THE UNIVERSITY OF CHICAGO

A MULTI-GENERATIONAL ACOUSTIC AND SOCIOLINGUISTIC STUDY OF EMPHASIS IN TUROYO

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE HUMANITIES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF LINGUISTICS

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CHICAGO, ILLINOIS
AUGUST 2019

for the Mor Gabriel community

and for my children

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ACKNOWLEDGMENTS

First, I would like to thank Alan C. L. Yu, my advisor, for all his guidance and support throughout my time at the University of Chicago. I would also like to thank the rest of my committee members: Lenore Grenoble, Charles Häberl, and Juliette Blevins. Thank you each for your area specific advice; I have learned so much from each of you. Thank you to the other professors in the Linguistics department at the University of Chicago and to the students, especially my cohort, for creating such a supportive environment.

Thank you also to the universities that allowed me to be a part of their communities as I moved around. Thank you to Princeton University for allowing me to be an exchange scholar during the years while I did fieldwork in New Jersey, and especially to Andras Hamori for his support while I was there. Thank you to Rutgers University for allowing me to teach an Introduction to Linguistics class. Thank you to Ryan Shosted in the Linguistics Department and the Statistical Consulting program at the University of Illinois at Urbana-Champaign for their advice. Thank you to Jason Wilson at Biola University for his help with an R issue at a crucial time.

Thank you also to the professors who guided me during my previous degrees: Catherine O'Connor and Jonathan Barnes at Boston University, and Stephen Clark at Moody Bible Institute.

Thank you to George Kiraz, who was my first Aramaic contact in New Jersey and who introduced me to the Mor Gabriel community. Thank you to the Mor Gabriel community for welcoming me, especially to Father Hadodo and the rest of the Hadodo family, to the Thomas and Hana Barhe family, and to Fikri and Sevim Temiz. Thank you to everyone who took the time to complete the sociolinguistic interviews, and especially to those who also took the time to complete the acoustic experiment.

Thank you to my parents, my siblings, and other family and friends who supported me and cheered me on during this process.

A very special thank you to those who went through this journey so closely with me - my husband, Christopher Gregory Weaver, my partner in all things and the love of my life, and my

four children, Celeste, Grant, Esmée, and Baby #4, who have all been with me (literally) on various parts of this journey.

And thank you to God, who shepherded me during this journey, and who taught me so much along the way.

ABSTRACT

This dissertation is a sociophonetic study of emphasis (the term used to describe consonants which exhibit a secondary articulation in the posterior of the vocal tract) in Turoyo, an endangered Neo-Aramaic language, as spoken within a close-knit immigrant community (which I refer to as the Mor Gabriel community) in northern New Jersey. This secondary articulation, which is present in Turoyo but not in English, presents a unique window into the phonetics of Turoyo, as well as into the sociolinguistic aspects of this language amidst continual contact with English.

This dissertation seeks to answer three questions: (1) what are the acoustic correlates of emphasis in Mor Gabriel Turoyo? (2) is there variability in the acoustic correlates between generations? (3) if there is variability, what social factors correlate to the most faithful preservation of the acoustic correlates of emphasis?

In order to answer (1) and (2), I conduct an acoustic production study of emphasis comparing first, second, and third-generation Turoyo speakers, in order to explore the acoustic correlates of emphasis in Turoyo and to see how faithfully the language is being passed on between the generations.

In order to answer (3), I include gender and age (generation) in the acoustic study and also conduct a sociolinguistic study utilizing interviews directed by sociolinguistic questionnaires. The sociolinguistic study explores language use within the community and further questions are synthesized with the results of the acoustic study to determine what social factors correlate to the most faithful preservation of the acoustic correlates of emphasis.

While the language is found to be spoken less with each passing generation and the acoustic correlates of emphasis are found to be diminishing with each passing generation, the young people in this community are continuing to speak the language for at least another generation past the norm. This is found to be due to the sociolinguistic factors of family, social networks, and religion which are very influential in the community, though identity is ultimately the most influential. Case studies are examined which look at two families and how the acoustic correlates and sociolinguistic factors work together in their use of Turoyo.

In chapter 1, I introduce and motivate the study. Chapter 2 is a literature review - in the first half of the chapter, I review the Turoyo language and the community in which the language is spoken, and in the second half of the chapter, I review the literature on emphasis, including a typology of emphasis cross-linguistically and previous acoustic studies. In chapter 3, I lay out my methodology for both the acoustic study and the sociolinguistic study. In chapter 4, I introduce the generation and language use in the community (the first part of the results of the sociolinguistic study). In chapter 5, I give the acoustic correlates of emphasis in Turoyo by reviewing the results of the acoustic study for the grandparent generation. In chapter 6, I look at the sociolinguistic variation between the acoustic correlates, first by examining the results of the acoustic experiment for other generations and looking to see if there are differences between generations and genders, and then by synthesizing the results of the acoustic experiment with the results of the sociolinguistic study. In Chapter 7, I sum up the results and discuss important implications.

CHAPTER 1

INTRODUCTION AND MOTIVATION

Around the world, people are shifting their language use from the minority language of their parents to the dominant language of the society of which they are a part. Through this process, minority languages are being lost. This dissertation examines one such language in crisis: Turoyo, which is a Neo-Aramaic language. Aramaic has been spoken for thousands of years and was the lingua franca of the Middle East from about the 7th century BC to the 7th century AD (after which time Arabic became the Middle Eastern lingua franca). Over time, some Turoyo speakers, including those that are the focus of this dissertation, moved into Western Asia, specifically southeastern Turkey. Aramaic speakers, who are primarily Christians, have often been surrounded by people who have persecuted and mistreated them. Many of them were killed and many others have fled the Middle East and Western Asia to other locations around the world. In these locations, Aramaic is a minority diasporic language and the Aramaic-speaking people have withstood great outside pressure to keep their languages alive. Some of the speakers continue to speak the language despite the pressure, but many others do not.

This dissertation is a sociophonetic study of emphasis in Turoyo, an endangered Neo-Aramaic language originally spoken in southeastern Turkey. This dissertation studies Turoyo as spoken within a close-knit diasporic immigrant community made up of about 200 families in northern New Jersey. I have called this specific version of the language Mor Gabriel Turoyo. Emphasis, the linguistic phenomena involving consonants and vowels which exhibit a secondary articulation in the back of the throat, is present in Mor Gabriel Turoyo, and is examined alongside the sociolinguistic aspects of this language's contact with English.

The three research questions of this dissertation are: (1) what are the acoustic correlates of emphasis in Mor Gabriel Turoyo? (2) is there variability in the acoustic correlates between generations? (3) if there is variability, what social factors correlate to the most faithful preservation of the acoustic correlates of emphasis? In order to answer the research questions, the dissertation research consists of two parts: (1) a sociolinguistic study consisting of fifty interviews directed by

a sociolinguistic questionnaire, and (2) an acoustic study involving three generations of speakers to discover the acoustic correlates of emphasis in Turoyo, and how faithfully emphasis is being passed on between generations. The results of these two studies are compared to determine what social factors might correlate to the most faithful preservation of emphasis.

This dissertation research is important for a number of reasons. First, it contributes to our knowledge of Neo-Aramaic languages, which are extremely under-studied (see section 2.1). The sociolinguistic study in this dissertation is the first sociolinguistic study of Turoyo (and of a Neo-Aramaic language). The phonetic study in this dissertation is the first phonetic study of Turoyo (and of a Neo-Aramaic language). And, jointly, the sociophonetic study in this dissertation is the first sociophonetic study of Turoyo (and of a Neo-Aramaic language).

Second, this dissertation documents an aspect of an endangered language. Turoyo is severely endangered according to the UNESCO criteria (UNESCO, 2014), meaning that the children in the community are learning less and less of the language and do not use it for their main language of communication. If the language dies, so dies the culture and history of the language and the people who speak it (Crystal, 2002). It is imperative that the language be documented now: "Many Neo-Aramaic dialects are in danger of extinction and there is an urgent need for documenting as many as possible before it is too late" (Lahdo, 2017).

Third, this study helps in the goal to come to a clear cross-linguistic definition of emphasis. Emphasis has been studied since the eighth century CE (Sībawayh, 1982), but it has been almost exclusively studied in Arabic, despite being reported in a number of languages around the world (see section 2.2.2). Emphasis is an important component in the sound system of these languages, since the presence or absence of it can change the meaning of a word. In order to come to a clear definition of emphasis, detailed studies of emphasis in other languages besides Arabic must be undertaken.

Finally, the community that has been studied is actively trying to pass the Turoyo language on to their children, but they do not seem to be succeeding. Results from the sociolinguistic study in this dissertation, in particular, can help with practical ideas to help in this situation.

Chapter 2 will review the literature about Turoyo, emphasis, and heritage language speakers. Chapter 3 will explain the methodology for the acoustic experiment and for the sociolinguistic study. Chapter 4 will introduce the reader to the three generations in the Mor Gabriel community and give part of the results of the sociolinguistic study. Chapter 5 will review the acoustic correlate results for the grandparent generation in the Mor Gabriel community and identify the acoustic correlates of emphasis in Mor Gabriel Turoyo. Chapter 6 will look at the sociolinguistic variability that exists between generations and genders in the Mor Gabriel community, and also use the remaining results from the sociolinguistic study to inform the results of the acoustic experiment. Chapter 7 is the conclusion.

CHAPTER 2

LITERATURE REVIEW

2.1 Turoyo

2.1.1 Language

Basic Information

Turoyo is a Neo-Aramaic language, which is part of the Northwest Semitic subgroup of the larger Semitic language family (ISO 639-3). Turoyo is part of the Eastern Aramaic language branch (see Figure 2.1).

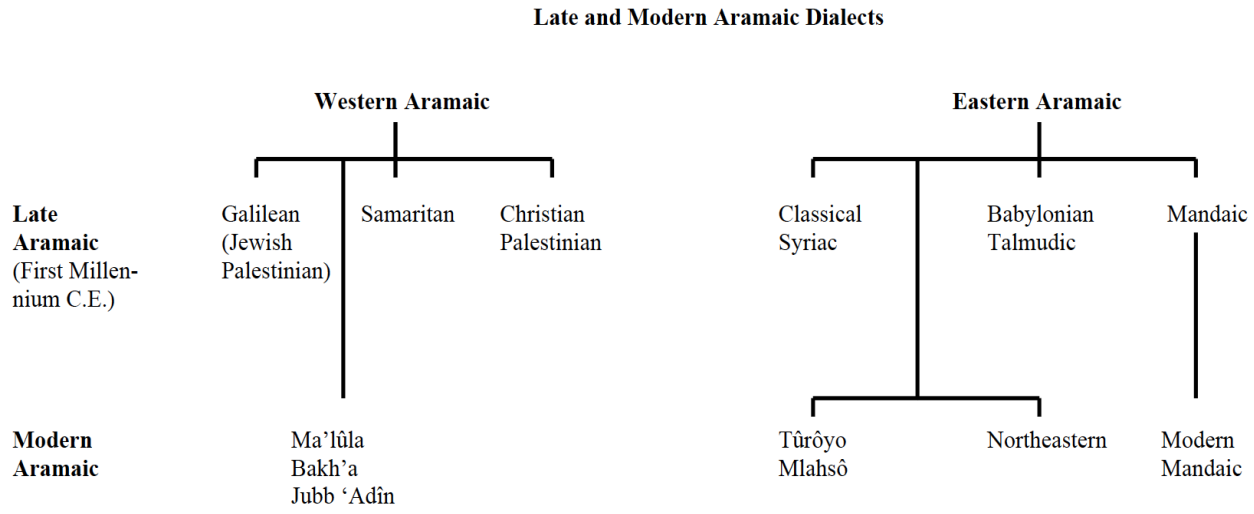


Figure 2.1: Aramaic language family tree (Hoberman, 1989)

Northeastern Neo-Aramaic has the most diversity of dialects and largest number of speakers (several hundred thousand) (Heinrichs, 1990). Turoyo is the only remaining Central Neo-Aramaic language, and there are somewhere between 15,000 and 20,000 speakers of Turoyo (Heinrichs, 1990). The other Central Neo-Aramaic language, Mlahso, now has only a few remaining partial speakers who are elderly. There are several thousand speakers of Western Neo-Aramaic (spoken

in three villages northeast of Damascus) (Heinrichs, 1990).

The name Turoyo is a demonym referring to Tur ʕAbdin, the area in southeastern Turkey where the language is spoken. Interestingly, this is the term mostly used by non-Turoyo Syriac-users (those who do not speak Turoyo but do speak Syriac), as well as scholars, to refer to this branch of Aramaic. Turoyo speakers themselves tend to use the term Suryoyo, which is the Aramaic word for Christian and also the same word they use to describe their people. I will use the language name Turoyo in this dissertation because it is an academic work.

History

The history of Turoyo is obscure.[1] Until very recently, the language has only been spoken, so there is no history of written documents to refer back to. Its earlier form can be reconstructed on the basis of Aramaic through the comparative method (Khan, 2008). There is a popular notion, amongst speakers of the language, that it is a corrupt form of Classical Syriac, but that has no linguistic basis (cf. with popular notions that Arabic dialects are a corruption of fuṣḥa Arabic). We do know that Turoyo is indigenous to the area of Tur ʕAbdin and must have been spoken there for at least a few thousand years. Apart from that, our knowledge of the existence of Turoyo stems from reports by nineteenth century travelers to the area (e.g., Perry, 1895), though they do not tell us much about its linguistic features.

Although missionaries, with the help of native speakers, were able to successfully create a literary written form of the Christian North Eastern Neo-Aramaic dialects, they were not successful in creating a literary form of Turoyo because of opposition from the church establishment and even from Turoyo speakers. However, there have been a few cases in which Turoyo has been written and even published. A few liturgical prayers have been published in Turoyo in the Syriac script. Turoyo has been written in a small number of academic publications (Prym and Socin, 1883; Ritter, 1979; Jastrow, 1985, 1987, 1992, 1996; Talay, 2002, 2008; Tezel, 2011).

1. The information in this section was taken heavily from my 2016 joint publication with George Kiraz (Weaver and Kiraz, 2016), and he is the one that educated me the most about the history of the language and the script.

Two scripts are used to write Turoyo. The first script is the Serto script of Classical Syriac (which is also used for the Christian dialects of North Eastern Neo-Aramaic). The second script is a Latin-based orthography. This script was developed in Sweden in the 1970s in response to a Swedish policy that every child ought to be taught his or her native language. An educator named Yusuf Ishaq was given the task of creating a transcription system, and a set of reading books, titled *toxu qorena*, were produced. One can see how IPA influenced the choice of [x] which in the Serto script would have been represented as ḵ. This Latin-based system has not been adopted outside of Sweden. Those who are outside of Sweden, however, are using their own, non-standardized Latin script form of Turoyo for texting, emails, Facebook, etc.

Despite the fact that Turoyo is rarely written, it has been used in the liturgy for a very long time. A priest or a deacon will hold a Classical Syriac text (either prayers or Scripture reading), and will translate it ex tempore into Turoyo. The form of the language produced is a combination of Turoyo and Classical Syriac, which one may call Liturgical Turoyo (Kiraz 2012b: Section 723-731).

As a vernacular, the language is the day-to-day language both in its pre-migration homeland as well as in diaspora communities, although always used in addition to local languages. Even in Tur ʕAbdin, most people would need to know at least one other local language in order to communicate with the outside world: Turkish, Arabic, or Kurdish. Because of Turoyo's association with Aramaic (the language spoken by Jesus), it is a holy language in the eyes of its speakers. In the past, there has been a strong opposition to using a holy language for things such as secular music (which only began to appear in the late 1960s), but Turoyo is now used, mostly in the diaspora, for all sorts of cultural activities. Since the 1970s, when Turoyo speakers began leaving the Tur ʕAbdin area, there has been a trend to both replace any borrowings in the language with Syriac and to use Syriac when new vocabulary is needed (Tezel, 2011). Compared to other Neo-Aramaic languages, Turoyo is one of the most conservative and "has retained all the consonant phonemes occurring in Syriac" (Tezel 2011: 19).

Dialectal Differences

There are dialectal differences in Turoyo. These dialectal differences are evident in Midyat, the largest town in the Tur ʕAbdin area, as well as in the surrounding villages. However, the dialectal differences do not constitute distinct languages; there is mutual intelligibility between all speakers (Tezel, 2011). The dialectal differences are largely due to the influence of other languages spoken in the area, particularly Arabic, Kurdish, and Turkish. Tezel (2011), a study of the Arabic borrowings in Turoyo, reports that "the Arabic influence on Turoyo in general is extensive" (21). "Roughly, one can say that the Arabic influence on the dialect of Midyat is greater than the Arabic influence on the village dialects, while Kurdish seems to have influenced the village dialects to a greater extent than the dialect of Midyat" (Tezel 2011: 17-18).

Sources

The first publication of Turoyo was Prym and Socin's *Der neu-aramaeische Dialekt des Tur 'Abdin* (Prym and Socin, 1883), a group of texts in Turoyo. Although Prym and Socin (1883) report that the texts are in the Midyat dialect, Jastrow (1987) says that the texts are in a mixture of the Midyat and village dialects (14). Siegel (1923) published a study based on the book. The next and most extensive Turoyo publication was Ritter's 5-volume Turoyo reference work (Ritter, 1979). The first three volumes are texts (from tapes recorded by Ritter's informants while they were in Tur Abdin) with German translation, followed by a dictionary volume and a "Verbalgrammatik" volume that were published after Ritter's death. The texts are from speakers in Midyat as well as the surrounding villages. Jastrow (1985) is a re-printing of Jastrow's 1967 dissertation focusing on the phonology and morphology of Turoyo as spoken within the village of Miden (based on work with Turoyo speakers who had immigrated to Germany). Jastrow (1987) gives information on the state of the Turoyo language as a whole at that time. Jastrow (1992) is a textbook of the Turoyo language, and is also based on the Turoyo spoken in the village of Miden.

Phoneme Inventory

Turoyo's phoneme inventory is analyzed by Jastrow (1992) as follows:

Consonants

	Labial	**Dental**	**Palatal**	**Velar**	**Uvular**	**Pharyngeal**	**Glottal**
plosive	p b	t d		k g	q		
		ṭ ḍ					
affricate			ʧ ʤ				
fricative	f v	s z	ʃ ʒ	x ɣ		ħ ʕ	h
		ṣ					
nasal	m	n					
		ṇ					
trill		r					
		ṛ					
approximant	w	l	j				
		ḷ					

Vowels

	Front Unrounded	**Central Unrounded**	**Back Rounded**
High	i		u
Mid	e	ə	o
Low		a	

However, Jastrow (1992) reports that: (1) /ḍ/ appears only in loanwords and only for some speakers, and (2) /ḷ/, /ṇ/, and /ṛ/ do occur, but only as the result of the sound sequences rl, rn, and rk assimilating to ḷḷ, ṇṇ, and ṛṛ, respectively (Jastrow, 1992). This has not been found to be true among the Turoyo speakers in the community in northern New Jersey. They do not use ḍ/, /ḷ/,

/ṇ/, or /ṛ/ in any situation, and so I do not include them as phonemes in the consonant inventory. Despite the differences in the consonant inventory, the vowel inventory is the same.

Therefore, based on my fieldwork, I would modify the phoneme inventory above as follows:

Consonants

	Labial	**Dental**	**Palatal**	**Velar**	**Uvular**	**Pharyngeal**	**Glottal**
plosive	p b	t d		k g	q		
		ṭ					
affricate			ʧ ʤ				
fricative	f v	s z	ʃ ʒ	x ɣ		ħ ʕ	h
		ṣ					
nasal	m	n					
trill		r					
approximant	w	l	j				

Vowels

	Front Unrounded	**Central Unrounded**	**Back Rounded**
High	i		u
Mid	e	ə	o
Low		a	

2.1.2 People

Around the World

Turoyo speakers are almost exclusively Christians, and language and religion are very much interrelated. Midyat, the largest town in the Tur ʕAbdin area, was a primarily Christian place, with

seven Christian churches and only one mosque, and most of the inhabitants knew and spoke Turoyo for their everyday business, including those who were Kurdish. However, throughout history, the Syriac Christans in the Midyat area have been the subject of persecution, specifically during the Mongol and Turkish invasions of the area in the 14th, 19th, and 20th centuries, as well as the Assyrian Genocide during World War I, which all resulted in the deaths of a large number of Turoyo people (Ephrem I Barsoum, 2008). Midyat is surrounded by a number of villages which are also home to Turoyo speakers. One such village is ʕAyn Wardo, ancestral home to some of the speakers in this study. ʕAyn Wardo was constructed as a stronghold and many Christians (Turoyo speakers) sought refuge there during the massacres of 1915. More details about ʕAyn Wardo and the famous 52-day siege war can be found in Lahdo (2017).

Because of the continual persecution, Turoyo speakers migrated from what became Turkey to what became Syria, Iraq, Lebanon, Jordan, and Palestine. A few immigrated to the United States where small Syriac communities had already existed since the late 1890s in New York/New Jersey (mostly Turkish speaking from Diarbakir), Worcester, Massachusetts (Turkish and Armenian speaking from Kharput), and Rhode Island (Turoyo speaking). More recently, many have left Turkey (including Turoyo speakers but also Turks and Kurds) to find jobs in the West, the Kurdish-Turkish conflict (which began in earnest in 1984) has made life especially difficult for those living in southeastern Turkey where most of the attacks are carried out, and the Turkish government has instituted various assimilation policies. A series of subsequent conflicts in the Middle East, the latest of which is currently occurring, caused further immigration to the West. This combination of events has resulted in the mass exodus of many of the Syriac Christians in the Midyat area, and in the deaths of others. While most Turoyo speaking communities ended up in Europe, mostly Sweden, Germany, and the Netherlands, a good number ended up in the United States, settling mostly in New Jersey and Los Angeles, but also in other places.

Turoyo is now primarily a diaspora language, and it is also now considered an endangered language (it is classified as ”severely endangered” by (UNESCO, 2014) because younger members of the speech community (all around the world) are not likely to acquire and/or retain Turoyo, and

those that do are less likely to pass it along to their children. Instead, they speak the dominant language of the region in which they live. According to (UNESCO, 2014), there are somewhere around 50,000 speakers of Turoyo. Turoyo has no official status in any country.

In the Mor Gabriel Community

The research site for this dissertation is a community of speakers currently living in the United States, who came from southeastern Turkey, particularly Midyat in Tur ʕAbdin and one nearby village, ʕAyn Wardo. This community arrived in the United States starting from the early 1970s and now numbers about 200 families mostly living in New Milford, NJ, as well as some of the surrounding towns. (As the community is so small, census data are unreliable, but possibly somewhere around 1,000 people.) The community has a parish, Mor Gabriel (after the Monastery of Mor Gabriel, the spiritual hub of Tur ʕAbdin), which was recently built, in Haworth, NJ. The Mor Gabriel Syriac Orthodox Church is the religious and social center of the community, and so I refer to the community as the Mor Gabriel community, as this is its most distinguishing characteristic. The Mor Gabriel parish belongs to a wider community of Syriac Orthodox parishes. What sets it apart is that it holds its services entirely in Syriac and Turoyo, something the parish is proud of. That said, the Mor Gabriel parishioners take part in social activities with the wider community, interacting with the others in languages other than Turoyo.

Social description of the Mor Gabriel community. The Mor Gabriel community is tight-knit, and most socialization happens within the community. In addition to weekly church services, there are also many social events throughout the year. The families within the community are not only friends, but most are also related to each other. Even the children, who attend public and private schools in English, do not (usually) become good friends with those who are outside of the community, as those friends would be seen as temporary, while friends from the community are seen as lifelong friends. The young people usually marry within the larger Suryoyo community (to youth in the Mor Gabriel community, or in other communities in the area, or in the other

communities around the world). Events are held for the youth (e.g. youth events for all the youth in the NJ/NY area, a yearly youth convention for all the youth in the US, etc.) to allow opportunity to grow in friendship and romantic relationship (in a group setting) with other Suryoyo young people. The people in the community are extremely hospitable, friendly, and welcoming. Most of the Turoyo speakers were self-employed while living in the Midyat area, and that tradition has continued in the United States, with many community members in the jewelry business.

Linguistic description of the Mor Gabriel community and language preservation efforts. Almost all Turoyo speakers speak at least two languages. About ninety percent of people in the Mor Gabriel community (around 180 homes) speak Turoyo to some degree. Around eighty percent (or 160 homes) also speak Turkish (because the older generations/new arrivals to the community emigrated from Turkey) and English (because the community exists in the largely English-speaking country of the United States). Only a few people in this community speak Arabic, and there are a small number of people who speak other languages, as well, depending on their background.

The Mor Gabriel community is unique among Turoyo-speaking communities in the United States. Although there are communities in countries such as Sweden and Germany which have more speakers and who speak the language in more domains (particularly school), the Mor Gabriel community has the most Turoyo speakers in the United States, and they are making the most effort (among communities in the United States) to pass their language on. Efforts to pass the language on are numerous and include speaking in the home, speaking the language in the church, a specially created Sunday school curriculum, a weekly Aramaic school, and an Aramaic summer day camp which also serves the larger Suryoyo community.

Many families speak Turoyo in their home. In about one fourth (or about 50) of these homes, Turoyo is spoken exclusively by both parents. And in about half of the remaining homes, Turoyo is spoken to some degree. However, those children who speak to their parents in Turoyo at home go to school in English, usually speak to their friends in English, and often speak to their siblings in English, as well. Turoyo is also spoken in the Mor Gabriel church. The Mor Gabriel Syriac

Orthodox Church is part of the Syriac Orthodox Church of Antioch, in particular the Archdiocese for the Eastern United States. The church services are traditional, conservative, and largely conducted in Classical Syriac and Liturgical Turoyo. The liturgical service is called the Holy Qurbono and consists of chants of Bible readings, prayers, and songs (bar Salibi, 2010). However, the announcements and sermon are given in Turoyo. A priest officiates over the services, wearing ornate vestments, and is assisted by deacons. The priest gives Holy Communion during each service. The choir is comprised of choir girls (ages 13 and up). The men and women sit separately from each other, and most women cover their heads.

There is a Sunday school program for children in kindergarten through grade 7 during the school year. A new Sunday school curriculum has recently been created for the purpose of passing on Biblical knowledge, as well as church traditions, important church terminology, and prayers. It is hoped that parents will learn this information as well, from their children and through take-home materials. Sara Hadodo Candan, a member of Mor Gabriel, with the help of her Protestant co-author, Nadine Cauthen (Candan and Cauthen, 2014), work together on the initial draft of the curriculum (adding one level each year), and then it is reviewed by archdiocesan Sunday School and Clergy committees. The curriculum has been adopted by the leadership of the Syriac Orthodox churches in the United States to be used in Sunday school classes parish-wide. Although the curriculum is written in English (to be accessible to children in all the parishes), the Sunday school teachers at Mor Gabriel may teach in Turoyo, depending on their language background and which children are present. There is no formal program for children below kindergarten age. Some children attend church with their parents and some stay home until they are old enough to participate in church activities. The junior youth (ages 13-17) attend and often participate in the service as deacons (for the boys) and choir girls. Youth are those 18 years of age and older who are unmarried, and they also attend the service.

Turoyo is also being maintained through Mor Gabriel's weekly Aramaic school, which meets during the school year and focuses on teaching the basics of the language. While there has historically been a strong emphasis in teaching the children Classical Syriac, the focus of instruction

is now moving increasingly towards Turoyo because the Mor Gabriel community is witnessing the loss of their language and they want the Aramaic school to be as practical as possible for the children who attend it. The school meets on Friday nights from 5:30 - 8:30 and has classes for kindergarten through seventh grade students. A number of children who have graduated from the Aramaic school are now teachers in it. Almost one hundred children attend the school.

In 2011, an Aramaic summer day camp was started for the Suryoyo community at large. The day camp is for 5 to 13 year olds and meets for six weeks each summer. One of the focuses of the day camp is the language, but they also cover morning prayers, Bible lessons, and cultural and folklore activities, as well as other typical summer day camp activities like sports, and arts and crafts. The day camp is attended not only by children from Mor Gabriel, but also by children from the other Syriac Orthodox parishes in the surrounding area. In 2014, approximately 200 children attended the day camp.

Whether it be speaking Turoyo in the home, in the church, at Sunday school, at Aramaic school, or at the Aramaic summer day camp, it is very clear that efforts to pass the language on within the community are focused on the children. The community believes that children are the future, and they hope to not only reach them with the language, but also in learning their culture and making lifelong friendships with others from the community. Their beliefs line up with current research which has shown that the survival of a language and the level to which the language is endangered depends upon the degree to which it is being transmitted to the next generation(s) (Crystal, 2002; Harrison, 2007; Fishman, 1991).

2.2 Emphasis

2.2.1 What Is Emphasis?

Definition

Emphasis, the name given to vowels and consonants which exhibit a secondary articulation in the back of the throat, is an historical phonemic term that has been used in Semitic studies to refer to a group of consonants that are hypothesized by some to have been originally glottalized in the proto language (Moscati, 1964; Martinet, 1964; Catford, 1974), but in modern Semitic languages, they are either glottalized (as in the Semitic languages of Ethiopia (Catford, 1977; Ladefoged, 1971; Rabin, 1972; Ullendorff, 1955)) or pharyngealized (as in Arabic, etc.). Arabic is the most well-known and well-studied language with emphasis, and emphasis continues to develop and spread throughout Arabic dialects even today (Zemanek 1996: 17), as well as into other languages. The use of the term emphasis, as is used in relation to Arabic, has now been widened to apply to other languages outside of the Semitic language family, referring to any vowels and/or consonants which exhibit secondary articulation in the back of the throat. Emphasis has been described phonetically in these contexts in a number of ways, most commonly as velarization (Bergsträsser, 1972; Ferguson, 1956; Gairdner, 1925; Rabin, 1972; Segal, 1928; Ullendorff, 1955) or as pharyngealization (Wallin, 1855, 1858; Brücke, 1860; Haupt, 1890; Meinhof, 1921; Panconcelli-Calzia, 1924; Tur-Sinai, 1937; Jakobson, 1957; Garbel, 1958; Al-Ani, 1970; Laufer, 1986; Younes, 1982; Ornan, 1983), but sometimes also as uvularization (McCarthy, 1994; Zawaydeh, 1999), which has caused confusion in the literature. Although there is not yet one common articulatory description for emphasis, Sylak-Glassman (2014) surveyed 291 languages with post-velar consonants and was able to show that "gutturals" pattern as a natural class. With more acoustic and production data from languages with emphasis, Sylak-Glassman's theoretical framework could be used to unite the analyses.

2.2.2 Reported Instances of Emphasis

Emphasis is reported in a number of languages around the world, including in the Semitic languages Arabic, Hebrew, Soqotri, Mehri, and Neo-Aramaic; the Berber languages; some Salishan, Athabaskan, and Wakashan languages; the Northeast and Northwest Caucasian languages; the Tungusic language Even; the Indo-Iranian language Kurdish; and among the Khoisan languages (details below). Although emphasis has been reported in each of these languages, it is sometimes unclear whether emphasis actually exists because there is not a clear definition of emphasis. And further, almost all of these reports are only reports of the existence of emphasis, rather than any kind of detailed study of any kind. Emphasis has been most widely studied in Arabic, dating back to Sibawayh's articulatory description in the eighth century CE (Sībawayh, 1982). Scholars have continued to study emphasis through the medieval period and into the present day, especially in the last hundred years. The articulation of emphasis has been puzzling scholars since the beginning, but with the advent of more advanced investigative procedures for viewing the back of the throat, tongue, and larynx (e.g. laryngoscopy) which allow us to see exactly what is happening in the pharynx, it is now widely agreed that pharyngealization (both primary and secondary) is articulated by way of constriction of the aryepiglottic folds (Esling, 1996, 1999; Hassan and Esling, 2007). Acoustic studies have shown that emphasis has acoustic correlates in both the emphatic consonants themselves and also in the adjacent vowels (Card, 1983; Zawaydeh, 1999; Jongman et al., 2007, 2011), though it should be noted that all but one of these studies have focused on Arabic. Data from other languages with emphasis, such as this dissertation, are needed in order to provide other examples in other languages.

In the sections that follow, I will give more information about the reports of emphasis in each of these language groups around the world.

Pharyngealization in Arabic

Classical Arabic had four emphatic consonants /d̤, t̤, ð̤, s̤/, in addition to their non-emphatic counterparts, and most Arabic dialects today exhibit these same emphatic consonants. The emphatic

consonant /ḍ/ has been the subject of much historical study. Sibawayh described it as having a lateral pronunciation, and it is hypothesized to have been a voiced lateral fricative (this sound has been found to exist in present-day Modern South Arabic languages) in Proto-Semitic and in stages of the language since then (Steiner, 1977). In Cairene and San'ani Arabic, the set of emphatic phonemes includes pharyngealized /ṭ, ḍ, ṣ, ẓ, ṛ, ḷ, ṃ, ḅ/. All emphatic consonants affect neighboring vowels by fronting /a/ and lowering (short) /i/ and /u/ (Watson, 2002). However, vowels that are not adjacent to the emphatic consonants in the word are affected differently: /i/ and /a/ are backed and /u/ is centralized (Watson, 2002). Bellem (2007) surveys a number of different Arabic dialects, looking at the phonology, phonetics, and historical linguistics of the dialects, in order to work towards a typology of emphatics in Semitic languages.

Pharyngealization in Neo-Aramaic Languages

Emphasis has also received attention in Neo-Aramaic languages, but only descriptively and phonologically, rather than phonetically. Many of the grammars of Neo-Aramaic languages give a brief description of emphasis. All but one of the grammars of Neo-Aramaic languages (that I am aware of) report emphatic consonants. This one unique case is Tsereteli (1978)'s description of *The Modern Assyrian Language*. In this description, Tsereteli explains that the historical emphatics /ṭ/ and /ṣ/ have been lost, as well as /ʕ/, but that the loss of these consonants effects the surrounding phonemes in the following ways: "they change the adjoining vowels and the palatal /l/ to velar, change voiced consonants to voiceless, and aspirated consonants to glottalised" (27). Another unique case is that of the Jewish Neo-Aramaic dialect of Persian Azerbaijan. Garbell (1965) does not report any specific emphatic consonants, but only pharyngealization which affects all phonemes, both consonants and vowels, in an entire word, a process which she calls flatting.

All of the other Neo-Aramaic languages minimally continue the preservation of the historic emphatic /ṭ/ and /ṣ/. Stoddard (2004) reports emphatic /ṭ/ and /ṣ/ in his Grammar of the Modern Syriac Language. Maclean (1895) reports emphatic /ṭ/ and /ṣ/ in his Grammar of Vernacular Syriac. Hämeen-Antilla (2000) reports emphatic /ṭ/ and /ṣ/ in Neo-Assyrian. Khan (2002) reports emphatic

/ṭ/ and /ṣ/ in the Neo-Aramaic dialect of Qaraqosh. Khan (2004) reports emphatic /ṭ/ and /ṣ/ in the Neo-Aramaic dialect of Sulemaniyya and Ḥalabja. And Häberl (2009) reports emphatic /ṭ/ and /ṣ/ in the Neo-Mandaic dialect of Khorramshahr.

Other Neo-Aramaic languages have a more extensive system of emphasis. Sara (1974) reports /ṭ/ and /ṣ/, as well as /ḍ/, /l̤/, and /r̤/ in his description of Modern Chaldean. Krotkoff (1982) reports eight emphatic consonants for the Neo-Aramaic dialect of Kurdistan: /ṭ, ṣ, ẕ, ð̣, r̤, l̤, ʧ̣, ʤ̣/, though /ð̣/ only appears in Arabic loanwords. Fox (1997) reports /ṭ/ and /ṣ/, as well as /p̣/ and /ʧ̣/ in the Neo-Aramaic dialect of Jilu. Khan (1999) reports /ṭ/ and /ṣ/, but also /ḍ/ and /ẕ/ in Arabic loanwords, and a few isolated cases of /l̤/ in the Neo-Aramaic dialect of the Jews of Arbel. Mutzafi (2004) reports /ṭ, ṣ, ẕ, m̤, l̤/ in the Jewish Neo-Aramaic dialect of Koy Sanjaq (though he does note that emphasis can sometimes spread to other consonants, as well). Khan (2008) reports eight emphatic consonants for the Neo-Aramaic dialect of Barwar: /ṭ, ṣ, ẕ, p̣, m̤, r̤, l̤, ʧ̣/. However, /ṭ/ and /ṣ/, /r̤/, and /ʧ̣/ are the only ones that can be established as phonemes via minimal pairs. Similarly, Mutzafi (2008) reports eleven emphatic consonants in the Jewish Neo-Aramaic dialect of Betanure: /ṭ, ṣ, ḍ, ẕ, p̣, b̤, m̤, r̤, l̤, ʧ̣, ʤ̣/. However, he goes on to explain that /p̣, b̤, ḍ, ẕ, ʤ̣/ are rare and only occur in a few minimal pairs. Fassberg (2010) reports emphatic /ṭ/ and /ṣ/, but also /ḍ, ẕ, p̣, b̤, k̤, v̤, m̤, n̤, r̤, l̤, ʧ̣/ in the Jewish Neo-Aramaic dialect of Challa. However, all cases of emphasis besides /ṭ/ and /ṣ/ appear to be caused by spreading or by emphaticization of loanwords (a process by which foreign words are emphaticized, despite the lack of emphasis in the original language).

Some cases of emphatic /ṭ/ and /ṣ/ seem to have arisen from the former presence of /ʕ/ or from the emphatic-triggering presence of an adjacent /r/ or /l/, and some previously emphatic /ṭ/ and /ṣ/ phonemes are no longer pronounced with secondary pharyngealization (Krotkoff, 1982; Fox, 1997; Khan, 1999, 2002, 2004, 2008; Mutzafi, 2008).

The only phonological study of emphasis in Neo-Aramaic is Hoberman (1988), which gives an autosegmental analysis of emphasis in Azerbaijani Jewish Neo-Aramaic (a Northeastern Neo-Aramaic language). Hoberman (1988) describes the emphasis harmony system in that language

as one in which pharyngealization on a syllable spreads to the rest of the word, causing both consonants and vowels in the rest of the word to become pharyngealized.

Although emphasis in Turoyo has been briefly mentioned in the Turoyo grammar (Jastrow, 1985), there has never been a focused study of the phonetics of emphasis in Turoyo before this dissertation. And, in fact, there has never been any kind of detailed phonetic study of any aspect of the Turoyo language, nor has there been a detailed phonetic study of any kind in any other Neo-Aramaic language. Further, emphasis is seldom described as a feature of Neo-Aramaic outside of the literature specializing in the Neo-Aramaic language group.

Pharyngealization in Other Semitic Languages

Mizrahi Hebrew is reported to have three emphatic consonants: /t̤, s̤, q̤/ (Morag, 1972). Emphasis is reported on three coronal fricatives (/θ̤, s̤, ʃ̤ /) in the Modern South Arabic languages of Soqotri (Naumkin and Porkhomocskij, 1981) and Mehri (Rubin, 2010; Watson and Bellem, 2011).

Pharyngealization in Berber

The phoneme inventory of Berber contains pharyngealized /t̤, d̤, s̤, z̤, ʃ̤, ʒ̤, r̤, l̤/ and also their geminate counterparts (Boukous, 2009). Boukous (2009) reports their articulation as being pharyngealized, and further reports that neighboring vowels are realized with raised F1 and lowered F2.

Pharyngealization in the Salishan, Athabaskan, and Wakashan Languages

The Interior Salish languages have emphasis harmony, which is referred to as "retraction harmony" (Colarusso, 1985; Bessell, 1992, 1998; Doak, 1992; van Eijk, 1997; Shahin, 2002). Here, the term retraction is used to refer to "some lowering and/or backing of the tongue root" (Bessell, 1998). The Interior Salish languages of Coeur d' Alene, Spokane, Kalispel, and Flathead exhibit regressive retraction harmony, in which uvular, pharyngeal, and pharyngealized consonants cause

the vowels in the rest of the word (except for most prefixes) to be retracted (retraction effects on vowels differ between languages) (Bessell, 1998). All of the Interior Salish languages exhibit progressive retraction harmony in which a root containing a retracted vowel causes the vowels in the suffixes to also become retracted (Bessell, 1998).

The Athabascan language of Tsilhqot'in has emphasis (Cook, 1993; Hansson, 2007). In this language, "pharyngealization can spread non-locally, with processes targeting both vowels and consonants" (Hansson, 2007). The Athabascan language of Babine-Witsuwit'en also has pharyngealized consonants (Cook, 1983; Hargus, 2007). Some Wakashan languages also have pharyngealization (Colarusso, 1985), such as Haisla, which exhibits pharyngealized alveolar stops (Lincoln and Rath, 1986).

Pharyngealization in the Northeast and Northwest Caucasian Languages

The Northeast Cauasian language of Ingush has pharyngealized vowels, which are affected in the same way as vowels which follow pharyngeal consonants (Nichols, 2011). Another related Northeast Caucasian language, Chechen, also has pharyngealization, and that pharyngealization is analyzed as being a feature of consonants (Kingston and Nichols, 1986). Sylak (2013) examines the reported pharyngealization in Chechen and finds that it refers to both pharyngeal and epiglottal places of articulation which are not phonologically contrastive. The Northeast Caucasian language of Lak has emphasis as well (Anderson, 1997). Gaprindashvili (1966) reports pharyngealized vowels in two of the dialects of Dargi.

Several Northwest Caucasian languages also have emphasis. The now extinct (the last speaker died in 1992) language of Ubykh had pharyngealized consonants (Vogt, 1963). The phoneme inventory of the Bzyb dialect of the Abkhaz language contains a pharyngealized voiceless uvular fricative and a labialized pharyngealized voiceless uvualar fricative, in addition to non-pharyngealized uvulars and pharyngeals (Catford, 1977). Catford also reports that the languages of Tsakhur and Udi contain a set of pharyngealized vowels: /i̤, e̤, a̤, o̤, ṳ, ɨ̤ / that contrast with the non-pharyngealized versions of the same vowels (Catford, 1983).

Pharyngealization in the Tungusic language of Even

The phoneme inventory of Even, a Tungusic language spoken in North-Central Siberia, has a set of vowels /i, u, o, ə/ that can be plain or pharyngealized (Novikova, 1960).

Pharyngealization in the Indo-Iranian language of Kurdish

Pharyngealized consonants are reported in Kurdish, but only one consonant in a word can be pharyngealized at a time, and the selection of that consonant is according to a hierarchy in which pharyngeal consonants themselves are also members (Kahn, 1976a,b).

Pharyngealization in the Khoisan Languages

Pharyngealized vowels are reported in the Khoisan languages, including the Jul'hoan, !Xóõ, and ǂHõã languages. The consonant systems in these languages are quite complex, including clicks. The vowel systems are somewhat basic /i, e, a, o, u/, but these vowels can be nasalized, glottalized, murmured, pharyngealized, or epiglottalized (Traill, 1985, 1986; Ladefoged and Maddieson, 1996).

Summary of Reported Instances of Emphasis

In summary, emphasis, emphasis-like articulation, or pharyngealization are reported in a number of languages around the world, as detailed in this section. However, one cannot just take these reports as truth without justification. In order to take these reports seriously, phonetic studies need to be conducted in each of the languages, and the results would need to be compared cross-linguistically with the goal of coming to one overall definition of emphasis. Prior to this dissertation, the only languages with acoustic studies of emphasis were Arabic and Interior Salish. Those studies are detailed in Section 2.2.3.

2.2.3 Previous Experiments

In Arabic, emphasis has been shown to have acoustic correlates in both the emphatic consonants themselves, as well as the adjacent vowels, which differ depending on the particular dialect. The specific study results are detailed in the following experiment descriptions for the Arabic dialects in which studies have been conducted.

Ali and Daniloff (1972) tested both the articulation and the acoustics of emphasis in Iraqi Arabic and found that emphasis did not spread throughout the entire word, no matter the length of the word. In a ṢVC word, emphasis affected the initial ṢV but not the final C. In a ṢVCVCVC word, emphasis affected the initial ṢVCV but not the rest of the word.

Card (1983) tested four Palestinian Arabic speakers and, based on findings from her acoustic experiment that the F2 of consonants and vowels was affected in the same way both leftward and rightward through the entire word, argued that the domain of emphasis was the word (49). She found that the F2 of vowels was lowered by 200-300 Hz when they followed an emphatic consonant as compared to a non-emphatic consonant. She also reported lower F2s for emphatic consonants (than for their plain counterparts), although it is not clear at which point she took the measurements, nor were the results subjected to statistical analysis. Card (1983) also studied the cut-off frequency of the frication noise of fricatives, but did not find any correlation between it and emphasis. Kahn (1975) also found no correlation between the cut-off frequency of frication noise and emphasis.

Zawaydeh (1999) tested Ammani Jordanian Arabic using only four words and also found that the domain of emphasis was the word, but her findings were that the F2 of vowels (she did not measure consonants) was equally low throughout the word when spreading leftward, but when spreading rightward, the F2 of vowels was affected less the farther from the emphatic consonant that they were located.

Al-Khairy (2005) tested male speakers of Modern Standard Arabic from Saudi Arabia and measured the spectral mean at multiple locations throughout the fricatives, but found no significant differences between emphatic and non-emphatic consonants.

Jongman et al. (2007) tested eight speakers (four females and four males) of Jordanian Arabic. Jordanian Arabic has four emphatic consonants /d̤, t̤, s̤, ð̤/, in addition to their plain counterparts /d, t, s, ð/. Stimuli consisted of an unspecified number of mono- and bi-syllabic words and non-words in which the target consonant was in word-initial, word-medial, and word-final positions. Target vowels included short and long /i/, /æ/, and /u/. The words were presented to the speakers on notecards and were repeated three times in the carrier phrase "Say _once more". The first spectral moment (i.e. the spectral mean) of both plain and emphatic consonants were measured, as well as the F1, F2, and F3 of vowels at the onset, midpoint, and offset. Jongman et al. (2007) found that F1 was raised, F2 was lowered, and F3 was raised in vowels adjacent to emphatic consonants, and these differences were more pronounced closest to the emphatic consonant. In terms of vowel quality, /æ/ showed the most effect of emphasis, followed by /i/ and /u/. For consonants, Jongman et al. (2007) found that the first spectral moment (i.e. the spectral mean) of emphatic consonants was significantly lower (100-200 Hz) compared to that of their non-emphatic counterparts, for both word-initial and word-final consonants. The bi-syllabic words that were tested showed that the closer the vowel was to the emphatic consonant, the more that vowel was affected. Consonants other than the emphatic consonants did not show any effect of emphasis in the spectral mean measurement.

