [ɚ]-like vowel, similar to [ʊ]		
	<p>/au/ <i>krauft</i> 'power' <i>yauf</i> 'gave' <i>hauls</i> 'neck' <i>baulkən</i> 'beams' <i>baul</i> 'ball' <i>kaulf</i> 'calf' <i>faulən</i> 'fallen' <i>haulf</i> 'half' <i>haulm</i> 'blade' <i>zaulw</i> 'salve' <i>aul</i> 'already' <i>šmaul</i> 'small' <i>šwaulm</i> 'swallow' <i>štaupen</i> 'stamp' <i>laum</i> 'lamb' <i>kaum</i> 'comb' <i>aun</i> 'on' <i>aumboss</i> 'anvil' <i>aumt</i> 'office/position' <i>daum</i> 'dam' <i>štaum</i> 'stem' <i>aundra</i> 'other' <i>aundaxt</i> 'suspicion' <i>baunt</i> 'band' <i>braunt</i> 'fire' <i>yauns</i> 'goose' <i>zaunt</i> 'sand' <i>maun</i> 'man' <i>mauntəl</i> 'coat' <i>waunt</i> 'wall' <i>haunt</i> 'hand' <i>launt</i> 'land' <i>daunsən</i> 'dance' <i>aupəl</i> 'apple' <i>aus</i> 'as' <i>auš</i> 'ash' <i>flauš</i> 'bottle' <i>yaust</i> 'guest' <i>ylaust</i> 'glass' <i>waušən</i> 'wash' <i>laust</i> 'Last' <i>faust</i> 'fast (tight)' <i>mauš</i> 'hook/stitch' <i>naušən</i> 'nibble/nosh' <i>rauš</i> 'rapid' <i>ylaut</i> 'flat/smooth' <i>zaut</i> 'satisfied'</p>	<p><i>Corresponds with /ɔ:/</i></p>	<p>/ou/ [ǔu] Higher low back rounded vowel, with glide to high back position. <i>oumt</i> 'office/position' <i>dout</i> 'that' <i>mou</i> 'sleeve'</p>	<p>au <i>aumt</i> 'office' <i>daut</i> 'that' <i>miew</i> 'sleeve' (C) <i>mau</i> 'sleeve' (M)</p>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<p>šuatēn 'shadow' raut 'wheel' jāhaut 'had' baut 'bath' daut 'that' wauš 'what' kruans 'wreath'</p>			
	<p>/ôo/ dôok 'towel' kôok 'cake' bôok 'book' klôok 'smart' ôokən 'eaves' rôok 'smoke' rôokən 'to smoke' lôok 'leek' flôoyən 'flew (pl)' dôoyən 'to be suitable' ôoy 'eye' lôoy 'lye' bôox 'bent' flôox 'flew (sg)' hôox 'high' (got. hauhs)</p>	<i>Molotschna Values</i>	<i>Molotschna Values</i>	<i>Corresponds to <üa> before velars</i>
	<p>/ōo/ klōoyən 'to complain' krōoyən 'collar' hōoyəl 'hail' drōoyən 'to carry/drag' fəndōoy 'today' mōoy 'stomach' mōoya 'thin/lean' γnōoyən 'gnaw' nōoyəl 'nail' jōoyən 'to hunt' zōoy 'saw (tool)' zōoyən 'to saw' dōoyən 'to become day' kōokəl'n 'to cackle' lōokən 'Lacken' fəšpōokən 'to dry rot' mōokən 'to make' wōokən 'to wake' štōok 'pole, wooden pole, to which the cattle are tied (as. staca)' nōoktix 'naked' beōok 'fallow/waste land' (mnd. bracke) dōok 'fog' (mnd. dak) hōokən 'hoe' šprōok 'language'</p>	<i>Molotschna Values</i>	<i>Molotschna Values</i>	<i>Corresponds to <oa> before velars</i>

	Quiring1928	Nieoweboer1998	Baerg1960	Rempel1995
	<i>fr̄ōyān</i> 'to ask' <i>pl̄ōyān</i> 'to plague' <i>pl̄ōy</i> 'plague' <i>l̄ōy</i> 'situation' <i>w̄ṭaw̄ōy</i> 'water level' <i>sw̄ōya</i> 'brother-in-law'			

Appendix C
Word Lists

This appendix provides the two word lists which were used through the course of this investigation. This appendix does not include the slideshow explication task which is based on Word List 2.

Word List 1

i:	biet bite una mordedura ein Biss	dietsch German alemán Deutsch	Ies ice hielo Eis
e:	bees evil malo böse	steet push empujo Ich stoße	heet hot caliente heiß
ɛ:	bäd pray yo rezo Ich bete	säkj search yo busco Ich suche	ät eat yo como Ich esse
a:	Past pest insecto malo Pest	Tacks tax impuesto Steuer	hab have yo tengo Ich habe
y:	büte outside afuera draussen	Düw dove paloma Taube	Hüt skin piel Haut
ɔ:	fot grasp yo agarro Ich fasse	Owe oven horno Ofen	Hos rabbit conejo Hase
o:	Foot foot pie Fuß	toop together junto zusammen	Hoot hat sombbrero Hut
ɪ	bitt bite (imp) ¡muerde!	dikj fat grüerso/espeso	witt white blanco

	biss!	dick	weiß		
ε	betta bitter amargo bitter	tekj twitch me crispo ich zucke	Hett heat calor Hitze		
ο	Popp doll muñeca Püppe	Spott tease brularse necken	Oss ox buey Ochs	Toch draft of air corriente de aire Zugluft	
υ	Buddel bottle botella Flasche	Tucks light tap toque ligero Zapfen	Hutt protection protección Schutz		
	schia scrub yo frego ich reibe	fear celebrate yo celebro ich feire	dia expensive caro teuer	Äkj oak roble Eiche	Stearn star estrella Stern
	Däjch dough masa Teig	eascht first primero erst	Heat hearth hogar Herd	Peat horse caballo Pferd	
	Bää pear pera Birne	Schwää boil forúnculo Furunkel	Wääkj week semana Woche		
	Rüak smoke humo Rauch	Büak book libro Buch	wua where dónde wo		
	Boat beard barba Bart	Oabeid work trabajo Arbeit	foat (he) drives maneja er fahrt		
	Uat place lugar Ort	Wuat word palabra Wort	Üare ears orejas Ohren		

Ei	Weit	beid
egg	wheat	both
huevo	trigo	ambos
Ei	Weizen	beide

aus	Ausch	Fauss
as	ash	barrel
cuando	ceniza	barril
als	Asche	Fass

Piep	Tiet	Kjiep
pipe	time	basket
pipa	tiempo	canasta
Pfeif	Zeit	Korb

Pauss	Tauss	Kauss
passport	cup	treasury
pasaporte	tasa	caja
Reisepass	Tasse	Kasse

Sied	Schiew	Ssiel
silk	plate	goal
seda	plato	meta
Seiden	Teller	Ziel

Sood	School	Ssol
seed	school	inch
semilla	escuela	pulgada
Saat	Schule	Zoll

trigj	Schnigj	Brigj
back	snail	bridge
atrás	caracól	puente
zurück	Schnecke	Brücke

uzhent	muzherijch	Bocklezhonn
especially	dirty/cloudy	tomato
específicamente	sucio	tomate
besonders	schmutzig	Tomate

Liquids:

riep	Ree	räd	Rüp	Rot	roop	rad
ripe	deer	speak	caterpillar	advice	call	save
maduro	venado	yo hablo	oruga	aconsejo	llamo	yo rescato
reif	Reh	ich rede	Raupe	Rat	ich rufe	ich rette