Al-Masri (2009) tested two sets (one set for the mono-syllable study and one set for the bi-syllable study) of eight speakers (four females and four males) of Urban Jordanian Arabic. Stimuli for the mono-syllable study consisted of 96 CVC nonwords, of the forms CVb or bVC, in which the target consonant was either word-initial or word-final and the vowels were short and long /i/, /æ/, /u/. Stimuli for the bi-syllable study consisted of 80 CV.bat, ta.bVC, and kV.CVk words, which contained the four emphatic consonants and their plain counterparts, as well as short and long /i/, /æ/, and /u/. Subjects read the words, which were typed in columns, in the carrier phrase "Say _once more" three times. Vowel duration was measured, as well as F1, F2, and F3 at the onset, midpoint, and offset of the vowel. Consonant duration was also measured, as well as spectral moments (center of gravity, standard deviation, skewness, and kurtosis) and locus equations. Al-Masri

(2009) found that vowels in an emphatic environment had a higher F1, a lower F2, and a higher F3 than those that were not in an emphatic environment. He also found that emphatic consonants were not significantly different than their plain counterparts in terms of spectral moments or locus equations. For bi-syllabic words, emphasis spread was more salient in a leftward direction than in a rightward direction. Duration did not have a significant effect for either vowels or consonants. Additionally, he found that males showed more emphasis than females.

Jongman et al. (2011) tested twelve speakers (six males and six females) of Urban Jordanian Arabic. They measured the first spectral moment (i.e. the spectral mean) of both stops and fricatives in word-initial and word-final positions. They also measured F1, F2, and F3 of all six Arabic vowels (short and long /æ/, /i/, and /u/) at the onset, middle, and offset positions. There were 504 total utterances of 168 stimuli: seven syllable frames (/s_b/, /s_q/, /s_x/, /s_h/, and /ð_b/ for word-intial fricatives and /d_b/ and /t_b/ for word-initial stops) x two locations in the word (mirror images of the syllable frames for word-final fricatives and stops) x six vowels x three repetitions in the carrier phrase "Say (STIMULI) once more". The stimuli were presented on notecards. ANOVAs were used to statistically analyze all results. Jongman et al. (2011) found that, for vowels following emphatic consonants, F1 was raised, F2 was lowered, and F3 was raised, and this was true throughout the entire vowel for /æ/, but these effects diminished for /i/ and /u/ further away from the emphatic consonant. Vowel length was not found to make a difference. For consonants, emphatic stops showed lower spectral mean, but emphatic fricatives did not. Non-emphatic word-initial stops also showed a lower spectral mean when the final consonant was emphatic. The fact that stops show lower spectral mean measurements than fricatives is consistent with previous claims that fricatives are more resistant to coarticulation than stops (Fowler, 1994; Farnetani, 1997).

Vowels

The most consistent result among previous acoustic studies of emphasis has been that vowels directly adjacent to emphatic consonants have a lowered F2. Studies showing this result have been conducted on various dialects of Arabic, including Lebanese Arabic (Obrecht, 1968), Cairene

Arabic (Kahn, 1975), Tunisian Arabic (Ghazeli, 1977), Palestinian Arabic (Card, 1983), Egyptian Arabic (Norlin, 1987; Wahba, 1996), Moroccan Arabic (Alioua, 2005; Yeou, 1997), and Ammani-Jordanian Arabic (Zawaydeh, 1999; Al-Masri and Jongman, 2004; Khattab et al., 2006). Although all vowels adjacent to emphatic consonants show a lowered F2, both vowel quality and vowel length play a role in the extent of lowering: /a/ has shown the most lowering (to the point that it phonetically becomes /ɑ/), followed by /i/, which shows slightly more lowering than /u/ (Alioua, 2005; Card, 1983; Yeou, 1997); and short vowels also show a higher degree of F2 lowering than long vowels (Card, 1983; Norlin, 1987). Even further, Yeou (1997) found that F2 values for vowels were lower at the midpoint for short vowels as compared to long vowels.

Theoretically, F1 and F3 should also show an acoustic effect of emphasis. Constrictions in the uvula or pharynx should result in a raised F1 and a lowered F2, as expressed by Watson (2002): "the oral emphatics are typically marked by a compact acoustic spectrum through lowering of the upper frequency formant (principally F2) due to an enlarged mouth cavity, and a raising of F1 due to a reduced pharyngeal cavity" (270). And pharyngeals should result in a lowered F3 (Klatt and Stevens, 1969; Alwan, 1986). So, again theoretically, emphasis should result in a raised F1, a lowered F2, and a raised F3. However, acoustic studies of emphasis have typically not included F1 and F3, and when they have, the results have not been consistent. Both Card (1983) and Norlin (1987) report no effect in both F1 and F3, and Alioua (2005), Yeou (1997), and Zawaydeh (1999) report a raise in F1. But, most recently, Jongman et al. (2007), Jongman et al. (2011), and Al-Masri (2009) reported the expected result: a raised F1, a lowered F2, and a raised F3, in vowels directly adjacent to an emphatic consonant (these show a stronger effect), as well as vowels in the other syllables in a bisyllabic word.

Consonants

Consonants were not included in many of the earlier acoustic studies of emphasis. One type of acoustic measure that has been used to measure emphatic consonants is the spectral moments, i.e. center of gravity, standard deviation, skewness, and kurtosis. Norlin (1987) tested word-initial /s̩,

ẓ/ and their plain counterparts followed by long /a/ in Egyptian Arabic, and found that /s̩, ẓ/ had a lower spectral center of gravity (5974 Hz) (measured with a 26.5 ms window after the first third of the fricative) than /s, z/ (6345 Hz). Jongman et al. (2007)'s study showed a lowered (100 - 200 Hz) spectral mean for emphatic consonants, but non-emphatic consonants in bisyllabic words did not show any acoustic effects of emphasis. Al-Masri (2009) did not find any difference in spectral mean measurements for emphatic vs non-emphatic consonants. Jongman et al. (2011) found that emphatic stops showed lowered measurements for spectral mean, but emphatic fricatives did not. Additionally, non-emphatic word-initial stops also showed a lower spectral mean when the final consonant was emphatic.

Abu-Al-Makarem (2005) tested four male speakers of the Al-Khat dialect of Gulf Arabic. Stimuli consisted of 24 CVC tokens in which the initial consonant was one of the eight voiceless fricatives in Arabic, the vowel was one of the three long vowels in Arabic, and the final consonant was /b/. The words were each repeated 25 times in the carrier phrase "I read (STIMULI) again", although only the first five repetitions were measured (the other repetitions were set aside for a further study). Abu-Al-Makarem (2005) first measured the duration of the fricative. Next, he created FFT spectra for each of the voiceless fricatives and then computed the following ten measurements on the FFT spectra: minimum power, maximum power, mean power, power standard deviation, median power, root mean square value of the power, spectral mean, spectral standard deviation, spectral skewness, and spectral kurtosis. He found that the best predictor between voiceless fricatives (and the predictor that could distinguish between all voiceless fricatives in Arabic) was spectral skewness. Mean power, median power, spectral mean, and spectral standard deviation were also helpful in distinguishing between the Arabic voiceless fricatives. Spectral kurtosis and fricative duration were not helpful distinguishers.

Yeou (1995) found that the onset F1 transition and the onset F2 transition between /s/ or /s̩/ and the vowel /i:/ work together as a necessary acoustic cue for distinguishing between /s/ and /s̩/. Yeou (1997) also mentions noise frication as an acoustic cue that aids in this distinction, and goes on to conjecture that the burst noise for /t/ vs/ /t̩/ may be important as well.

Yeou (1997) used locus equations, first proposed by Lindblom (1963), to measure emphatic consonants. Locus equations are "straight line regression fits to data points formed by plotting F2 transitions along the y axis and their corresponding midvowel nuclei along the x axis" (Sussman et al., 1991). Krull (1988, 1989) showed that the slope of the locus equation line varies directly with the amount of coarticulation between the consonant and the vowel, i.e. steeper slopes mean more coarticulation, and flatter slopes mean less coarticulation. Sussman et al. (1993)'s cross-linguistic study of Thai, Urdu, and Cairene Arabic found, among other things, that locus equations were different for /d̪/ vs /d/.

Yeou (1997) conducted a study of ten Moroccan speakers of Modern Standard Arabic, producing CVCVC(VC) tokens with one of twelve varying initial consonants (/f/, /ð, /ð̪/, /s/, /s̪/, /d/, /d̪/, /t/, /t̪/, /ʃ/, /h/, /χ/) followed by long or short /i/, /æ/, or /u/. Although he found that locus equations were not accurate predictors of place of articulation of these consonants (as they had been argued to be in the past by Sussman (1989, 1991, 1994); Sussman et al. (1991, 1992, 1993), they were accurate predictors of pharyngealized vs. non-pharyngealized consonants in that the pharyngealized consonants had the flattest locus equation slopes (i.e. they showed the least amount of coarticulation). The fact that pharyngealized consonants show the least amount of coarticulation makes sense in light of previous studies. Recasens (1984a,b, 1987, 1991) conducted experiments with Spanish and Catalan speakers and found that 'coarticulation resistance' (Bladon and Al-Bamerni, 1976) was stronger for consonants that made higher production demands on the tongue body (e.g. labials, dentals, and alveolars showed less coarticulation resistance than palatals and velars). Since pharyngealized consonants involve both a primary constriction in the dental/alveolar region and a secondary constriction in the pharyngeal region, they put high demands on the tongue body for their production. These sounds resist coarticulation, but also, at the same time, force strong coarticulatory effects on adjacent segments (Farnetani, 1990). This is exactly the case for pharyngealized consonants, which produce a noticeable drop in the F2 of adjacent vowels. In a second (follow-up) experiment of nine speakers producing five repetitions of four pairs of pharyngealized vs. non-pharyngealized consonants (405 total tokens), Yeou (1997) found that vowels following

pharyngealized consonants had higher F1 and lower F2, most noticeably at the onset but also at the steady state of the vowel. In a more fine-grained analysis, the low vowels /æ, æ:/ showed approximately the same amount of F2 lowering at both the onset and steady state of the vowel because low vowels are most compatible with pharyngealization, while short vowels showed more coarticulation effects, presumably because shorter vowels resist coarticulation less.

Abudalbuh (2010) tested 22 (12 male and 10 female) speakers of Jordanian Arabic. Stimuli consisted of nine pairs of CVC words (one stimulus was a nonword) which began with either an emphatic or the corresponding non-emphatic consonant. Voice Onset Time, friction duration, and spectral mean of the friction noise were measured for all initial (target) consonants (vowel duration and formant frequencies were measured for vowels). VOT was found to be significantly shorter for emphatic voicelss stops than for their non-emphatic counterparts, but VOT was not found to be a reliable acoustic correlate for voiced stops or for voiceless fricatives. Emphatic fricatives were found to be shorter in duration than non-emphatic fricatives.

Gender in Relation to Emphasis in Arabic

A number of studies have looked at the interaction between the acoustic correlates of emphasis and speaker gender. Lehn (1963) reported that emphasis differs between genders, but he had no experimental data to prove this. Kahn (1975) conducted an experiment with speakers of Cairene Arabic in which she compared the production of emphasis between male and female speakers, and found that male speakers produce emphasis in a stronger way (vowels following emphatic consonants have lower F2 values) than female speakers. Royal (1985)'s study on Gamaliya, a dialect of Egyptian Arabic, found this to be generally true, except that older women produced stronger emphasis than younger men, and there was also a difference in the degree of emphasis depending on the sex of the addresse. Haeri (1996)'s study on Cairene Arabic also agreed with Kahn (1975), but Al-Masri and Jongman (2004)'s study found the opposite to be true (i.e. that females produced vowels following emphatic consonants with lower F2 values than males). Khattab et al. (2006) conducted an experiment in which they tested the production of /t/ and /t̪/ between 5 male and 5

female speakers of Jordanian Arabic. Five males and three females were from northern Jordan, and two of the females were from Amman. The stimuli consisted of four pairs of words beginning with /t/ and /ṭ/ followed by the vowels /i/ or /a/. They found that vowels following /ṭ/ had higher F1 and lower F2, regardless of gender, and that /ṭ/ had longer VOT delays for females (however, this was only true of the two female speakers who were from Amman). Abudalbuh (2010) found that male speakers produce emphasis in a stronger way.

Table Summarizing Measurements

Table 2.1 summarizes the measurements that have been found to be useful when distinguishing between emphatic and non-emphatic consonants, as well as a few other measurements that could also be important based on the findings of the above studies. Predictions based on previous studies are given where applicable (e.g. some studies have been of fricatives but not of emphatic fricatives so measurements are not predicted):

Table 2.1: Table summarizing measurements used to distinguish emphasis

Vowels

Measurements	Predictions
Duration	
F1 (onset, middle, offset)	Higher for emphatic Cs
F2 (onset, middle, offset)	Lower for emphatic Cs
F3 (onset, middle, offset)	Higher for emphatic Cs

Fricatives, Stop bursts and releases

Measurements	Predictions
Spectral Peak Location	
Spectral Moment (center of gravity)	Lower for emphatic Cs
Spectral Moment (standard deviation)	
Spectral Moment (spectral skewness)	
Spectral Moment (spectral kurtosis)	
Fricative Duration	Shorter for emphatic Cs
Minimum Power of FFT Spectra	
Maximum Power of FFT Spectra	
Median Power of FFT Spectra	
Locus Equations	Flatter slopes for Emphatic Cs

Stops /t̪, t/

Measurements	Predictions
VOT	Shorter for emphatic Cs

Interior Salish

The above studies have focused only on Arabic, but there has been one other acoustic experiment involving pharyngealized segments in another language: Bessell (1998)'s study of Interior Salish. In her phonetic investigation of retraction in Interior Salish, Bessell (1998) analyzed both retracted vowels and consonants (and their unretracted counterparts) via naturally occurring tokens which were recorded in citation form. It is unclear how many speakers produced the vowel data, but there were three speakers of Moses-Columbian who produced the consonant data. Bessell (1998) found that retracted vowels were generally lowered and backed, with a lower F2 and a higher F1, and that this was generally the same for vowels in both regressive faucal harmony and progressive harmony. For consonants, Bessell (1998) found that the retracted coronal /l̪/ had an F2 that was more than 600 Hz lower at the midpoint than its plain counterpart /l/. She also found that the retracted coronal /s̪/ had a higher amplitude than its plain counterpart /s/, though it should be noted that Moses-Columbian /s̪/ behaves similarly to English /s/ and Moses-Columbian /s/ behaves similarly to English /ʃ/ (comparing data with Behrens and Blumstein (1988)).

2.3 Heritage Speakers

Because this dissertation focuses on three generations of speakers in a language endangerment situation, studies of heritage speakers are also relevant to the study. Heritage speakers are defined as those who acquire a second language at an early age (in this case, English) and then use that language to such an extent that the use of their first language is diminished (Kagan and Dillon, 2008). In the case of the current study, the child generation would be considered heritage speakers of Turoyo.

Although studies of heritage speakers are part of a relatively new field, there have been more previous studies of bilingual speakers, who are similar in that they are learning a second language. Bilingual speakers have been shown to differ in production of their first language and that the degree of difference depended on the age at which they acquired their second language. Guion

(2003) found that Quichua-Spanish bilinguals produced higher Quichua vowels once they acquired Spanish as their second language. Flege and Piske (2003) found that Italian-English bilinguals produced exaggerated mid vowels in Italian after they acquired English as their second language, and that this exaggeration correlated with the age of acquisition of L2 and also with the amount of usage of L2. These and other studies have shown that the L1 of a speaker is malleable and affected by the new input of an L2.

While the above studies have focused on advanced learners, Chang (2010) studied adult English speakers just learning Korean. He tested their stops (VOT and f_0) and vowel space in two separate experiments and found that L1 is rapidly influenced by the input of an L2, even at the early stages of acquiring the L2. Chang (2010) labeled this phenomenon phonetic drift and found that, in order for an L2 to affect an L1, the phonetic differences could not be too different (otherwise, it would just be considered a different sound) or too similar (otherwise, it would just be treated as the same sound), but a it must be a "similar" sound. Chang (2010) also found that the L1 phonetic drift was assimilatory to L2 and gave the following possibilities for how the connections between the languages could be made: "L2 does not exert influence on L1 via segment to segment linkages exclusively; rather, cross-language phonetic effects may arise via linkages at a number of levels —an individual segment, a natural class of several segments, or a global phonetic property" (117). Chang (2010) also argued that phonetic drift was natural and widespread and not attrition.

A number of studies of heritage speakers have now been conducted to explore how a heritage language is affected by learning another language. Campbell and Rosenthal (2000) found that heritage language learners who re-learn the language later in life have "nearly 90% of the phonological system" and "80% to 90% of the grammatical rules" (167). Heritage language speakers are also more native-like with their morpho-syntax than L2 language learners (Montrul, 2008; Au and Romo, 2008; Polinsky, 2008). Even if the childhood experience with the minority language was only overhearing, a number of studies (Tees and Werker, 1984; Knightly and Au, 2003; Oh and Au, 2003) have found that experience gives heritage speakers a significant advantage in phonological production and perception later in life as compared to L2 learners with no prior experience with

the language.

Only a few studies have looked at whether heritage language speakers merge different sound categories rather than producing them distinctly. Godson (2004) found that, the earlier Armenian-English heritage speakers acquired English as their second language and the more they used English, the more they produced Armenian vowels that were closer to English /i/, /ɛ/, and /a/. Chang et al. (2009) found that heritage speakers of Mandarin whose second language was English produced alveolar and palatal fricatives that differed significantly in place of articulation and peak amplitude frequency. Tse (2016) examined two generations of speakers of Hong Kong Cantonese living in the Greater Toronto Area. Generation 1 were immigrants to Toronto, and Generation 2 were Heritage Language Speakers who were still very proficient in Hong Kong Cantonese. He found that allophonic conditioning in pre-velar context was maintained between Generation 1 and Generation 2. He also found sociophonetic variation in which females in Generation 2 showed the most fronting and the most retraction for /i/.

Based on these previous studies, I hypothesize that the child generation in the Mor Gabriel community will not produce emphasis in as strong of a way as the grandparent and parent generations.

Chapter 3 will lay out the methodology behind both the acoustic study and the sociolinguistic study.

CHAPTER 3

METHODOLOGY

This chapter will detail the methodology of both the acoustic study and the sociolinguistic study.

3.1 Methodology for the Acoustic Experiment

Although there have been a few documentations of aspects of the Turoyo language (see Chapter 2), none were based on the Mor Gabriel community in northern New Jersey where I conducted my fieldwork. Because of the distance in time and location from those earlier documentations, I found the Turoyo language spoken in the Mor Gabriel community to differ from those documentations. In order to create the word list for this experiment, I studied the language as it is spoken in the Mor Gabriel community in Northern New Jersey. Because Turoyo is not written within that community, the wordlists were derived from elicitation sessions with my language consultant, a member of the community. These sessions were digitally recorded.

3.1.1 Materials

Turoyo has two emphatic consonants: /ṭ/ and /ṣ/, which were compared with their plain counterparts /t/ and /s/. Previous acoustic experiments (in Arabic) compared three maximally distinct vowels (/i/, /a/, /u/). Although the vowel inventory for Turoyo includes more vowels than in Arabic, I chose to only test /i/, /a/, and /u/, which are maximally distinct from each other, and to compare to the Arabic experiments.

Many previous acoustic studies of emphasis have used non-words for their word list, but, for sociolinguistic reasons, I wanted to keep the word list one of naturally occurring words in the language. Although the ideal word list for this acoustic experiment would have been extensive, I chose to form a smaller word list for my experiment. This was for two main reasons: First, some of the ideal word types did not seem to exist in Turoyo as it is spoken in the Mor Gabriel community. Second, the time it would take to work through an extensive word list was more than the average

person in the community had to give to the experiment. Each of these reasons are explored further below.

Tokens for the ideal word list would compare words containing the emphatic consonants /ṭ/ and /ṣ/ with their plain counterparts /t/ and /s/ in six environments (#_V, #_C, V_V, V_C, C_V, and V_#). However, even after extensive search, my language consultant and I were not able to find words that fit in some of the environments. For example, there were no words in which emphatic /t/ was word-final, and none of the consonants under study (/s/, /ṣ/, /t/, /ṭ/) were found in the /i_C/ environment.

Taking into consideration the lack of words for certain environments, as well as the time constraints of speakers in the community, I decided to just focus on the word-inital (#_V) context. With that one context (#_V) x two consonant types (t vs. s) x 2 emphasis types (yes vs. no) x 3 vowels, this resulted in a word list (which can be found in Appendix A) containing 36 tokens. Each word was repeated three times, for a total of 108 stimuli. This word list, I predicted, would take the participants about 30-45 minutes to get through (because the words in the word list would need to be elicited from each speaker, more on that below). Added to visiting and discussion, it was a reasonable amount of time.

Since Turoyo is not written by the people in the Mor Gabriel community (though many Turoyo speakers do come up with ways to text/type online, see Chapter 2 for more information), it was not an option to present the stimuli in written form. Instead, I elicited the words in the word list from each speaker through a combination of pointing to objects in the environment (e.g. *tarʕo* 'door'), showing props or pictures (shown in Appendix B - pictures were presented on laminated 8 1/2 x 11 inch pages), or from verbal descriptions (e.g. Q: 'How do you say thank you in Turoyo?' A: '*Tawdi*.').

Eliciting the words in this way also provided valuable information from the speakers about the word in the word list. Participants were generally able to produce the word on their own (this was more true for older speakers and less true for younger speakers). If they were not able to think of the word, I told them what it was. At this point, they spontaneously gave their feedback on whether

they knew the word or not, whether they used the word or not (maybe they used a different word, maybe they remember their parents using the word, but they did not use it themselves, etc.), and/or whether they thought the word was a Turoyo word (in some cases they did not think it was). In a couple cases, someone did not like the word/was offended by the word (ex: Muslim) and rejected it on those grounds. I did do my best not to pick words that were not offensive, but apologized when this happened.

At this point, the speaker repeated the word three times in the carrier phrase *mar (STIMULI) naxlahreto* "Say (STIMULI) again").

3.1.2 Participants

The participants for the acoustic experiment were a subset of the participants who I interviewed via sociolinguistic questionnaire (see section 3.2 for information about the sociolinguistic part of the study). Although there were 50 participants in the sociolinguistic study, the acoustic study focused on 18 of them. The 18 participants were largely chosen because they were willing to complete the experiment.

The speakers were evenly spread out over three generations which I identified based on my initial fieldwork (6 (3 males and 3 females) were from the grandparent generation (which consisted of people who were generally over 50), 6 (3 males and 3 females) were from the parent generation (which consisted of people who were generally 30-50 years old and were married and had children), and 6 (3 males and 3 females) were from the child generation (which consisted of people who were under 30, though I only chose to include people who were 12 years old and over)).

Each subject received a gift card as a thank you for participating in the study, but, for purposes of cultural sensitivity, they did not know about it beforehand.

3.1.3 Procedure

Recordings

The recordings took place in quiet spaces that were convenient to the speaker. The recordings were made using a Shure SM10A head-mounted microphone and a Zoom H4N Digital Recorder at a sampling rate of 44 100 Hz, and then analyzed using Praat. The stimuli were elicited (in one case, I needed a translator to help with the elicitation of the stimuli) from one of three pseudo-randomized word lists, and then recorded in the carrier phrase *mar (STIMULI) naxlahreto* "Say (STIMULI) again".

3.1.4 Measurements

All measurements were taken within Praat (Boersma and Weenink, 2017). The segmentation process simultaneously referenced both waveforms and wide-band spectrograms.

Vowels

For the vowels surrounding the target consonant, I measured the F1, F2, and F3 at the onset, middle, and offset. The onset of vowels was taken to be the clear emergence or increase in strength of F1. The offset of vowels was taken to be the point at which F2 substantially weakened or disappeared from the spectrogram. A custom-made Praat script automatically extracted the measurements. Formant frequency measures (F1-F3) were taken at the onset, middle, and offset of the vowel from an LPC analysis specified for five formants calculated over a 25-ms Hamming window over a range from 0 to 5000 Hz for male speakers and 0 to 5500 Hz for female speakers.

Consonants

For both the fricatives /s̪, s/ and the bursts of the stops /t̪, t/, I measured the four spectral moments (center of gravity, standard deviation, skewness, kurtosis). The onset of both fricatives and stop

bursts was taken to be the onset of high frequency energy in the waveform combined with the point at which the number of zero crossings rapidly increased in the wide-band spectrogram. The offset of the fricatives and stop bursts was taken to be the onset of the following vowel. A custom-made Praat script automatically extracted the measurements. For fricatives, a DFT was calculated using a 20-ms Hamming window centered over the middle of the frication noise. For stops (including those in word-initial and word-medial position), a DFT was calculated from a variable-sized Hamming window that included both the burst and release of the stop. Additionally, another DFT was calculated using a second (20-ms) Hamming window centered over the boundary between the consonant and the following vowel.

These measurements are given in table form below, along with my predictions, under the Hypothesis section.

3.1.5 Statistical Analysis

R (Team, 2016) and lme4 (Bates et al., 2015) were used to perform a linear mixed effects analysis of the relationship between emphasis and the following: F1, F2, and F3, Center of Gravity, Standard Devitation, Kurtosis, Skewness. The data was separated into /s/ and /t/ data sets, with separate consonant and following vowel data sets for each. The vowel data was normalized via the NORM website (Thomas and Kendall, 2007) using the Nearey2 normalization method (Nearey, 1977) which includes F3. As fixed effects, I entered emphasis, manner of articulation context, and vowel quality (with interaction term) into the model. As random effects, I had intercepts for the tokens of each speaker, and I also had intercepts for the vowel points for vowels in plain and emphatic environments for each speaker. Visual inspection of residual plots revealed a few outliers from homoscedasticity or normality. Those outliers (more than 2.5 standard deviation away from the mean) were eliminated. Model selection was conducted by comparing between models with and without a predictor in questions via likelihood ratio tests. These models were built and compared step by step from most simple to more complex. The final model was chosen because it contained everything that significantly improved the model likelihood. P-values for individual

coeffecients were obtained according to Mirman (2014) by extracting the coefficients and t-values from the models and then using normal approximation (which assumes that the t distribution converges to the z distribution as degrees of freedom increase). Categorical variables that only contain two levels (Emphasis, Gender) were coded using sum-coding. Categorical variables that contain three levels (Vowel, Points, Generation) were coded using forward-difference coding and by running two separate regressions to cover all the comparisons that I wanted to make. For example, for Vowel, the first regression compared /a/ to /i/ and /i/ to /u/, while the second regression compared /i/ to /u/ and /u/ to /a/.

3.1.6 Hypothesis

My hypothesis was that, if Turoyo has an emphatic difference, then the best acoustic correlate of that emphatic difference will be F2 drop. I also predicted that F1 and F3 would be higher for vowels following an emphatic consonant. For consonants, if there is an effect of emphasis on consonants, I predicted that a lower center of gravity (spectral mean) would significantly distinguish between emphatic and plain consonant pairs in Turoyo, as well as higher skewness. I decided to test the other two spectral moments for acoustic effects of emphasis, as well, though I did not have a hypothesis about how they might be affected by emphasis since they were not significant in previous acoustic studies of emphasis.

Additionally, I hypothesized that the grandparent generation would have the most robust acoustic correlates of emphasis, followed by the parent generation, and also that the child generation, which are heritage speakers, would differ significantly in their realization of emphasis from the grandparent and parent generations. The measurements that I took along with my predictions for them are given in table form below:

Table 3.1: Table summarizing measurements and hypotheses

Class of Segments	Measurements	Predictions
Vowels		
	F1 (onset, middle, offset)	Higher for emphatic Cs
	F2 (onset, middle, offset)	Lower for emphatic Cs
	F3 (onset, middle, offset)	Higher for emphatic Cs
Fricatives /s̩, s/ and bursts and releases of Stops /t̩, t/		
	Spectral Moment (center of gravity)	Lower for emphatic Cs
	Spectral Moment (standard deviation)	No hypothesis
	Spectral Moment (spectral skewness)	Higher for emphatic Cs
	Spectral Moment (spectral kurtosis)	No hypothesis

3.2 Methodology for the Sociolinguistic Study

Much of the background research for the sociolinguistic study was conducted using a participant-observer methodology. My focus was to participate in, observe, and analyze key events in the community, since they are important lenses through which one can learn about a culture. I spent time engaging with the community members in a variety of venues and domains, including the Mor Gabriel Syriac Orthodox Church, the weekly Aramaic school, the summer day camps, a youth conference on identity, in homes, and online (email, Facebook, researching websites, watching videos, etc.).

However, the main bulk of the sociolinguistic work was done via interviews based on sociolinguistic questionnaires, and I supplemented those with some of my own observations from my

initial research. I conducted approximately fifty informal interviews and conversations with open-ended questions to learn about the community prior to beginning the sociolinguistic interviews. These interactions were recorded via quick notes and then followed by a focused write-up afterwards. Other significant research during this initial period was gained via one-on-one language lessons (which included questions about history and culture) with Father Hadodo, the priest of the Mor Gabriel Syriac Orthodox Church, who graciously agreed to be my language teacher. These sessions were digitally recorded.

3.2.1 Stimuli

With the initial information I had gained about the community, I created a sociolinguistic questionnaire (which can be found in Appendix C), adapted from the Koch Sociolinguistic Questionnaire (Kondakov, 2011), specific to the situation in the Mor Gabriel community. I deleted questions that did not apply (or that I was not directly interested in). I re-arranged the remaining questions into an order that I felt flowed better for an interview. And I added questions about things that I was specifically interested in, such as identity, network, culture, discrimination, and language preservation. I also asked about where their parents are from and what languages they speak (very helpful information for any community but especially important for a diaspora community). And then at the end of the interview, I asked them if they would be willing to be contacted with further questions (in which case, I collected contact information), and I also asked if they would be willing to participate in an experiment involving saying Turoyo words (I then chose the participants for the acoustic experiment from this group of people).

Rather than seeking written responses to the sociolinguistic questionnaire, I chose to elicit answers via interview. I chose to do this for two reasons. The first reason was to help consultants feel more comfortable and create a more natural conversation in which to gather the data. And second, so that I could easily ask follow-up questions when something struck me as interesting/important, if an answer was unclear, or if I could tell that there was something more that would be helpful to explore.

Next, I conducted a pilot study in which I gave the sociolinguistic questionnaire via interview with a limited number of consultants (N=4). The results of these questionnaires were written (by me) during the interviews. Specific follow-up questions were asked via phone, email, or text as needed. I chose not to record the interviews (the initial four as well as the other 46), as I wanted those I interviewed to feel as comfortable as possible during the interview process. This community has historically been mistreated, and there are not many "outsiders" that come into the community. Most of the people I interviewed met me for the first time when I began to interview them. With this combination, I felt that also adding a recording aspect would have felt overly intrusive and caused people to be more guarded. (Also, cf. Lahdo (2017), a translated text of the story of Father Yusuf Akbulut, who had been talking in a group with friends at a teahouse and was not aware that any of the questioners were journalists or that they were secretly taping their conversation and then was thrown in jail for six months because he labeled the Assyrian genocide as a genocide.) I also interviewed many of the people in the crowded atmosphere of after-church socialization in the social hall, so recording would have been tricky, and I felt putting on a head-mounted microphone would have made them extra uncomfortable.

Based on the results of the pilot study, I then modified the sociolinguistic questionnaire to better fit the situation in the Mor Gabriel community and also to flow better as an interview. I then proceeded to interview 46 other members of the Mor Gabriel community (all of whom are native speakers of Turoyo), for a total of 50 sociolinguistic questionnaires/interviews.

3.2.2 Participants

There were 50 participants in the sociolinguistic study, 25 females and 25 males, spread over (what I had identified based on my initial research) three generations. 16 participants were from the "grandparent" generation, which consisted of people who were generally over 50, 16 participants were from the "parent" generation, which consisted people who were generally 30-50 years old and were married and had children, and 18 participants were from the "child" generation, which consisted of people who were under 30 and were unmarried (this is actually the general principle

that the community uses to identify its "youth", as well). There were two special considerations for the child generation. First, I chose not to interview people who were younger than 12 because I wanted the participants to have a sufficient number of years of life experience to inform their answers. Second, since 50 does not divide evenly by three, I chose to interview the two "extra" people in the child generation, because I hypothesized that this generation was in the midst of figuring out their identity.

I found my initial participants for the sociolinguistic study from Aramaic school and church services. I tried to find these participants from various groups (e.g. teachers at the Aramaic school, volunteers at the Aramaic school, the men parking cars at church, the women who took their young children to the fellowship hall during the church service, the deaconesses preparing coffee and snacks for after the church service, people sitting in different groups in the fellowship hall after church, etc.). From there, I asked people who I had interviewed if they knew anyone who might fit a particular description (e.g. "female in her upper 20s", "male in their 70s", etc.). Since I wanted a wide variety of opinions, when I had a choice, I would choose people who would (hopefully) diversify my subject pool (e.g. young people who did not usually attend church).

Even though I did try to get as diversified a sample of people as possible, I do know that it affected my sample that I met people at places like the Aramaic school (those children obviously come from families in which the parents want their child to attend the Aramaic school), that I asked at church, and that I interviewed people who knew people from these places. However, since many of the children do attend Aramaic school and most of the community does attend church, I am confident that the participants in the study are a representative sample of the larger community.

3.2.3 Conducting the Interviews

In most cases, I conducted the interviews face-to-face. However, there were a few cases in which I conducted an interview over the phone (e.g. with a couple of the young people who did not usually attend church or with someone I had met who did not have time for an in-person interview). There was one case in which I sent someone the questionnaire via email because the speaker was currently

out of the country, but I met them later.

Most of the interviews were conducted in English, beginning and ending with some basic conversation in Turoyo. There were, however, a few of the older speakers who did not speak enough English for me to interview them in English, and so I would have a translator (a family member or friend of the speaker) assist me.

I wrote down the answers to each of the questions in the sociolinguistic questionnaire, as well as various other notes of things that came up during the interview.

3.2.4 Analyzing the Data

Data were coded by speaker number (based on age order). Data was collected, entered into a spreadsheet, and then analyzed. This information is found in Chapter 4 and in Chapter 6.

CHAPTER 4

INTRODUCTION TO THREE GENERATIONS IN THE MOR GABRIEL COMMUNITY

This chapter will introduce the three generations in the Mor Gabriel community and compare their language use in various situations. The tables below (Tables 4.1, 4.2, and 4.3) summarize how the data were coded by speaker number based on age order for each of the three generations.

Table 4.1: Table summarizing participant numbers, genders, and ages for the child generation

Child Generation

Participant Number	Age	Gender
1	12	M
2	13	M
3	14	F
4	14	F
5	16	M
6	16	M
7	16	F
8	17	F
9	19	F
10	19	F
11	21	M
12	22	M
13	22	F
14	25	M
15	25	M
16	26	F
17	27	M
18	29	F

Table 4.2: Table summarizing participant numbers, genders, and ages for the parent generation

Parent Generation

Participant Number	Age	Gender
19	30	F
20	31	M
21	32	F
22	33	F
23	33	M
24	36	F
25	39	F
26	41	F
27	43	M
28	43	M
29	45	M
30	45	F
31	46	M
32	48	M
33	50	M
34	52	F

Table 4.3: Table summarizing participant numbers, genders, and ages for the grandparent generation

'Grandparent Generation

Participant Number	Age	Gender
35	52	F
36	54	F
37	59	M
38	61	F
39	62	M
40	65	M
41	65	M
42	66	M
43	67	M
44	68	F
45	72	F
46	72	F
47	76	F
48	76	M
49	80	F
50	83	M

4.1 Introduction to the Three Generations

The story of this community is best divided historically, by generation. In many ways, the story of the Mor Gabriel community dates back to the Assyrian Genocide. Many of those in the grandparent

generation had family members who were caught up in the horrific events of the Assyrian Genocide (called the "Sayfo", meaning *sword* in Turoyo), which took place between the years of 1914 and 1918. It was not too long after the Sayfo, in 1932, that the oldest of the Turoyo speakers that I interviewed was born.[1]

4.1.1 Grandparent Generation

The grandparent generation was born during the years of 1932-1963. They were born in Southeastern Turkey, either in the small city of Midyat, or in the nearby (2 hour walk) village of ʕAyn Wardo (see map below). It is in this area, known as Tur ʕAbdin, that the Turoyo language originated (Ephrem I Barsoum, 2008).

1. According to one of my informants, Fikri Temiz, those born during that time do not always know their exact birthday. Instead, their official documents have listed January 1 of the year that they were born. Birthdays were not really celebrated (though they are now for the younger people in America).

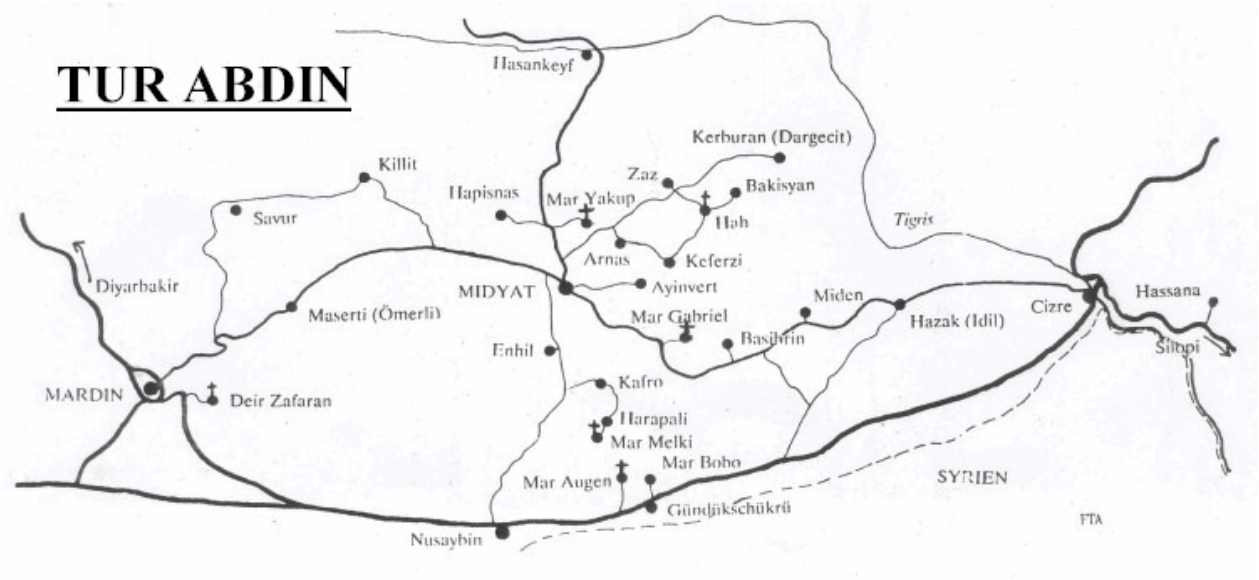


Figure 4.1: Map of Tur ʕAbdin (Unknown, 2015)

In Midyat, lived not only the Suryoyo people (who spoke Turoyo), but also Kurdish speakers and Arabic speakers. Since Midyat is located in Turkey, Turkish was also spoken. These four languages were known and used by most people who lived in the city. The people would learn and speak their native language at home, but once they started attending school and interacting in the neighborhood, they learned the other languages to facilitate those interactions.

In ʕAyn Wardo (which now goes by the Turkified name of Gülgöze), there were more Suryoyo people (the town had become dominantly Christian during the Sayfo because it is a location in the hills where the Suryoyo people fled to for the purpose of uniting and fighting against their enemies (Lahdo, 2017)). But there were still also some Kurdish and Muslim people and the people

in ʕAyn Wardo also often traveled to Midyat, so most people who lived in ʕAyn Wardo were also acquainted with Kurdish and Arabic, as well as Turkish. Many of those who lived in ʕAyn Wardo were farmers.

Most of the people that I interviewed moved out of the Midyat/ʕAyn Wardo area because of persecution (related to the 1965 and 1970 elections). Almost all of them moved to Istanbul during the late 1960s and early 1970s, though two people moved to Europe. There, they continued to live together in community with each other. As they looked for a way to earn a living, one person was able to be apprenticed and learn to be a jeweler. And he then taught the others in the community. This created a tradition of being in the jewelry business that has lasted until today in the Mor Gabriel community in New Jersey.

4.1.2 Parent Generation

Many of the parent generation were either born in Istanbul or immigrated there when they were just a couple years old. They learned and spoke Turoyo in their homes, but once they went to school, they learned Turkish and spoke Turkish with their friends as well as with most people outside their families. Although there was still some persecution in Istanbul, there was not nearly as much as there had been in Tur ʕAbdin, and so the parent generation did not experience as much persecution as their parents did.

In many ways, the parent generation is a link between the grandparent generation and their lives in rural southeastern Turkey and the child generation and their lives in the United States. While the grandparent generation speaks almost exclusively Turoyo in every domain of their lives and the child generation speaks mostly English, the language domains for the parent generation is the most mixed. The grandparent generation does not like the Turkish language - they have bad associations with the Turkish people who treated them badly and they say that they do not live in Turkey anymore, they live in the United States, they do not need the language, so why use it? But the parent generation is most comfortable speaking Turkish. It is hard for them to teach their children Turoyo when they speak Turkish to their spouse and speak English at their jobs and

outside the community. But they try, out of respect for their parents (those in the grandparent generation) and because of their beliefs and values (which will be explained more in Chapter 6). It should be noted that some of the younger people in the parent generation were born in Europe or in the US, but they still pattern linguistically and sociolinguistically with the rest of the parent generation in many ways.

During particularly the time between 1985 and 1995 (though it is more spread out than the emigration from Tur ʕAbdin and even as recent as 2010), the people that I interviewed immigrated from Istanbul (some from Europe) to the United States, particularly the area around Hackensack, NJ.

4.1.3 Child Generation

Those in the child generation were born in the US or came to the US at an early age. They grew up hearing Turoyo (and Turkish) in their homes and then started learning English when they went to school. They now speak mostly English, both at school with their friends and now also at home with their parents and siblings. English for them became what Turkish was to their parents. It must be said that this does not describe everyone in the child generation (particularly those whose parents immigrated from Europe rather than from Turkey), and that some of the older people in the child generation use more of a mixture of languages similar to the parent generation, but this is the general pattern.

In the US, the people in the child generation experience little to no persecution. There is some teasing at school, and it does bother some of those that I interviewed, but others were not bothered by it at all.

4.2 Comparing Generations Through Their Answers to the Sociolinguistic Questionnaire

4.2.1 Basic Information

Education

Grandparent Generation. Many of the grandparent generation were not able to attend school at all. At first, there was no school. Then, a five year school was started. But even then, the school was controlled by the government and students were taught in Turkish. Turoyo was forbidden in school. However, the Suryoyo people created a "secret school" in which they taught children about the language and about Syriac. Even when formal school was an option, some of the female children did not attend the school for safety reasons. One person that I interviewed said that she did not attend school because her father did not feel comfortable sending girls because "there were Muslims in the town that were bad". Another female that I interviewed said that she was only able to attend school through elementary school and could not continue because she had "no older brother to watch out for her". Three of the males that I interviewed also studied at a monastery. And one person that I interviewed got a Bachelor's Degree after immigrating to the United States.

Parent Generation. Eight out of 18 people in the parent generation have some type of schooling beyond high school. Four of those have completed degrees, while the other four were working towards a degree or completed some type of technical school. All of the others in the parent generation completed high school, and, for the most part, the older half of the parent generation completed high school in Turkey.

Child Generation. Everyone in the child generation is either currently in high school or has completed high school. Four out of the eight that have completed high school have completed or are completing a further degree (or more). While many in the community work in jewelry and do not necessarily need a further degree, some of them have gotten further education in related things such as business. Others have pursued different paths outside of jewelry, including anthropology,

linguistics, advertising, and health-related fields. There is, in general, a trend toward more education in the community. In fact, my language consultant (the priest of the community) told me that he tells the young people three things: "(1) educate yourself (it's important and without education, people will walk all over you); (2) be faithful to Christ; and (3) don't forget your heritage."

Occupation

The vast majority of males in the Mor Gabriel community work in the jewelry business. Of the 20 males that I interviewed that were not still enrolled in school (5 were still in school), 15 of them were jewelers, including all of the males in the parent generation. For the remaining 5, they were either from the grandparent generation and had found their own way to make a living before the jewelry business becomes popular in the community, or they were in the child generation and were utilizing the freedom and opportunity found in America to choose a job that they were personally interested in rather than following in the footsteps of others in the community.

Over half of the women in the Mor Gabriel community stay at home, and this was generally true of the sample of women that I interviewed, as well. Of the 18 females that I interviewed who were not still enrolled in school (7 were still in school), half of them (9) were stay-at-home mothers. However, although many women in the community do stay at home, there is a trend in the community for the younger women to work more outside the home. 7 of the 9 stay-at-home mothers that I interviewed were from the grandparent generation (most had never worked outside the home), and the 9 women who worked outside the home were all from the parent and child generation. Along with the trend for more of the younger women to work outside the home, they also have more varied occupations than the men: 2 of the 9 women who worked outside the home (both in the parent generation) worked with their husbands in their jewelry businesses, but the remaining 7 women had chosen varied fields, including store management, adjunct teaching at a local college, owning a business, insurance, human resources, and two had worked at schools cooking or serving food.

4.2.2 Language Use

Languages Spoken

In the Mor Gabriel community, everyone is at least bilingual, and almost everyone speaks three or more languages to some degree. Table 4.4 shows how many languages were spoken by each of the 50 people that I interviewed.

Table 4.4: Table summarizing the number of languages spoken by people in the Mor Gabriel community

Number of Languages	**Number of People who Speak that Number of Languages**
7 languages	3 people
6 languages	3 people
5 languages	8 people
4 languages	7 people
3 languages	26 people
2 languages	2 people

The Mor Gabriel community is both Turoyo and English dominant. Everyone that I interviewed knows (and their first language is) Turoyo, so that is the one language everyone in the community has in common, but the amount that speakers use Turoyo diminishes greatly below the grandparent generation (more on that below). On the other hand, not everyone in the community knows English, but all but the oldest six speakers (they were 68 years old and above) that I interviewed were fluent in English and English is spoken in more domains by more people (more on that below).

Turkish is spoken by over 60% of the people in the community, and is spoken in many domains by a number of people in the parent generation, but it is not as dominant as Turoyo or English.

The other languages that play a large role in the community are Kurdish and Arabic. This is because those languages (along with Turoyo and Turkish) were the ones spoken in Midyat (see

section 4.1.1), where the grandparent generation emigrated from. Everyone who lived in Midyat long enough to attend school there (these speakers are all 50 years old and above) speak Turoyo, Turkish, Kurdish, and Arabic. Those who lived in ʕAyn Wardo were less likely to know Kurdish or Arabic, but some did pick it up from interacting with people in the area, particularly those who lived in ʕAyn Wardo as adults. There were also a few younger people who did not live in Midyat or ʕAyn Wardo who knew some Kurdish or Arabic, but only small amounts they have picked up from their parents. In one case, one couple in the grandparent generation (who I did not interview) used Arabic to speak secretly, which gave incentive to their daughter and grandson (both of whom I interviewed) to learn it (they both only know it to the level where they can understand it).

There are also other languages spoken among those that I interviewed in the community (some people know up to seven languages), including Spanish (learned in school or on the job), Portuguese (learned in school), French (learned in school by two people, and spoken by one person who was born and grew up in France before she got married), Swedish (by two people who lived in Sweden), Polish (by one person who lived in Poland), Armenian and Greek by those in a family in which a few members of the family speak those languages, and German (by two speakers who lived in Germany and by one person who learned it in school).

Table 4.5 shows the main languages spoken by the community (Turoyo, English, Turkish, Kurdish, and Arabic, as well as a column for "Other Languages") and whether or not each person speaks each language. Cells in the table are color-coded for visual ease of reference: green for yes, red for no, and yellow for something in-between. The thick black lines separate the table into generations (child generation at the top, followed by the parent generation, followed by the grandparent generation).

Language Use

Now that we know which languages are spoken by people in the Mor Gabriel community, this section details what language choices people in the community are making in various domains of their lives.

Table 4.5: Table of languages spoken by those in the Mor Gabriel community

Subject Number	Turoyo?	English?	Turkish?	Kurdish?	Arabic?	Other Languages?
1	Y	Y	Might learn	N	N	Spanish in school
2	Y	Y	N	N	N	X
3	Y	Y	N	N	N	Spanish in school
4	Y	Y	N	N	N	Spanish in school
5	Y	Y	N	N	N	X
6	Y	Y	N	N	N	X
7	Y	Y	Y	N	N	X
8	Y	Y	Have picked some up	N	N	Spanish in school
9	Y	Y	Y	N	N	X
10	Y	Y	Y	N	N	X
11	Y	Y	Understand	N	N	X
12	Y	Y	N	N	N	A little Swedish
13	Y	Y	Y	N	N	X
14	Y	Y	Y	N	Understands 30%	
15	Y	Y	Conversational (not fluent)	N	N	Spanish, Portugese, Greek
16	Y	Y	Understands parents	Small	N	French in school
17	Y	Y	Understand	N	Understands	
18	Y	Y	Y	N	N	X
19	Y	Y	Y	N	Some	Spanish, Greek, Armenian
20	Y	Y	Y	N	N	Polish
21	Y	Y	Y	N	Novice	Greek, Armenian, Spanish
22	Y	Y	N	N	N	French
23	Y	Y	N	N	N	German
24	Y	Y	Y	N	N	Swedish, Spanish
25	Y	Y	Y	N	N	X
26	Y	Y	Y	N	N	X
27	Y	Y	Y	N	N	X
28	Y	Y	Y	N	N	X
29	Y	Y	Y	N	N	X
30	Y	Y	Y	N	N	X
31	Y	Y	Y	N	"Few" words	German
32	Y	Y	Y	N	N	X
33	Y	Y	Y	Y	Y	X
34	Y	Y	N	N	Understands	French
35	Y	Y	Y	N	N	X
36	Y	Y	Y	Y	Y	Spanish
37	Y	Y	Y	N	N	X
38	Y	Y	Y	Understand	Y	X
39	Y	Y	Y	Y	Y	Armenian, Greek
40	Y	Y	Y	N	N	X
41	Y	Y	Y	Y	Y	X
42	Y	Y	Y	Y	Y	Spanish
43	Y	Y	Y	Understand	Y	X
44	Y	Understand	Y	Y	Y	X
45	Y	N	Understand	Understand	N	X
46	Y	N	Y	Y	Y	X
47	Y	Some	Y	Y	Y	German
48	Y	N	Y	Y	Y	X
49	Y	N	Little	Little	N	X
50	Y	N	Little	Little	N	X

The grandparent generation is Turoyo dominant. Everyone in the grandparent generation speaks Turoyo in most domains of their life, and, in fact, 13 out of 16 speakers do speak Turoyo in all domains of their life. The three people in the grandparent generation who do not speak Turoyo in every domain of their lives speak English (or another language) to accommodate others when necessary, particularly grandchildren (one of the speakers speaks to her grandchildren in English 25 percent of the time), a spouse (who is not a native Turoyo speaker, although the spouse does know the Turoyo language), and others in the community.

The parent generation is truly a mixture. Half (8 out of 16) of the parent generation prefers to speak English, but the others prefer Turoyo, Turkish, or a combination of two or three of those languages. Within the 11 situations I asked about in the sociolinguistic questionnaire, they use Turoyo in 37% of the situations, they use English in 21% of the situations, they use Turkish in 8.6% of the situations, and they use a combination (usually some combination of Turoyo, English, and/or Turkish) in 33% of the situations (the small remaining half a percentage is for one case of using German to speak about personal things).

The child generation is English dominant. Only one person prefers to speak Turoyo, while most of the others prefer to speak English and three prefer a combination of English and Turoyo. Those in the child generation speak English or a combination of English and something else (usually Turoyo) in 71% of the situations I asked about. Turoyo is the main language used to speak to grandparents, to parents, to speak about personal things, and in some cases to pray or to use when angry. Although English is the dominant language of the child generation, there is no one who speaks English exclusively in all domains of their life.

Table 4.6 lays out the answers given to all the language use questions in the sociolinguistic questionnaire. The results are color-coded for visual ease of reference. For distinction from Turkish, Turoyo is indicated with an S (for Suryoyo) and is coded with the color pink. E is for English and is coded with the color blue. T is for Turkish and is coded with the color orange. A is for Arabic. Any other languages are written out. When the answer was a mixture of languages, the languages were listed and the cell was coded with the color purple. The two unusual/unexpected

answers (Greek and German) were coded with the color mint green. The black lines separate the table into generations (child generation at the top, followed by the parent generation, followed by the grandparent generation).[2]

Speaking With Grandparents. Speaking to grandparents is an extremely Turoyo dominant activity. Only 1 person even tries to speak English to their grandparents (they said they usually speak Turoyo, but sometimes English to the two who knew it). Two people speak exclusively Turkish to their grandparents. And one person speaks another language (Greek) to a grandparent. (These three people are actually from the same family, referring to the same grandparent, whose native language is not Turoyo.) For everyone else that I interviewed, they spoke exclusively Turoyo to their grandparents.

Speaking With Parents. Most people also speak to their parents in Turoyo, at least for the grandparent and parent generation. All 16 people in the grandparent generation speak to their parents in Turoyo. 11 out of 16 people in the parent generation speak to their parents exclusively in Turoyo (1 person speaks mostly English to their parents, and the other 4 people speak a combination of Turoyo and English to their parents). However, only 5 out of 18 people in the child generation speak exclusively Turoyo to their parents. For the others, 3 people speak exclusively English, 1 person speaks Turkish to their parents, and 9 people speak some combination of English and Turoyo to their parents.

Speaking With Siblings. The grandparent generation speaks to their siblings exclusively in Turoyo, the child generation mostly speaks to their siblings in English (there is only one person who does not speak only English or a combination or English and something else to their siblings), and the parent generation speaks a mixture of languages to their siblings: only 3 people speak exclusively Turoyo to their siblings, 5 people speak only English to their siblings, and the remaining 7 people in the parent generation speak a combination of languages to their siblings (Turoyo/Turkish, Turoyo/English/Turkish, Turoyo/English, or Turoyo/Swedish).

Speaking With Spouse. The grandparent generation speaks Turoyo to their spouses (except

2. Chart colors chosen by my 6 year old daughter, Celeste Arielle Weaver.

Table 4.6: Table of language use in the Mor Gabriel community

Subject Number	Language Prefer to Speak	Speak Grandparents	Speak Parents	Speak Siblings	Speak Spouse	Speak Child Relatives	Speak Mor Gabriel Friends	Speak Mor Gabriel Children	Speak Other Suryoyo Friends	Speak Personal	Speak Prayers	Speak Angry
1	ES	S	S	ES		E	E	ES	E	E	E	E
2	E	SE	ES	E		E	E	E	E	E	E	E
3	E	S	E	E		E	E	ES	E	S	S	E
4	SE	S	SE	SE		E	E	E	E	S	S	S
5	E	S	E	E		SE	E	SE	E	S	E	S
6	E	S	ES	E		ES	E	E	E	E	E	E
7	E	S	S	ES		E	E	E	E	S	E	E
8	E	S	E	ES		S	E	SE	E	S	E	S
9	E	S	S	E		E	E	E	E	E	E	E
10	E	S	T	E		E	E	E	E	TS	E	E
11	S	S	S	S		SE	ES	SE	ES	S	E	E?
12	E	S	SE	E		E	E	ES	E	S	E	E
13	E	S	SE	SE	SE	E	E	E	E	S	E	E
14	SE	S	S	ES	E	SE	SE	SE	SE	S	S	ES
15	E	Greek	ES	E		ET & Greek	Cooperative	ES	Cooperative	S & Greek	ES	Depends
16	E	S	SE	E		SE	ES	ES	E	S	S	S
17	E	S	ES	E		SE	E	SE	ES	S	E	S
18	E	S	ST	ET	T	S	TS	SE	ET	S	S	TE
19	E	T	SE	SET		S	S	E	E	S	E	E
20	T	S	S	S	TE	S	TE	S	T	S	T	T
21	SE	T	SET	SET	SET	S	SE	SE	E	S	S	E
22	E	S	S	E	E	E	E	ES	E	E	E	E
23	E	S	SE	E		E	E	E	E	German	S	E
24	S	S	S	S & Swedish	S	S	S	ES	E	S	SE	S
25	E	S	S	E	E	SE	E	E	E	S	S	E
26	E	S	S	E	T	SE	SET	SE	E	S	E	SE
27	E	S	S	Depends	T	ES	SET	E	E	Depends	E	SET
28	E	S	S	T	TE	SE	T	S	T	S	S	E
29	S	S	S	TS	T	SE	S	SE	SET	S	S	T
30	T	S	S	ST	TS	TS	S	S	S	S	S	T
31	STE	S	S	TS	ST	ST	SET	S	SET	Depends	ST	T
32	S	S	S	S	S	S	SET	SE	TE	T	S	E
33	S	S	SE	S	SE	ES	ES	ES	ES	S	S	SE
34	E	S	E mostly E		ES	SE	ES	ES	ES	S	ES	ES
35	S	S	S	S	S	SE	S	S	S	S	S	S
36	S	S	S	S	S	S	S	S	S	S	S	S
37	S	S	S	S	S	S	S	S	S	S	S	S
38	S	S	S	S	S	S	S	S	S	S	S	S
39	Cooperative	S	S	S	TE	SE	SE	SE	SE	S	S	S
40	S	S	S	S	S	S	S	S	S	S	S	S
41	SE	S	S	S	S	SE	S	S	SEA	S	S	S
42	S	S	S	S	S	S	S	S	S	S	S	S
43	S	S	S	S	S	S	S	S	S	S	S	S
44	S	S	S	S	S	S	S	S	S	S	S	S
45	S	S	S	S	S	S	S	S	S	S	S	S
46	S	S	S	S	S	S	S	S	S	S	S	S
47	S	S	S	S	S	S	S	S	S	S	S	S
48	S	S	S	S	S	S	S	S	S	S	S	S
49	S	S	S	S	S	S	S	S	S	S	S	S
50	S	S	S	S	S	S	S	S	S	S	S	S

for one case in which the spouse is not a native speaker), and the parent generation speaks a variety of languages to their spouses. While some (7) of those in the parent generation spoke only one language to their spouse (English, Turoyo, or Turkish), the other 8 people spoke a combination of two or more languages to their spouse: Turoyo/Turkish, Turoyo/English, Turkish/English, or Turoyo/English/Turkish. Only 1 person in the child generation was married, and that person spoke Turkish to their spouse.

Speaking With Child Relatives and Other Children at Mor Gabriel. The community views speaking Turoyo to the children in the community as one of the main ways that the language is passed on. Because of that, there is a type of pressure to speak Turoyo to the children. The grandparents take this very seriously and everyone in the grandparent generation tries to speak to their child relatives in Turoyo. For 13 out of 16 of them, they succeed, but for the other 3, there is some English that creeps into the exchange. Interestingly, they are able to stick to Turoyo easier with other children in the community, as 15 out of 16 people in the grandparent generation speak Turoyo to the children at Mor Gabriel, and only 1 person speaks a combination of Turoyo and English. This is because, as grandparents, they prioritize relationship with their grandchildren the most, so they are more willing to bend the rules, even though speaking in Turoyo is a high priority for them.

However, in the younger generations, there is more language mixing. In the parent generation, they do succeed more with the children in their families than with the children in the community. With children in their family, 5 speak only Turoyo, 2 speak only English, and the rest (9) speak a combination of Turoyo and English or Turkish and English. With children in the wider community, 4 speak only Turoyo, 4 speak only English, and 8 speak a combination of Turoyo and English.

In the child generation, just as with the parent generation, those in the child generation are more stringent with speaking Turoyo to those in their own families. There are few (2) who speak only Turoyo to their child relatives, while the rest speak either only English (9) or a combination of Turoyo and English (7). But when it comes to the wider community, no one speaks only Turoyo, 7 people speak only English, and the other 9 speak a combination of English and Turoyo.

Speaking With Friends at Mor Gabriel. As with many other situations, the grandparent generation speaks mostly Turoyo with their friends at Mor Gabriel (15 out of 16 of them do), the child generation speaks mostly English with their friends at church (13 out of 18 do, while 4 of the others speak a combination of Turoyo and English and 1 speaks mostly Turkish), and the parent generation speaks a variety of languages with their friends at church: 4 people speak only Turoyo, 1 person speaks only Turkish, 3 people speak only English, and the other 8 people speak a combination of languages to their friends.

Speaking With Suryoyo Friends Who Attend Other Churches. In the context of speaking to Suryoyo people who attend other churches (cf. the fact that Mor Gabriel is the only Suryoyo church in the NJ area which uses Turoyo in their church services), much more English is involved - in fact, it's the context in which the most English is spoken. 14 out of 16 people in the grandparent generation still use only Turoyo when speaking to these friends, but 2 of them (the same two people that use a language other than Turoyo in other contexts) use other languages (one uses English, and one uses a combination of Arabic, Turkish, and English). In the parent generation, in this context (as in the other contexts), there is more of a mixture of language use. The oldest 6 people in the parent generation (ages 45-52) use some selection of Turoyo, English, and/or Turkish. 2 people use all three languages (Turoyo, English, and Turkish), 2 people use a combination of Turoyo and English, 1 person uses a combination of English and Turkish, and only 1 person in the parent generation uses only Turoyo with their Suryoyo friends who attend other churches. For the 10 younger people in the parent generation, they use one main language for communication with these friends: for 2 people, that language is Turkish, and for the other 8 people, that language is English. 13 out of 18 people in the child generation use only English in this context. 3 of the others use a combination of English and Turoyo. 1 of the others prefers to use Turkish, but will use English if needed. And 1 person uses "whichever language the other person feels most comfortable with".

Speaking About Personal Matters (in Public). Because Turoyo is spoken by few people outside of the community, this is the context in which the second most Turoyo is spoken (after

with grandparents). Almost anyone who is proficient in Turoyo enough to speak it, uses it (happily - this question elicited a number of smiles) in speaking about personal matters in public (versus in private). In the grandparent generation, all 16 people use only Turoyo in this context. In the parent generation, 11 out of 16 people use only Turoyo in this context. And 12 out of 18 people in the child generation speak Turoyo in this context.

Prayers. Although this is a context that is generally asked about in sociolinguistic questionnaires, it is a context that is complicated in the case of the Mor Gabriel church by the fact that the Turoyo language has a strong religious association. Because the church service is conducted in Turoyo and so the prayers in church (for the most part) are recited in Turoyo, there is a stronger tendency for people to choose Turoyo in this context, particularly if they are saying scripted prayers (though it was made clear to the interviewees that the question was about personal prayers on their own, outside of church). Not surprisingly, all 16 people in the grandparent generation use Turoyo for their personal prayers.

In the parent generation, there is again a mix of language use, but not as much of a mixture, and less Turkish use than in most other contexts (besides with grandparents and to speak about personal matters). This is presumably because the Turkish language is not associated with religion in this community. 8 people in the parent generation use Turoyo for their personal prayers, 1 person uses Turkish, 1 person uses a combination of Turoyo and Turkish, 1 person uses a combination of Turoyo and English, and 4 people use English. In this final group of 4 (those that use English for their personal prayers), 1 of them is young, 1 of them is the person that is not very proficient in Turoyo and prefers English in most contexts, but the other 2 are people who spoke to me about how they have "made Christianity their own" (meaning that Christianity is not just something that is part of their cultural heritage, but that they have accepted it as something personal to them and they now see all Christians as equal (whereas many people in the Mor Gabriel church see themselves as privileged for speaking the language of Jesus and for being part of the long and distinguished tradition of the Syriac Orthodox Church)). It seems that, for these two people, praying in English is a way of separating Christianity from what it once was in their lives and using language to show

the place that it now occupies in their lives. This is also a way of asserting their identity through language.

In the child generation, 12 out of 18 people use English for their prayers, 4 people use only Turoyo, and 1 person uses a combination ("mostly English, but occasionally Turoyo").

When Angry. Asking about this context always elicited a puzzled look (as I'm sure it does for most sociolinguists), but the results are nonetheless interesting. Again, all 16 people in the grandparent generation use Turoyo when angry. And again in the parent generation, there is a mixture. Interestingly, no one in the parent generation spoke angrily primarily in Turoyo, although 3 people used a mixture of Turoyo and English, and 1 person used a mixture of Turoyo, English, and Turkish. 4 people spoke in Turkish when they were angry. And 7 people spoke in English when they were angry. In the child generation, 10 people spoke in English when they were angry, 5 people spoke in Turoyo when they were angry, 1 person used a combination of English and Turoyo, 1 person used a combination of English and Turkish, and 1 person used a mixture (they said it "depended on the language they were currently using"). An interesting observation here is that 2 people (1 in the child generation and 1 in the parent generation) gave answers that involved using a different language depending on who they were with (e.g. "Turoyo around my mom", "English in front of my kids", etc.). This serves the purpose of making sure that those who are listening understand your frustration.

Children and Language/Culture. Everyone in the community told me that children speak Turoyo before they go to school, but once they go to school, they all speak English. However, everyone also did agree that kids should learn both the Turoyo language (everyone but 1 person (and 1 younger person in the child generation who said that he "didn't know") agreed that it should be the first language) and Suryoyo culture.

Language Preservation

Overall, it is clear that the Turoyo language is being used less and less in the Mor Gabriel community. While the grandparent generation is most definitely Turoyo dominant, the parent generation

uses a mixture of languages (mostly Turoyo, Turkish, and English), and the child generation is most definitely English dominant. Those in the community understand that this is the case, although the value of speaking Turoyo is very strong. Almost everyone in the community wishes that Turoyo was stronger in the community and that the language will continue to be spoken in future generations (although that is not the current trend). To this end, I asked those I interviewed about whether they thought the next generation would still speak Turoyo and also if they had any ideas for strengthening the language in the community.

Future Turoyo Speakers. When I asked people whether or not they thought that their family members born 30 years or so from now would continue to speak Turoyo, there was a very mixed response throughout all three generations. The responses of the grandparent generation ranged from yes but that it would eventually die out (2 people), to I hope so (8 people), to maybe (2 people), to probably not (3 people), to no (2 people). The responses of the parent generation were similar and ranged from yes (3 people), to I hope so (6 people), to probably not (3 people), to no (4 people). The responses of the child generation ranged from yes (1 person), to I hope so (7 people), to maybe (5 people), to probably not (3 people) to no (1 person). Overall, everyone in the community seems to be very aware of the language situation, as is evidenced by what they said in response to this question: "At the current level, it might last 100 years. But we want more.", "Only at Mor Gabriel. Because we are teaching the language and care about the language. In 40-50 years, Mor Gabriel will become like the other churches, where there is more English (and now some Arabic because of recent immigration).", "They won't be as fluent. The language will die down. As long as grandparents and parents are alive yes, but then it will die out.", "Yes - if it's the mother's native language, they will learn it.", "I hope so. I dream that they will. But it's a choice between languages. They probably won't be fluent, but will know some words.", "I hope so - if they stick together and stick to church.", "It's hard to say. Hopefully. If we keep our community close and have our own schools.", "My daughters will speak (and they read it better than me), but I'm not sure about other parents - if my daughter hangs out with them, maybe she will not use it and forget it. It depends on the next generation and the other churches, too.", "I am scared they

won't - it's very difficult to pass it on.", "As long as I'm alive, yeah. Everyone should speak it as the only language at home up until age 3.", "I hope so. I plan on teaching my kids.", "Maybe - we have a lot of things we can do with computers, tv, etc. that could help.", "That's debatable. I plan to teach my kids and tell them to teach their kids, but I don't know.", "Maybe, if we can keep the language going. But right now, the kids mostly speak English.", 'Most likely not, definitely not to the same extent as my parents speak."

The overall consensus is that English will replace Turoyo. No one in any generation said that it would not. Everyone also agreed that if English replaced Turoyo, that would be bad, that a people and a history and a heritage and the language that Jesus spoke would be lost. But still, overall, the feeling was that it was inevitable. One older couple said, "We worry. We are sad. But we can't do anything. No matter what, they will learn English." Everyone also agreed that Turoyo should be written down. The language is not written in the Mor Gabriel community (though it is written in Sweden), although the children who attend the Aramaic school learn to read and write in Syriac. But, in their everyday lives, people in the community write in Turkish and/or English (usually depending on whether they attended school in Turkey or in the US and/or if they learned it for their job). But everyone says that they would like to be able to write it, with some adding that it would be helpful for texting (though people do still text and use Turoyo on Facebook, etc., it's just not standardized).

Preservation Ideas. Many people had varying ideas of how to preserve Turoyo, but the one that was given the most was definitely to start a government funded school with professional, paid teachers who taught in Suryoyo. The community formed a committee to study this idea and to propose it, but they were turned down (because they were proposing a charter school, but the area was already high-performing and so a charter school was deemed not needed in that area). Other ideas that were given (the ideas did not really differ between generations, so I will present them here together) included parents speaking the language, staying in close community, marrying Suryoyo, activities and events so that people can speak the language and meet friends (and possible marriage partners), ideas involving technology, more children attending Aramaic school and the

Summer Day Camp, a bigger Sunday School initiative (including preschool), educating people in the community about the situation and the importance of the language and what to do to keep it alive, and having a Turoyo class at the American schools. The child generation had two ideas of their own: (1) kids from other churches learning Turoyo, and (2) better teachers.

Chapter 5 will discuss the acoustic correlates of emphasis in Turoyo, which will become important in further discussion of sociolinguistic variability in the Mor Gabriel community in Chapter 6.

CHAPTER 5

ACOUSTIC CORRELATES OF EMPHASIS IN MOR GABRIEL TUROYO

The first research question of this dissertation is: (1) what are the acoustic correlates of emphasis in Mor Gabriel Turoyo? This chapter will reveal the acoustic correlates of emphasis in Mor Gabriel Turoyo by focusing on the results of the acoustic study for the grandparent generation. I specifically look to the grandparent generation for the acoustic correlates because they learned Turoyo in Tur ʕAbdin, they spent the most time speaking the language in Tur ʕAbdin, they are the ones who use Turoyo most extensively, and their use of Turoyo is the baseline from which Turoyo has been taught to the parent and child generations.

The other two research questions of this dissertation are: (2) is there variability in the acoustic correlates between generations? and (3) if there is variability, what social factors correlate to the most faithful preservation of the acoustic correlates of emphasis? Chapter 6 will focus on the acoustic correlate variability that exists between generations (and genders) by looking at the rest of the experiment results and by informing those results with the results from the sociolinguistic study.

5.1 Consonants

Although I did examine the acoustic attributes of plain versus emphatic consonants /s/ and /t/ in Mor Gabriel Turoyo, including Center of Gravity, Standard Deviation, Kurtosis, and Skewness, none of those turned out to be relevant to emphasis. So, in this chapter, I will focus on the vocalic cues of emphasis.

5.2 Vowels

To get an overview of how the acoustic correlates of vowels in Mor Gabriel Turoyo for the grandparent generation are affected by emphasis, the following two figures (Figure 5.1 and Figure 5.2) show the vowel space in Mor Gabriel Turoyo for the vowels /a/, /i/, and /u/ for the grandparent generation following /s/ and /t/ in both plain (shown by gray vowel labels) and emphatic (shown by black vowel labels) environments (each label represents the F1/F2 mean for each of the stimuli).

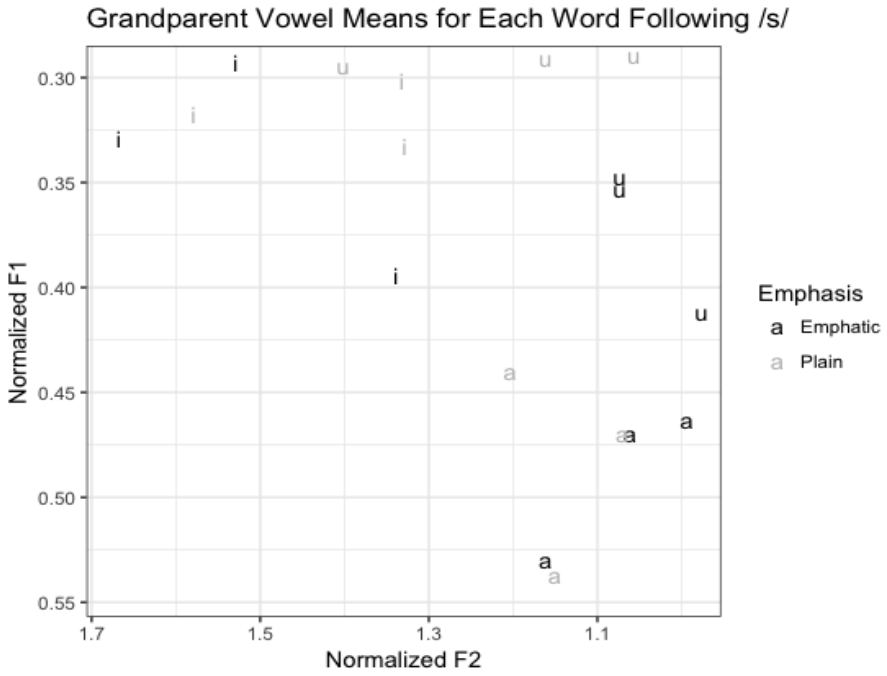


Figure 5.1: Grandparent vowel means for target words (three repetitions each) following /s/

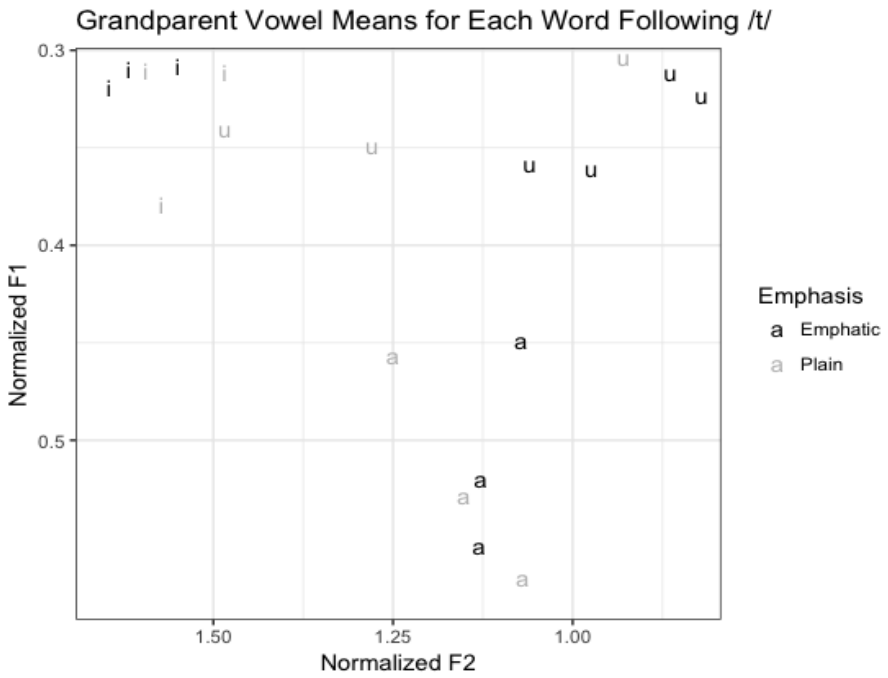


Figure 5.2: Grandparent vowel means for target words (three repetitions each) following /t/

Following /s/, the F1 values of /i/ in both plain and emphatic environments are somewhat similar, but the F2 values for /i/ following emphatic /s/ are higher. So, emphasis appears to have the effect of fronting /i/ following emphatic /s/. The F1 values of /u/ following emphatic /s/ are higher and the F2 values are lower. So, emphasis appears to have the effect of lowering and backing /u/ following emphatic /s/. Following /s/, the F1 of /a/ in both plain and emphatic environments are similar, but the F2 values for /a/ following emphatic /s/ are lower. So, emphasis appears to have the effect of backing /a/ following emphatic /s/.

Following emphatic /t/, the F1 values for all three vowels are similar in plain and emphatic environments. The F2 values for /i/ are higher, which means that emphasis has the effect of fronting /i/ following emphatic /t/. The F2 values for /u/ are lower, which means that emphasis appears to have the effect of backing /u/ following emphatic /t/. The F2 values for /a/ are lower, which means that emphasis appears to have the effect of backing /a/ following emphatic /t/.

Models for each of the acoustic measures for vowels are discussed in detail in the sections

below.

5.2.1 F1

My hypothesis was that, if there is an emphatic contrast in Mor Gabriel Turoyo, then F1 would be higher for vowels in emphatic contexts because, theoretically, constrictions in the uvula or pharynx should result in a raised F1 because of a reduced pharyngeal cavity (Watson, 2002). I found my hypothesis to be true for /u/ throughout the vowel following /s/, but not for /a/ and /i/ following /s/ or for any vowels following /t/.

The best model in lme4 style for F1 for vowels following both /s/ and /t/ was F1 $\sim$ Emphasis * Vowel * Points + (1 |Speaker:Word) + (1+Emphasis+Vowel+Points |Speaker). For vowels following /s/ and /t/, as expected, F1 was highest for /a/, which is a low vowel, and lower for /i/ and /u/, which are high vowels.

/s/

For vowels following /s/, plain environments differed significantly from emphatic environments in both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= 0.02, t =4.75, p = 0.0001) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= 0.01, t =3.3, p = 0.00097).

There was no interaction between Emphasis and Points, but there was a significant interaction between Vowel and Points, as expected, as well as a significant interaction between Emphasis and Vowel. Figure 5.3 shows the interaction between Emphasis and Vowel.

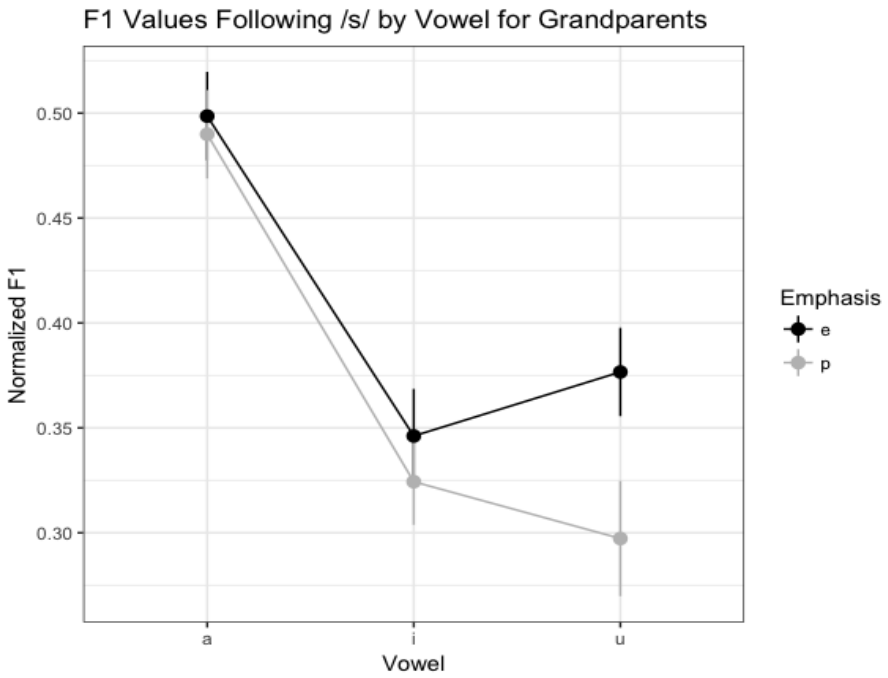


Figure 5.3: Model predictions for F1 values following /s/ in Mor Gabriel Turoyo by vowel for the grandparent generation

F1 values for /a/ were significantly different than F1 values for /i/ in plain versus emphatic environments (β= 0.15, t =11.01, p = 0.0001), and F1 values for /a/ were also significantly different than F1 values for /u/ in plain versus emphatic environments (β= -0.15, t =-11.066, p = 0.0001). However, /i/ was not significantly different from /u/ in plain versus emphatic environments (β=-0.01, t =-0.52, p = 0.61). The significant Emphasis * Vowel interaction that resulted was that /a/ and /i/ did not show any significant difference in F1 in plain versus emphatic environments, but that /u/ did show a significant difference (F1 for /u/ was significantly higher following emphatic /s/). This is clearly seen in Figure 5.3.

There was also a significant interaction between Emphasis, Vowel, and Points, as shown in Figure 5.4.

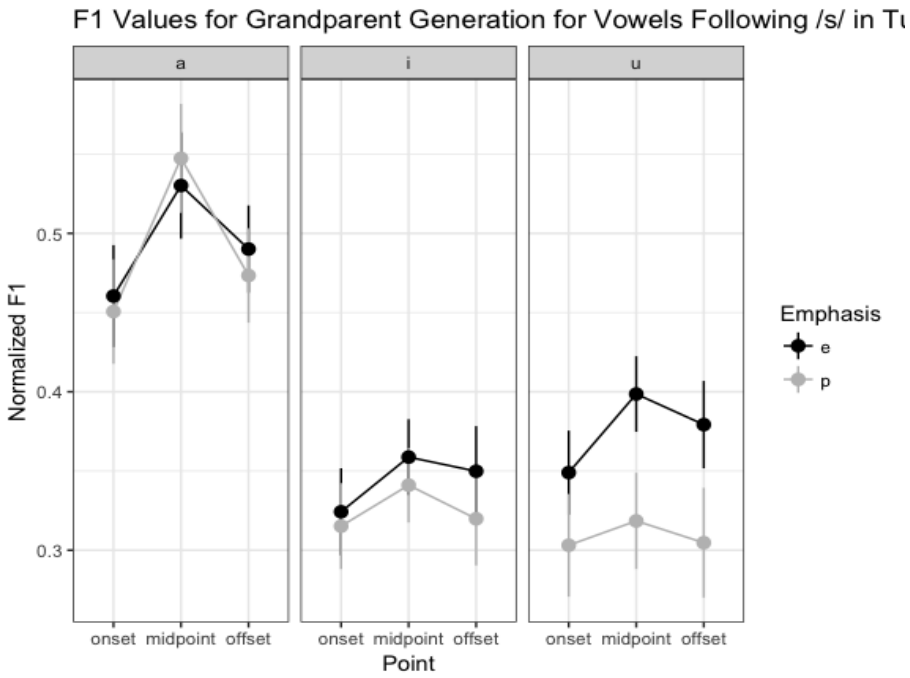


Figure 5.4: Model predictions for F1 values for vowels following /s/ in Mor Gabriel Turoyo for the grandparent generation

There was a significant interaction between the onset and midpoint in Coding 1 (/a/ compared to /i/ (β= 0.01, t =2.23, p = 0.03), /i/ compared to /u/ (β= 0.01, t =1.8, p = 0.07)) and in Coding 2, /u/ compared to /a/ (β= -0.03, t =-3.92, p = 0.0001)), as well as between the midpoint and offset for /a/ compared to /u/ in Coding 2 (β= 0.02, t =2.87, p = 0.0041), but not between the midpoint and offset in Coding 1 or between midpoint and offset for /i/ compared to /u/ in Coding 2 (β= -0.01, t =-1.47, p = 0.1411). These significant differences amount to F1 values for /a/ being overlapping throughout the vowel in plain versus emphatic environments, F1 values for /i/ being similar but growing further apart between plain versus emphatic environments throughout the vowel, and F1 values for /u/ being significantly higher in emphatic environments throughout the vowel.

In summary, the only clear effect of emphasis for vowels following /s/ for F1 is higher F1 values for /u/ throughout the vowel.

/t/

For vowels following /t/, plain environments did not differ significantly from emphatic environments in either Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.0002, t =-0.03, p = 0.97) or Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -0.003, t =-0.64, p = 0.52).

There was not a significant Emphasis * Vowel interaction, but there was both a significant Vowel * Points interaction, as expected, and a significant Emphasis * Points interaction. Figure 5.5 shows the significant Emphasis * Points interaction.

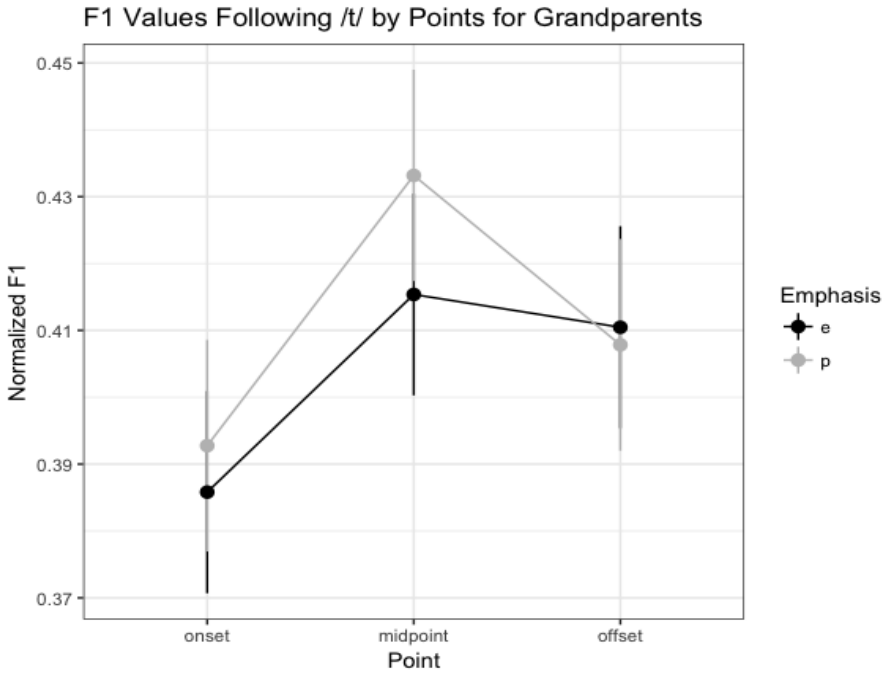


Figure 5.5: Model predictions for F1 values for points following /t/ in Mor Gabriel Turoyo for the grandparent generation

F1 values were significantly different for Coding 1 (/a/ compared to /i/, /i/ compared to /u/) between the onset and midpoint (β= 0.006, t =2.27, p = 0.0232), as well as the midpoint and the offset (β= -0.03, t =-5.05, p = 0.0001). F1 values were also significant for Coding 2 (/i/ compared to /u/, /u/ compared to /a/) between the onset and midpoint (β= 0.005, t = 1.93, p = 0.05), as well as the midpoint and the offset (β= -0.008, t =-2.99, p = 0.0028). The significant Emphasis *

Points interaction that resulted was that F1 values were generally lower for emphatic environments between the onset and midpoint and slightly higher for the offset. This is clearly seen in Figure 5.5.

There was also a significant interaction between Emphasis, Vowel, and Points, but only in two environments, as shown in Figure 5.6.

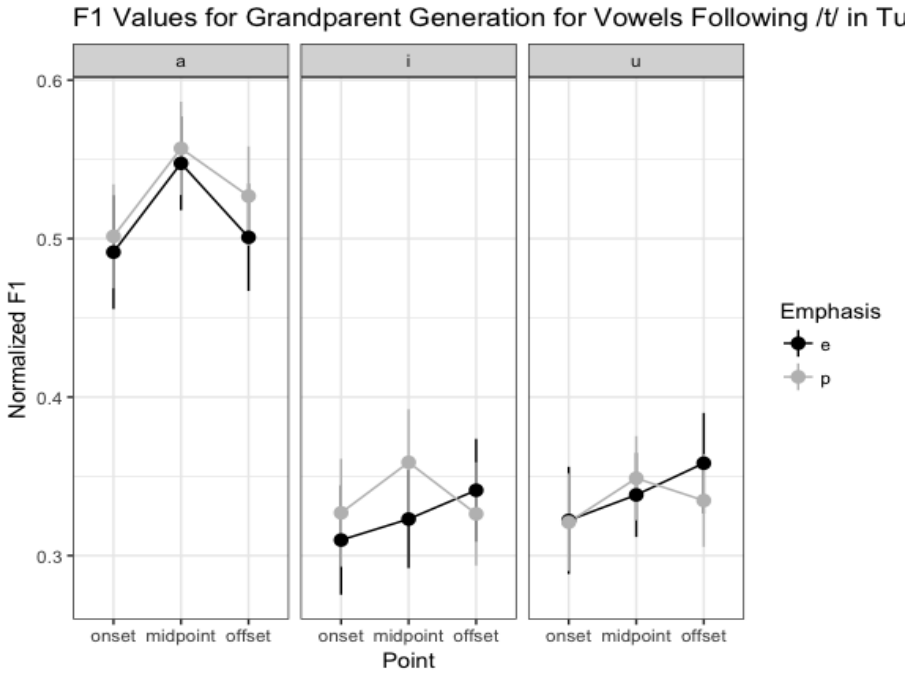


Figure 5.6: Model predictions for F1 values for vowels following /t/ in Mor Gabriel Turoyo for the grandparent generation

The first was between the midpoint and offset for /a/ compared to /i/ in plain versus emphatic environments (β= 0.03, t =5.47, p = 0.0001). The second was between the midpoint and the offset for /a/ compared to /u/ in plain versus emphatic environments (β= -0.02, t =-4.16, p = 0.0001). These significant differences highlight the fact that F1 values following /t/ are lower at the midpoint but higher at the offset for both /i/ and /u/ but not for /a/.

In summary, despite the significant differences, there is no clear acoustic effect of emphasis on F1 for any of the vowels following /t/.

5.2.2 F2

I hypothesized that, if there is an emphatic contrast in Mor Gabriel Turoyo, then F2 would be lower in vowels following emphatic consonants because constrictions in the uvula or pharynx should result in a lowered F2 due to an enlarged oral cavity (Watson, 2002). Also, this is the finding that has been found to be true in all previous acoustic studies of emphasis (Obrecht, 1968; Kahn, 1975; Ghazeli, 1977; Card, 1983; Norlin, 1987; Wahba, 1996; Alioua, 2005; Yeou, 1997; Zawaydeh, 1999; Al-Masri and Jongman, 2004; Khattab et al., 2006). I found my hypothesis to be true for /a/ and /u/ following both /s/ and /t/ but not for /i/ (which showed the opposite effect of having a raised F2 in emphatic environments).

The best model in lme4 style for F2 for vowels following both /s/ and /t/ was F2 $\sim$ Emphasis * Vowel * Points + (1 |Speaker:Word) + (1+Emphasis+Vowel+Points |Speaker). For vowels following /s/ and /t/, as expected, F2 was lowest for /u/ and /a/, which are back vowels, and higher for /i/, which is a front vowel. The overall affect of emphasis in Mor Gabriel Turoyo seems to be making these differences more distinct.

/s/

For vowels following /s/, plain environments differed significantly from emphatic environments in Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.04, t =-2.44, p = 0.0001) but not in Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -2.41, t =-1.67, p = 0.0959).

For vowels following /s/, there was a significant Vowel * Points interaction (as expected), as well as an Emphasis * Vowel interactions and an Emphasis * Points interaction. Figure 5.7 shows the significant Emphasis * Vowel interaction.

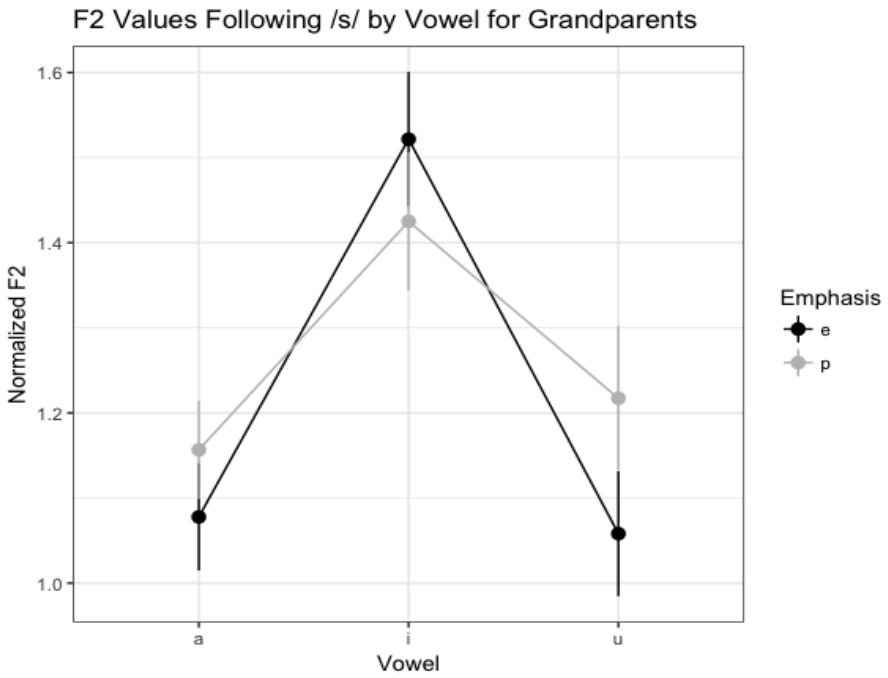


Figure 5.7: Model predictions for F2 values for vowels following /s/ in Mor Gabriel Turoyo for the grandparent generation

F2 values for /a/ were significantly different than F2 values for /i/ in plain versus emphatic environments (β=-0.09, t =-3.04, p= 0.0024), and F2 values for /i/ were significantly different than F2 values for /a/ in plain versus emphatic environments (β=0.14, t =4.497, p= 0.0001). However, F2 values for /a/ were not significantly different from F2 values for /u/ in plain versus emphatic environments (β= -5.49, t = -1.73, p = 0.0829). The significant Emphasis * Vowel interaction that resulted was that F2 values are lower for the back vowels /a/ and /u/ and higher for the front vowel /i/.

Figure 5.8 shows the significant Emphasis * Points interaction.