frie free libre/gratis frei	Breeda brothers hermanos Brüder'	Freid joy alegría Freude	Drüw grape uva Traube	brod fry yo frio Ich brate	Brooda brother hermano Bruder	Krach crash estruendo Krachen
Lied people gente Leute	leew love yo amo ich liebe	läw live yo vivo ich lebe	lüd loud alto (vol) laut	lot allow yo dejo Ich lasse	Loof foliage follaje Laub	Lada leather cuero Leder
Blie lead plomo Blei	Fleesch meat carne Fleisch	Jläsa glasses vasos Gläser	Blüs blouse blusa Bluse	Blos bubble burbujo Blase	Ploot pan sartén Pfanne	Blajch tin estaño Blech
Fiel file lima Feile	kjeel cool fresco kühl	jäl yellow amarillo gelb	fül lazy perizoso faul	hool hold yo agarro ich halte	Stool chair silla Stuhl	tale to count contar zahlen
kjnirr tired cansado müde	schlüre slip deslisarse rutschen	Holtschlorr sandal sandalia Sandale	Martier martyr mátir Märtyrer	Harr Lord Señor Herr		

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Word List 2

i:	Biet 'a bite' 'una mordedura' 'ein Biss'	Dietsch 'German' 'alemán' 'Deutsch'	Ies 'ice' 'hielo' 'Eis'
e:	bees 'evil' 'mal' 'böse'	seet 'sweet' 'dulce' 'süß'	heet 'hot' 'caliente' 'heiß'
ε:	bäd 'I pray' 'yo rezo' 'Ich bete'	Häw 'yeast' 'levadura' 'Hefe'	ät 'I eat' 'yo como' 'ich esse'

a:	Bassem 'broom' 'escoba' 'Besen'	Taks 'tax' 'impuesto' 'Steuer'	hab 'I have' 'yo tengo' 'ich habe'	
y:	püst 'it blows' 'sopla' 'es bläst'	Düw 'dove' 'paloma' 'Taube'	Hüt 'skin' 'piel' 'Haut'	
ɔ:	fot 'I grasp' 'yo agarro' 'Ich greife/fasse'	Owe 'oven' 'horno' 'Ofen'	Hos 'rabbit' 'conejo' 'Hase'	
o:	Poot 'paw' 'pata' 'Pfote'	toop 'together' 'juntos' 'zusammen'	Hoot 'hat' 'sombbrero' 'Hut'	
ɪ	Blits 'lightening' 'relámpago' 'Blitz'	dikj 'thick' 'güerso/espeso' 'dick'	witt 'white' 'blanco' 'weiß'	
ɛ	betta 'bitter' 'amargo' 'bitter'	tekj 'I twitch' 'me crispo' 'ich zucke'	Hetta 'heater' 'calafación' 'Hitzer'	
ɔ	Popp 'doll' 'muñeca' 'Puppe'	Spott 'tease' 'brularse' 'necken'	Oss 'ox' 'buey' 'Ochs'	Botta 'butter' 'mantequilla' 'Butter'
ʊ	Buttle 'bottle' 'botella' 'Flasche'	Tucks 'small tap' 'toque ligero' 'Zapfen'	puttre 'knock' 'tocar la puerta' 'knopfen'	hupps 'I jump' 'salto' 'Ich springe'

Diphthongs:

schiar 'I scrub' 'yo frego' 'Ich schrubbe'	fear 'I celebrate' 'yo celebros' 'Ich feier'	dia 'expensive' 'caro' 'teuer'	eascht 'first' 'primero' 'erst'	Deiw 'dew' 'rócío' 'Tae'
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Ead 'earth' 'tierra' 'Erde'	Peat 'horse' 'caballo' 'Pferd'	Äkj 'oak' 'roble' 'Eiche'	Däjch 'dough' 'masa' 'Teig'	
Bäa 'pear' 'pera' 'Birne'	Schwäa 'boil' 'forúnculo' 'Furunkel'	Wäakj 'week' 'semana' 'Woche'	Noagel 'nail' 'uña' 'Nagel'	
Rüak 'smoke' 'humo' 'Rauch'	Büak 'book' 'libro' 'Buch'	Rüa 'tube' 'tubo' 'Rohr'	süa 'sour/bitter' 'amargo' 'bitter'	
Boat 'beard' 'barba' 'Bart'	Oabeit 'work' 'trabajo' 'Arbeit'	foat 'he drives' 'él maneja' 'er fahrt'	Doag 'days' 'días' 'Tage'	
Wua 'where' 'dónde' 'wo'	Wuat 'word' 'palabra' 'Wort'	Uare 'ears' 'orejas' 'Ohren'	Stua 'store' 'tienda' 'Geschäft'	Flua 'floor' 'piso' 'Boden'
Ei 'egg' 'huevo' 'Ei'	Weit 'wheat' 'trigo' 'Weizen'	beid 'both' 'ambos' 'beide'	Reis 'trip' 'viaje' 'Reise'	
aus 'as' 'como' 'als'	Ausch 'ash' 'cenizo' 'Asche'	naut 'wet' 'mojado' 'nass'	Foagel 'bird' 'pájaro' 'Vogel'	
Pauss 'passport' 'pasaporte' 'Reisepass'	Tauss 'cup' 'tasa' 'Tasse'	Kauss 'treasury' 'caja' 'Kasse'	Gaus 'gas' 'gas' 'Gas'	Staut 'city' 'ciudad' 'Stadt'
trigj 'back' 'atrás' 'zurück'	schnigj 'snail' 'caracól' 'Schnecke'	brigj 'bridge' 'puente' 'Brücke'	Migj 'mosquito' 'mosco' 'Mücke'	