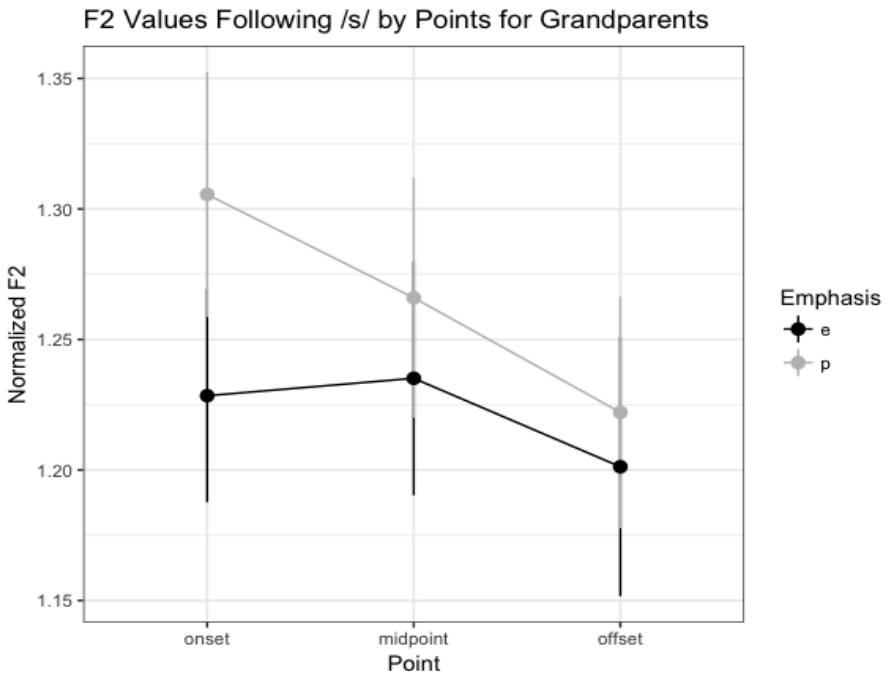


Figure 5.8: Model predictions for F2 values for points following /s/ in Mor Gabriel Turoyo for the grandparent generation

F2 values for plain versus emphatic environments were significantly different between the onset and the midpoint for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.02, t = -2.59, p = 0.0096) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -1.97, t = -2.91, p = 0.0036), but F2 values were not significantly different between the midpoint and the offset for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= 0.007, t = 1.01, p = 0.3130) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -1.03, t = -1.52, p = 0.1292). Figure 5.8 shows the larger difference between onset and midpoint for plain versus emphatic environments, and that the difference is much less between midpoint and offset.

There was also a significant interaction between Emphasis, Vowel, and Points, as shown in Figure 5.9.

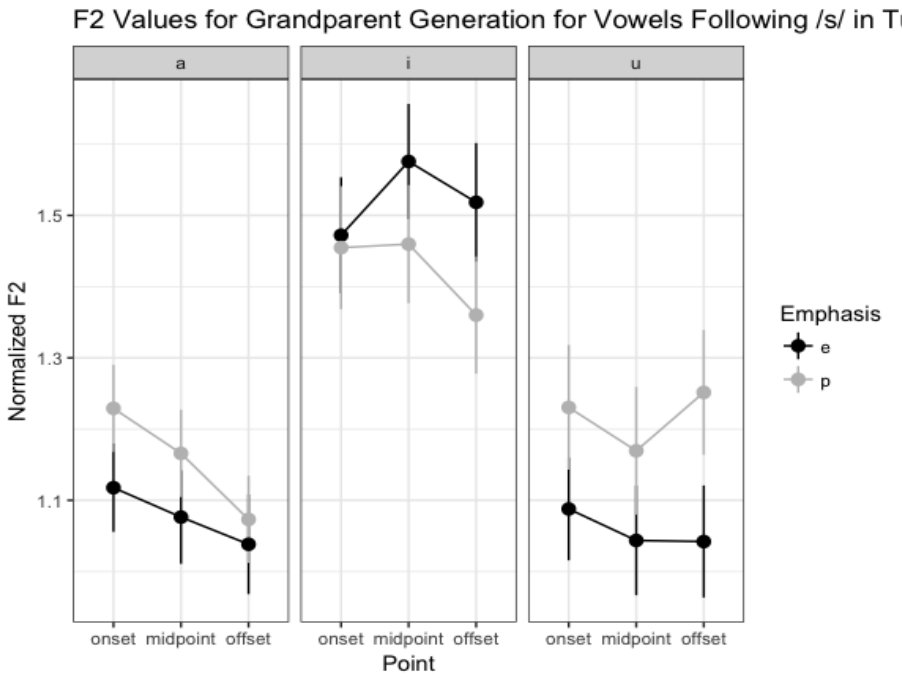


Figure 5.9: Model predictions for F2 values for vowels following /s/ in Mor Gabriel Turoyo for the grandparent generation

The F2 values for /a/ and /i/ were significantly different in plain versus emphatic environments between the onset and the midpoint (β= -4.16, t = -2.496, p = 0.0126), but not between the midpoint and the offset (β= -0.009, t = -0.59, p = 0.5525). The F2 values for /i/ and /u/ were significantly different in plain versus emphatic environments between both the onset and the midpoint (β= -0.04, t = -2.496, p = 0.0126), and also between the midpoint and the offset (β= -0.06, t = -3.66, p = 0.0003). The F2 values for /a/ and /u/ were not significantly different in plain versus emphatic environments between the onset and the midpoint (β= 3.06, t = 0.19, p = 0.8511), but were significantly different between the midpoint and the offset (β= 7.10, t = 4.32, p = 0.0001). These significant differences highlight the fact that there is not much difference between plain versus emphatic environments at the offset of /a/ and at the onset of /i/.

In summary, in Mor Gabriel Turoyo, the acoustic correlate of emphasis for F2 for vowels following /s/ is one of pushing vowels further to the edges of the vowel space. Front vowels such

as /i/ have a raised F2 in emphatic environments, and back vowels such as /a/ and /u/ have a lowered F2 in emphatic environments. This is generally true across all vowel points, except at the onset of /i/ and the offset of /a/.

/t/

For vowels following /t/, plain environments differed significantly from emphatic environments in both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.05, t = -3.74, p = 0.0002) or Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -0.02, t = -2.05, p = 0.0402).

For vowels following /t/, there was a significant Vowel * Points interaction (as expected), as well as an Emphasis * Vowel interactions and an Emphasis * Points interaction. Figure 5.10 shows the significant Emphasis * Vowel interaction.

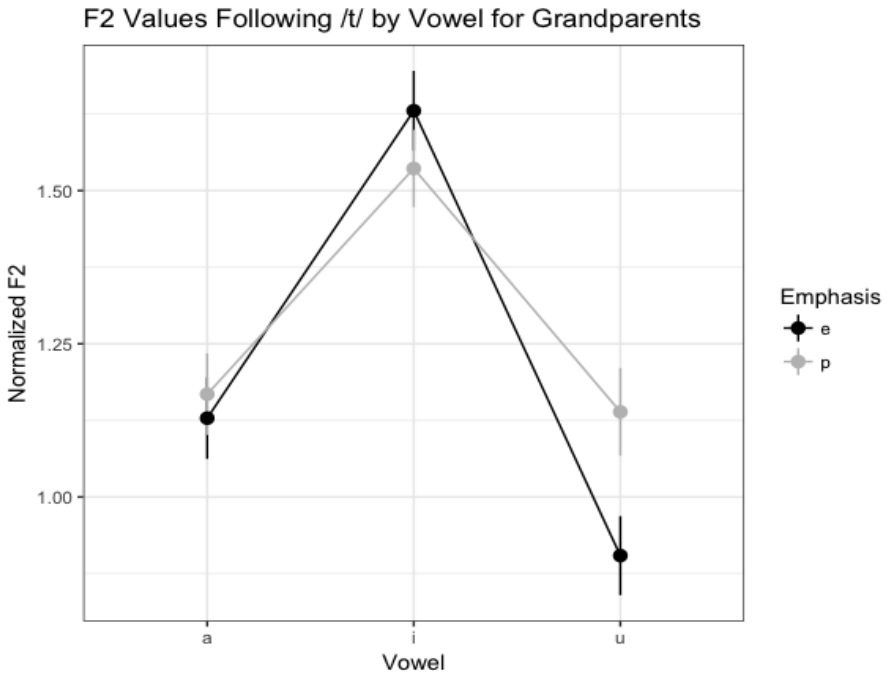


Figure 5.10: Model predictions for F2 values for vowels following /s/ in Mor Gabriel Turoyo for the grandparent generation

F2 values for /a/ were not significantly different than F2 values for /i/ in plain versus emphatic

environments (β= -0.05, t = -1.77, p = 0.0770). But F2 values for /u/ were significantly different than F2 values for /i/ in plain versus emphatic environments (β= 0.14, t = 4.63, p = 0.0001), and F2 values for /u/ were also significantly different than F2 values for /a/ in plain versus emphatic environments (β= -0.03, t = -4.31, p = 0.0001). The difference between /a/ and /i/ in plain versus emphatic environments is slight, but the difference between /u/ in plain versus emphatic environments is larger.

Figure 5.11 shows the significant Emphasis * Points interaction.

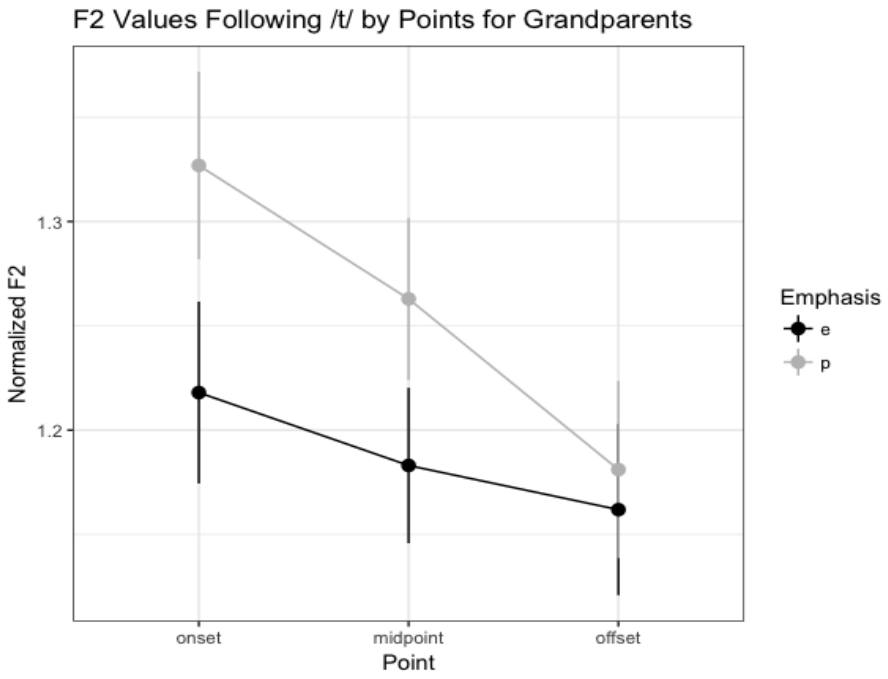


Figure 5.11: Model predictions for F2 values for points following /s/ in Mor Gabriel Turoyo for the grandparent generation

F2 values for plain versus emphatic environments were not significantly different between the onset and the midpoint for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.01, t = -1.86, p = 0.0622) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -0.01, t = -1.62, p = 0.1061). However, F2 values for plain versus emphatic environments were significantly different between the midpoint and the offset for for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/)

(β= -0.03, t = -4.31, p = 0.0001) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= -0.03, t = -3.43, p = 0.0006). These significant differences highlight the fact that the F2 values between the onset and the midpoint were similar, but that, for all three vowels, the F2 values at the offset had diminished greatly.

There was also a significant interaction between Emphasis, Vowel, and Points, as shown in Figure 5.12, but only between midpoints and offsets.

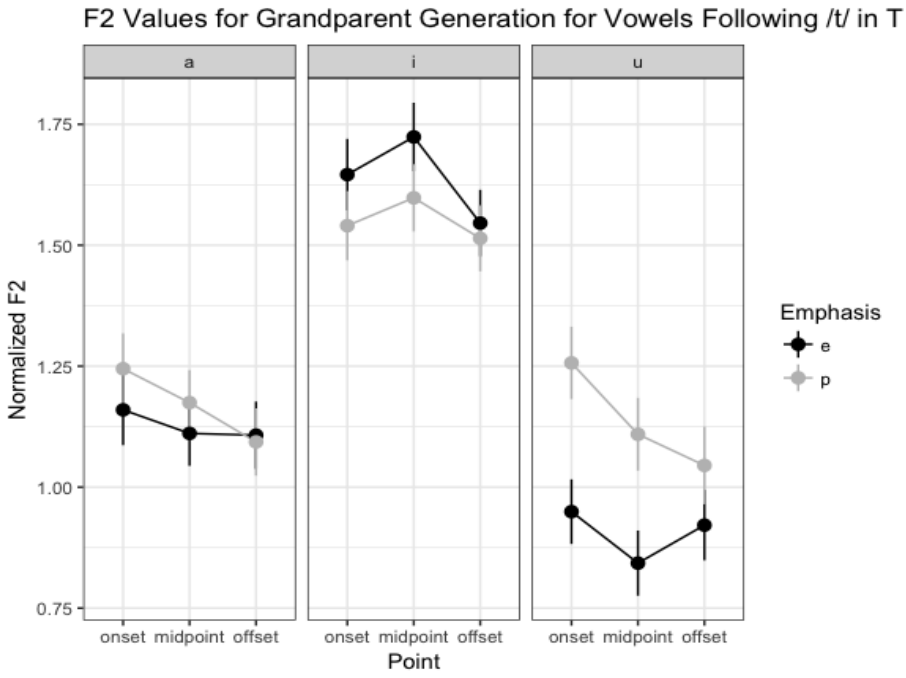


Figure 5.12: Model predictions for F2 values for vowels following /t/ in Mor Gabriel Turoyo for the grandparent generation

The F2 values for /a/ and /i/ were not significantly different in plain versus emphatic environments between the onset and the midpoint (β= -0.005, t = -0.27, p = 0.7840) but were significantly different between the midpoint and the offset (β= -0.08, t = -4.26, p = 0.0001). The F2 values for /i/ and /u/ were not significantly different in plain versus emphatic environments between the onset and the midpoint (β= 0.01, t = 0.78, p = 0.4372) but were significantly different between the midpoint and the offset (β= 0.11, t = 5.76, p = 0.0001). The F2 values for /a/ and /u/ were not

significantly different in plain versus emphatic environments between the onset and the midpoint (β= -0.01, t = -0.57, p = 0.5663), but reached close to significance between the midpoint and the offset (β= -0.03, t = -1.89, p = 0.0592). As is shown in Figure 5.12, these significant differences highlight the fact that there is a significant dropoff in the difference between plain and emphatic environments at the offset for all three vowels, especially for /a/ and /i/.

In summary, in Mor Gabriel Turoyo, the acoustic correlate of emphasis for F2 for vowels following /t/ is one of pushing vowels further to the edges of the vowel space. Front vowels such as /i/ have a raised F2 in emphatic environments, and back vowels such as /a/ and /u/ have a lowered F2 in emphatic environments. This is true at the onset and the midpoint for all three vowels, but not at the offset.

5.2.3 F3

My hypothesis was that, if there is an emphatic contrast in Mor Gabriel Turoyo, then F3 would be higher for vowels in emphatic contexts, because pharyngeals should result in a lowered F3 (Klatt and Stevens, 1969; Alwan, 1986). I did not find this to be true for any of the vowels following /s/, but I did find it to be true for vowels following /t/ at the onset and midpoint.

The best model in lme4 style for F3 for vowels following /s/ was F3 ∼ Emphasis * Vowel * Points + (1 |Speaker:Word) + (1+Emphasis+Vowel+Points |Speaker). The best model for /t/ was F3 ∼ Vowel * Points + Emphasis * Points + (1 |Speaker:Word) + (1+Vowel+Points |Speaker). For all vowels following /s/ and /t/, the F3 values were much more similar than the F1 or F2 values.

/s/

For vowels following /s/, plain environments did not differ significantly from emphatic environments in both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.02, t =-1.17, p = 0.2429) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= 0.-0.01, t = -0.99, p = 0.3246).

There was not a significant interaction between Emphasis and Vowel, but there was both a significant interaction between Vowel and Points, as expected, as well as a significant interaction

between Emphasis and Points. Figure 5.13 shows the significant interaction between Emphasis and Points.

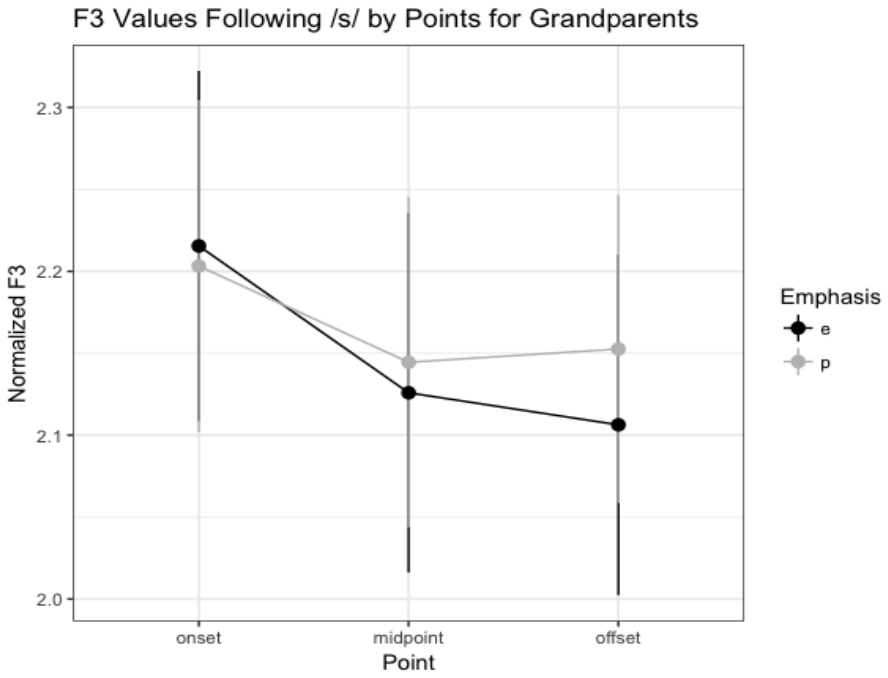


Figure 5.13: Model predictions for F1 values vollowing /s/ in Mor Gabriel Turoyo by vowel for the grandparent generation

F3 values were significantly different for Coding 1 (/a/ compared to /i/, /i/ compared to /u/) between the onset and midpoint (β= 0.02, t = 2.07, p = 0.0387), as well as the midpoint and the offset (β= 0.03, t = 2.96, p = 0.0031). F3 values were also significant for Coding 2 (/i/ compared to /u/, /u/ compared to /a/) between the onset and midpoint (β= 0.02, t = 2.52, p = 0.0116), but not between the midpoint and the offset (β= 0.009, t = 1.12, p = 0.2641). In general, as shown in Figure 5.13, F3 values were slightly higher in emphatic environments at the onset, a little bit lower in emphatic environments at the midpoint, and lower in emphatic environments at the offset.

There was also a significant interaction between Emphasis, Vowel, and Points, as shown in Figure 5.14.

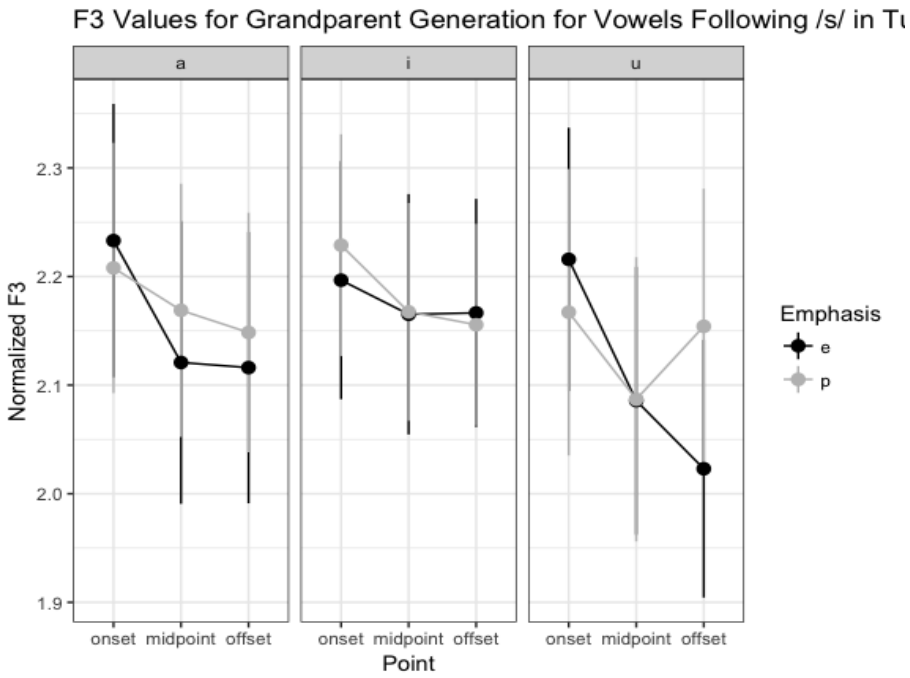


Figure 5.14: Model predictions for F3 values for vowels following /s/ in Mor Gabriel Turoyo for the grandparent generation

The F3 values for /a/ compared to /i/ in plain versus emphatic environments were significantly different between the onset and midpoint (β= 0.05, t = 2.65, p = 0.00795), but not between the midpoint and offset (β= 0.003, t = 0.13, p = 0.8956). The F3 values for /i/ compared to /u/ in plain versus emphatic environments were significantly different between the onset and the midpoint (β= -0.04, t = -1.97, p = 0.0489), as well as between the midpoint and the offset (β= -0.07, t = -3.52, p = 0.0004). The F3 values for /a/ compared to /u/ in plain versus emphatic environments were not significantly different between the onset and the midpoint (β= -0.01, t = -1.97, p = 0.6099), but they were significantly different between the midpoint and the offset (β= 0.07, t = 3.45, p = 0.0006). These differences result because of the overlapping values for emphatic versus plain environments for all three vowels (as seen in Figure 5.14), but they are not evidence of a clear acoustic correlate for F3 for emphasis in Mor Gabriel Turoyo.

In summary, there is no clear acoustic correlate of emphasis for vowels following /s/ for F3.

/t/

For vowels following /t/, plain environments did not differ significantly from emphatic environments in either Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= -0.002, t = -0.22, p = 0.8232) or Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= 0.0065, t = 0.68, p = 0.4956).

There was not a significant Emphasis * Vowel interaction, but there was both a significant Vowel * Points interaction, as expected, and a significant Emphasis * Points interaction. The significant Emphasis * Points interaction is shown below in Figure 5.15.

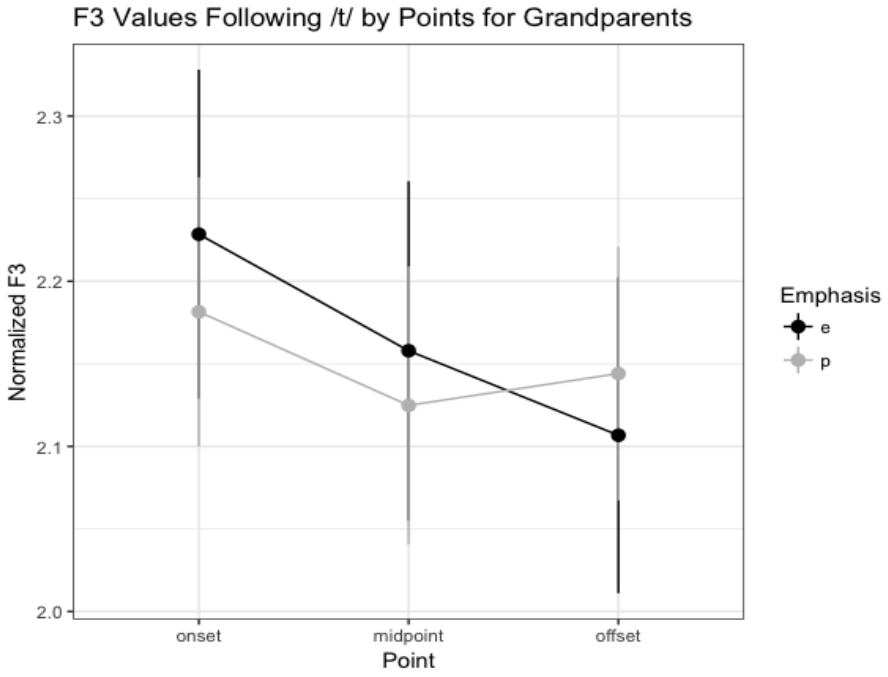


Figure 5.15: Model predictions for F3 values for points following /t/ in Mor Gabriel Turoyo for the grandparent generation

F3 values were not significantly different between the onset and the midpoint for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= 0.009, t = 0.83, p = 0.4057) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= 0.005, t = 0.45, p = 0.6521). However, F3 values were significantly different between the midpoint and the offset for both Coding 1 (/a/ compared to /i/, /i/ compared to /u/) (β= 0.04, t = 3.65, p = 0.0003) and Coding 2 (/i/ compared to /u/, /u/ compared to /a/) (β= 0.03,

t = 2.68, p = 0.0074). The lack of significant difference between onsets and midpoints was because F3 values were higher in emphatic environments at both the onset and the midpoint. However, F3 values were lower in emphatic environments at the offset, which created the significant differences at that point in the vowels.

There was also a significant interaction between Emphasis, Vowel, and Points, as shown in Figure 5.16, but only in one environment and its p-value is almost not significant.

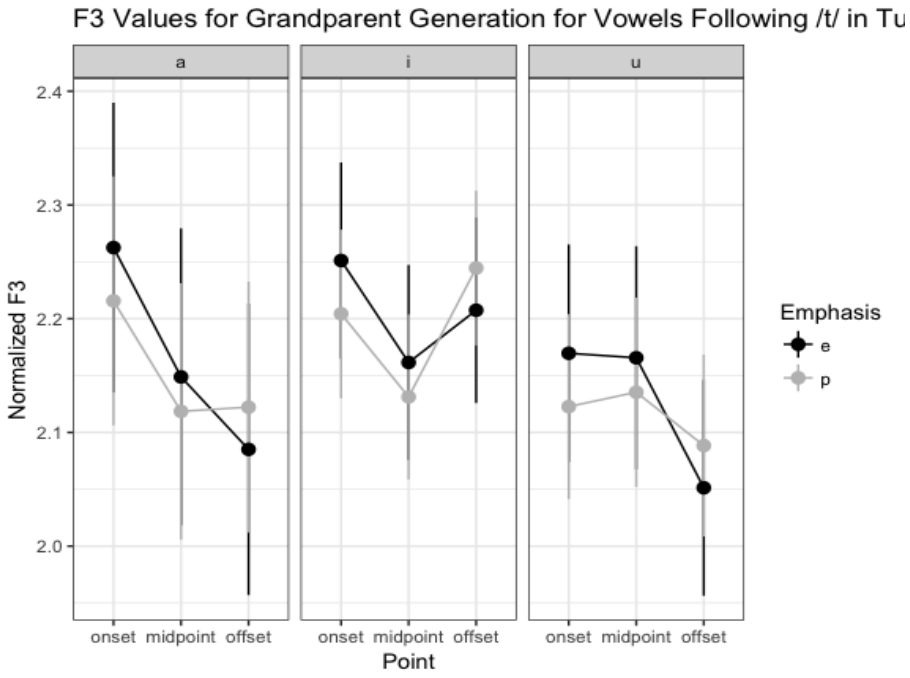


Figure 5.16: Model predictions for F3 values for vowels following /t/ in Mor Gabriel Turoyo for the grandparent generation

That environment was for the difference between F3 values for /a/ and /u/ in plain versus emphatic environments between the midpoint and the offset (β= 0.05, t = 1.95, p = 0.05). As is clear in Figure 5.16, although /a/ and /u/ both have lower F3 values in emphatic environments, the F3 values for /u/ are significantly lower than at the midpoint.

In summary, despite any significant differences, there is no clear acoustic effect of emphasis on F3 for any of the vowels following /t/.

5.3 Summary of Acoustic Correlates of Emphasis

In Mor Gabriel Turoyo, there are two clear acoustic effects of emphasis. The first is raised F1 for /u/ following emphatic /s/. The second is a raised F2 for front vowels and a lowered F2 for back vowels, which results in the de-centralization of the vowels.

5.4 Individual Vowel Spaces for Grandparent Generation and Discussion

Since there are only six speakers in the grandparent generation, it is useful to discuss individual patterns of the speakers. All six speakers in the grandparent generation were born in Midyat and prefer to speak Turoyo. Differences will be discussed below, alongside individual vowel space graphs.

Figure 5.17 shows which words on the word list each speaker in the grandparent generation did or did not have to contribute to the data. For words with an "N", they may have pronounced the word in a different way that did not fit with the experiment design (e.g. without the relevant vowel), or they may have not recognized the word. Each word with a "Y" will be present on the individual vowel space graphs below, while each word with an "N" will not be present on the individual vowel space graphs below.

Word	Speaker 1	Speaker 2	Speaker 3	Speaker 4	Speaker 5	Speaker 6
sabro 'hope'	Y	Y	Y	Y	Y	Y
ṣafro 'morning'	Y	Y	Y	Y	Y	Y
samo 'poison'	Y	Y	Y	Y	Y	Y
sanduko 'box'	Y	Y	Y	Y	Y	Y
ṣawʕo 'finger'	Y	Y	Y	Y	Y	Y
ṣayodo 'hunter'	Y	Y	N	N	Y	Y
ṣiʕato 'committee'	Y	N	Y	Y	Y	Y
sime 'they made it'	Y	Y	Y	Y	Y	Y
simo 'it is made'	Y	Y	Y	Y	Y	Y
ṣin 'China'	Y	Y	Y	Y	N	N
sisto 'female horse'	Y	Y	Y	Y	Y	Y
ṣito 'handswidth'	Y	Y	Y	Y	Y	Y
ṣuʕoro 'don't curse, he's cursing'	Y	Y	Y	Y	Y	N
sulale 'ancestors'	Y	N	Y	Y	Y	Y
suloqo 'ascension' (to go up a level)	Y	N	N	N	Y	N
ṣurṣro 'bug that comes out in August'	Y	Y	Y	Y	Y	Y
ṣurto 'picture, photo, shape'	Y	Y	Y	Y	Y	Y
susyo 'male horse'	Y	N	Y	Y	Y	N
ṭablitho 'table'	Y	Y	Y	Y	Y	Y
tamo 'there'	Y	Y	Y	Y	Y	Y
tarʕo 'door'	Y	Y	Y	Y	Y	Y
ṭarfo 'leaf'	Y	Y	Y	Y	Y	Y
tawdi 'thank you'	Y	Y	Y	Y	Y	Y
ṭayo 'Muslim'	Y	Y	Y	Y	Y	Y
ṭiloyto 'butterfly'	Y	N	N	N	N	N
ṭimo 'price'	Y	Y	N	N	N	N
timo 'expensive'	Y	Y	Y	Y	Y	Y
ṭino 'fig'	Y	Y	Y	Y	Y	Y
tino 'mud'	Y	N	Y	N	Y	Y
tishʕo 'nine'	Y	Y	Y	Y	Y	Y
tumo 'garlic'	Y	Y	Y	Y	Y	Y
ṭur ʕabdin 'region in SE Turkey'	Y	Y	Y	Y	Y	Y
ṭuro 'mountain'	Y	Y	Y	Y	Y	Y
ṭuroyo 'from Tur ʕAbdin'	Y	Y	Y	Y	Y	Y
turto 'cow'	Y	Y	Y	Y	Y	Y
tuyobo 'repent (pl)'	N	N	Y	Y	N	N

Figure 5.17: Word list checklist for grandparent generation

5.4.1 Speaker 1

Speaker 1, a male, attended college in Istanbul and then immigrated to the United States in 1973. Speaker 1 is the father of Speaker 15.

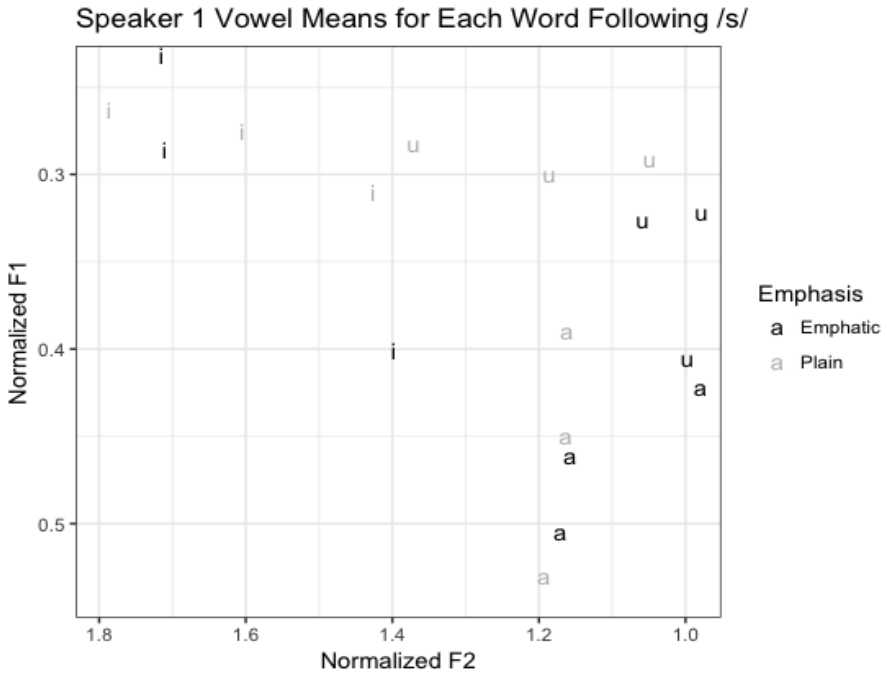


Figure 5.18: Speaker 1 vowel means for target words (three repetitions each) following /s/

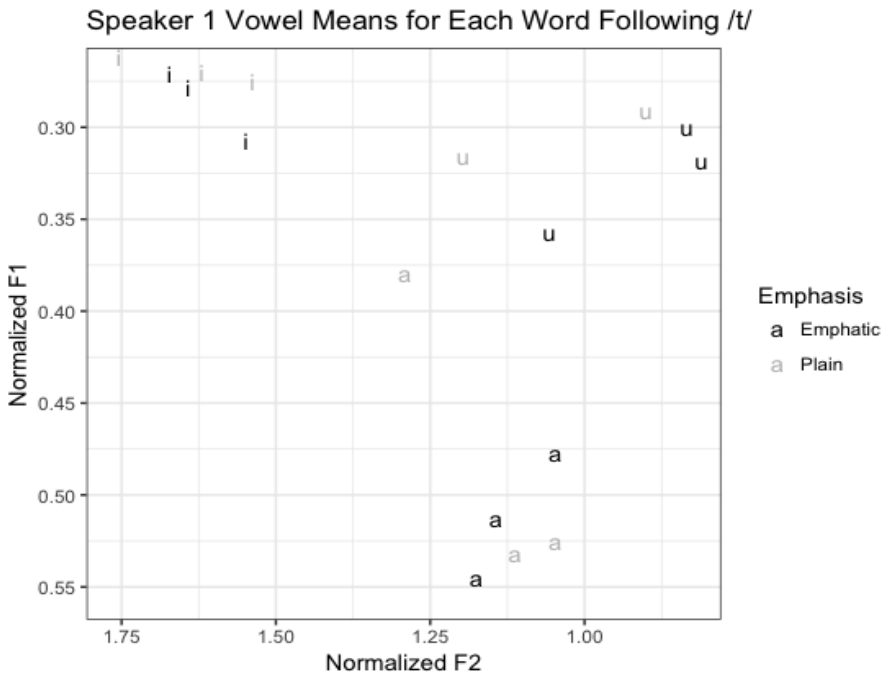


Figure 5.19: Speaker 1 vowel means for target words (three repetitions each) following /t/

Speaker 1 has one word following /s/ (ṣiʕato 'committee') in which his /i/ is more like an /ə/ . Speaker 1 also has one word following /t/ (tawdi 'thank you') in which his plain /a/ is more like an /ə/ , but in this case it is because it is part of a glide and it is moving towards /u/. These two seeming exceptions are also present in the vowel space figures for the grandparent generation as a whole (Figures 5.1 and 5.2). Overall, Speaker 1 shows the same acoustic correlates of emphasis as are found for the wider grandparent generation: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

5.4.2 Speaker 2

Speaker 2, a male, lived in Midyat until he was 14, then lived in Izmit, Turkey for 2 years, then lived in Austria for 3 years, then lived in Germany for 3 1/2 years, and then immigrated to the United States in 1975. Speaker 2 is married to Speaker 3.

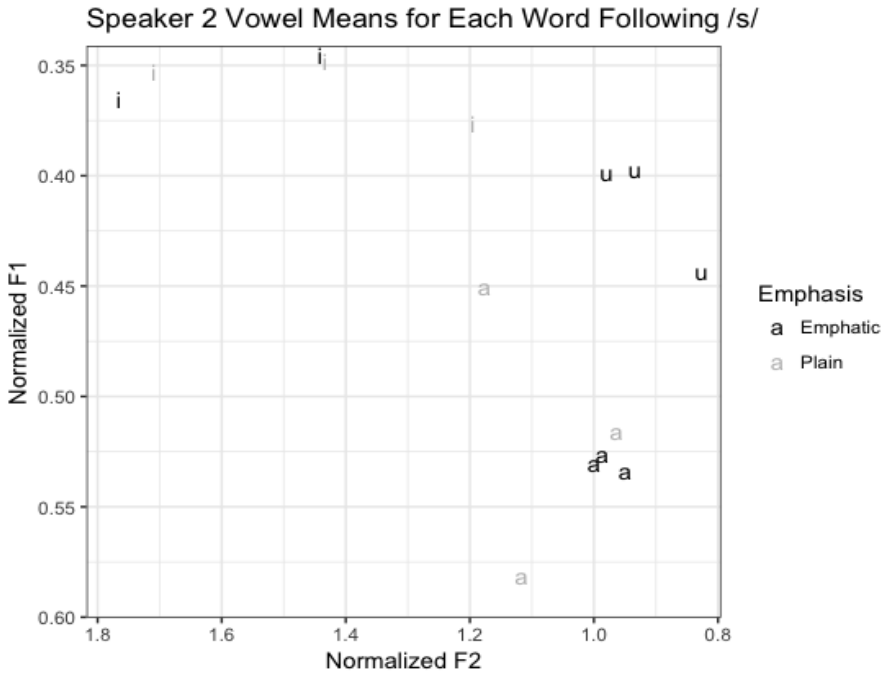


Figure 5.20: Speaker 2 vowel means for target words (three repetitions each) following /s/

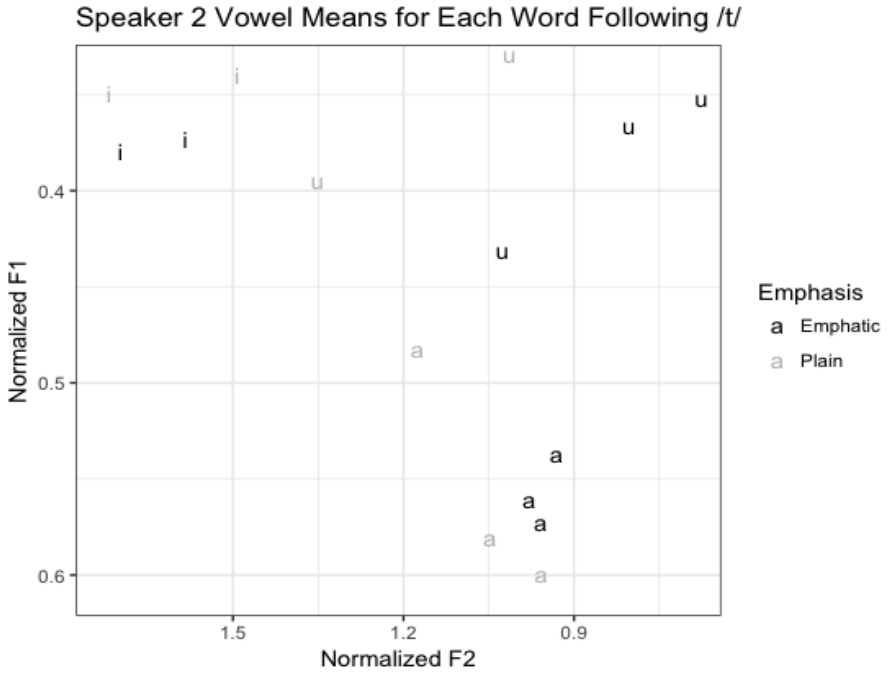


Figure 5.21: Speaker 2 vowel means for target words (three repetitions each) following /t/

Speaker 2 does not have any tokens for plain /u/ following /s/, but the tokens for emphatic /u/ following /s/ are in a similar comparative location as the tokens for emphatic /u/ following /s/ for the grandparent generation as a whole. Overall, the vowel spaces for Speaker 2 are lower than the vowel spaces for the grandparent generation as a whole, but Speaker 2 still shows the same acoustic correlates of emphasis that are found in the wider grandparent generation: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

5.4.3 Speaker 3

Speaker 3, a female, lived in Midyat until she was 12, then lived in Germany for 3 1/2 years, and then immigrated to the US in 1976. Speaker 3 is married to Speaker 2.

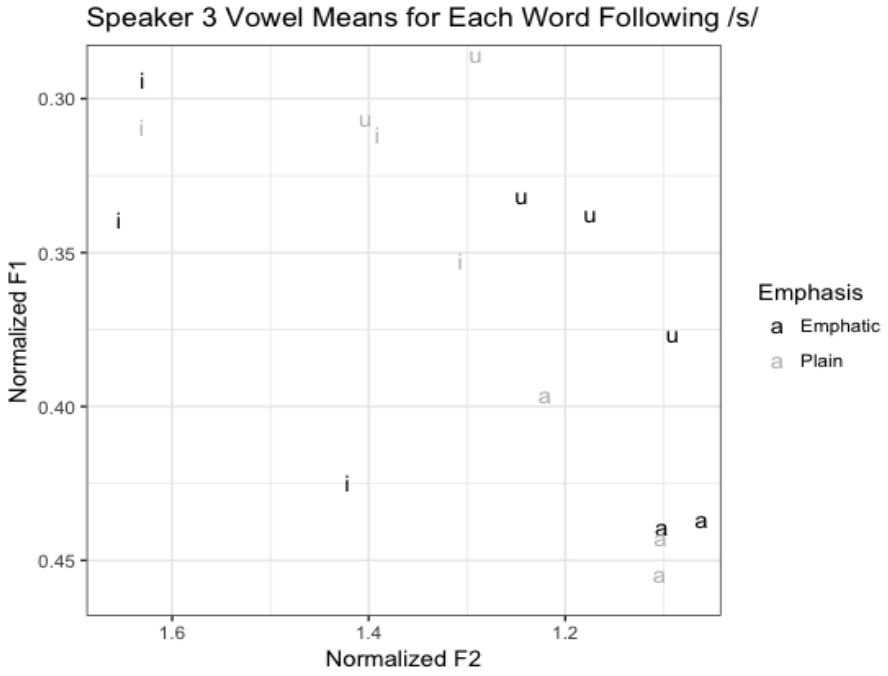


Figure 5.22: Speaker 3 vowel means for target words (three repetitions each) following /s/

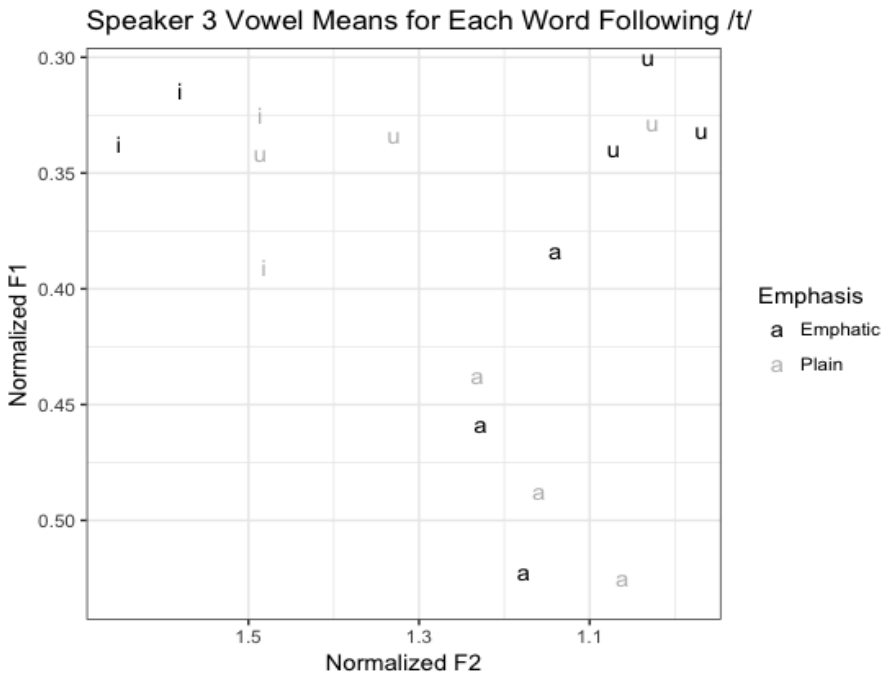


Figure 5.23: Speaker 3 vowel means for target words (three repetitions each) following /t/

Speaker 3 has a very low token for emphatic /i/ following /s/, more like a /ə/. Even so, the F2 values for /i/ following emphatic /s/ are still higher than the F2 values for /i/ following plain /s/. Speaker 3 also exhibits raised F1 for /u/ following /s/, and raised F2 for the front vowel /i/ following both /s/ and /t/, as well as lowered F2 for the back vowels /a/ and /u/ following /s/ and lowered F2 for /u/ following /t/. However, F2 values for /a/ following emphatic /t/ are similar to F2 values for /a/ following plain /t/.

5.4.4 Speaker 4

Speaker 4, a female, lived in Midyat for 30 years, then moved to Germany, and then immigrated to the United States in 1995.

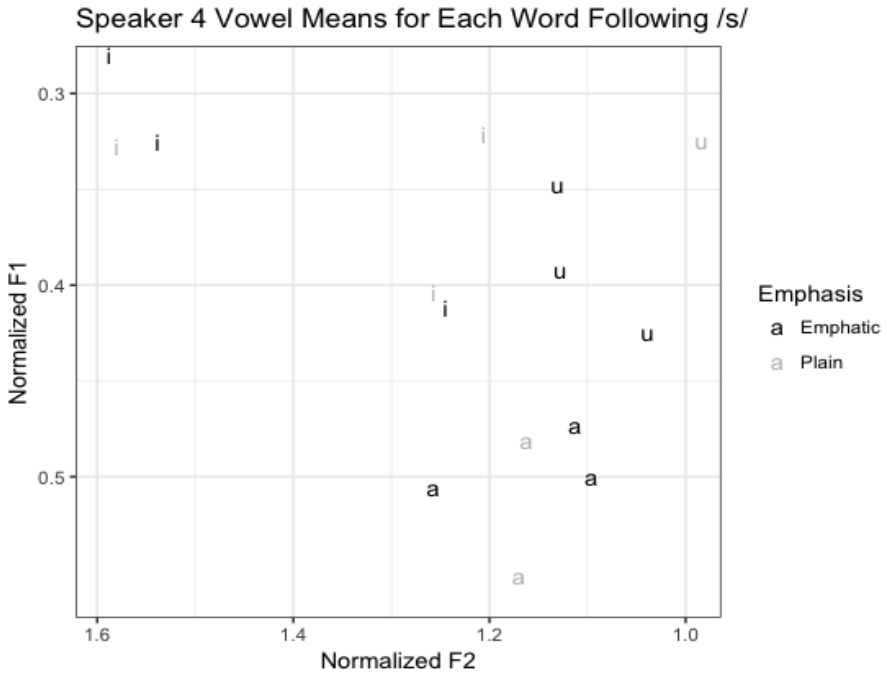


Figure 5.24: Speaker 4 vowel means for target words (three repetitions each) following /s/

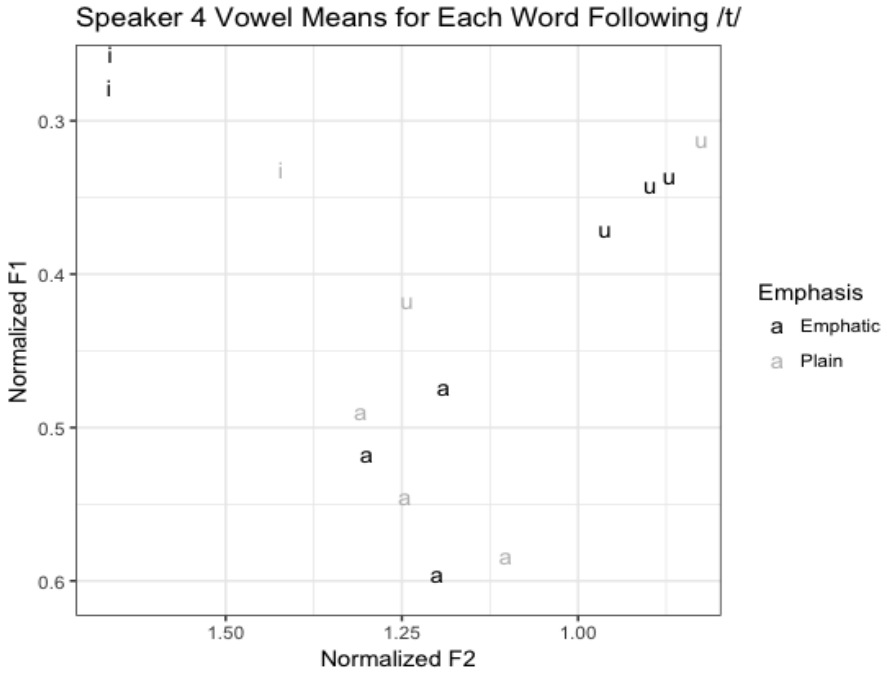


Figure 5.25: Speaker 4 vowel means for target words (three repetitions each) following /t/

While the F1 values for /u/ following emphatic /s/ are lower than the F1 values for /u/ following plain /s/, Speaker 4 only has one token for /u/ following plain /s/ and that token has a lower F2 value than the tokens for /u/ following emphatic /s/. With more tokens for /u/ following plain /t/, this may not be the case. Speaker 4 also exhibits similar F2 values for /a/ following emphatic /t/ and /a/ following plain /t/, rather than lower F2 values for /a/ following emphatic /t/ as expected. Speaker 4 does have higher F2 values for the front vowel /i/ following both emphatic /s/ and emphatic /t/, and lower F2 values for /a/ following emphatic /s/ and for /u/ following emphatic /t/.

5.4.5 Speaker 5

Speaker 5, a male, lived in Midyat for 16 years, then lived in Mardin for 3 years, then lived in Istanbul for 20 years, and then immigrated to the United States in 1985. Speaker 5 is married to Speaker 6.

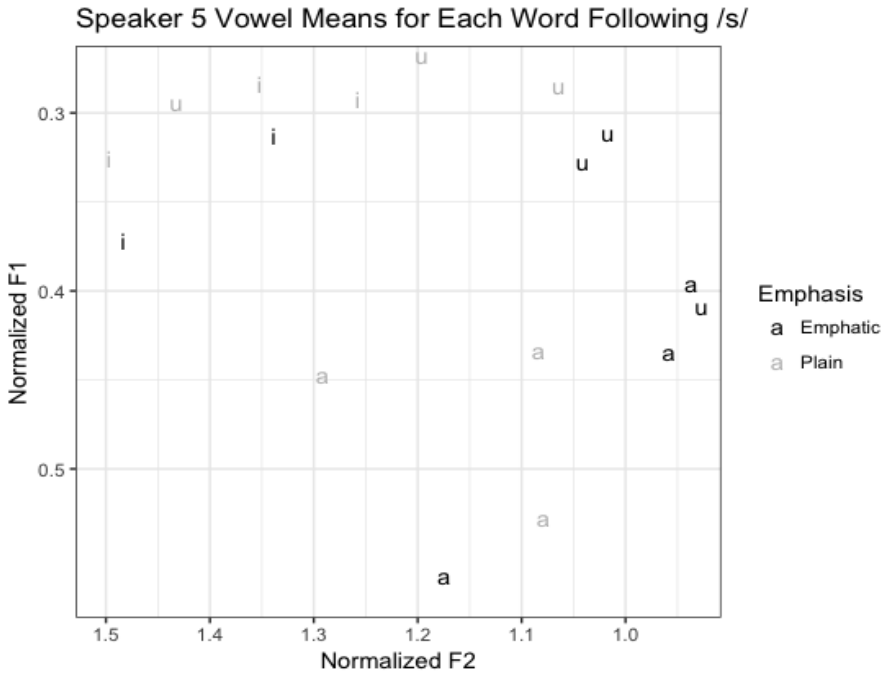


Figure 5.26: Speaker 5 vowel means for target words (three repetitions each) following /s/

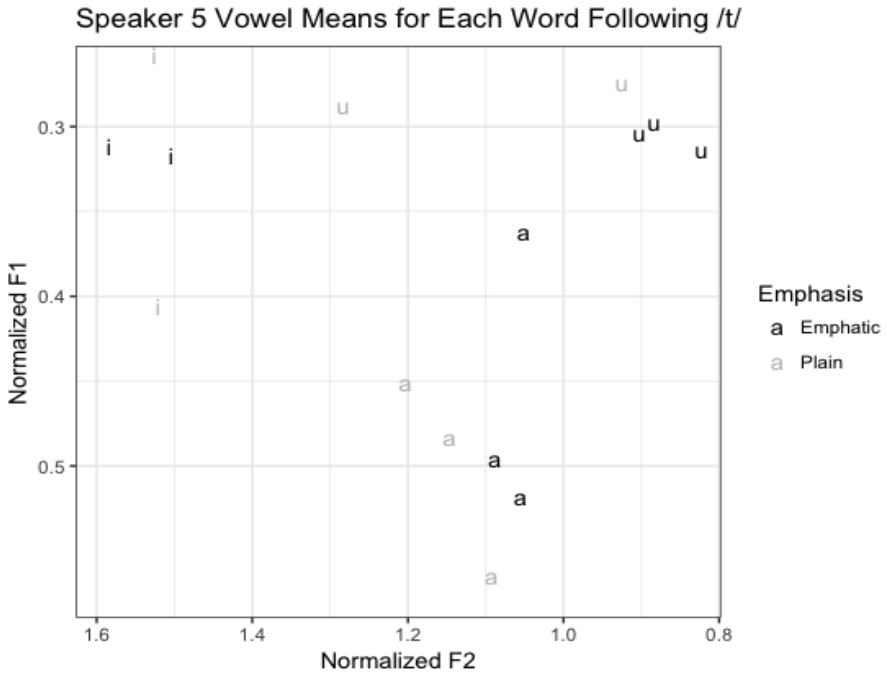


Figure 5.27: Speaker 5 vowel means for target words (three repetitions each) following /t/

Speaker 5 has a very fronted token for /u/ following plain /s/. But overall, Speaker 5 shows the same acoustic correlates of emphasis as are found for the wider grandparent generation: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

5.4.6 Speaker 6

Speaker 6, a female, lived in Midyat for 16-17 years, then moved to Istanbul for 14 years, and then immigrated to the United States in 1985. Speaker 6 is married to Speaker 5.

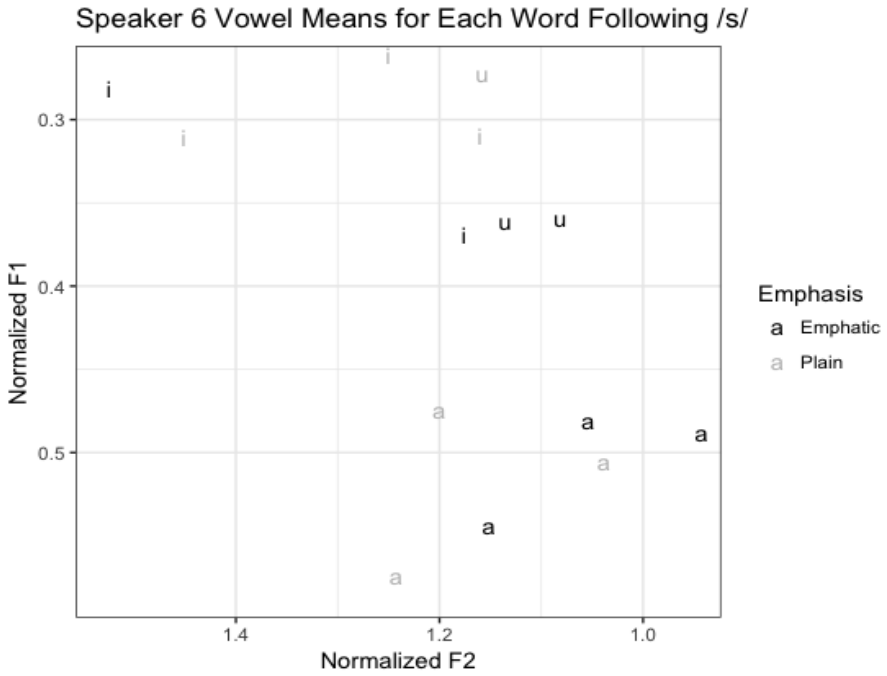


Figure 5.28: Speaker 6 vowel means for target words (three repetitions each) following /s/

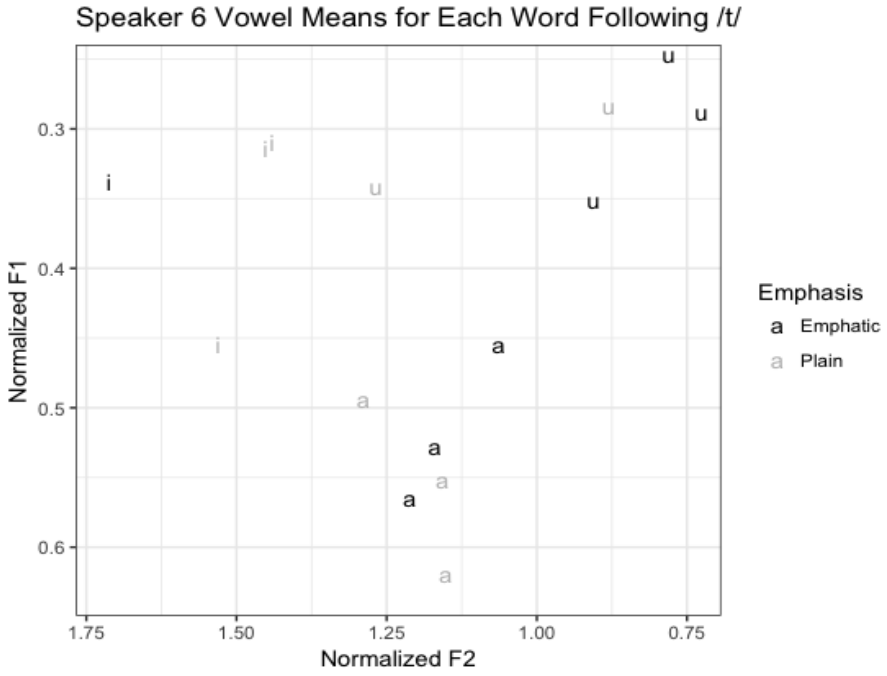


Figure 5.29: Speaker 6 vowel means for target words (three repetitions each) following /t/

There is one fairly low token for /i/ following plain /t/. But overall, Speaker 6 shows the same acoustic correlates of emphasis as are found for the wider grandparent generation: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

5.5 Discussion of Acoustic Correlates of Emphasis

The results of this study provide an important point of comparison for other acoustic studies of emphasis, which had previously only been done in Arabic dialects and one study of Interior Salish (Bessell, 1998). The one acoustic correlate of emphasis that has been found in every acoustic study that has been done is lowered F2 in vowels following emphatic consonants. This result was found for Lebanese Arabic (Obrecht, 1968), Cairene Arabic (Kahn, 1975), Tunisian Arabic (Ghazeli, 1977), Palestinian Arabic (Card, 1983), Egyptian Arabic (Norlin, 1987; Wahba, 1996), Moroccan Arabic (Alioua, 2005; Yeou, 1997), Ammani-Jordanian Arabic (Zawaydeh, 1999; Al-Masri and Jongman, 2004; Khattab et al., 2006), and also in Interior Salish (Bessell, 1998). Lowered F2 was also found to be an acoustic correlate of emphasis in Mor Gabriel Turoyo, but only for the back vowels /a/ and /u/. For the high vowel /i/, F2 was raised in emphatic environments. Combined, this results in a de-centralization of the vowels in Mor Gabriel Turoyo following emphatic consonants. So, F2 is a clear acoustic correlate of emphasis in Mor Gabriel Turoyo, but in a different way than in Arabic and Interior Salish.

F1 and F3 have been included in some of the previous acoustic studies of emphasis in Arabic and Interior Salish, but with differing findings. Card (1983) and Norlin (1987) both reported no effect in both F1 and F3. Alioua (2005), Yeou (1997), Zawaydeh (1999), and Bessell (1998)'s study of Interior Salish reported a raise in F1, which would be consistent with a constriction in the uvula or pharynx (Watson, 2002). Jongman et al. (2007), Jongman et al. (2011), and Al-Masri (2009) reported a raised F1, a lowered F2, and a raised F3, which would be consistent with a constriction in the pharynx (Klatt and Stevens, 1969; Alwan, 1986). In Mor Gabriel Turoyo, F1 was only found to be raised for /u/ following emphatic /s/. Other than that, there were no clear acoustic correlates of emphasis for F1 for /a/ or for /i/, nor were there any clear acoustic correlates

of emphasis for F3.

No acoustic correlate of emphasis was found in Mor Gabriel Turoyo consonants. This is consistent with previous studies (Card, 1983; Kahn, 1975; Al-Khairy, 2005; Jongman et al., 2007; Al-Masri, 2009). However, Jongman et al. (2011) did find a lower spectral mean for emphatic stops, though not for emphatic fricatives. This suggests that there may not be a cross-linguistic correlate of emphasis in consonants, and that the difference found in Urban Jordanian Arabic (Jongman et al., 2011) was a dialect-specific difference. Although I did not do a perceptual experiment, the findings of this acoustic study suggest that the perceptual correlates of emphasis in Mor Gabriel Turoyo would be in the vowel rather than the consonant.

Most of the acoustic studies of emphasis that have been conducted have the results of a raised F1, lowered F2, and raised F3 and are of languages that have emphasis realized as pharyngealization. However, there are so many other reports of emphasis being realized in different ways, that one should not assume that all emphasis is pharyngealization. In order to find out for sure, one could look at the results of an acoustic study and/or one could conduct a laryngoscopy to find out for sure. So, one possible explanation of the results of the current study is that emphasis is realized in Mor Gabriel not as pharyngealization but in some other way (uvularization, velarization, etc.). This would fit well with not only the lack of acoustic correlates in F3 and in F1 for /a/ and /i/, but also the differing results for F2.

Another possible explanation of the results of the current study is that the lack of acoustic correlates in F1 for two of the vowels and in F3 is the evidence of a loss of emphasis in the language. If this were the case, one could argue that the acoustic correlate of raised F1 for /u/ following emphatic /s/ is the last acoustic correlate of emphasis in Mor Gabriel Turoyo for F1, that F3 is already not a clear acoustic correlate of emphasis in Mor Gabriel Turoyo, and that F2 is the last clear remaining acoustic correlate.

Unfortunately, previous descriptions of Turoyo (see section 2.1) do not provide clear evidence for Turoyo as spoken in Tur ʕAbdin, in Midyat and ʕAyn Wardo. Not only that, but the speakers of Turoyo in the Mor Gabriel community have been away from Tur ʕAbdin for awhile now and have

had the influence of living in various places (Istanbul, some in Europe, and all in the United States) which have likely affected their L1 in general (Chang, 2010) and particularly their production of emphasis. So, previous descriptions of Turoyo cannot be relied upon for clear evidence of loss of emphasis in the language.

However, there are a few things in Turoyo as spoken within the Mor Gabriel community currently that may point to a loss of emphasis in the language. The first evidence is that there are currently only two minimal pairs for emphasis in the language (that I am aware of), and only some speakers have a distinction for those. Those two minimal pairs are *tino* 'fig' and *ṭino* 'mud', and *timo* 'expensive' and *ṭimo* 'price'. Even the most well-known example of emphasis in the language is for *samo* 'poison' versus *ṣafro*, which are similar but are not minimal pairs. The second evidence is that speakers seem to be using alternate strategies to differentiate between emphatic versus non-emphatic pairs. *tino* 'fig' and *ṭino* 'mud' are lexically different enough that most people just seem to treat them as homophones. *timo* 'expensive' and *ṭimo* 'price' are lexically similar but belong to two different syntactic categories and receive different morphology. For example, if one wanted to say 'expensive', rather than saying *timo*, one might say *timoyo*, which means 'It is expensive.'

I think the best explanation for the differences found in this acoustic study of emphasis in Mor Gabriel Turoyo as compared to previous acoustic experiments is a combination of the above two possible explanations. I think it is very likely that emphasis is not realized as pharyngealization in Mor Gabriel Turoyo, and also that emphasis is being lost in the language over time.

Chapter 6 will discuss the sociolinguistic variability of the acoustic correlates of emphasis in Mor Gabriel Turoyo.

CHAPTER 6

SOCIOLINGUISTIC VARIABILITY OF ACOUSTIC CORRELATES OF EMPHASIS IN MOR GABRIEL TUROYO

Chapter 5 showed that there are two clear acoustic correlates of emphasis in Turoyo. These were found by examining the results of the acoustic study for the grandparent generation. The first acoustic correlate of emphasis in Turoyo is raised F1 for /u/ following emphatic /s/. The second (and most important) acoustic correlate of emphasis in Turoyo is a raised F2 for front vowels and a lowered F2 for back vowels, which results in the de-centralization of the vowels. Those results answered the first research question of this dissertation: (1) What are the acoustic correlates of emphasis in Mor Gabriel Turoyo?

This chapter will answer the other two research questions of this dissertation, which are: (2) Is there variability in the acoustic correlates between generations? and (3) If there is variability, what social factors correlate to the most faithful preservation of the acoustic correlates of emphasis? To answer (2), this chapter will examine the results of the acoustic experiment for the parent and child generations and compare those results to those of the grandparent generation. To answer (3), this chapter will look to see if there are gender differences and also inform the results of the acoustic study experiment with the results of the sociolinguistic study.

6.1 Results: Acoustic Correlate Variability that Exists Between Generations and Genders

6.1.1 F1

F1 was found to be significantly and consistently raised for /u/ following emphatic /s/ in the grandparent generation. This same acoustic correlate is found to be true for the parent generation and the child generation for both females and for males, as will be detailed below.

The best model in lme4 style for both females and males for F1 for /u/ following /s/ for the

three generations was F1 ∼ Emphasis * Points + Generation * Emphasis + (1 |Speaker:Word).

Females

For females, plain environments differed significantly from emphatic environments (β= 0.03, t = 4.92, p = 0.0001). Figure 6.1 shows the interaction between Emphasis and Points by generation for females.

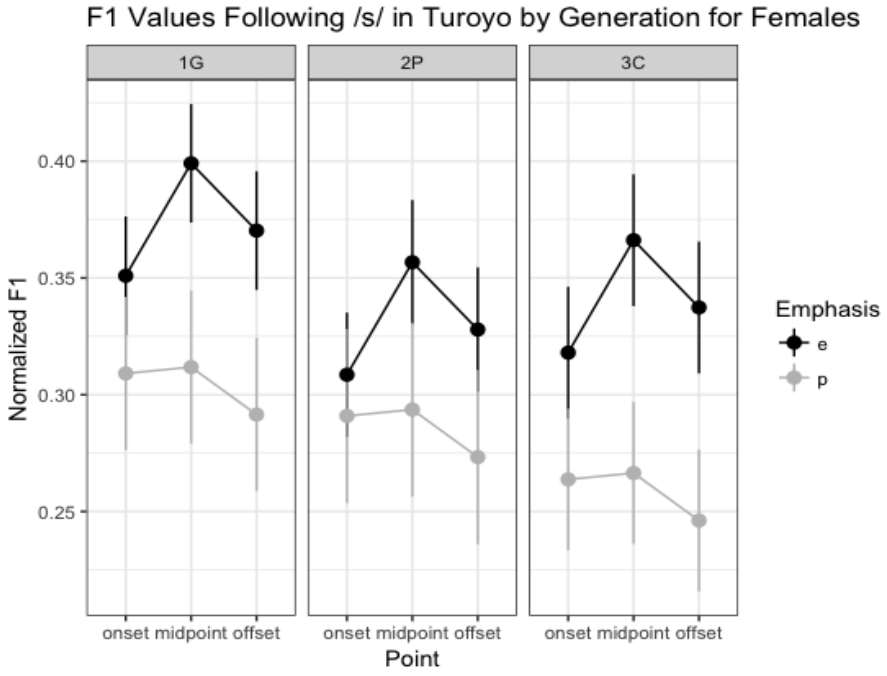


Figure 6.1: Model predictions for F1 values for /u/ following /s/ in Turoyo for females by generation

Emphasis was not significantly different between onsets and midpoints (β= 0.004, t = 1.06, p = 0.2904), but was significantly different between midpoints and offsets (β= 0.01, t = 3.19, p = 0.0014). Emphasis was not significantly different between the grandparent generation and the child generation (β= 0.007, t = 0.53, p = 0.5995) or between the grandparent and the parent generation (β= 0.004, t = 0.26, p = 0.7977). The lack of significant differences between onsets and midpoints and between generations shows that this acoustic correlate of emphasis is being very faithfully

passed between the females in the three generations, as can be seen in Figure 6.1.

Males

For males, plain environments differed significantly from emphatic environments in this model (β= 0.025, t = 4.01, p = 0.0001). Figure 6.2 shows the interaction between Emphasis and Points by generation for males.

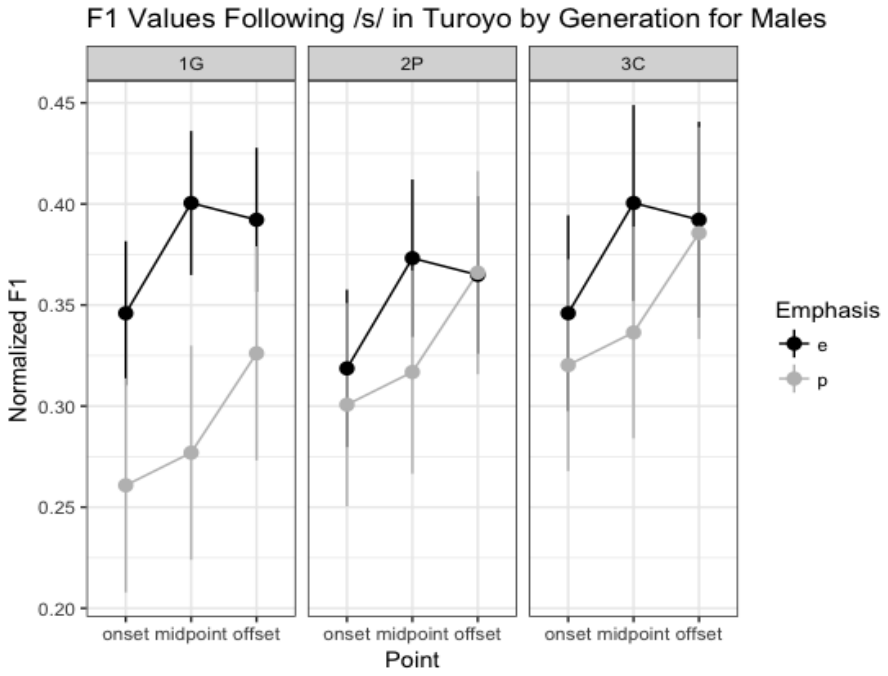


Figure 6.2: Model predictions for F1 values for /u/ following /s/ in Turoyo for males by generation

Emphasis was close to significantly different between onsets and midpoints (β= 0.01, t = 1.83, p = 0.067) and between midpoints and offsets (β= 0.01, t = 1.91, p = 0.056). Emphasis was not significantly different between the grandparent and the child generation (β= -0.02, t = -1.26, p = 0.209) or between the grandparent and the parent generation (β= 0.02, t = 1.30, p = 0.192). Once again, the lack of significant differences between points and between generations show that this acoustic correlate of emphasis is being very faithfully passed between the males in the three generations, as can be seen in Figure 6.2

6.1.2 F2

Since F2 was the strongest and clearest of the acoustic correlates of emphasis in Mor Gabriel Turoyo, it is in this section that the acoustic and sociolinguistic aspects of the dissertation come together in greatest detail. Just as in Chapter 5, data for vowels following /s/ and /t/ will be presented separately below.

/s/ The best model including sociolinguistic variables in lme4 style for F2 for vowels following /s/ was F2 $\sim$ Emphasis * Vowel * Points + Generation * Emphasis * Points * Gender + (1 |Speaker:Word).

There was no significant interaction between Emphasis and Gender, Generation, or Gender and Generation. There was also no significant interaction between Gender, Generation, or Gender and Generation and Emphasis * Vowel. This is likely due to the fact that F2 had differing effects for front vowels (/i/ had a higher F2) and back vowels (/a/ and /u/ had lower F2). Nor was there a significant interaction between Gender or Generation and Emphasis * Points. However, there was a significant interaction between Gender and Generation and Emphasis * Points. For ease of presentation, the interaction between Generation, Emphasis, and Points will be presented separately for each Gender below.

Females

The F2 values for vowels following /s/ in Turoyo for females by generation (C = child generation, G = grandparent generation, P = parent generation) are shown in Figure 6.3 and discussed below.

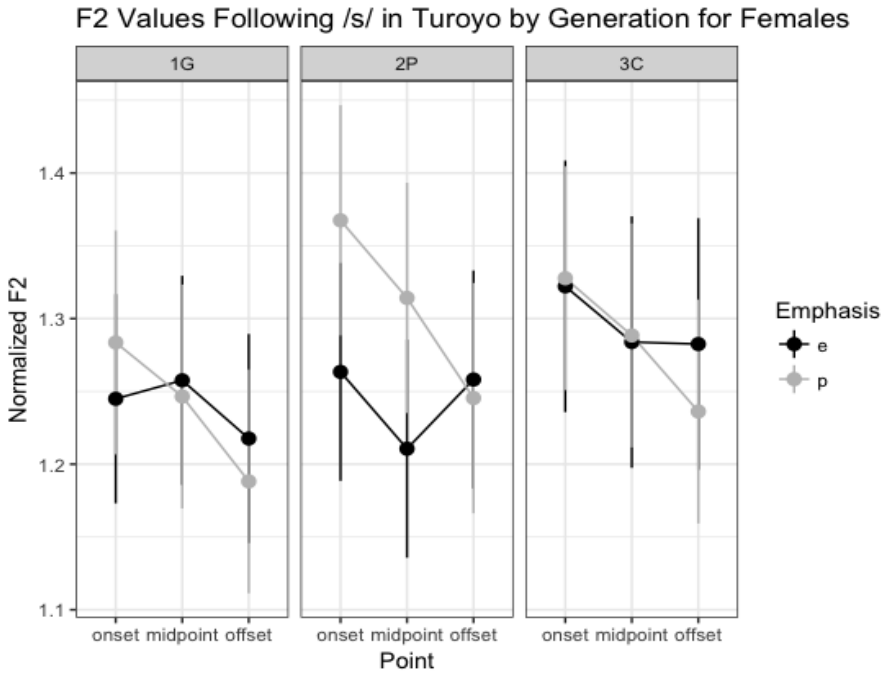


Figure 6.3: Model predictions for F2 values following /s/ in Turoyo for females by generation

For females for vowels following /s/, plain environments did not differ significantly from emphatic environments in either Coding 1 (/a/ compared to /i/, /i/ compared to /u/, child generation compared to grandparent generation, grandparent generation compared to parent generation) (β= -0.03, t = -1.32, p = 0.1866) or in Coding 2 (/i/ compared to /u/, /u/ compared to /a/, grandparent generation compared to parent generation, parent generation compared to child generation) (β= -0.005, t = -0.31, p = 0.7531).

For females, plain environments did not differ significantly from emphatic environments between the grandparent and parent generation (β= -0.03, t = 0.91, p = 0.3624), nor between the parent and child generation (β= -0.04, t = -1.01, p = 0.3134), nor between the grandparent and child generation (β= 0.005, t = 0.1412, p = 0.8877).

For females, there were no significant interactions between Emphasis, Points, and Generation for either Coding 1 (/a/ compared to /i/, /i/ compared to /u/, child generation compared to grandparent generation, grandparent generation compared to parent generation) or for Coding 2

(/i/ compared to /u/, /u/ compared to /a/, grandparent generation compared to parent generation, parent generation compared to child generation). However, there was one environment in which the interaction between Emphasis, Points, and Generation was close to significant, and that environment involved the parent generation. For the grandparent generation compared to the parent generation, for the midpoint compared to the offset, F2 values were close to significantly lower in emphatic environments than for plain environments (β= 0.03, t = 1.92, p = 0.0550). This is because, for the females in the parent generation, there is a clear effect of emphasis: F2 values are significantly lower in emphatic environments at both the onset and the midpoint of the vowel but not at the offset.

In summary, F2 values are not significantly lower for the females in the grandparent or the child generation, but they are significantly lower for the females in the parent generation at the onset and the midpoint of the vowel, though not at the offset. Although the females in the parent generation still have lower F2 as a clear acoustic correlate of emphasis for vowels following /s/, the fact that it is only present at the onset and the midpoint but not at the offset could be evidence of the beginning of the loss of that acoustic correlate.

Males

The F2 values for vowels following /s/ in Turoyo for males by generation (C = child generation, G = grandparent generation, P = parent generation) are shown in Figure 6.3 and discussed below.

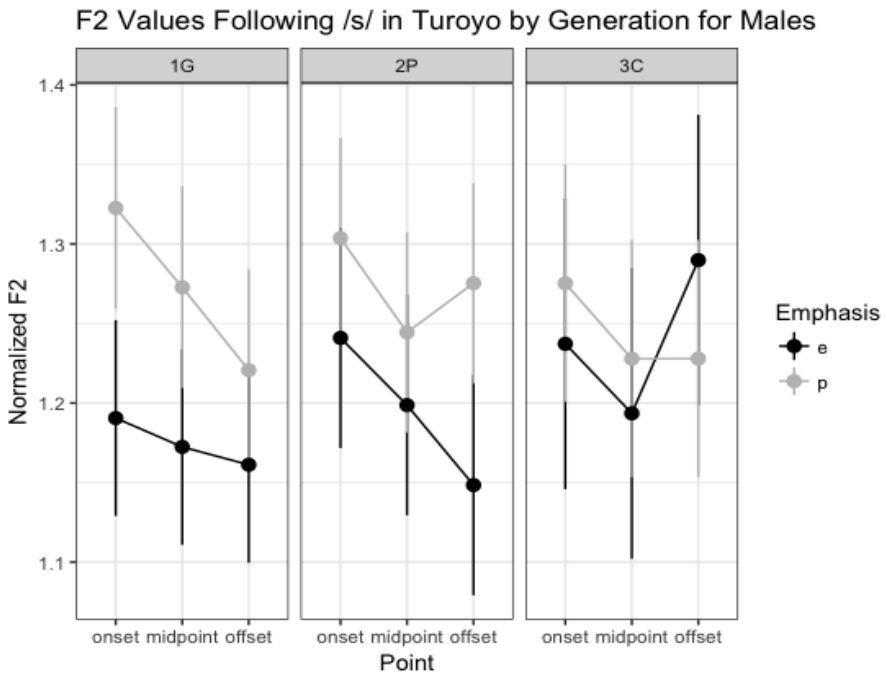


Figure 6.4: F2 values following /s/ in Turoyo for males by generation

For males for vowels following /s/, plain environments did significantly differ from emphatic environments in Coding 1 (/a/ compared to /i/, /i/ compared to /u/, child generation compared to grandparent generation, grandparent generation compared to parent generation) (β= -0.05, t = -3.15, p = 0.0016) but not in Coding 2 (/i/ compared to /u/, /u/ compared to /a/, grandparent generation compared to parent generation, parent generation compared to child generation) (β= -0.02, t = -1.07, p = 0.2829).

For males, plain environments did not differ significantly from emphatic environments between the grandparent and parent generation (β= -0.002, t = -0.09, p = 0.9295), nor between the parent and the child generation (β= -0.04, t = -1.21, p = 0.2265), nor between the grandparent and child generation (β= 0.04, t = 1.30, p = 0.1925).

For males, there was one significant interaction between Emphasis, Points, and Generation, and one almost significant interaction. The one significant interaction was the difference in F2 values in plain versus emphatic environments between the midpoint and the offset for the parent

generation compared to the child generation (β= 0.06, t = 2.98, p = 0.0029). This is the result of the F2 values in emphatic environments for the parent generation getting even lower at the offset, whereas the F2 values in emphatic environments for the child generation actually become higher at the offset. The F2 values in emphatic environments for the grandparent generation become slightly less distinct at the offset, which resulted in an almost significant interaction for comparison between the grandparent and parent generations between the midpoint and the offset (β= -0.03, t = -2.099, p = 0.036).

In summary, F2 values are significantly lower for the males in the grandparent and the parent generations throughout the vowel. F2 values are also lower for males in the child generation, but less so and only at the onset and midpoints. The difference in F2 values between plain and emphatic environments lessens with each generation, which means that the males in the grandparent generation show the strongest acoustic correlate of emphasis, followed by the males in the parent generation, followed by the males in the child generation (though the difference is very slight for the child generation and only at the onset and midpoint, so this is evidence of loss of emphasis for males in the child generation).

Gender Comparison

From the above figures and comparisons, it is clear that, in terms of F2 (the strongest acoustic correlate of emphasis in Turoyo), males in the Mor Gabriel community produce emphasis in a stronger way than the females in the Mor Gabriel community. Females in the grandparent generation have a small trace of an effect of emphasis (F2 is still lower at the onset but only slightly) and females in the child generation have no clear effect of emphasis. The males in the child generation have more evidence of an effect of emphasis (F2 is lower at both the onset and the midpoint), but that effect is no longer present at the offset. Females in the parent generation seem to be starting to show a loss of an effect of emphasis, as well. While they have a much larger difference in F2 values between the onset and the midpoint of the vowel, the difference is lost at the offset of the vowel. The males in the grandparent generation show the strongest effect of emphasis, followed by the males in the parent generation, which show a slightly less effect. While the males in the

parent generation do not show as large of a difference in F2 values between plain and emphatic environments between the onset and the midpoint as the females in the parent generation, they show the strongest difference in F2 values at the offset of any of the generations.

/t/ The best model including sociolinguistic variables in lme4 style for F2 for vowels following /t/ was F2 $\sim$ Emphasis * Vowel * Points + Generation * Emphasis * Points + (1 |Speaker:Word) + (1 + Emphasis + Vowel + Points |Speaker).

There was no significant interaction between Emphasis and Gender, Generation, or Gender and Generation. There was also no significant interaction between Gender, Generation, or Gender and Generation and Emphasis * Vowel. This is likely due to the fact that F2 had differing effects for front vowels (/i/ had a higher F2) and back vowels (/a/ and /u/ had lower F2). Further, there was no significant interaction between Gender and Emphasis * Points, nor was there a significant interaction between Gender and Generation and Emphasis * Points. However, there was a significant interaction between Generation and Emphasis * Points. This interaction will be presented below.

The F2 values for vowels following /t/ in Turoyo by generation (1G = first/grandparent generation, 2P = second/parent generation, 3C = third/child generation) are shown in Figure 6.5 and discussed below.

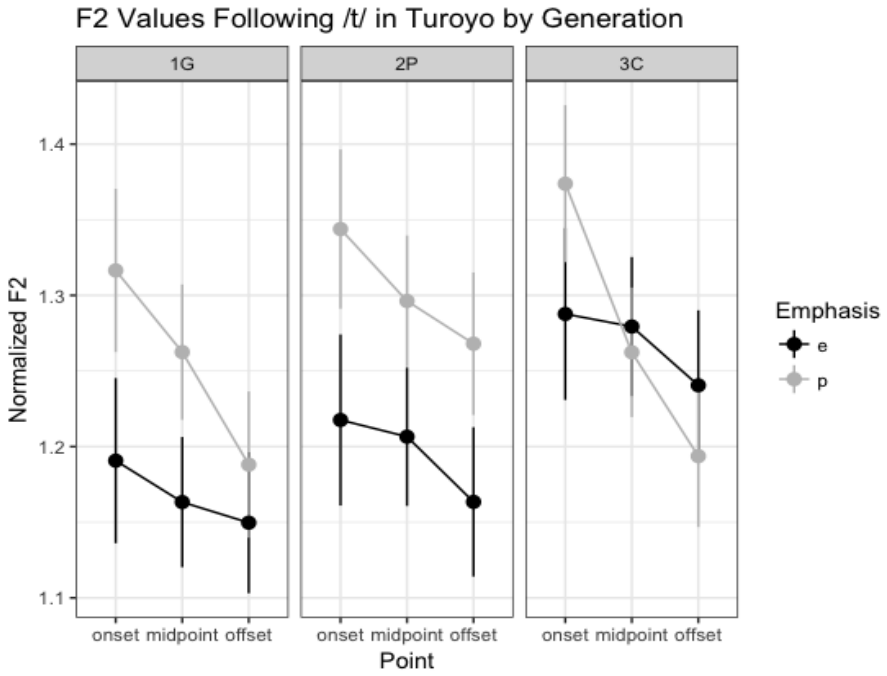


Figure 6.5: Model predictions for F2 values following /t/ in Turoyo by generation

For vowels following /t/, plain environments did significantly differ from emphatic environments in Coding 1 (/a/ compared to /i/, /i/ compared to /u/, child generation compared to grandparent generation, grandparent generation compared to parent generation) (β= -0.04, t = -4.46, p = 0.0001), but not in Coding 2 (/i/ compared to /u/, /u/ compared to /a/, grandparent generation compared to parent generation, parent generation compared to child generation) (β= -0.01, t = -1.196, p = 0.2316).

Comparing emphasis between generations, plain environments did significantly differ from emphatic environments for the child generation compared to both the parent (β= -0.06, t = -2.77, p = 0.0056) and the grandparent generations (β= 0.05, t = 2.48, p = 0.0132). However, plain environments did not significantly differ from emphatic environments for the grandparent generation compared to the parent generation (β= 0.007, t = 0.31, p = 0.7555). This is because the differences between plain and emphatic environments are very similar for the grandparent and parent generations (lower F2 throughout the vowel following emphatic /t/), whereas the difference between plain

and emphatic environments for the child generation is very different. For the child generation, the difference between plain and emphatic environments start with lower F2 in emphatic environments at the onset, similar F2 between plain and emphatic environments at the midpoint, and higher F2 in emphatic environments at the offset.

This difference is seen clearly again in the two significant interactions between Emphasis, Points, and Generation. The first significant interaction is between plain versus emphatic environments in the child generation compared to the grandparent generation between the onset and the midpoint (β= -0.03, t = -2.31, p = 0.0206). The second significant interaction is between plain versus emphatic environments in the child generation compared to the parent generation between the onset and the midpoint (β= 0.03, t = 2.19, p = 0.0287). Both of these significant interactions result because F2 is lower in emphatic environments at both the onset and the midpoint of the vowel for the grandparent and parent generations, but although F2 is lower in emphatic environments at the onset of the vowel for the child generation, it is slightly higher at the midpoint of the vowel.

In summary, the generational difference is that the grandparent and parent generations show lower F2 throughout the vowel following /t/, but the child generation only shows lower F2 at the onset of the vowel. While the grandparent and parent generations still both show a clear acoustic correlate of lowered F2 following emphatic /t/, the child generation seems to be losing that distinction. There is no significant difference in this generational pattern for gender.

6.1.3 Summary of Acoustic Correlate Variability Between Generations and Genders

The first acoustic correlate of emphasis in Turoyo is raised F1 for /u/ following emphatic /s/. That acoustic correlate was found to be an acoustic correlate for both females and males in the grandparent generation and to be faithfully passed on to the parent and child generations for both females and males.

The second acoustic correlate of emphasis in Turoyo is a raised F2 for front vowels (/i/) and a lowered F2 for back vowels (/a/ and /u/), which results in the de-centralization of the vowels.

For vowels following /s/, this acoustic correlate was found to be strongest for males in the grandparent generation, next strongest for males in the parent generation, being lost at the offset for females in the parent generation, only slight at the onset and midpoint for the males in the child generation, only slightly present at the onset for females in the grandparent generation, and not present at all for females in the child generation. This seems to be evidence for loss of emphasis in Turoyo relative to both gender and generation.

For vowels following /t/, there is no difference based on gender, but there is a clear difference based on generation. The acoustic correlate of F2 was found to be fairly strong for the grandparent and parent generations but seems to be being lost in the child generation where it was only still present at the onset.

6.1.4 Individual Vowel Spaces for Parent Generation and Discussion

For further detail, individual vowel spaces of the speakers in the parent and child generations are given below. While all six speakers in the grandparent generation were born in the same place (Midyat) and prefer to speak the same language (Turoyo), there are differences in the parent generation. Place of birth and language preference for each speaker will be given below, in addition to other information, alongside their individual vowel space graphs.

Figure 6.6 shows which words on the word list each speaker in the parent generation did or did not have to contribute to the data. For words with an "N", they may have pronounced the word in a different way that did not fit with the experiment design (e.g. without the relevant vowel), or they may have not recognized the word. Each word with a "Y" will be present on the individual vowel space graphs below, while each word with an "N" will not be present on the individual vowel space graphs below.

Word	Speaker 7	Speaker 8	Speaker 9	Speaker 10	Speaker 11	Speaker 12
sabro 'hope'	Y	Y	Y	Y	Y	Y
ṣafro 'morning'	Y	Y	Y	Y	Y	Y
samo 'poison'	Y	Y	Y	Y	Y	Y
sanduko 'box'	Y	Y	Y	Y	Y	Y
ṣawʕo 'finger'	Y	Y	Y	Y	Y	Y
ṣayodo 'hunter'	Y	Y	Y	Y	Y	Y
ṣiʕato 'committee'	Y	Y	N	N	Y	Y
sime 'they made it'	N	N	Y	Y	Y	N
simo 'it is made'	Y	Y	Y	Y	Y	Y
ṣin 'China'	Y	Y	N	N	N	Y
sisto 'female horse'	Y	Y	Y	Y	Y	Y
ṣito 'handswidth'	Y	Y	Y	Y	Y	Y
ṣuʕoro 'don't curse, he's cursing'	Y	Y	Y	Y	Y	Y
sulale 'ancestors, family of someone famous'	N	N	N	Y	Y	N
suloqo 'ascension' (to go up a level)	N	Y	Y	N	N	N
ṣurṣro 'bug that comes out in August'	Y	Y	N	N	Y	Y
ṣurto 'picture, photo, shape'	Y	Y	Y	Y	Y	Y
susyo 'male horse'	Y	Y	Y	N	N	Y
ṭablitho 'table'	Y	Y	Y	Y	Y	Y
tamo 'there'	Y	Y	Y	Y	Y	Y
tarʕo 'door'	Y	Y	Y	Y	Y	Y
ṭarfo 'leaf'	Y	Y	Y	Y	N	Y
tawdi 'thank you'	Y	Y	Y	Y	Y	Y
ṭayo 'Muslim'	Y	Y	Y	Y	Y	Y
ṭiloyto 'butterfly'	N	N	N	N	N	N
ṭimo 'price'	N	N	N	N	N	N
timo 'expensive'	Y	Y	Y	Y	Y	Y
ṭino 'fig'	Y	Y	Y	Y	Y	Y
tino 'mud'	Y	Y	Y	Y	Y	Y
tishʕo 'nine'	Y	Y	Y	Y	Y	Y
tumo 'garlic'	Y	Y	Y	Y	Y	Y
ṭur ʕabdin 'region in SE Turkey'	Y	Y	Y	Y	Y	Y
ṭuro 'mountain'	Y	Y	Y	Y	Y	Y
ṭuroyo 'from Tur ʕAbdin'	Y	Y	Y	Y	Y	Y
turto 'cow'	Y	Y	Y	Y	Y	Y
tuyobo 'repent (pl)'	N	N	N	Y	N	N

Figure 6.6: Word list checklist for parent generation

Speaker 7

Speaker 7, a male, was born in ʕAyn Wardo and lived there until he was 12. He then lived in Istanbul and immigrated to the United States in 1990 or 1991. He prefers to speak Turoyo.