riep 'ripe' 'maduro' 'reif'	Ree 'doe' 'venado' 'Reh'	räd 'I speak' 'yo hablo' 'ich rede'	Rüp 'caterpillar' 'oruga' 'Raupe'	Rot 'advice' 'aconsejo' 'Rat'	root 'red' 'rojo' 'Rot'	rad 'I save' 'yo rescato' 'ich rette'		
frie 'free' 'libre/gratis' 'frei' Lied 'people' 'gente' 'Leute'	Breeda 'brothers' 'hermanos' 'Brüder' leew 'I love' 'yo amo' 'ich liebe'	Fräd 'joy' 'alegría' 'Freude' läw 'I live' 'yo vivo' 'ich lebe'	trü 'I marry' 'me caso' 'ich heirate' lüd 'loud' 'alto (vol)' 'laut'	brod 'I fry' 'yo frio' 'Ich brate' lot 'I let' 'yo deajo' 'Ich lasse'	Brooda 'brother' 'hermano' 'Bruder' loop 'I run' 'corro' 'ich laufe'	Krach 'crash' 'estruendo' 'Krachen' Lada 'leather' 'cuero' 'Leder'		
blie 'lead' 'plomo' 'Blei'	Fleesch 'flesh/meat' 'carne' 'Fleisch'	Jläse 'glasses' 'vasos' 'Gläser'	Blüs 'blouse' 'blusa' 'Bluse'	Blos 'bubble' 'burbujo' 'Blase'	Bloot 'blood' 'sangre' 'Blut'	Blajch 'tin' 'estaño' 'Blech'		
Nijcht 'cousin F.' 'prima' 'Cousine'	kjikj 'I look' 'yo miro' 'Ich gucke'	Ssista 'water tank' 'tanque de agua' 'Wassertank'	Strijch 'hair part' 'raya de pelo' 'Sheitel'	Ritta 'knight' 'caballero' 'Ritter'	Schits 'stove cover' 'campana (horno)' 'Ofenaufsatz'			
Wipp 'whip' 'azote' 'Peitsche'	Bless 'blaze' 'estrella' 'Blesse'	Beffel 'buffalo' 'búfalo' 'Büffel'	Lepp 'lip' 'labio' 'Lippe'	Repp 'rib' 'costilla' 'Rippe'	Scheffel 'shovel' 'pala' 'Schaufel'	Sesta sister hermana Schwester	Schepp ship barco Schip	Steft pencil lápiz Stift
foaken 'often' 'frequente' 'oft'	Knoaken 'bone' 'hueso' 'Knochen'	koaken 'we cook' 'cocinamos' 'kochen'	Loaken 'sheets' 'sábanas' 'Laken'	moaken 'we make' 'hacemos' 'machen'	bleiw 'blue' 'azúl' 'blau'	Meiw 'sleeve' 'manga' 'Armel'	riw 'raw' 'crudo' 'rau'	
keiw 'chew' 'masticamos' 'kauen'								

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