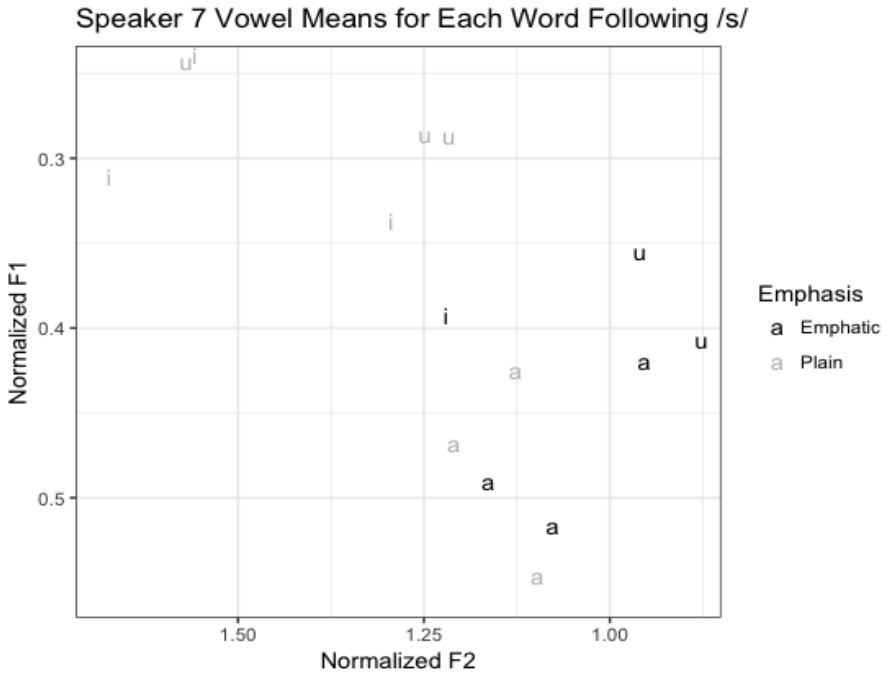


Figure 6.7: Speaker 7 vowel means for target words (three repetitions each) following /s/

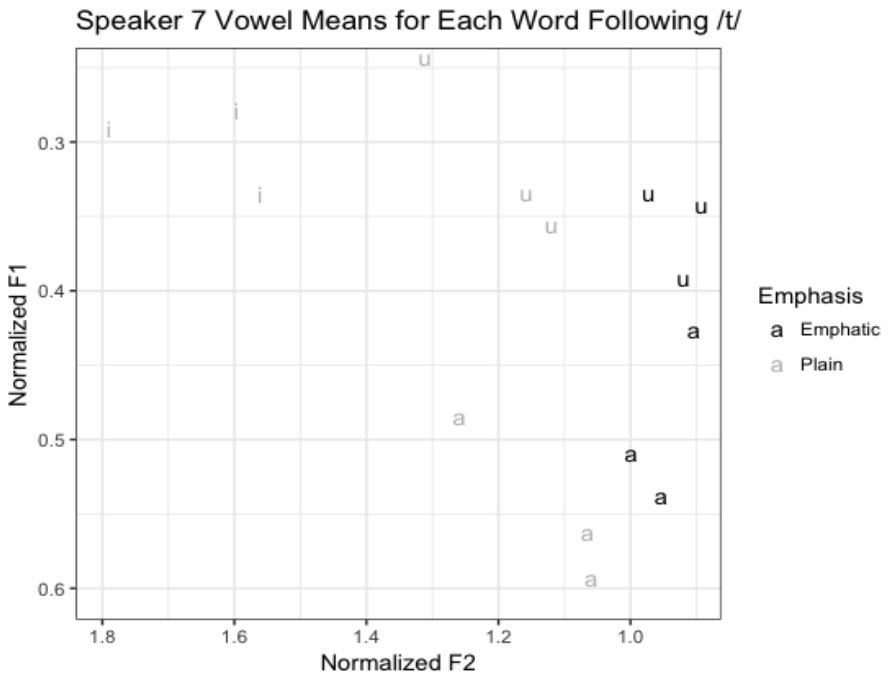


Figure 6.8: Speaker 7 vowel means for target words (three repetitions each) following /t/

Speaker 7 has a token with a very fronted /u/ following plain /s/. Speaker 7 also has only one token with /i/ following emphatic /s/, which does not having a higher F2 value as compared to the tokens with /u/ following plain /s/. But Speaker 7 does exhibit /u/s that are lower and backer following emphatic /s/ than following plain /s/, and Speaker 7 does also exhibit /a/s following emphatic /s/ that are further back than /a/s following plain /s/.

Speaker 7 does not have any tokens for /i/ following emphatic /t/. But F2 values for /u/ and /a/ following emphatic /t/ are lower than F2 values for /u/ and /a/ following plain /t/.

Speaker 8

Speaker 8, a female, was born in the United States and prefers to speak English. Her parents and spouse were born in Midyat. She is the mother of Speaker 13.

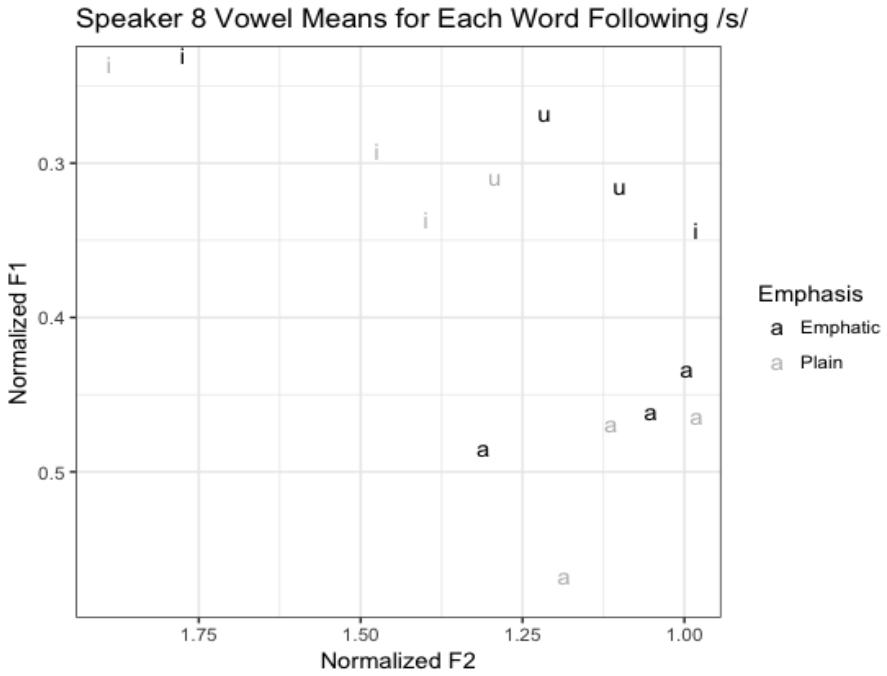


Figure 6.9: Speaker 8 vowel means for target words (three repetitions each) following /s/

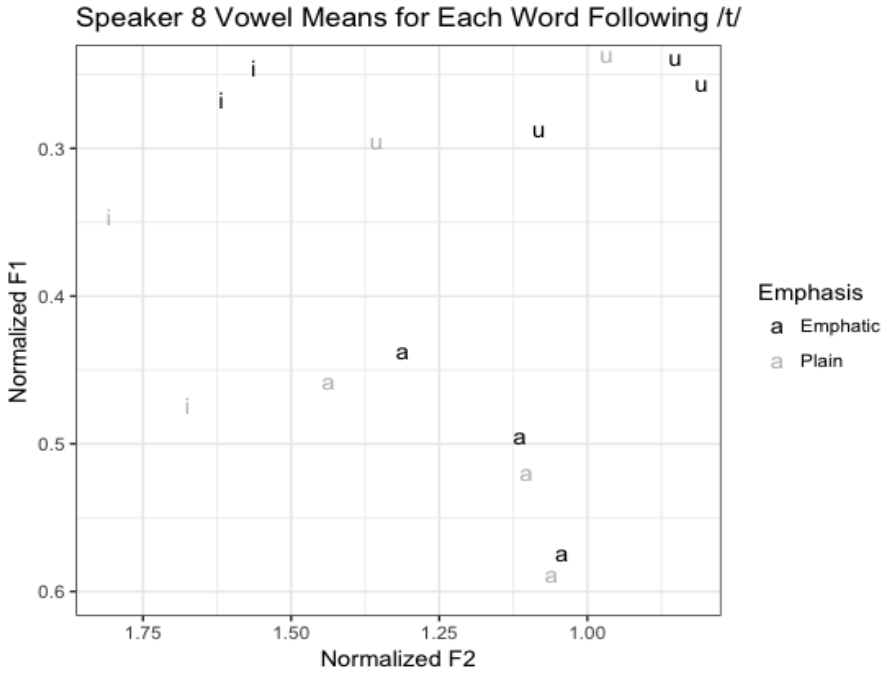


Figure 6.10: Speaker 8 vowel means for target words (three repetitions each) following /t/

Speaker 8 has one word containing /i/ following emphatic /s/ that is much farther back in the vowel space (like a /u/), which means that her F2 values for /i/ following emphatic /s/ are not higher than her F2 values for /i/ following plain /s/. Speaker 8 only has three words containing /u/ following /s/. Two of those are following emphatic /s/ and one of those is following plain /s/. While the F2 values for /u/ following emphatic /s/ are lower than the F2 values for /u/ following plain /s/, which is opposite of what is expected, the F1 values for /u/ following emphatic /s/ are not higher than the F1 values for /u/ following plain /s/. There is also not a clear difference between F2 values for /a/ following emphatic versus plain /s/.

Speaker 8 has one very low instance of /i/ for one of the words in which /i/ follows plain /t/. F2 values for /i/ following emphatic /t/ are not higher than the F2 values for /i/ following plain /t/, which is not what is expected. But F2 values for /u/ and /a/ are both lower following emphatic /t/ than the F2 values for /u/ and /a/ following plain /t/, which is what is expected.

Overall, Speaker 8 does not have many of the acoustic correlates of emphasis, but this is likely due to the fact that she was born in the United States.

Speaker 9

Speaker 9, a male, was born in Istanbul. He lived there for 19 years, and then immigrated to the United States. His parents were born in Midyat. His spouse was born in Istanbul, and her parents are also from Midyat. He prefers to speak English. He is married to Speaker 10, and is the father of Speaker 17 and Speaker 18.

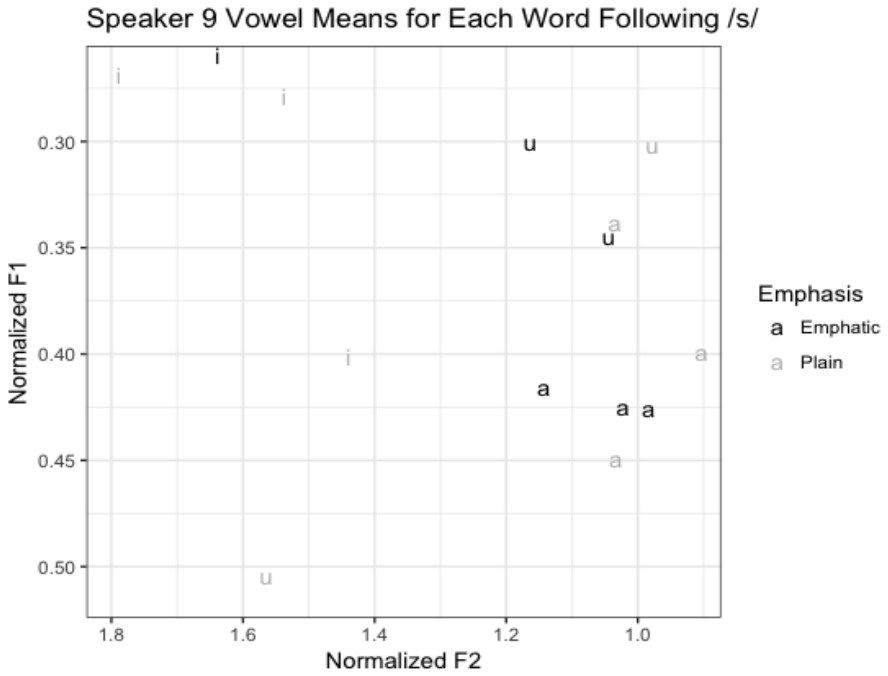


Figure 6.11: Speaker 9 vowel means for target words (three repetitions each) following /s/

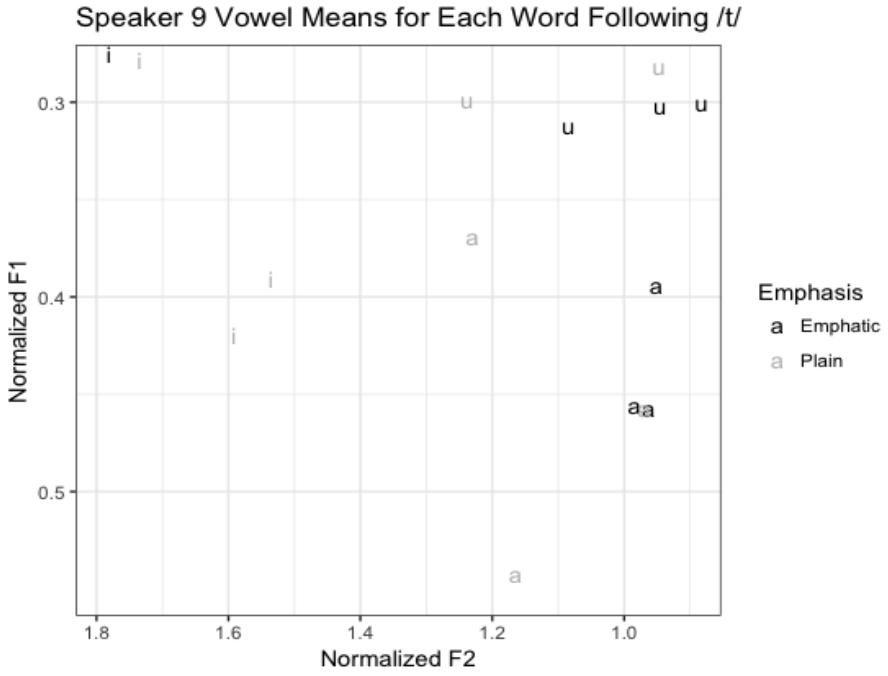


Figure 6.12: Speaker 9 vowel means for target words (three repetitions each) following /t/

Speaker 9 has one instance in which a word with /u/ following plain /s/ is much lower and fronter than expected. Speaker 9 does have higher F2 values for /i/ following emphatic /s/, but Speaker 9 does not have /u/s following emphatic /s/ that are lower and backer than /u/s following plain /s/, nor does he have /a/s following emphatic /s/ which are further back in the vowel space than /a/s following plain /s/. However, following /t/, Speaker 9 does exhibit the expected acoustic correlates of emphasis in Turoyo: raised F2 values for /i/ following emphatic /t/ and lowered F2 values for /u/ and /a/ following plain /t/.

Speaker 10

Speaker 10 was born in Istanbul and lived there until age 11, when her family immigrated to the United States. Her parents were born in Midyat. Her spouse was born in Istanbul, and her parents (Speakers 5 and 6) are also from Midyat. She prefers to speak English. She is married to Speaker 9, and is the mother of Speaker 17 and Speaker 18.

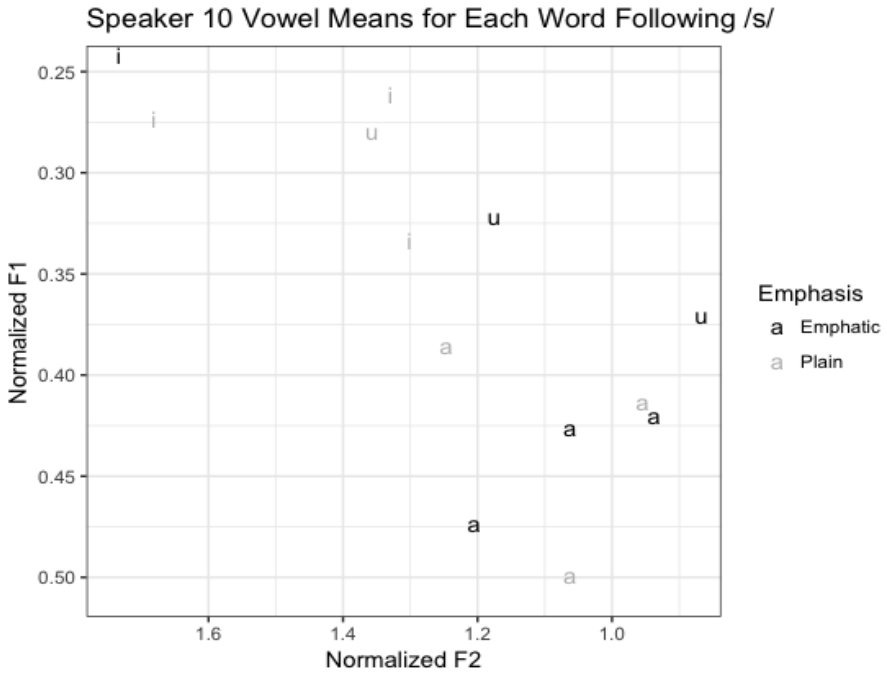


Figure 6.13: Speaker 10 vowel means for target words (three repetitions each) following /s/

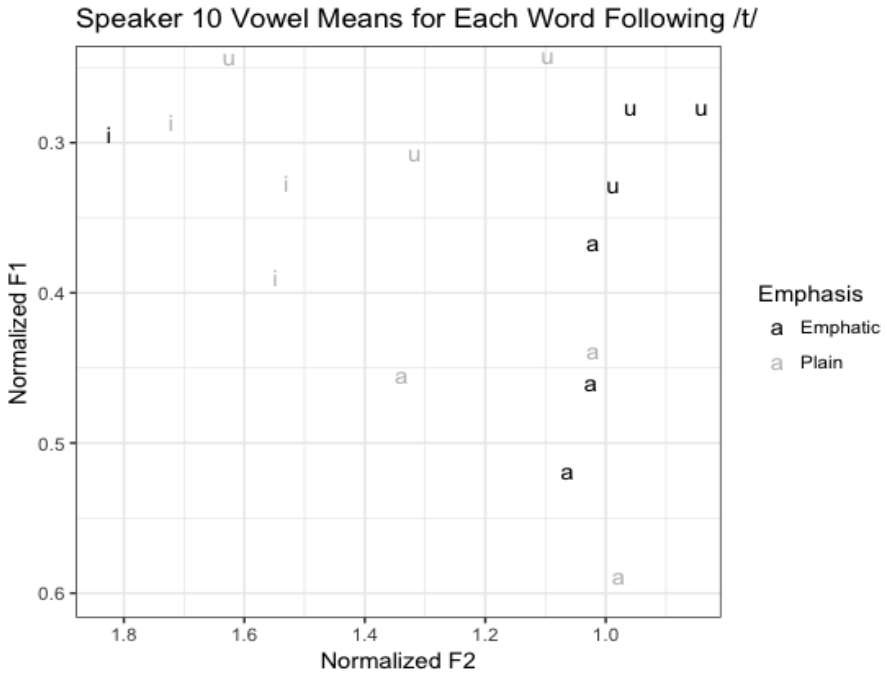


Figure 6.14: Speaker 10 vowel means for target words (three repetitions each) following /t/

Speaker 10 shows all the expected acoustic correlates of emphasis: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

Speaker 11

Speaker 11, a male, was born in ʕAyn Wardo, but moved to Instanbul with his family when he was only 1 year old. He then immigrated to the United States when he was 22 years old. He is married to Speaker 12. He prefers to speak Turoyo.

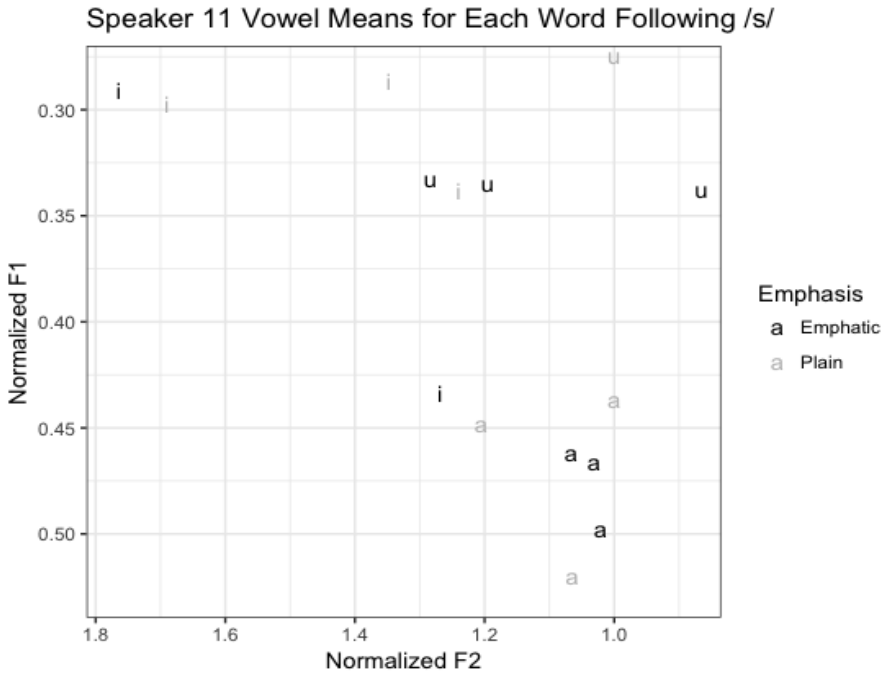


Figure 6.15: Speaker 11 vowel means for target words (three repetitions each) following /s/

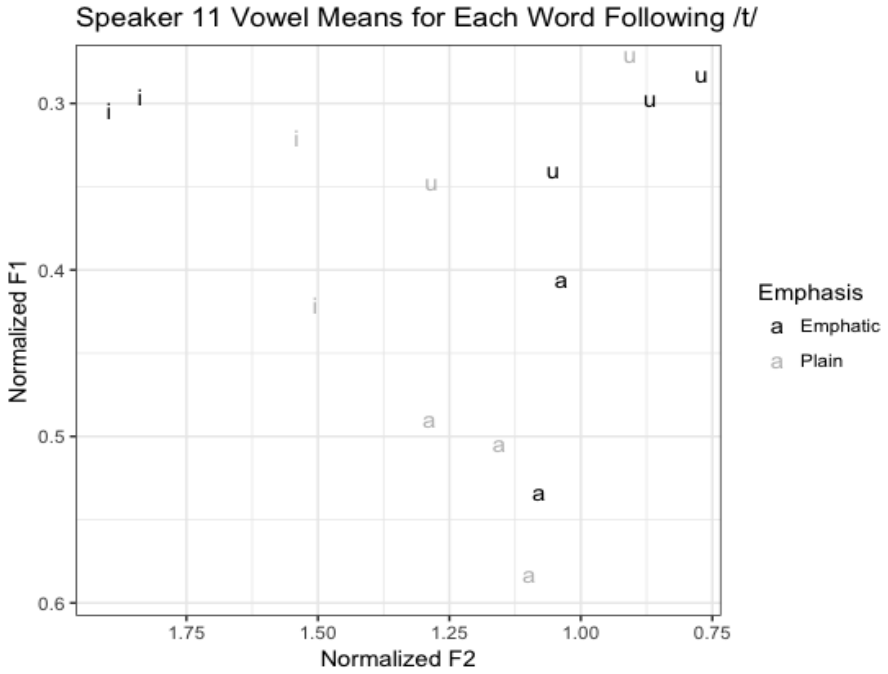


Figure 6.16: Speaker 11 vowel means for target words (three repetitions each) following /t/

Speaker 11 has two words in which /u/ following emphatic /s/ are fronter than the one word in which /u/ follows plain /s/, resulting in F2 values for /u/ following emphatic /s/ not being lower than F2 values for /u/ following plain /s/. But other than that, Speaker 11 shows the other expected acoustic correlates of emphasis: raised F2 for /u/ following /s/, raised F2 for the front vowel /u/, lowered F2 for the back vowel /a/ following emphatic /s/, and lowered F2 for the back vowels /a/ and /u/ following emphatic /t/.

Speaker 12

Speaker 12, a female, was born in Istanbul, where she lived for 14 years. Then she moved to Sweden and lived there until 2003, when she immigrated to the United States. Her parents are from Mardin. She is married to Speaker 11. She prefers to Speak Turoyo.

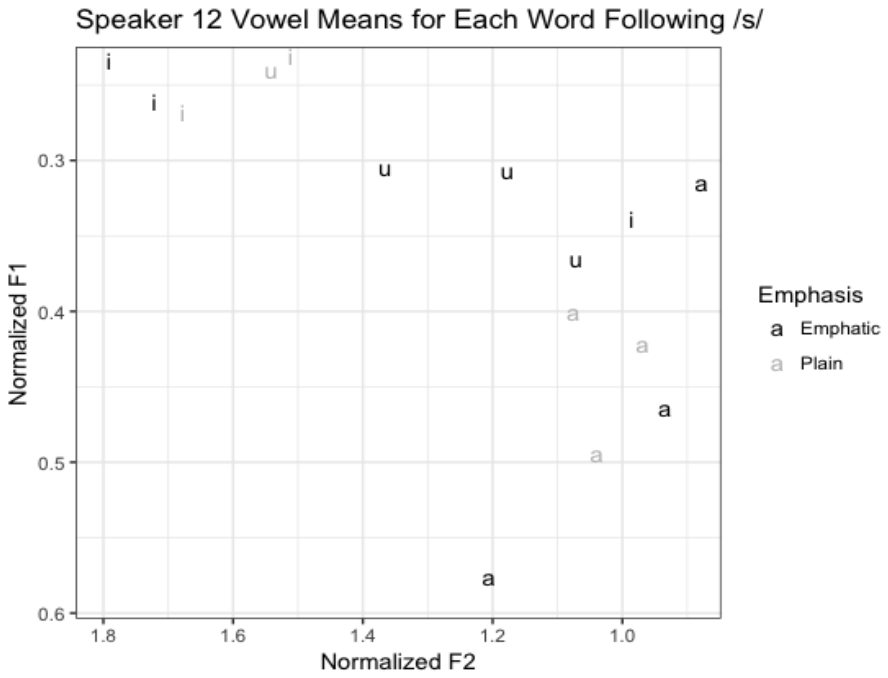


Figure 6.17: Speaker 12 vowel means for target words (three repetitions each) following /s/

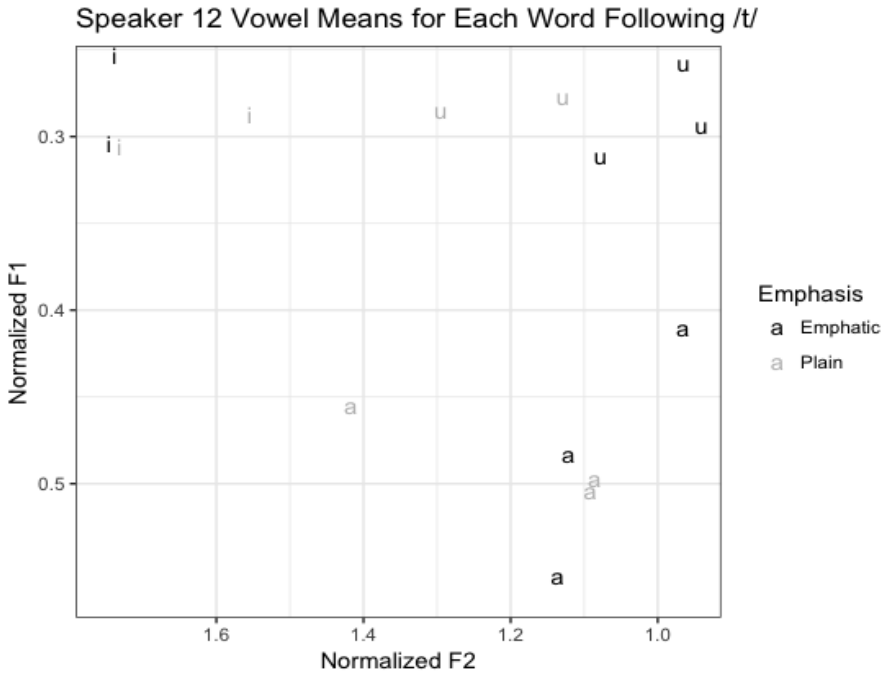


Figure 6.18: Speaker 12 vowel means for target words (three repetitions each) following /t/

Speaker 12 does exhibit the expected acoustic correlates of emphasis: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

6.1.5 Individual Vowel Spaces for Child Generation and Discussion

Individual vowel spaces of the speakers in the child generation are given below. Five out of six speakers were born in the United States (the other one moved to the United States when she was 6) and all six speakers prefer to speak English. Differences will be discussed below, alongside individual vowel space graphs.

Figure 6.19 shows which words on the word list each speaker in the child generation did or did not have to contribute to the data. For words with an "N", they may have pronounced the word in a different way that did not fit with the experiment design (e.g. without the relevant vowel), or they may have not recognized the word. Each word with a "Y" will be present on the individual vowel space graphs below, while each word with an "N" will not be present on the individual vowel space

graphs below.

Word	Speaker 7	Speaker 8	Speaker 9	Speaker 10	Speaker 11	Speaker 12
sabro 'hope'	Y	Y	Y	Y	Y	Y
ṣafro 'morning'	Y	Y	Y	Y	Y	Y
samo 'poison'	Y	Y	Y	Y	Y	Y
sanduko 'box'	Y	Y	Y	Y	Y	Y
ṣawʕo 'finger'	Y	Y	Y	Y	Y	Y
ṣayodo 'hunter'	Y	Y	Y	Y	Y	Y
ṣiʕato 'committee'	Y	Y	N	N	Y	Y
sime 'they made it'	N	N	Y	Y	Y	N
simo 'it is made'	Y	Y	Y	Y	Y	Y
ṣin 'China'	Y	Y	N	N	N	Y
sisto 'female horse'	Y	Y	Y	Y	Y	Y
ṣito 'handswidth'	Y	Y	Y	Y	Y	Y
ṣuʕoro 'don't curse, he's cursing'	Y	Y	Y	Y	Y	Y
sulale 'ancestors, family of someone famous'	N	N	N	Y	Y	N
suloqo 'ascension' (to go up a level)	N	Y	Y	N	N	N
ṣurṣro 'bug that comes out in August'	Y	Y	N	N	Y	Y
ṣurto 'picture, photo, shape'	Y	Y	Y	Y	Y	Y
susyo 'male horse'	Y	Y	Y	N	N	Y
ṭablitho 'table'	Y	Y	Y	Y	Y	Y
tamo 'there'	Y	Y	Y	Y	Y	Y
tarʕo 'door'	Y	Y	Y	Y	Y	Y
ṭarfo 'leaf'	Y	Y	Y	Y	N	Y
tawdi 'thank you'	Y	Y	Y	Y	Y	Y
ṭayo 'Muslim'	Y	Y	Y	Y	Y	Y
ṭiloyto 'butterfly'	N	N	N	N	N	N
ṭimo 'price'	N	N	N	N	N	N
timo 'expensive'	Y	Y	Y	Y	Y	Y
ṭino 'fig'	Y	Y	Y	Y	Y	Y
tino 'mud'	Y	Y	Y	Y	Y	Y
tishʕo 'nine'	Y	Y	Y	Y	Y	Y
tumo 'garlic'	Y	Y	Y	Y	Y	Y
ṭur ʕabdin 'region in SE Turkey'	Y	Y	Y	Y	Y	Y
ṭuro 'mountain'	Y	Y	Y	Y	Y	Y
ṭuroyo 'from Tur ʕAbdin'	Y	Y	Y	Y	Y	Y
turto 'cow'	Y	Y	Y	Y	Y	Y
tuyobo 'repent (pl)'	N	N	N	Y	N	N

Figure 6.19: Word list checklist for child generation

Speaker 13

Speaker 13, a male, was born in the United States. His mother, Speaker 8, was also born in the United States, and his father was born in Midyat.

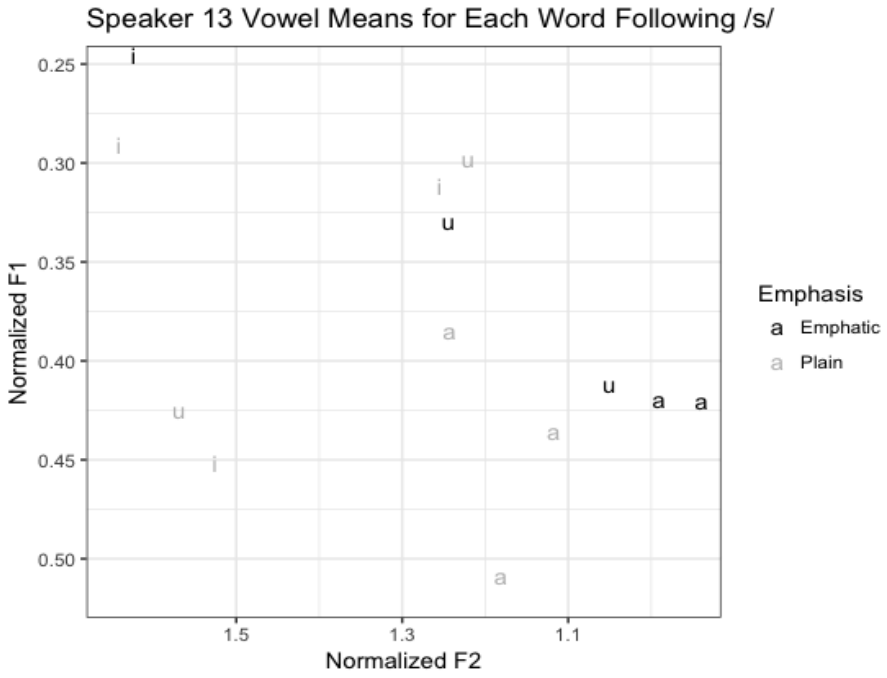


Figure 6.20: Speaker 13 vowel means for target words (three repetitions each) following /s/

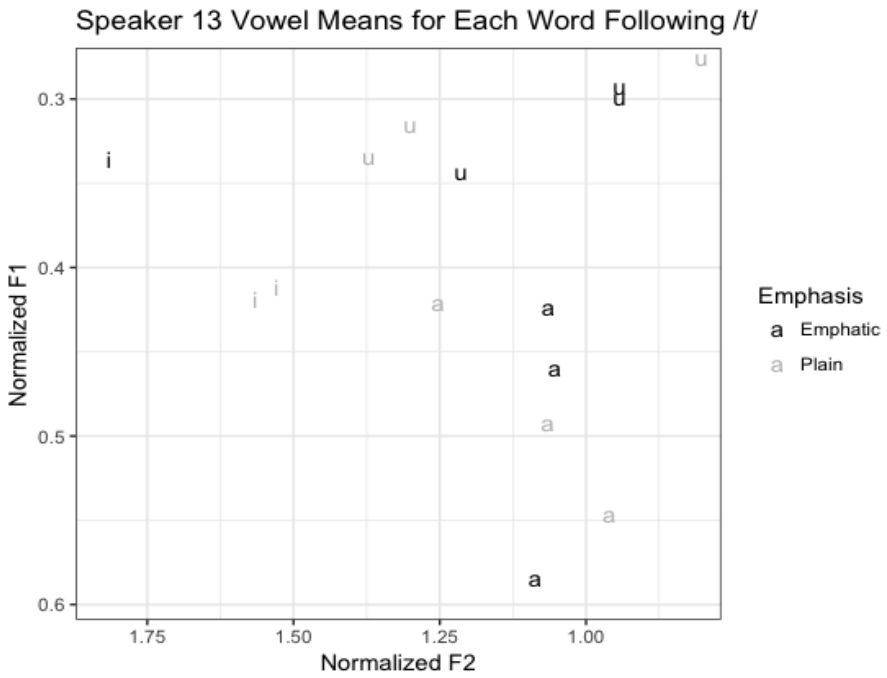


Figure 6.21: Speaker 13 vowel means for target words (three repetitions each) following /t/

Speaker 13 has a higher vowel space following /s/ than most of the other speakers. Speaker 13 also has one word with /u/ following plain /s/ in which the /u/ is much fronter than the other /u/s, and one word with /i/ following plain /s/ in which the /i/ is much lower than the other /i/s. However, overall, Speaker 13 still does exhibit the expected acoustic correlates of emphasis: raised F1 for /u/ following /s/, raised F2 for the front vowel /i/ and lowered F2 for the back vowels /a/ and /u/.

Speaker 14

Speaker 14, a female, was born in the United States. Her parents were born in ʕAyn Wardo.

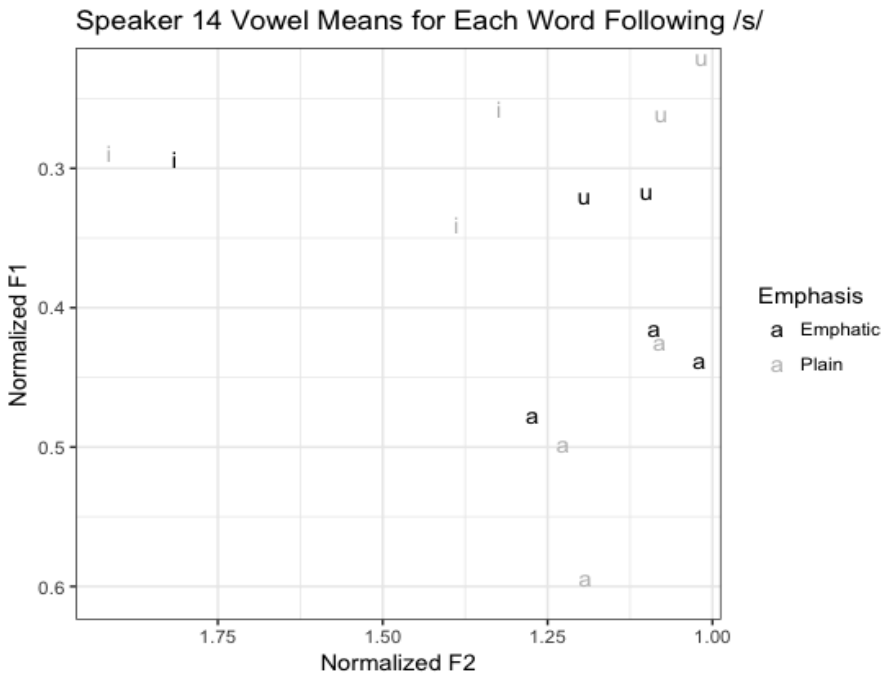


Figure 6.22: Speaker 14 vowel means for target words (three repetitions each) following /s/

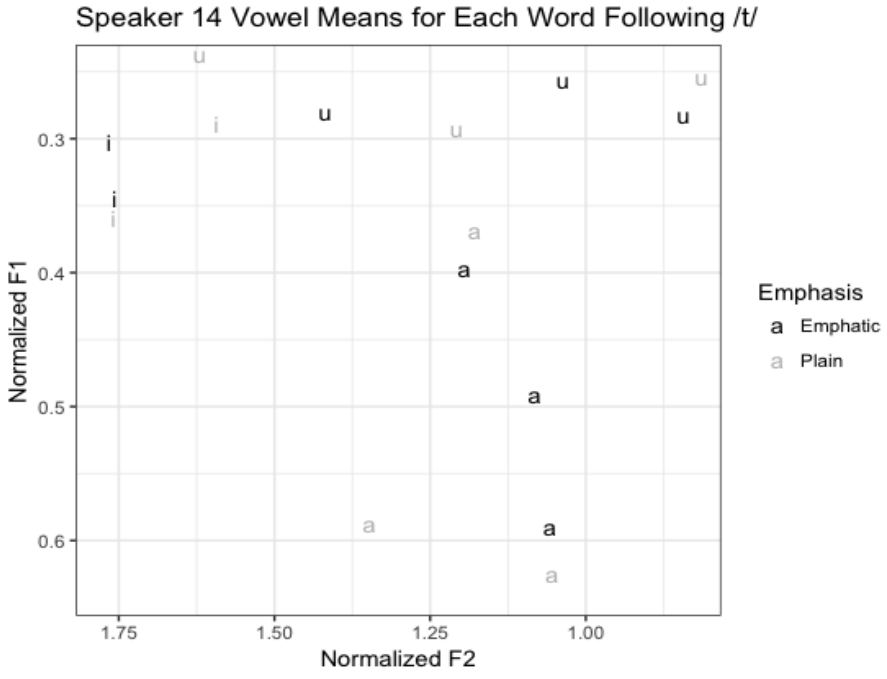


Figure 6.23: Speaker 14 vowel means for target words (three repetitions each) following /t/

Speaker 14 does not have lower F2 values for /u/ following emphatic /s/ than for /u/ following plain /s/. However, Speaker 14 does generally have the other expected acoustic correlates of emphasis in Turoyo: raised F1 for /u/ following emphatic /s/, raised F2 for /i/ following emphatic /s/ and emphatic /t/, lowered F2 for /a/ following emphatic /s/, and lowered F2 for /u/ and /a/ following emphatic /t/.

Speaker 15

Speaker 15, a male, was born in the United States. His father, Speaker 1, was born in Midyat, and his mother was born in Istanbul.

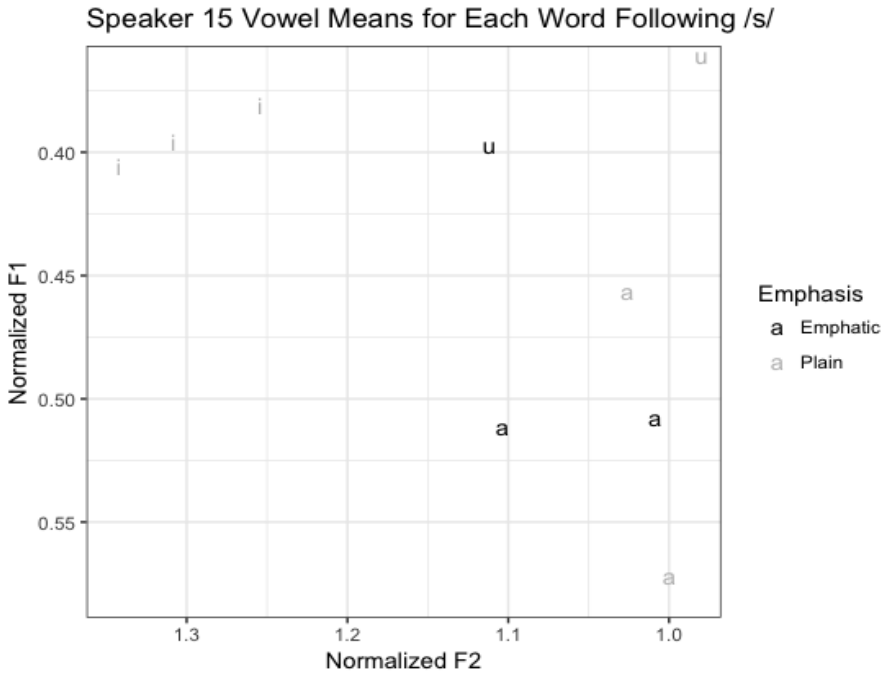


Figure 6.24: Speaker 15 vowel means for target words (three repetitions each) following /s/

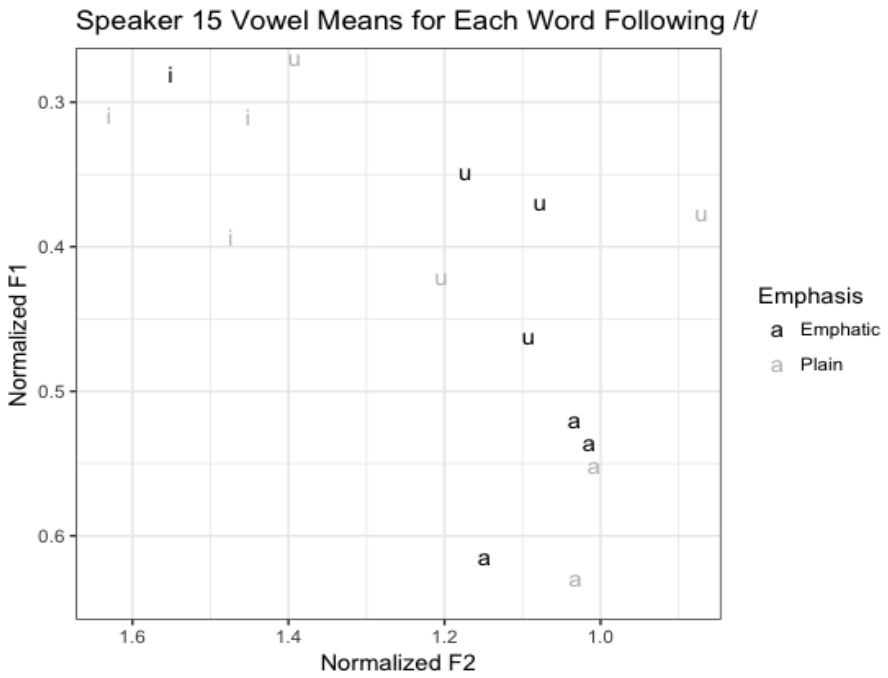


Figure 6.25: Speaker 15 vowel means for target words (three repetitions each) following /t/

Speaker 15 does not have any tokens with /i/ following emphatic /s/. The word he knew in which /u/ followed emphatic /s/ was lower (higher F1 values) but not further back (lower F2 values) than the word he knew in which /u/ followed plain /s/. The F2 values for words with /a/ following emphatic /s/ were not lower than the F2 values for words with /a/ following plain /s/.

Speaker 15 did have higher F2 values for /i/ following emphatic /t/, and lower F2 values for /u/ following emphatic /t/, which follows the acoustic correlates of emphasis in Turoyo. But Speaker 15 did not have lower F2 values for /a/ following emphatic /t/.

Speaker 16

Speaker 16, a female, was born in Istanbul, but moved to the United States at the age of six. Her father is from Turkey, and her mother is from Syria.

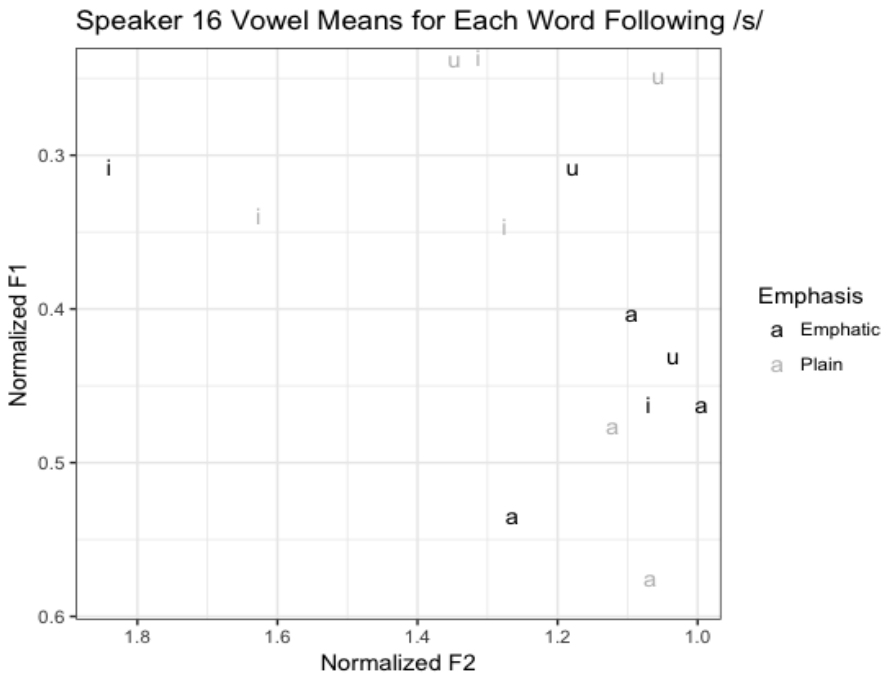


Figure 6.26: Speaker 16 vowel means for target words (three repetitions each) following /s/

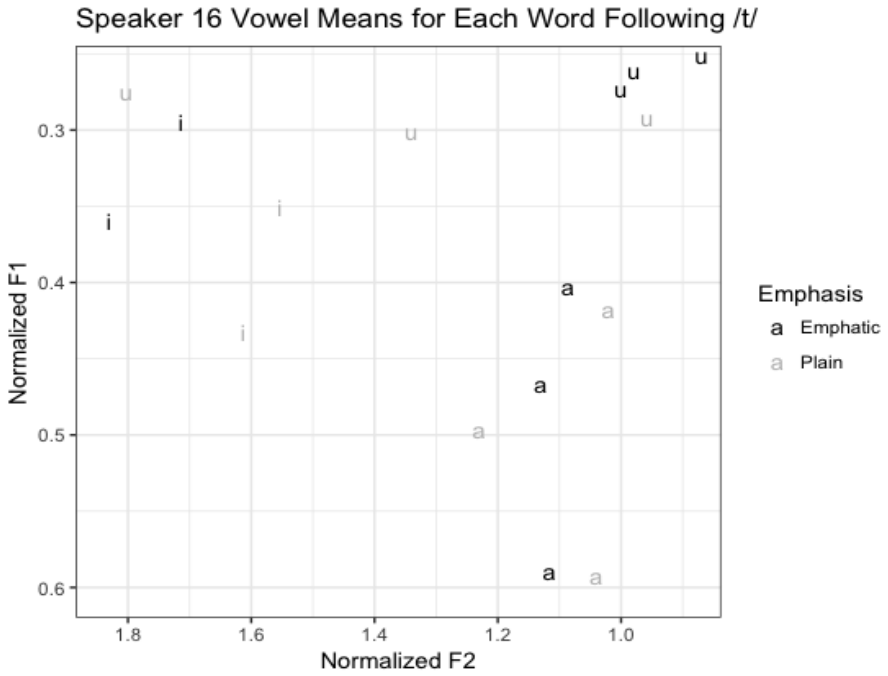


Figure 6.27: Speaker 16 vowel means for each word target words (three repetitions each) following /t/

Speaker 16 did have higher F2 values for /i/ following emphatic /s/, and she also had higher F1 values and lower F2 values for /u/ following emphatic /s/, which are two of the acoustic correlates of emphasis in Turoyo. However, Speaker 16 did not have lower F2 values for /a/ following emphatic /s/.

Speaker 16 had one word with /u/ following plain /t/ which was pronounced similar to an /i/. Speaker 16 also had similar F2 values for /a/ following emphatic /t/ and plain /t/, which was unexpected. But for /i/ and /u/, Speaker 16 exhibited the expected acoustic correlates of emphasis in Turoyo: raised F2 values for /i/ following emphatic /t/ and lowered F2 values for /u/ following emphatic /t/.

Speaker 17

Speaker 17, a female, was born in the United States. Her parents (Speaker 9 and Speaker 10) were born in Istanbul, and her maternal grandparents (Speaker 5 and Speaker 6) and paternal grandparents were born in Midyat. She is the sister of Speaker 18.

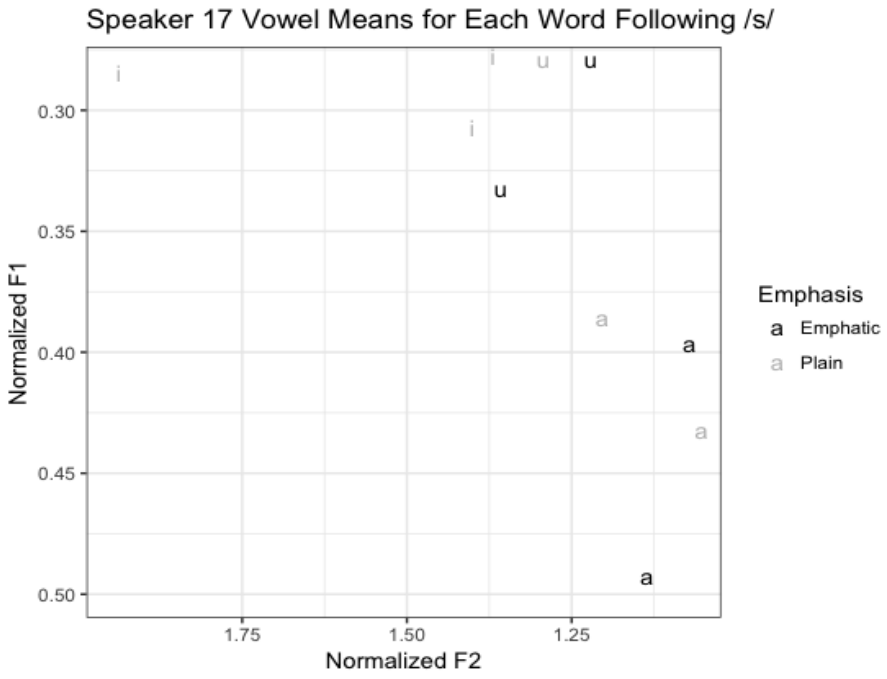


Figure 6.28: Speaker 17 vowel means for target words (three repetitions each) following /s/

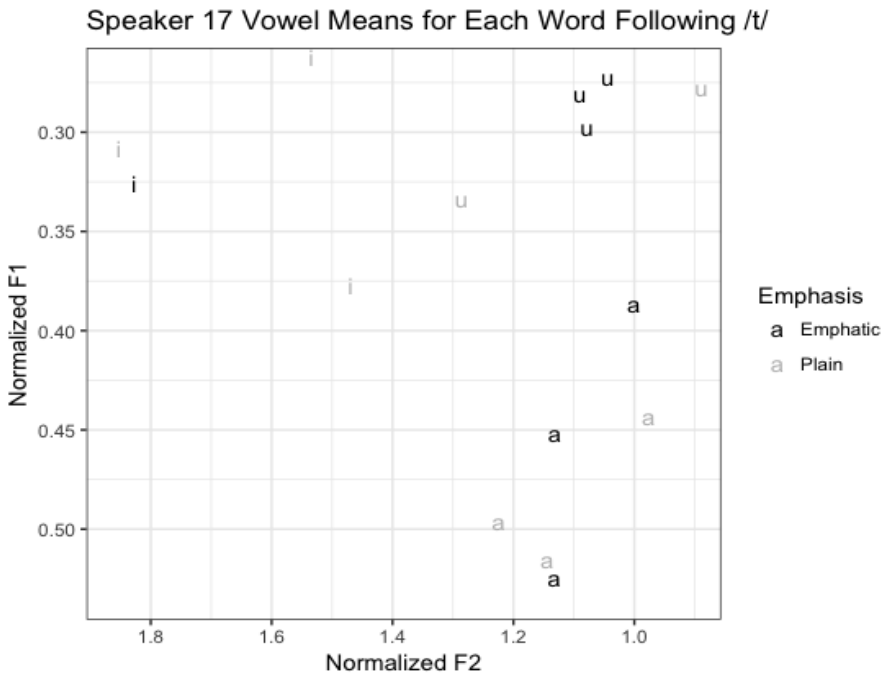


Figure 6.29: Speaker 17 vowel means for target words (three repetitions each) following /t/

Speaker 17 did not have any tokens in which /i/ was following emphatic /s/, but she did generally have the other acoustic correlates of emphasis in Turoyo.

Speaker 18

Speaker 18, a male, was born in the United States. His parents (Speaker 9 and Speaker 10) were born in Istanbul, and his maternal grandparents (Speaker 5 and Speaker 6) and paternal grandparents were born in Midyat. He is the brother of Speaker 17.

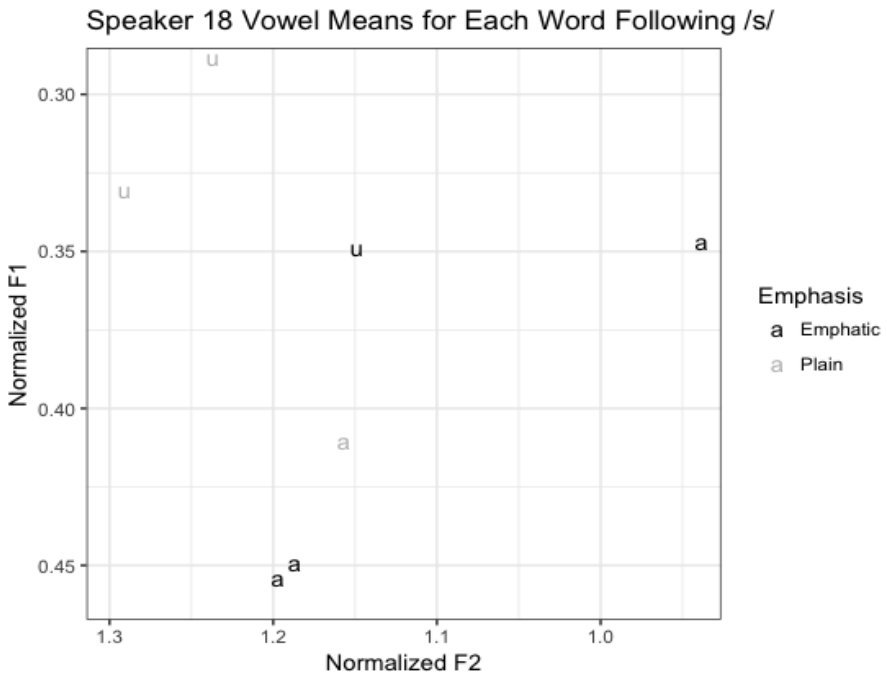


Figure 6.30: Speaker 18 vowel means for target words (three repetitions each) following /s/

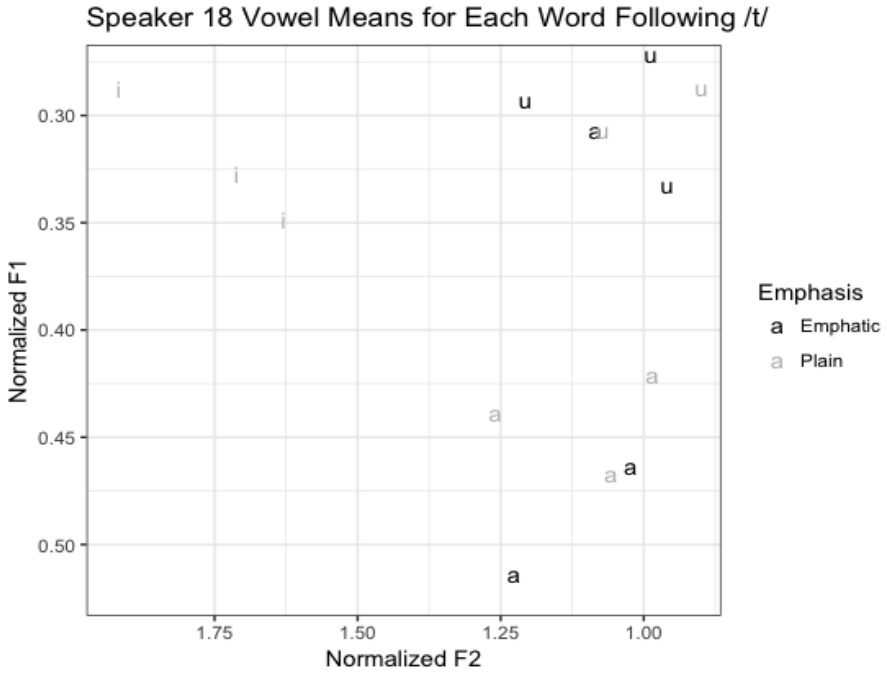


Figure 6.31: Speaker 18 vowel means for target words (three repetitions each) following /t/

Speaker 18 did not have any tokens with /i/ following /s/, and the tokens with /u/ following /s/ were pronounced more like /i/. However, for /u/ following emphatic /s/, F2 values were higher and F2 values were lower, which is the expected acoustic correlates. F2 values for /a/ following emphatic /s/ were not overall lower than F2 values for /a/ following plain /s/.

Speaker 18 did not have any tokens with /i/ following emphatic /t/, and F2 values for /u/ and /a/ following emphatic /t/ were not overall lower than F2 values for /u/ and /a/ following plain /t/.

6.1.6 Discussion of Acoustic Correlate Variability Between Generations and Genders

As discussed in Chapter 2, previous studies that have looked at gender have reported a difference (see p. 28-29 of this dissertation). Although Al-Masri and Jongman (2004) found that females produced vowels following emphatic consonants with lower F2 values than males, all other studies (Kahn, 1975; Royal, 1985; Abudalbuh, 2010) found that males speakers produce emphasis in a stronger way than females. The results of this study in Turoyo agree with the majority of studies in finding that males produce emphasis with a stronger acoustic correlate of F2 than females. This is likely the general tendency cross-linguistically, but as it is a sociolinguistic factor, it could vary across languages and cultures.

As was also discussed in Chapter 2 (see section 2.2.4), previous acoustic studies of heritage speakers (Godson, 2004; Chang et al., 2009; Tse, 2016) found that learning another language affects how heritage speakers produce their first language. The child generation in the Mor Gabriel community are heritage speakers of Turoyo and it is certainly the case that learning English would affect how they speak Turoyo. However, based on the current study, it is unclear exactly how their speech is affected. One could assume that the child generation used to speak as the parent and/or grandparent generation did when they first learned Turoyo, before they learned English. This could help explain some of the generational differences. But another important piece of information would be, following Chang (2010), to test for phonetic drift by comparing the Turoyo vowels in this study for the child generation with the English vowels of the same speakers in the

child generation to see if that could explain some of the differences as well.

It is also important to note that the findings of Chang (2010) about phonetic drift also entail that those in the grandparent and parent generation would have affects on their L1 (Turoyo) when learning another language. In the case of most of the speakers in the Mor Gabriel community, they have learned not only an L2, but many have also learned an L3, L4, L5, even an L6 and L7 in some cases. Many of the speakers in the grandparent and parent generations lived in Istanbul and some also in Europe before immigrating to the United States. Based on the evidence in Chang (2010), one would assume that learning each of these languages and living surrounded by other languages in each of these places would all have an affect on the L1 of these speakers. In sum, the vowel measurements for the speakers of Mor Gabriel Turoyo in this study are likely influenced by many different linguistic factors.

Section 6.2 will discuss sociolinguistic factors that affect the results of the study.

6.2 Synthesis of the Results of the Acoustic Study with the Results of the Sociolinguistic Study

Many sociolinguistic variables have been shown to affect linguistic choices, including social class, gender, age, and ethnicity, just to name a few. Within the Mor Gabriel community, in addition to the sociolinguistic variables of gender and age (generation) discussed above, the sociolinguistic factors of family, social networks, and religion are the most influential. Each of these factors is examined here.

6.2.1 Family

The family is where language learning first takes place, and one place where values are taught. (These values can and do directly affect other sociolinguistic factors.) The family influences a language speaker greatly during the years when most of the child's time is spent with them (usually ages 0-5) (Hart and Risley, 1995), and that influence continues to some degree throughout the rest

of their lives.

Much of the sociolinguistic research on families which speak multiple languages thus far has focused on situations in which there are two dialects or languages: one dialect or language of the parent(s) and one dialect or language of the community. In models such as these, there are only two options and each option directly relates to only one group, so these are the most straightforward situations in which to track whether children pattern with their family or with the community. According to Hazen (2002), there are four family-pattern types. A child can: (1) pattern with parents; (2) pattern with the community; or (3) pattern in a way that indicates that they are influenced by both parents and community. Another common occurrence is that: (4) different children within the same family will pattern in different ways (Hazen 2002: 304-305).

In the case of the Mor Gabriel community, there are four larger groups that one could pattern with rather than only two (family and community): (1) the family, which is a part of (2) the Mor Gabriel community, which is a part of (3) the community made up of the New Jersey area Syriac Orthodox communities, which is a part of (4) the largely English-speaking community in the New Jersey area in which they live. And there are three main languages rather than two: (1) Turoyo, (2) English, and (3) Turkish. While groups (1) and (2) are generally making the same language choices and both encouraging their children to learn the Turoyo language, groups (3) and (4) are both very English dominant.

In the Mor Gabriel community, almost everyone's parents were from Turkey (only a few parents of people in the child generation were not) and spoke languages from Turkey (Turoyo, Turkish, Kurdish, Arabic) as well as from the United States (English). Everyone's parents knew Turoyo (which makes sense, since their parents are the ones who taught them Turoyo, and I only interviewed people whose native language is Turoyo). Those I interviewed also reported their parents knowing other languages, mostly in line with the data found from asking people in each of the generations themselves (see section 4.2.2 and particularly Table 4.5), although some people did not seem to realize how many languages their parents knew and reported only which of the main three languages of the community (Turoyo, Turkish, and English) their parents knew. This is because

children tend to only think of their parents as knowing the languages which they have personally seen them speak.

For the Mor Gabriel community, family is central and has more influence on the language of a speaker than in other communities where family is not as central (see Kerswill and Williams (2000) who make this point about other family-oriented communities). Although Turoyo is strongly represented within the Mor Gabriel community among older generations and very young children (before they begin attending school), other groups do not speak as much Turoyo. Many sociolinguists, including Weinreich et al. (1968) and Eckert (1988), have shown that, even though family plays an important role in the choices of a language speaker, speakers ultimately tend to follow the influence of their peer group. This is because, the nearer children come to their teenage years, the more their peer networks become a central part of their lives. The Mor Gabriel youth are also part of the youth in the Suryoyo community (group 3) and the wider English community (group 4). In this way, the youth in groups (3) and (4) become significant in the peer groups of the Mor Gabriel youth and, in situations in which they are together, English is (usually) the only language they have in common. The Mor Gabriel youth then begin to use English with each other as well, since they are commonly in English-speaking situations together already. And so, even children who are taught Turoyo at home from birth switch heavily to English when they begin to attend school. Although the children continue to understand Turoyo, they begin to even respond to their parents in English (in many but not all cases).

It must be noted that, even though peer groups are found to be such an important influence on speakers, there is significant research that shows that the family will still have an effect on the degree to which the child assimilates to the peer group. For example, Sankoff and Brown (1976)'s study of Tok Pisin verb structure shows that, although children and parents make significantly different choices about a certain verb structure, there is a striking correlation in which children pattern after their parents in the amount that they use that verb structure. A similar pattern can generally be found in the Mor Gabriel community: the children whose parents focus greatly on teaching them Turoyo in the home from birth are the children who speak Turoyo the most, even if

it is not as much as the community would hope for maintaining the language. And, depending on the choices the children make as adults (discussed in the next paragraph), these children have the option to return to their Turoyo roots and still pass the language on to their children.

For the sake of language preservation, it would be ideal if the family's language choices would be the same as those of the wider the community. Unfortunately, although the Mor Gabriel community themselves do foster the speaking of Turoyo, the wider groups of (3) and (4) do not. And so, the children generally forsake the language of their family and speak the language of their peers. There are, of course, those children who stay within the Mor Gabriel community itself for their choice of friends and spouse, and these are the ones who continue to speak the language despite outside pressures. However, those children who have close relationships outside the community (even among non-Turoyo speaking Suryoye) are the ones who generally stop speaking the language. In some cases, a person in the Mor Gabriel community will marry someone who is from an outside community that does speak Turoyo faithfully (e.g., some of the Suryoyo communities in Europe). Although it is later in life, the new community reinforces the language of the family and the former child becomes once again a predominantly Turoyo speaker (see Bentolila (2000) for a similar case involving Oriental Hebrew).

In the Mor Gabriel community, one person had a spouse from Lebanon, but other than that, the spouse of everyone else that I interviewed was born in Turkey. In the grandparent generation and the older half of the parent generation, there were more spouses from Midyat and ʕAyn Wardo, whereas the younger half of the parent generation (and the 1 person in the child generation who was married) mostly had spouses from Istanbul. This fits well with the overarching story of subsequent immigration over time. In the grandparent generation, many said that their spouses speak Turoyo, Turkish, English, Kurdish, and Arabic (or a smaller subset), whereas in the parent generation (and the one married person in the child generation), most people said that their spouses spoke Turoyo, English, and Turkish. If the person's spouse speaks Turoyo and that is one of the few languages they have in common, they will speak more Turoyo with each other, with their friends, and with their children. While Turoyo is the language used with spouses in the grandparent generation,

many in the parent and child generation have Turkish or English in common with their spouse and that becomes the language of the home for the next generation.

6.2.2 Social Networks

Social networks are "the aggregate of relationships contracted with others" (Milroy, 2002) and are formed by individuals to create a meaningful group of people to help them navigate the issues of daily life (Mitchell 1986: 74). The kind of social network analysis that is used by sociolinguists is a product of social anthropological work in the 1960s and 1970s (Milroy, 1987; Li, 1996; Johnson, 1994). This kind of social network analysis looks at the social ties of an individual and analyzes the types and strengths of those ties. Types of ties include first order ties (direct contact) and second order ties (indirect contact), and the strengths of ties includes strong ties (friends and kin) and weak ties (acquaintances). An individual's social network is said to be dense if their ties interact heavily with each other across spheres of life (e.g. they live in the same community with their family, they live in the same community with the people they work with, they spend their social time with family and/or people they work with, etc.). When an individual has lots of strong, dense ties to similar speakers in their social network, there will be no serious linguistic change despite outside pressures. But if the ties to similar speakers in an individual's social network lessen and/or weaken, the situation becomes susceptible to linguistic change.

This type of approach has been used to study both varying dialects within a monolingual community and also bilingual communities. In the case of minority languages, such as Turoyo, and especially within immigrant communities, the language must resist great outside pressures in order to avoid language shift to the majority language. An especially strong, dense social network would be needed in order to accomplish this. Immigrant communities that have been studied using social network analysis include Zentella (1997)'s study of a Puerto Rican community in New York and Li (1994)'s study of a Chinese community in Tyneside. In both of these studies, as well as in the Mor Gabriel community, there is a typical three-generation pattern that is seen: (1) a "grandparent" generation which interacts most heavily with family and close friends and speaks mostly the

language(s) of the country they immigrated from; (2) a "parent" generation which interacts with those in the community as well as those outside the community and speaks the languages of the immigrant country as well as the language of the host country; and (3) a "child" generation which interacts heavily with those outside the community and which does not speak much of their heritage language (only enough to continue to speak to elders in the community) but instead speaks mostly the language of the host country.

Within the Mor Gabriel community, the grandparent generation are the ones who were born in Tur ʕAbdin and who were part of the first wave of immigration. They speak Turoyo and the English they have learned since arriving in the US, as well as the other languages they learned in their homeland (Kurdish, Arabic, and Turkish). Some of those in this generation speak almost no English because their social network is made up almost exclusively of their family and those in the Mor Gabriel community. Although they may go to places such as a store, they are able to complete this activity without much language use.

The parent generation was generally born in Istanbul or moved there at a young age (though there are some exceptions to this, including a few of the younger people in the parent generation who were born in Europe and the US), and then generally moved to the US towards the end of their schooling. Their parents taught them Turoyo from a young age, and they speak it with their parents. They also speak it some to their peers (though also some Turkish) and to their children (though after their children begin attending school, the children usually switch over to English). However, they also interact outside the community. In short, their social networks are a mixture of Turoyo speakers and Turkish speakers and English speakers, though they tend toward having more Turoyo-speaking ties and the Turoyo-speaking ties are strong ties.

Those in the child generation were generally born in the US or immigrated to the US when they were young. Although they were taught Turoyo as children, once they begin attending school, they tend to speak mostly English. Although much of their social network is made up of people in the Mor Gabriel community, they also interact a lot with other Suryoyo youth who attend other New Jersey area churches and who speak English rather than Turoyo. And of course, they also

interact with people at school who speak English (though those people are not as close to them). The fact that they have so many English-speaking ties creates a social network which is not filled with strong, dense ties to Turoyo speakers, creating a situation ripe for language shift.

Neighborhood

Almost everyone I interviewed lives in close proximity (walking distance, next door neighbors, down the street, etc.) to other people in the Mor Gabriel community. There were a couple people who lived a little farther away, but still next to a Suryoyo relative. This is very purposeful and has helped the people in the Mor Gabriel community to flourish as they have moved to a new country and learned to navigate. Most people in the community enjoy living close to others in the community, but there is a feeling among some that everyone is so close and always knows what is going on that it might be nice to have some distance.

School/Work

Of the 39 people that I interviewed who went to school/work outside the home, 19 of them had a significant number of other Suryoye in their school/work networks. In the public schools in New Milford (the town where most of those in the Mor Gabriel community live), somewhere around 5-10 percent of the students are Suryoyo. And many of those that work in the jewelry business do so with other Suryoye (although that is not always the case). Those that work with their families also obviously have a significant number of Suryoye people in their school/work network. 12 people that I interviewed only had a couple people in their school/work network that were Suryoye. 8 people that I interviewed did not have any other Suryoye in their school/work environments.

Friends

People in the Mor Gabriel community have friend networks that are mostly made up of other Suryoye. In fact, 44 of the 50 people that I interviewed said their friends were mostly (15 said this)

or all (29 people said this) Suryoye. Of the remaining 6 people, 4 of them said half their friends were Suryoye, and only 2 said that they had less than half of their friends who were Suryoye. The percentage of Suryoye friends definitely increased overall with age. Clearly, there is a lot that is unique about this community, including their language, and those in the community have a lot in common and can relate with each other. The child generation spoke about their close friends being Suryoye (though they did say they had some American friends). These American friends seem to be friends from school who are friends at school only - they do not usually hang out with them outside of school, and they do not keep in touch much after high school.

Beyond the networks that are in close proximity of the Mor Gabriel community, there is a network of Suryoye around the world, particularly since this is a diaspora community. Although phone calls, the internet, and visits from family help keep everyone connected, a defining factor for people in the Mor Gabriel community being connected to the wider diaspora community is whether or not they themselves have visited their homeland of Tur ʕAbdin and/or whether or not they have visited other places where Turoyo is spoken in other places around the world. Visits such as these make the connection to the wider network stronger.

Visits to Tur ʕAbdin

Tur ʕAbdin is a very important place for Turoyo speakers, because the people have a very long history there. There are many, many important historical sites, and the language has been spoken for thousands of years there. Many people in the community try to make trips back there, as well as take their children there to share the history and culture. But not all do, both because it is an expensive trip, but also some of them do not because it is not a priority to them. All 16 people in the grandparent generation as well as the oldest 6 people in the parent generation were born in Tur ʕAbdin, so they have obviously been to Tur ʕAbdin. It does seem that being born in Tur ʕAbdin (probably also combined with age/generation since those directly correlate) does affect one's values. Of the younger 10 people in the parent generation, 6 of them have been to Tur ʕAbdin (1 of those has been multiple times with the express purpose of teaching her children), and

4 of them have not. Of the 18 people in the child generation, 7 have been to Tur ʕAbdin (2 of those on multiple visits), and 11 have not been to Tur ʕAbdin.

Visits to Other Turoyo Speaking Places

Because of the large diaspora spread throughout the world, there are also many other places to go to visit with other Turoyo people (usually relatives) and to practice Turoyo. Everyone in both the grandparent and parent generations have been to another Turoyo speaking place, and approximately half of those have been to multiple places. Within the child generation, 10 people had been to other places where they speak Turoyo (3 of those had been multiple places). And the other 8 people had never been anywhere else where they speak Turoyo, but 3 of those (in the same family) went to Europe in the summer of 2015, soon after I interviewed them. One example of someone being positively affected by one of their trips was as follows. There was someone who shared with me that they went to a family member's wedding in Europe as a young teenager, and that it was somewhat of a turning point for them - they saw that there were other people living as Suryoyo in other places, and they also realized that the people in Europe were speaking better Turoyo than them. That experience gave them motivation to learn to speak the language better, to use it, and to really identify as Suryoyo.

Within the social networks of the general three-generation pattern, there are always more complexities, some of which have been mentioned above. For example, Li (1994) reported that, within the Chinese community in Tyneside, those in the child generation who were members of the True Jesus Church had a much stronger level of Chinese language maintenance than their peers because of the need to use Chinese with those in the close network of their church. From this example, we can see that social networks not only help to explain the differences between the generations described above, but they can also help to explain more nuanced differences within the general pattern. Within the Mor Gabriel community, there are also those who do not fit neatly within the three-generation pattern, as has been mentioned above. There are people in the child generation that speak Turoyo in many domains. And there are those in the parent generation who speak Tur-

oyo very little. Those in the community who have stronger network ties with their family, extended family, and with the church (which all relate in a very dense network because most people in the community are related and do attend church) are generally the ones who maintain the language the most (though that is not always true, as we will discuss below), and the opposite is generally true of those whose social networks include many ties outside the Mor Gabriel community.

6.2.3 Religion

Religion has not received much attention in comparison to other sociolinguistic variables. This is likely due to the fact that there is disagreement about whether or not religion actually is a sociolinguistic variable. There are two main views in relation to this. The first view is that religion is a sociolinguistic variable. One such proponent of this view, Miller (2004), argues for it because (at least in the Middle East) religion often determines where people live, and communities did not interact much at all with each other and so their languages developed separately in isolation. The second view is that, while religion is important, it only indirectly affects linguistic choice, and therefore is not a sociolinguistic variable. As stated by Bassiouney (2009), "Religion is important in terms of language variation and change only in the sense that it can create a close-knit community whose members feel for one reason or another that they are united by it." But whether the effect is direct or indirect, it is clear that religion does affect language. It is my view that religion is a sociolinguistic variable, at least in relation to the Mor Gabriel community.

In the Mor Gabriel community, the church is the center of the community, both socially and culturally, in addition to being the religious center. The fact that the most distinguishing characteristic of the Mor Gabriel community is the church is strong evidence that the community is defined in terms of religion. However, it is important to understand what that means in the context of the Mor Gabriel community. As was explained above, the Mor Gabriel community is made up of members fairly recently immigrated from Turkey. In the Middle East, religion is seen as something you are born with, rather than as an individual choice (as it has generally come to be seen as in the west). If you are born Suryoyo, it would be a rejection of family, tradition, and community to

reject the Syriac Orthodox faith.

Being born with a religion that you are unable to change is similar to being born with an ethnicity that you are unable to change. And, in fact, religion is sometimes a major component in defining ethnicity. Ethnicity in the Middle East has been defined as "any of a number of social parameters by which non-national social groupings are distinguished, including religion, shared history, skin color, kinship, lineage, and place of origin" (Owens 2001:434). The social parameters which are most relevant can change from one place to another. In the case of the Mor Gabriel community, it may be said that the greatest component in the definition of their ethnicity is the Syriac Orthodox religion. Other components of their ethnicity include country of origin, ancestral city or village, ancestral lineage, and language.

Religion is also the source of the persecution that the community faced in Turkey, which resulted in their emigration from Tur ʕAbdin. The Suryoyo people who lived in Tur ʕAbdin were defined by their Christianity, separating them from the Kurds and the Muslims who lived in the area. When one undergoes persecution for a belief, the responses are generally to either give up that belief or to hold to it even stronger. In the face of persecution, a belief that you hold must be examined and a decision must be made - is that belief worth holding onto? Is it worth it? If the answer is yes, then the degree to which that belief is held is strengthened. Being part of a community that is undergoing persecution for religious beliefs binds those in the community together. In general, the people that I interviewed told me that there was a lot of persecution in Turkey (more in Tur ʕAbdin than in Istanbul), but that there wasn't really any persecution in the US (see below).

The grandparent generation witnessed, heard about, and underwent intense persecution in Tur ʕAbdin, and that persecution strengthened their beliefs and bonded them together. This, in turn, strengthened their value of close family ties, Suryoyo friends, living in Suryoyo neighborhoods, and marrying only other Suryoye. The grandparent generation had their own memories of people coming from the outside to steal from them, of stories that their parents told of the genocide and the effects that they saw in Tur ʕAbdin, of Christians not being allowed to hold government positions, of Christians not being allowed to hold higher positions in the army, etc. There is also, of

course, still persecution happening in Tur ʕAbdin and in neighboring countries, and it was clearly and obviously a painful topic that upsets them (as it does me). Within the parent generation, the responses/stories were not violent, but they were still aware of the persecution in Turkey (which was because of religion) and a number of them saw persecution in Istanbul when they lived there, but generally did not experience it themselves (“my friends were educated”, “my friends were nice and intelligent and didn’t discriminate”, “not my friends”, etc.).

Once those in the Mor Gabriel community immigrated to the United States, the persecution lessened and it was not generally because of religion. While most people said that they did not experience persecution in the US, 2 people in the parent generation and 3 people in the child generation said that they did. They told me that it was “because we are immigrants, not because we are Suryoyo”. One older person in the child generation said, “There is always discrimination against ‘foreigners’, but most Turoyo speakers who are born in the US tend to not see any prejudice towards them.” For the people in the child generation, the persecution was not violent and at first many of them said that there was none, but when I asked them further, they did experience some teasing and people believing incorrect things about them from people at school (e.g. that they are Turks when they ethnically are not, that they marry their cousins, that they are rich, other kids not knowing about their people group, they ask them curse words, tease them about eating Turkey around Thanksgiving, call them names, make fun of their accent, about being Middle Eastern, about having arranged marriages, etc.). A few of the older people that I interviewed talked about the fact that the young people are not experiencing persecution, and those older people believed that was encouraging the assimilation of the young people to American culture and speaking English. They said that the young people were “soft” because they hadn’t experienced persecution. That they (the older people) had needed to stick together and unite against outside hatred and violence, which had made them stronger in their Suryoye values and beliefs. But that the younger people are in America and everyone around them is so nice, which is good, but it is also bad in a way because the young people think, “They’re so nice. Why not be like them?”

Religion is also what unites the diaspora. There are communities of Suryoyo people all around

the world, including the United States, German, Sweden, Switzerland, Australia, and even India, as well as many other countries. There is a strong bond between all these Suryoye people that is centered around their shared religious beliefs as Syriac Orthodox Christians. While they may or may not speak Turoyo (or another Neo-Aramaic language), they may or may not eat the same foods, they may or may not partake in the same activities or listen to the same music (though these things are still often shared because the immigration was recent), but the one thing they all have in common is the religion of Syriac Orthodox Christianity.

Unfortunately, persecution in the Tur ʕAbdin homeland (which is based on religion) continues to be part of the story for the wider diaspora community. There has also been persecution since 2014 by ISIS, which has affected the Tur ʕAbdin area as well as the homelands of other Suryoyo people, and the persecution is still ongoing. In many ways, this story is still taking place. There is no government or place for the people to get what they need or to provide for them (though there is a movement within the wider Suryoyo community to unite the people under one name and to petition the United Nations for a place to call their own on the Nineveh Plains). However, European governments (Germany, Holland) have helped in a small way by giving agricultural equipment (tractors, etc.) to the Suryoyo people in the Tur ʕAbdin region so that they can work the land to provide for themselves and to make a living.

Another important factor related to religion is the Classical Syriac language and its relation to Turoyo. Although Classical Syriac is not natively spoken by anyone (with a few exceptions for which see Kiraz (2012a)), it persists in the church because of strong belief that it is a holy language. Turoyo is also seen as somewhat of a holy language, but it is not held in nearly as high of regard as Classical Syriac, and Classical Syriac is always given preference whenever possible. Because religion is so central to this community, and Classical Syriac is so central to the Syriac Orthodox church, it is likely that Classical Syriac will continue to persist, at least in the domain of the church, even if Turoyo does not (cf. similar relationships between Neo-Mandaic/Mandaic (Häberl, 2009) and Arabic Dialects/*fuṣḥa* Arabic of favoring the written liturgical language, as compared to Hebrew, Greek, and Hindi, which are favoring the modern vernacular forms).

Both Classical Syriac and Turoyo are Aramaic languages, and it is a strongly held and prized belief in the community that Jesus spoke Aramaic. This is, in fact, true, though it is true because Aramaic was the lingua franca in the area at the time of Jesus' birth, and so it makes sense that Jesus spoke that language from a practical standpoint. As will be discussed further below, being speakers of the language of Jesus Christ is the thing that those in the Mor Gabriel community are the most proud of. And being speakers of the language of Jesus Christ and continuing to use that language both in the liturgy of the church and in their everyday lives is a defining characteristic of the community. One speaker from the grandparent generation said, "We are known by our language, so if I don't know the language, I am an outsider. But not really... But it's important for the language not to get lost."

While all of the members of the Mor Gabriel community share the same religion, they vary in the degree of importance that the Syriac Orthodox faith holds in their lives. It is generally true that those in the Mor Gabriel community who place the most emphasis on religion are the same ones that speak Turoyo the most extensively. And when asked who the best speakers of the Turoyo language are, those in the community continually say it is the clergy. However, there are likely other factors involved in this correlation and there are also, once again, exceptions to this generalized observation. As with family and social networks, religion alone cannot explain the linguistic situation in the Mor Gabriel community.

6.2.4 Ranking?

Family, social networks, and religion all have an important role to play in explaining what is happening in the Mor Gabriel community, and it is hard to rank their influence. While religion is the single most defining factor for the community, it would not have any way to become a part of a person's life without the family believing and valuing those beliefs and teaching the language in their homes. And it would not continue to be a strong part of a young person's life if their social networks were not ones in which many other people held the same beliefs and spoke the same language. Thus, all three of these things work together to create the language situation that

characterizes the Mor Gabriel community.

However, although having a close-knit family who speaks Turoyo, strong social networks with other Turoyo speakers, and being part of a community strongly defined by their religion are very important sociolinguistic factors that explain what is happening in the community, it is identity that makes the difference in the end, as will be discussed in the next section.

6.2.5 Identity

A person's identity is a dynamic relationship between themselves as an individual and the rest of society. People use their identity to signify which group(s) they belong to. For example, a person in the Mor Gabriel community might want to show that they belong to that community. They can do this with language, which is the focus of this dissertation, but they can also show their group identity through actions and practices (what they wear, what activities they participate in, etc.). At any given time, a person will belong to multiple groups, and those groups will change depending on the situation, who else is present, and other contextual elements. For example, when in the wider New Jersey Suryoyo community, a Mor Gabriel youth might want to show that they belong to the Mor Gabriel community, but when in the non-Suryoyo NJ community, that same youth might want to identify with others who belong to the NJ Suryoyo community.

A central issue for the Mor Gabriel community is what exactly does it mean to be part of the community, and/or what does it mean to be Suryoyo? One element that relates to this question is the history of persecution of the Suryoyo people. In the past, Suryoyo people sometimes protected themselves by assimilating into another community (including changing their last name and ceasing to speak Turoyo). In order to protect their children from similar experiences, some downplayed their Suryoyo identity (to their children) by not teaching them the Turoyo language or about their heritage. This past identity suppression has repercussions in making it less clear what the current Suryoyo identity involves.

Another element that relates to the above questions is that identity is a dynamic construct. Because identity is dependent on both the person signaling their identity and those who are being

signaled to, there is a difference between identifying oneself as Suryoyo in the US and identifying oneself as Suryoyo in Turkey. The Mor Gabriel community is fairly new to the United States and is still negotiating what exactly it means to be Suryoyo in the US. The youth especially have the opportunity to choose whether or not they want the fact that they are Suryoyo to be easily identifiable. To this end, there was a youth conference held by the World Council of Arameans in March of 2013 at the Aramaic American Association (Rochelle Park, New Jersey) that focused on the topic of Suryoyo identity. As their identity relates to Turoyo, the important questions for the community will be: Is the Turoyo language part of the Mor Gabriel community identity? (Likely yes.) Is it part of the Suryoyo identity? (Likely no, since most of the other NJ communities and other Syriac Orthodox communities in the US do not speak much Turoyo.) And so, the youth of the community will have a choice: will they continue to speak Turoyo because their membership in the Mor Gabriel community is central to their identity? Will they identify as Suryoyo but focus on other aspects of that identity since language is not a crucial part of it? Or will they decide that they would rather leave those identities behind, as some of their persecuted ancestors did, and just identify as American? It seems that most of the Mor Gabriel youth are following the middle route: identifying as Suryoyo, but not further identifying as part of the Mor Gabriel community by speaking the Turoyo language.

In the family, social network, and religion sections above, we have seen that these sociolinguistic variables are important factors in the language shift in the community, and that they have a lot of explanatory power when it comes to the linguistic situation. But, in each case, there were things they could not explain. In contrast, the sociolinguistic concept of identity seems to be able to handle all the different expressions of identity by individuals in the community (because it is such an individual-based concept).

To further learn about the identity of the people in the Mor Gabriel community and what choices they are making, I asked pointed questions about how they would identify themselves as well as how their parents and spouses would identify themselves. I also asked questions that related to their values, which are good indicators of their identity. Each of these questions will be discussed

below to give a better idea of the identity of those in the Mor Gabriel community.

Personal and Family Identity

When asked if they thought of themselves as "Suryoyo, American, Suryoyo-American, or something else", all fifty interviewees responded with something in which Suryoyo featured prominently. The largest number in each generation (9 in the grandparent generation, 9 in the parent generation, and 10 in the child generation) thought of themselves as Suryoyo (with some adding things like "100 percent" or "all the way"). This reflects the strong Suryoyo identity in the community. Many of the rest thought of themselves as Suryoyo-American (2 in the grandparent generation, 5 in the parent generation, and 7 in the child generation). A number of others gave a unique answer in which Suryoyo featured most prominently, but they also thought of themselves as American in some sense as well (5 in the grandparent generation, and 1 in the parent generation). This is due to the strong positive feelings and thankfulness that the community has towards America and the freedom and opportunity that the Suryoyo people have here. Over and over in my interviews, people told me how much they loved America, how much they appreciated living here, that they prayed for the country each night, that this was the best country to live in as a Suryoyo person (more freedoms and equal rights than even those Suryoye living in Europe), etc. 1 person in the parent generation and 1 person in the child generation had their own more unique way in which they thought of themselves - both included Suryoyo and American in their designation, but other things were also important to them, as well.

Almost everyone in all three generations reported that their parents would identify themselves as Suryoyo. There were 4 people who had mothers who would identify differently (e.g. Armenian). In the culture of this community, people identify with the ethnicity of their father.

Most people reported that their spouse's ethnic identity was the same as their own. When I got to this question for the child generation, I asked them if they had a boyfriend/girlfriend and, if it came up, about dating practices in the community. I learned that it is acceptable for the Suryoye youth to talk to the opposite sex (although talking to those of the opposite sex outside of the

community is discouraged) and to spend time together in groups. In fact, the community goes to great effort to make sure that there are opportunities for the youth to get to know each other. They have youth group at the Mor Gabriel church, youth activities with the youth groups from other Suryoye churches in the New Jersey area, and national church conventions. The youth that I spoke to told me that it was important that the person that they choose to marry be Suryoye, but that that person did not have to speak Turyoyo. I did also learn that the youth are not allowed to date in high school, but that they do in fact begin to date in their teenage years, though they do not tell anyone if they start dating. Two of the females in the child generation said that they had "secret" boyfriends (they were hesitant to tell me much at all about them). The Suryoye youth typically get engaged in their 20s. One of the females in the child generation that I interviewed was about to get engaged to a Suryoyo man whom she had met at a youth convention. One person told me that, when they were young, they did not want to associate much with Suryoyo people and had mostly American friends at school, but now they believe it is important to marry a Suryoye person. This change of heart seemed to be directly influenced by meeting a Suryoye person whom they were interested in marrying.

What Does It Mean To Be Suryoyo?

Beyond personal identity and the identity of parents and spouses, another direct question that I asked those that I interviewed was, "What does it mean (to you) to be Suryoyo?" The answers to this question showed a clear pride in the long history of this people and in what they were today. Almost all of them are very proud to be part of the community, for reasons including that it is special, unique, and close-knit. They are proud of the long history of the language - both that it has been around for so long and also that it was a lingua franca in the Middle East. But above all, they are proud that they speak the language that Jesus spoke. Their own words are so beautiful and passionate, and I will share them here.

From the grandparent generation: "Yes, we are proud to be Suryoyo. We love to be Suryoyo. We are Suryoyo." "It means to recognize each other. It's our identity. Our way of life. Our eating."

"I am proud. I love my culture. I love everything. My ancestors were Suryoyo." "I am extra proud to be and to speak. I am a fanatic. I will never forget - the life of a younger age, the best life, better than now. When it gets close, I cry because it's so different now." "It's important to be Suryoyo, and I want it to continue (for my grandkids to learn, etc.). I want/like to talk and listen." "It's not only religion, but who I am. In the time of Jesus Christ, the language was the international language of business. We are Christian, but we have a place, a history. Suryoyo means "Christian" in Aramaic." "I am proud to speak the Lord's language and believe in him. I am antique." "It's everything - my mother language, a holy language, the first language on earth (was used, like English, as an international language)." "I am happy that Jesus Christ spoke the language, and I hope that the history continues." "I am proud to be a part of that heritage, and we should try to protect and preserve it. I am happy that I am Suryoyo. Suryoyo values include hard work ethic, family ties, being successful, being a good person, loving others, respecting others." "It means a lot. It is Jesus Christ's language. I am so happy with everything about it - the language, the culture. It's how I was raised." "I am happy that Jesus Christ spoke the language, and I hope that the history continues." "I am proud to be Suryoyo." "That we are kids of Jesus. I am proud to be Suryoyo and to speak Jesus Christ's language. To go to church is very nice, to learn about Jesus and God."

From the parent generation: "It means speaking the language of Jesus. I am so proud to be Suryoyo. (I am not always proud of Suryoyo people or what they do, but I am proud to be Suryoyo.)" "Nothing (when you live in America) and everything (my identity, who I am, being a productive person/citizen/etc.)." "It means to have a Christian tradition, to be pure, to have a culture that has been since the beginning, to do prayer and fasting." "Jesus." "Suryoyo is an ancient language that should be preserved. It is part of the Dead Sea Scrolls." "I am proud. It is the language that Jesus Christ spoke. It is our heritage." "To me, it is where I came from. It's my roots. I am not Turkish - I am Suryoyo. It means that I am part of a community, and that I am never alone. I always tell my kids how great it is to have Suryoyo friends." "It's very important. I grew up with a lot of American kids and I saw how it was different for them. There are lots of traditions for us to hold onto. We are very tight-knit. There are always people checking on you." "I am very

proud to speak the first language of Jesus Christ and an important Middle Eastern language. There is a lot of history for our people, and we are still here." "It's an honor. There are not many Suryoyo people, and it's the oldest language." "I am proud to be Suryoyo and to speak the language Jesus Christ spoke. There is nothing better." "It's an honor because I know that Jesus Christ spoke that language which makes it holy and precious. I feel privileged and responsible to teach my children as well. It's a wonderful culture to be a part of."

From the child generation: "I am very lucky. I speak the language that Jesus spoke. I can understand God better. I am closer to God." "Everything." "Being part of something that has been around for thousands of years, since ancient times, since the beginning of human civilization. It affects my identity, how I think, how I see things. It won't ever leave me." "To be extra special, proud of historic roots, beautiful, ancestors of Jesus Christ, how mankind was created in small number makes it even more special. To be Aramean (different from Assyrians, Chaldeans, etc.)." "It's all I know. It means everything. It's dying out. I have pride. It's the language that Jesus Christ spoke." "It means a lot, but I don't know how to put it. The crucial, important things are religion, church, Bible, letting Holy Spirit come to you." "We are unique and special. Not many people know about us." "I'm proud to be Suryoyo because I'm part of a small community (almost like a big family) that walks the same path and believes in our one true God. Being Suryoyo means spreading the word of God." "It means a lot. We are separate from the rest of the world. Nobody else understands. There is great community. It is wonderful." "To live in a close community where everyone cares and helps, and to have a very old language." "It means the world. There is so much historical background. Being Suryoye is praised. It's amazing." "Speaking the language that I was meant to speak and being who I am." "I'm proud to be Suryoyo. Jesus spoke the language. I am proud to be alive and speak the language God spoke. Speakers need to pass it on."

Values

Although the way a person would identify themselves and what it means to them to hold that identity is the most direct way to find out about that person's identity, the values that they hold are

also very revealing.

One value that reveals something about a person's identity is where they would like to live. When asked if they prefer to live in a Suryoyo neighborhood, everyone in the grandparent generation answered in some affirmative way (12 said yes, while the other 4 said it was not necessary but better). The grandparent generation cited reasons such as the language, the culture, knowing each other, and understanding each other. In the parent generation, 11 answered in the affirmative, citing reasons related to their children - having other Suryoyo families for your kids to be friends with and play with and to learn the culture from. 2 answered that they preferred a mixture of Suryoyo and non-Suryoyo. 2 answered they they did not care one way or the other, with 1 explaining that "Since I was born, my parents and I have adapted and become comfortable wherever we were allowed to be Suryoyo". And 1 person said that they preferred not living in a Suryoyo neighborhood because they liked their space. In the child generation, 10 people answered that they preferred to live in a Suryoyo neighborhood, citing reasons such as it being more comfortable, like family, and more fun. 1 of the 10 people said that it was important for keeping the culture alive, since it was dying. 3 people said that they preferred a mixture. 1 person said it did not matter. And 4 people said that they would rather not live in a Suryoyo neighborhood, for reasons such as having space, people being nosy, and people talking about each other.

Another value that correlates with identity is what kind of person they think people who have that identity should marry. In general, the older and more traditional Suryoyo people tend to think that Suryoyo people should marry other Suryoyo people. The grandparent generation definitely thought that a Suryoyo person should only marry another Suryoyo person (15 out of 16 people said yes, and 1 person said that it did not matter as long as they were a Christian...but that it was better if they were Suryoyo). The reasons the grandparent generation gave were because there was similar culture, values, language, traditions, food, etc.; they would have fewer problems; there would be no divorce; they would continue to come to church and to be part of the community; and because there would be fewer Suryoyo people/to make more Suryoyo people. This value was less for the parent generation (9 out of 16 people said yes), and even less for the child generation (7 out

of 18 people said yes). Those in the parent generation that said yes gave reasons having to do with keeping the culture, language, heritage, and identity alive and because you had a lot in common. 3 people in the parent generation said they thought it was better for a Suryoyo person to marry another Suryoyo person and that should be what you try for, citing reasons such as people that they knew who did not marry another Suryoyo person and how it has been harder for them. 2 people in the parent generation said that the most important thing was whether or not the other person was a Christian. The final two people said not necessarily and no. In the child generation, 7 out of 18 people said that yes, Suryoyo people should only marry other Suryoye, but the reasons they gave were more about what others had told them rather than their personal belief, e.g. you have to, you should, that is what their parents have taught them, that is what is done, etc. 1 person said that they were unsure, but mostly yes. 5 people said that yes, that's what you were supposed to do, but they were personally ok with not marrying another Suryoyo person. 2 people said no, but that it was nice if you did. 1 person said no, but that they should definitely be a Christian. And 2 people said no.

Case Studies

With a better understanding of the identity and values of the people in the Mor Gabriel community, and to further illustrate the point that the sociolinguistic concept of identity seems to be able to handle all the different expressions of identity by individuals in the community, let us examine in more detail two families in the community as case studies. In the first family, a family identity choice affects the way the family relates to the rest of the community. And in the second family, individual identity choices made by the children result in very different degrees of assimilation into the community. Each of the acoustic correlates of emphasis found in the acoustic study are presented for each speaker in these families, and I examine how the use of emphasis may be an index for Suryoyo identity (and likewise, how the lack of emphasis may be an index for non-Suryoyo identity) in these case studies.

In the first family, the parents are part of the parent generation, and the children are teenagers

and part of the child generation. When I was interviewing the father in this family, he told me that he had come to believe that the important thing was to be a Christian, rather than specifically a Syriac Orthodox Christian. He started listening to sermons by Christians (who were not Syriac Orthodox) during his daily commute to his jewelry store and began to identify with the beliefs of the wider Christian community. This identity choice affects the family in multiple ways. One way is that it motivates this family to be actively involved in the church (the father, mother, and daughter are all teachers in the Sunday School classes at Mor Gabriel) for the purpose of helping the youth to truly understand the Bible and Christian beliefs. Another way this identity choice affects the family is that it has resulted in the family making the choice to send their children to a Catholic school where there are very few other Suryoyo students, and so the children have ended up with more American friends than many of the others in the Mor Gabriel community (though it should be noted that the children in this family still all said that their closest friends were Suryoyo). The parents also have social networks that include American friends, which is in contrast with many of the other people in the parent generation.

Four out of the five members of this family were part of the acoustic study (the father, the mother, the daughter, and the oldest son). Graphs for each of the acoustic correlates in Turoyo for each family member who participated in the acoustic study are given and discussed below. Figure 6.6 shows the graphs for the father in Family 1.

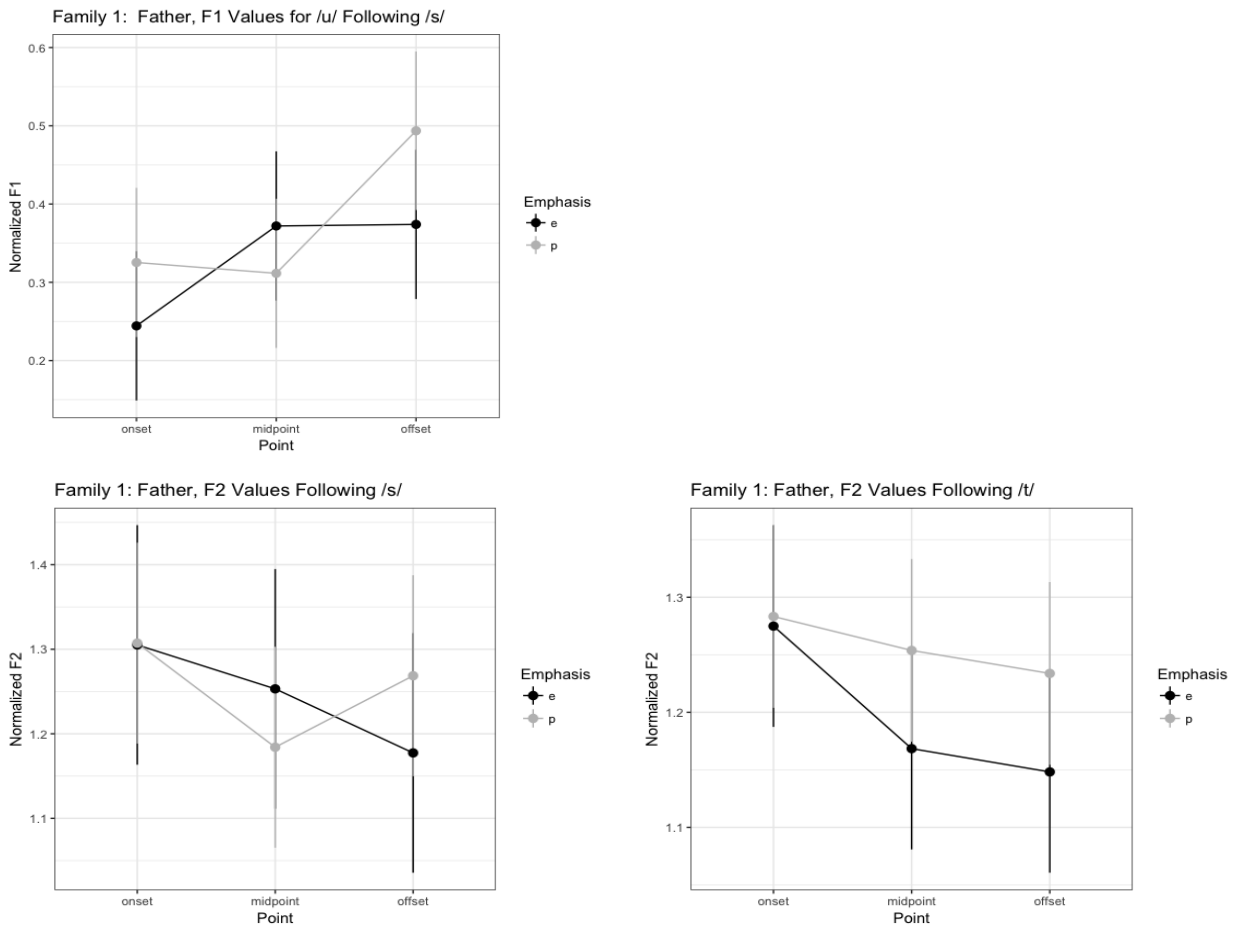


Figure 6.32: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the father in Family 1

The father in Family 1 lacks both the acoustic correlate of raised F1 for /u/ following /s/ as well as lowered F2 for vowels following /s/. Lowered F2 values for vowels following /t/ are nonexistent at the onset, but are present at the midpoint and offset. Overall, the father in Family 1 does not exhibit acoustic correlates of emphasis in Turoyo, and as we will see below, he is the one who least exhibits them in Family 1. He is the one leading his family in the choice to identify chiefly as a Christian over identifying as Suryoyo (it started with him and he is the one who spoke the most about it), and it appears that the lack of emphasis could be indexing a non-traditional identity.

Figure 6.7 shows the graphs for the mother in Family 1.

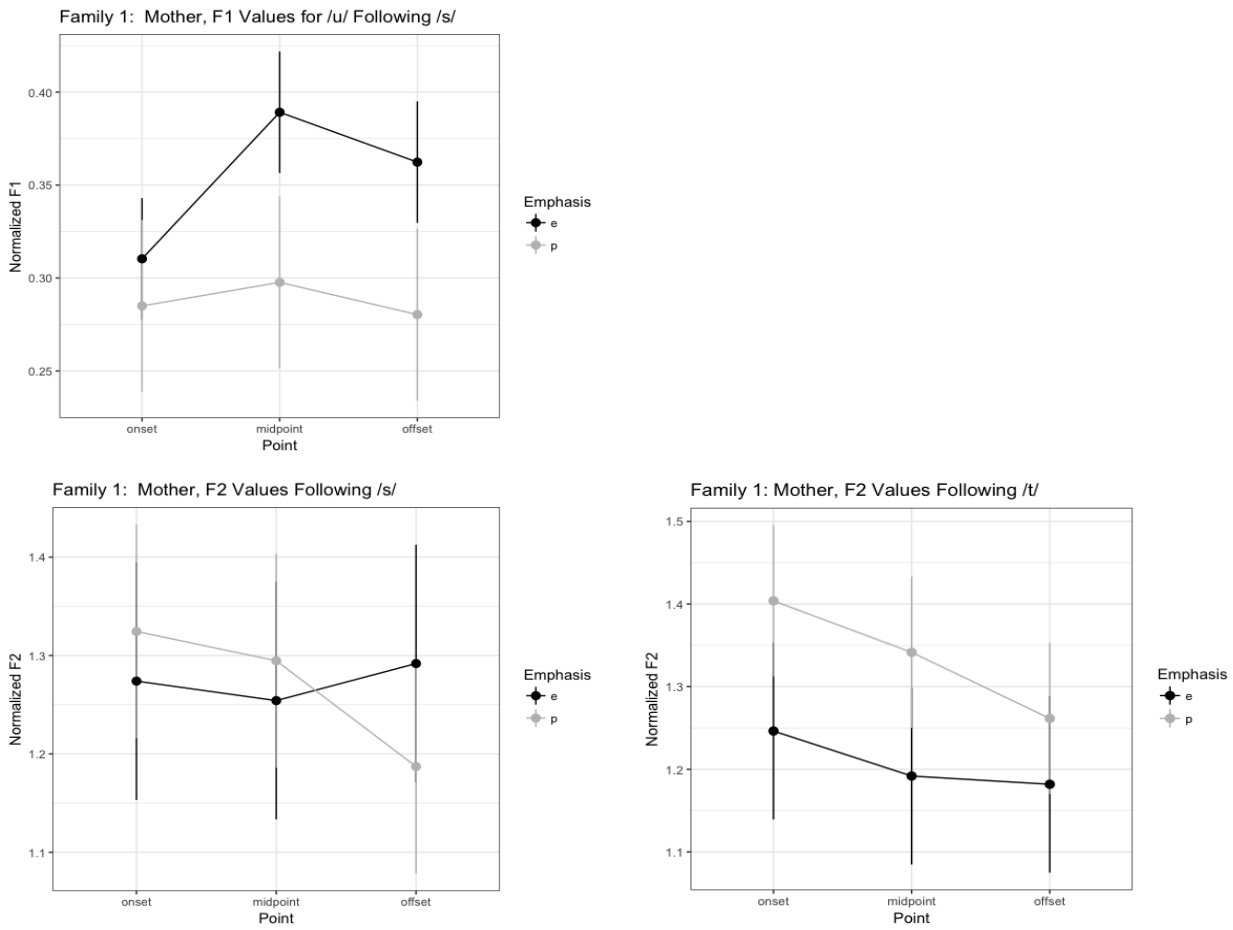


Figure 6.33: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the mother in Family 1

The mother in Family 1 is a prime example of the acoustic correlates that were found in the acoustic study. She has a clearly raised F1 for /u/ following /s/ and a clearly lowered F2 for vowels following /t/. Her F2 values following /s/ are lower for the onset and midpoint but not for the offset, just as was found for females in the parent generation in figure 6.3. Although she supports her husband in his decision and the way it affects their family, her Suryoyo identity is still very important to her. She is an important part of the community, and her parents are important parts of the Mor Gabriel community. Her use of emphasis could be an index for her Suryoyo identity.

Figure 6.8 shows the graphs for the daughter in Family 1.

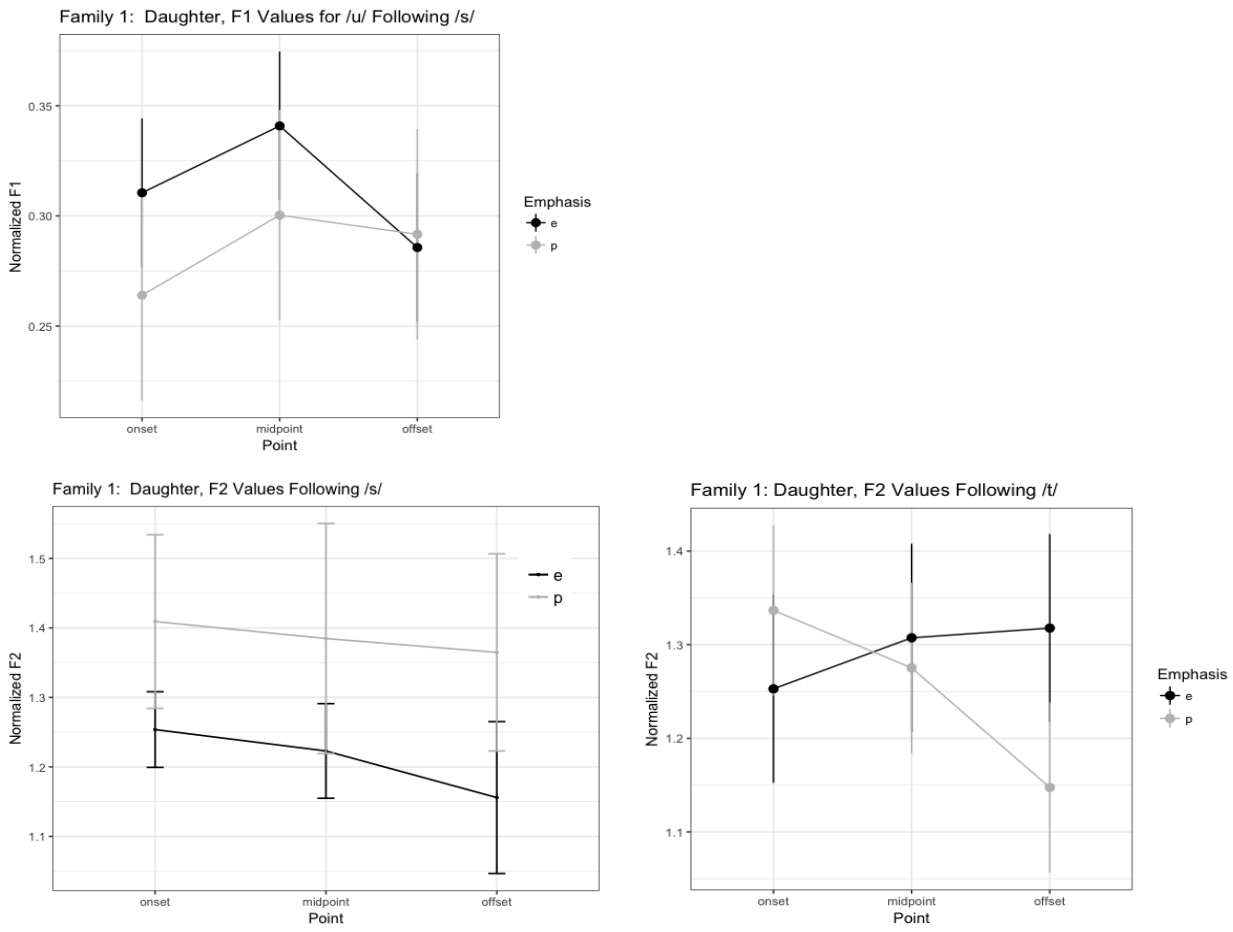


Figure 6.34: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the daughter in Family 1

The daughter in Family 1 is a good example of the change in process present in the child generation of which she is a part. She has clearly raised F1 for /u/ following /s/ at the onset and midpoint, but not at the offset (possible evidence of loss of emphasis in process). She has a clearly lowered F2 for vowels following /s/, which is unusual for someone in the child generation. Her F2 values following /t/ look almost identical to the F2 values following /t/ for the child generation in Figure 6.5, which only have lower F2 values at the onset of the vowel and show that the child generation is clearly losing this acoustic correlate. Very similar to her mother, the daughter in this family is proud of her Suryoyo identity and is an important part of the community. Her use of emphasis could be an index for her Suryoyo identity.

Figure 6.9 shows the graphs for the son in Family 1.

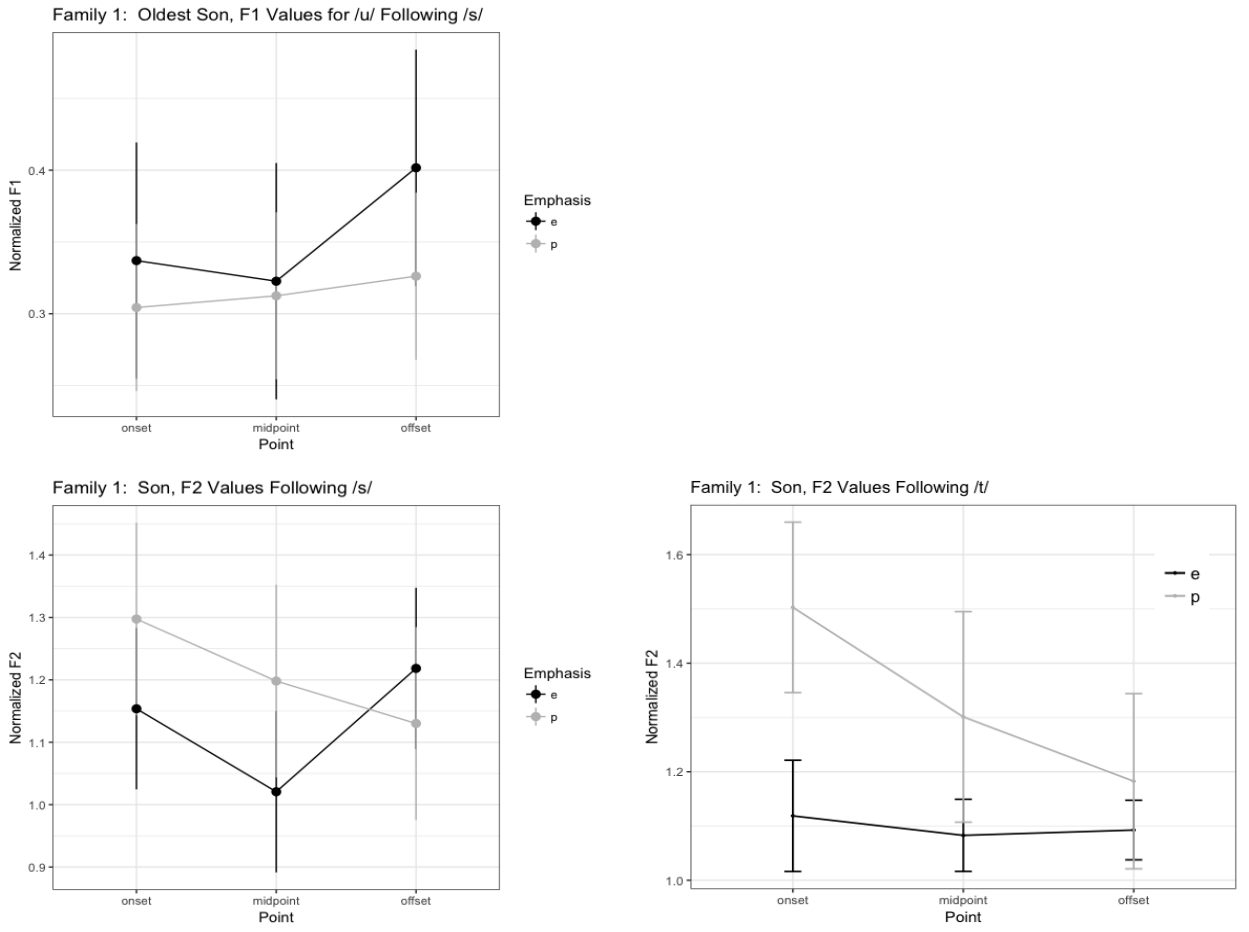


Figure 6.35: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the oldest son in Family 1

The oldest son in Family 1 has raised F1 for /u/ following /s/, but the different is much less than was seen above in the acoustic study results for the child generation as well as for his mother and sister. His F2 values following /s/ look very similar to the F2 values following /s/ for the child generation in figure 6.4, which showed slightly lower F2 values at the onset and midpoint but not at the offset. The F2 values following /s/ for males in the child generation were evidence of possible loss of emphasis in process. Surprisingly, his F2 values following /s/ are lower throughout the vowel, though the distinction is less as the vowel progresses. Overall, the son in this family shows

all of the acoustic correlates of emphasis to some degree, but for each acoustic correlate, there is possible evidence of loss. His use of emphasis in some acoustic correlates could be indexing that his Suryoyo identity is important to him, but his lack of emphasis in other acoustic correlates could be indexing that he is assimilating more with the Americans around him, which is typical in the child generation.

In the second family, the father is a prominent member of the community, and a native speaker of Turoyo (though he also speaks Turkish, Arabic, Kurdish, English, Armenian, and Greek). He was born in Midyat, Turkey and, in 1973, immigrated to the United States with his wife. His wife is from Istanbul and is a native speaker of both Greek (her mother's native language) and Armenian (her father's native language), though she also speaks several other languages including having an almost native command of Turoyo. Her parents lived with his family while they were alive. They have three children, ages 32, 30, and 25 (at the time of their interviews). The children speak various levels of English, Turoyo, Turkish, Greek, and Armenian, and have those various groups open to them to identify with. The eldest two children are females, are heavily involved in the community and the church, and speak Turoyo fluently. Despite spending significant time outside the community (for college, in jobs, etc.) and being most comfortable speaking in English, they both identify themselves as Suryoyo. (The oldest identifies herself as Suryeyto (the female form of Suryoyo) American, while the younger identifies herself as purely Suryeyto.) Both are married to Turoyo speakers (one who was born in Turkey, and one who lives in a Suryoyo community in Germany where the couple now lives). The oldest daughter has three children, and she and her husband are teaching them Turoyo as their native language (as well as other languages that family members speak). The younger daughter has one child, and she and her husband are also teaching their child Turoyo as their native language (as well as other languages that family members speak). In the case of the third child, he identifies more with his mother's (particularly his grandmother's) Greek roots. He had a close relationship with his grandmother and learned Greek from her. While he has a few friends who are Suryoyo, most are not. And in fact, he distanced himself from the other male Suryoyo students when he was a child because many of them did not value education

(they knew they were going to go into the family jewelry business and did not think education was relevant) and often acted out in school. This son clearly does value education as he has received a BA and an MA, and he is currently working on his PhD. He self-identifies himself as a Syriac-Greek-Armenian American. Knowing that he signals his identity in the available groups in these ways, it is not surprising to find out that he is a native speaker of English, a fluent speaker of Greek, and only a conversational speaker of Turoyo. While at first, it might seem unusual to see the difference in his linguistic choices compared with his siblings, once we delve into the details of the situation, the way he is signaling his identity linguistically becomes more transparent.

Only two out of the five members of this family were part of the acoustic correlate (the father and the son), but the results for these two are likely the most distinct in the family (the father has the strongest Suryoyo identity, whereas the son has the weakest Suryoyo identity). Graphs for each of the acoustic correlates in Turoyo for each family member who participated in the acoustic study are given and discussed below.

Figure 6.10 shows the graphs for the father in Family 2.

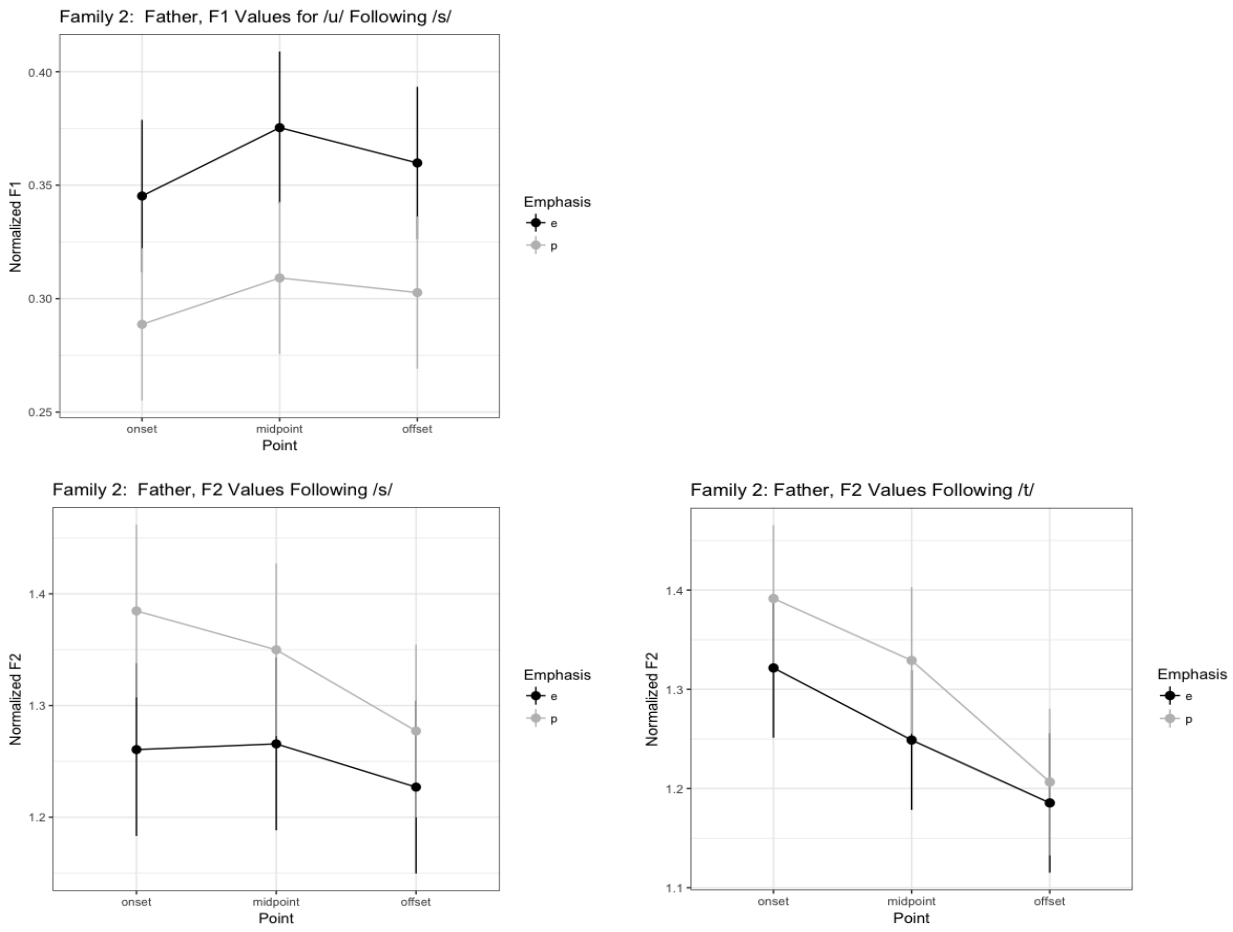


Figure 6.36: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the father in Family 2

The father in family 2 clearly shows each of the acoustic correlates of emphasis in Turoyo. His F1 values are clearly higher for /u/ following /s/, and his F2 values are clearly lower following both /s/ and /t/. These acoustic results fit well with the father's identity as a prominent member of the Mor Gabriel community —his use of emphasis is likely an index for Suryoyo identity.

Figure 6.11 shows the graphs for the son in Family 2.

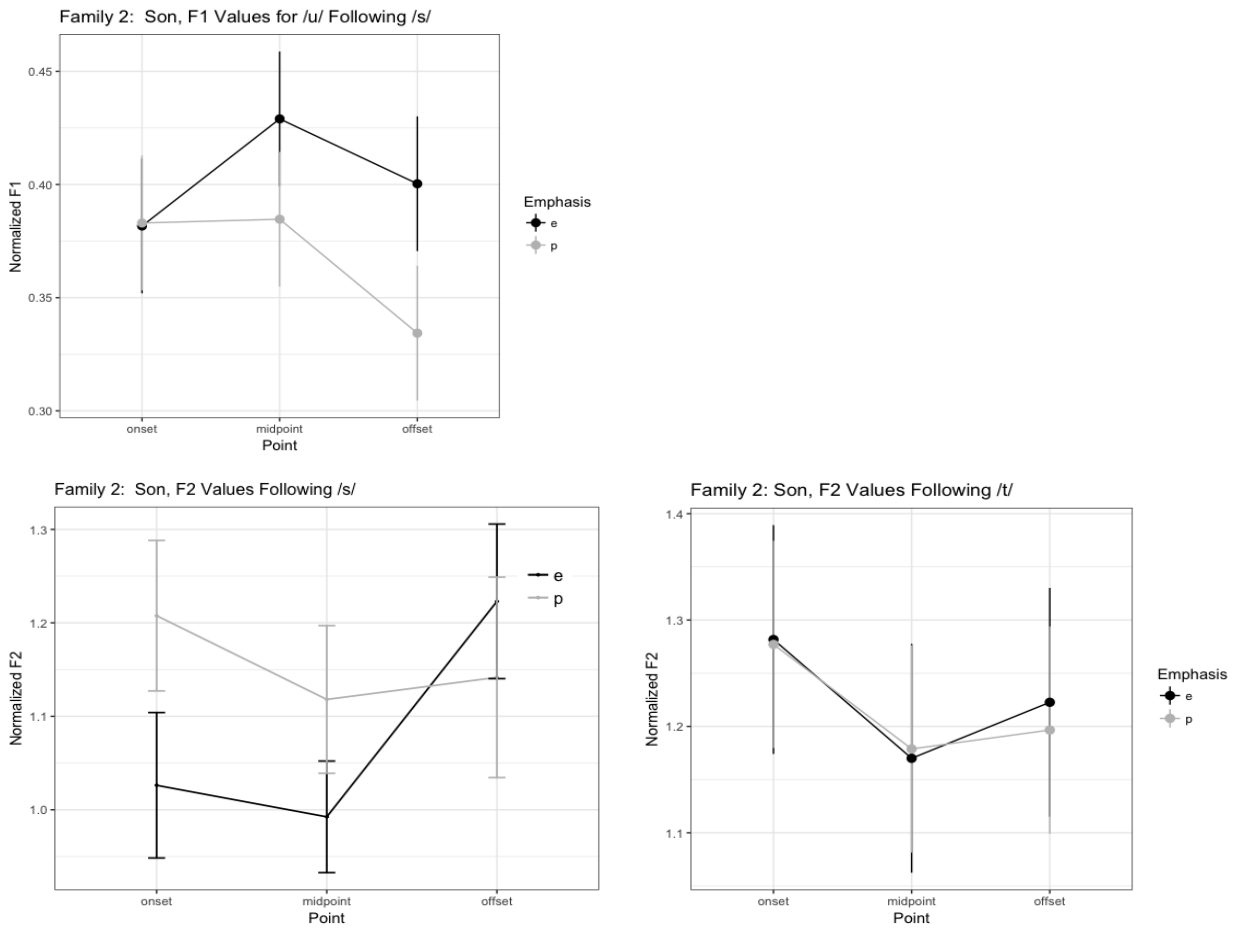


Figure 6.37: Graphs of acoustic correlates of emphasis in Mor Gabriel Turoyo for the son in Family 2

The son in Family 2 has the acoustic correlate of raised F1 for /u/ following /s/ at the midpoint and the offset but not at the onset, which is possible evidence of loss of emphasis in process. His F2 values for vowels following /s/ mirror the F2 values following /s/ for males in the child generation in Figure 6.4, which showed slightly lower F2 values at the onset and midpoint but not at the offset. The F2 values following /s/ for males in the child generation were evidence of possible loss of emphasis in process. However, the son in family 2 shows no evidence of any acoustic correlate for emphasis for F2 in vowels following /t/. For the son in family 2, Suryoyo is part of his identity, but it's not the most important to him. His use of some acoustic correlates of emphasis could be indexing the Suryoyo identity that he does have, while his lack of other acoustic correlates of

emphasis could be indexing the ways he identifies as other than Suryoyo.

6.3 Summary

It is common among immigrant communities for subsequent generations to assimilate more and more to the host culture and to speak their native language less and less. That is the outcome that is, in fact, expected. The question, then, is why do the young people in this community continue to speak the language for at least another generation past the norm? The answer is because of their close-knit families who teach the Turoyo language alongside Suryoyo culture, their strong social networks which are filled with other Turoyo speakers and others who are Suryoyo and share Suryoyo values, and the defining place religion holds in the community in separating the community from other groups, bringing the community together, and being the defining factor in the Suryoyo diaspora around the world. Despite all this, it still comes down to what each individual wants to identify with. Those in the community that most strongly identify as a Suryoyo person in the Mor Gabriel community are the ones continuing to speak the Turoyo language and pass it on. They are also the ones who seem to have the strongest correlates of emphasis in the Turoyo that they speak, and this use of emphasis seems to be an index for Suryoyo identity.

CHAPTER 7

CONCLUSION

7.1 Conclusion

The Turoyo language has been spoken for thousands of years and still exists almost exclusively in the vernacular. Because of persecution, the 50,000 speakers of the Turoyo language today are spread throughout the world, and the language has become severely endangered. This dissertation has focused on one particular community in New Jersey in the United States, a community centered around the Mor Gabriel Syriac Orthodox Church, which I have labeled the Mor Gabriel community, and the first language of those in the community, which I have labeled Mor Gabriel Turoyo.

All around the world, languages such as Turoyo are becoming endangered and almost inevitably dying out because of contact with more dominant languages. English is one such language, and the language surrounding the Mor Gabriel community in New Jersey. In the Mor Gabriel community, just as in many communities around the world, those in the community are trying to pass the language on in the midst of the immense outside pressure from a stronger language. In order to determine more precisely the exact sociolinguistic situation in the Mor Gabriel community, a sociolinguistic study of the community was conducted. 50 speakers were asked questions from a sociolinguistic questionnaire during a sociolinguistic interview. The results were shared in terms of three generations: the grandparent generation, the parent generation, and the child generation.

The grandparent generation was born in the Tur ʕAbdin area of southeastern Turkey, in either Midyat or the nearby village of ʕAyn Wardo. They are Turoyo dominant in almost every area of their lives. They experienced a significant amount of persecution (which is why they came to America) and strongly identify as Suryoyo and want to pass on the culture and language to future generations.

The parent generation was generally born in Istanbul. They speak a mixture of languages. While about half of the parent generation prefers to speak English, the others prefer Turoyo, Turk-

ish, or a combination of two or three of those languages. They experienced less persecution than their parents and want to respect their parents and pass the culture and language on to their children, but find it hard to do so in a multilingual community in America.

The child generation was generally born in the US. They are English dominant, though they do still try to speak Turoyo, especially with their grandparents. They have experienced little persecution and although they do generally want to pass the culture and language on to future generations, they enjoy American culture and living in America.

Previous studies of emphasis focused almost exclusively on Arabic. In order to contribute to the cross-linguistic definition of emphasis and in order to look at one specific aspect of the phonetics of the language to explore sociolinguistic variation, an acoustic study of emphasis in Turoyo was conducted with 18 speakers. The results were that, in Mor Gabriel Turoyo, there are two clear acoustic correlates of emphasis. These two acoustic correlates were found by examining the results of the acoustic study for the grandparent generation. The first acoustic correlate is raised F1 for /u/ following emphatic /s/. The second acoustic correlate is a raised F2 for front vowels and a lowered F2 for back vowels, which results in the de-centralization of the vowels.

Cross-linguistically, most previous studies had found the acoustic correlates of emphasis to be raised F1, lowered F2, and raised F3. However, these studies have focused on languages that have emphasis realized as pharyngealization. Based on the results of the acoustic study in this dissertation, it is very likely that emphasis is not realized as pharyngealization in Mor Gabriel Turoyo. It is also very likely that, additionally, emphasis is being lost in the language over time. Evidence for this is the fact that, particularly the child generation, shows a loss of emphasis. Other evidence for the claim that emphasis is being lost in the language over time is that I found only two minimal pairs for emphasis in the language, and that speakers seem to be using alternate strategies to differentiate between these emphatic versus non-emphatic pairs.

Despite the fact that the language is being spoken less with each passing generation and the fact that the acoustic correlates of emphasis are diminishing with each passing generation, the young people in this community are continuing to speak the language for at least another generation past

the norm. The results of the sociolinguistic study showed that this is because of their close-knit families who teach the Turoyo language alongside Suryoyo culture, their strong social networks which are filled with other Turoyo speakers and others who are Suryoyo and share Suryoyo values, and the defining place religion holds in the community in separating the community from other groups, bringing the community together, and being the defining factor in the Suryoyo diaspora around the world. Despite all this, it still comes down to what each individual wants to identify with. Those in the community that most strongly identify as a Suryoyo person in the Mor Gabriel community are the ones continuing to speak the Turoyo language and pass it on. They are also the ones who have the strongest correlates of emphasis in the Turoyo that they speak. The case studies of the two families in Chapter 6 showed this clearly for specific speakers in the community.

7.2 Ideas for Future Work

Ideas for future work including the following. First, acoustic studies of emphasis in other languages are definitely needed in order to continue to refine the cross-linguistic definition of emphasis. Second, while this dissertation was an inter-generational study and was compared cross-linguistically with other studies, a cross-community study would also be very interesting. Specifically, an acoustic study of emphasis in Turoyo in another Turoyo-speaking community (such as in Sweden where Turoyo is taught in schools) would provide an interesting comparison to see how Turoyo is developing in different locations. Third, a further experiment to further explore the acoustic correlates of emphasis could be conducted in the Mor Gabriel community, including testing more speakers to see if the conclusions of this dissertation hold, testing more environments to see if emphasis spreads in the language, and also testing locus equations. Fourth, a perception experiment could also be conducted to test the results of the present study.

7.3 Practical Suggestions

Based on the studies in this dissertation, there are some practical suggestions for the Mor Gabriel community (and other similar communities around the world) to help in passing on their language to future generations.

First, although it is very helpful for the people in the community to come together in a Turoyo-speaking environment at church, it would be helpful if the children could also be in a Turoyo-speaking environment at school. The community has already tried to start a charter school, and though they have been unsuccessful as of yet, it would be great if they were able to turn this dream into a reality. An alternative would be to create awareness of the Turoyo language and the Suryoyo culture at the public school where many of the young people in the community attend and for the school to offer Turoyo as a foreign language choice. Either of these would strength the social networks in which Turoyo was spoken for the child generation.

Second, to make it clear to the community, specifically in the context of church and at the Aramaic school that Syriac and Turoyo are distinct from one another. It would be helpful for this to distinction to be clear to the community and for each language to be able to flourish in its own space. For example, at church, although Bible readings and prayers might continue to be in Syriac, announcements, sermons, etc. could be in Turoyo. At the Aramaic school, a small portion of the day could be spent on Syriac, but the rest could be spent on Turoyo.

Third, although the Aramaic school is such a blessing to the community and helps immensely in language preservation, the school would benefit from a redesign of curriculum and from teacher training. A curriculum that is both more engaging and more strategic would help the students to both enjoy their classes more and to learn more. Teacher training would help the teachers to feel more confident with the curriculum and with the best ways to enrich the learning environment.

Fourth, families would benefit from support as they teach their children the language. This could come in the form of offering education about the importance of speaking the language to their children as well as encouragement and ideas to do so at a few seminars offered at the church. Further ideas, encouragement, and reminders could be sent via email.

Fifth, materials could be created in Turoyo by people in the community that could be used by those in the community and especially in homes. Children's books in Turoyo, Turoyo language apps, videos (about the history of the community, how-to videos, children's videos, short and full-length feature films, etc.), games, etc. could be created by teens and others who were interested at a yearly/biannual/quarterly event in which materials and experts were available to help with projects. Those projects would ideally be shared at the end of the event with the entire community and be available for purchase by individuals (or be freely available via the internet, app store, etc.).

Sixth, focusing with teens in the community about identity could be instrumental in helping them to form an identity that includes speaking Turoyo. Another conference or weekly meetings over the course of a month or semester could help facilitate discussions. Making trips to Tur ʕAbdin could also help with establishing this identity.

APPENDIX A

ACOUSTIC EXPERIMENT WORD LIST

s ‘simkath’

	/i/	/a/	/u/
#_V	sisto ‘female horse’	sanduko ‘box’	susyo ‘male horse’
	simo ‘it is made’	samo ‘poison’	suloqo ‘ascension’ (to go up a level, graduate)
	sime ‘they made it’	sabro ‘hope’	sulale ‘ancestors, family of someone famous’

ṣ ‘sodhe’

	/i/	/a/	/u/
#_V	ṣiʕato ‘committee’	ṣawʕo ‘finger’	ṣuʕoro ‘don’t curse, he’s cursing’
	ṣin ‘China’	ṣayodo ‘hunter’	ṣurto ‘picture, photo, shape’
	ṣito ‘handswidth’	ṣafro ‘morning’	ṣurṣro ‘bug that comes out in August’ (likely cicada)

t ‘tau’

	/i/	/a/	/u/
#_V	tino ‘fig’	tamo ‘there’	tumo ‘garlic’
	tishʕo ‘nine’	tawdi ‘thank you’	turto ‘cow’
	timo ‘expensive’	tarʕo ‘door’	tuyobo ‘repent (pl)’

ṭ ‘teth’

	/i/	/a/	/u/
#_V	ṭino ‘mud’	ṭarfo ‘leaf’	ṭur ’abdin ‘region in SE Turkey’
	ṭimo ‘price’	ṭablitho ‘table’	ṭuro ‘mountain’
	ṭiloyto ‘butterfly’	ṭayo ‘Muslim’	ṭuroyo ‘from Tur Abdin’

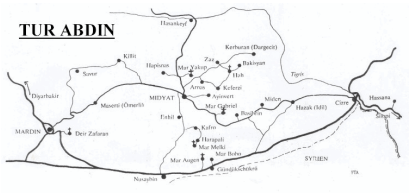
APPENDIX B

PICTURES AND PROPS FOR THE ACOUSTIC EXPERIMENT

B.1 Pictures

Fig

Garlic



Ṭur ʾabdin

Mountain

China

“Bug that comes out in August (likely a cicada)”

Mud

B.2 Props

Figure B.1: Props I used during the elicitation of words for the acoustic experiment: Top Row: hat, Middle Row (L to R): saw, leaf, comb, beans, lettuce, horse, box, Bottom Row (L to R): cat, cow, duck, goose, butterfly

APPENDIX C

SOCIOLINGUISTIC QUESTIONNAIRE

Biodata

1. Name:
2. Age:
3. Sex:
4. Native Language:
5. Other Languages Spoken:
6. Place of Birth:
7. Places of Residence, How Long At Each:
8. Education (where did you go to school?):
9. Parents from Where:
10. Native Language of Parents:
11. Spouse (if applicable) from Where:
12. Native Language of Spouse (if applicable):

Ethnic Identification

1. Do you think of yourself as Suryoyo, American, or Suryoyo-American?
2. Are most of your friends Suryoye?
3. Are people in your neighborhood Suryoye?
4. Are the people you work/go to school with Suryoye?

5. When you were growing up, were the kids in your school Suryoye? Were your friends? The kids in your neighborhood?

Language Use

1. In what language(s) do you usually speak
    (a) At home
        i. Parents
        ii. Grandparents i
        iii. Siblings
        iv. Children/grandchildren/nieces/nephews
    (b) To the children in the community
    (c) To friends/neighbors from the same community
    (d) To friends/neighbors from a different community
    (e) At the store
2. What language do you use for personal prayers?
3. What language do you speak with your friends?
4. Do you prefer to speak Turoyo or English?
5. Do you prefer to read and write in Turoyo or English?
6. Do you read Turoyo magazines, newspapers, blogs? If so, which ones?
7. Do you prefer to listen to the radio, music, or watch TV in Turoyo or English?
8. Do you think Turoyo should be written more?
9. Children in the community:

(a) What language do children (10 years old) in your community speak with each other?

(b) What language do children speak at school? What language is the medium of instruction?

(c) What language do you think Turoyo children should learn first?

(d) Should Turoyo-American kids learn Turoyo? Turoyo culture?

10. Would you rather live in a Suryoye neighborhood?

11. Should Suryoye only marry other Suryoye?

12. Will English ever replace Turoyo? Is that good or bad?

13. Do you think that when your childrens children grow up (30 years or so from now), that they will continue to speak Turoyo?

Other

1. Have you ever been to Tur Abdin? When? For how long?

2. Do your parents think of themselves as Suryoyo, American, or Suryoyo-American?

3. Husband/wife/boyfriend/girlfriend:

   (a) Is he/she Suryoyo?

   (b) Does s/he think of him/herself as Suryoyo, American, or Suryoyo-American?

   (c) Does s/he speak Turoyo? Do you speak Turoyo to her/him?

Discrimination

1. Have you ever had a problem getting a job because you are Suryoyo?
2. What about renting an apartment or buying a house?
3. Were you treated differently by your teachers in school?
4. Have you ever been treated badly because you are Suryoyo?
5. Is there a lot of discrimination against Suryoye people?

Language Preservation

1. Is there anything that you think could be done to help preserve Turoyo?

Further Contact

1. Would you be willing to be contacted further for questions about Turoyo?
2. Would you be willing to be contacted about participating in an experiment involving reading Turoyo words, and/or identifying parts of Turoyo culture?

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