

LINGUISTIC VARIATION IN A BORDER TOWN:
PALATALIZATION OF DENTAL STOPS AND VOWEL NASALIZATION IN RIVERA

By

ROSA MARIA CASTAÑEDA-MOLLA

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2011

© 2011 Rosa María Castañeda-Molla

Para mi querida familia en Lima Perú y en USA
–For all my dear friends

ACKNOWLEDGMENTS

I would like to thank Dr. H  l  ne Blondeau, Dr. David Pharies, Dr. Allan Burns, and Dr. Jason Rothman for serving on my supervisory committee. I am especially indebted to Dr. Blondeau for introducing me to the fascinating world of linguistic fieldwork and empirical sociolinguistics. I owe my gratitude also to Dr. Pharies for taking the time to serve as my co-chair and for his continuous feedback. I would also like to thank Dr. Charles Perrone and Dr. Elizabeth Ginway for sharing with me their passion for Portuguese language and culture.

I am also very grateful for the institutional support I have had through the processes of fieldwork, data collection and writing. The Center for Latin American Studies awarded me the Tinker Field Research Grant, which allowed me to conduct the preliminary field research for this study in Uruguay-Brazil. The department of Spanish and Portuguese at the University of Florida granted me the Ernest G. Atkins Memorial Scholarship for Doctoral Research and Writing, which helped me return to the Uruguayan-Brazilian border for the data collection phase of the study. I am most thankful for this indispensable financial support. I am indebted to my colleagues at Fort Hays State University for their continued support and feedback. I am also grateful to Dr. Evie Toft, Dr. Amy Cummins, Dr. Pam Schaeffer, Dr. David Bovee for editing and commenting on my work.

I would also like to profoundly thank the people of Rivera for welcoming me into their lives and for sharing with me their thoughts about life as a *Riverense*. I would also like to extend my gratitude to the teachers, students and staff at the Centro Regional de Profesores (CERP) in Rivera for the invaluable support while conducting fieldwork. I extend my gratitude to the faculty of the *Universidad de la Rep  blica* in Montevideo,

who guided me through my first trip to the border and provided me with invaluable information, especially Dr. Elizaincin, Dr. Barrios, Prof. Behares and Prof. Gabbiani. In Brazil I am indebted to all my friends in Rio de Janeiro and Belo Horizonte, especially Marcia Alvarenga for introducing me to the beautiful *Bossa Nova* music and teaching me my first words in Portuguese. Thanks also to the Alvarenga family for their hospitality while visiting Brazil.

Finally, thanks go out to my dear family in Lima, Perú for their kindness and unconditional love. Special thanks go to my mother, Antonieta, and my grandmother Martha, for teaching me how to be strong and determined. Thanks to my fellow graduate students in Gainesville, especially Annie, JuanPa and Alex for being such good friends and to my friends in Hays--Pelgy, Tip, Lindsay, Stella, and Roberta-- thanks to all of you for being there for me.

TABLE OF CONTENTS

	<u>page</u>
ACKNOWLEDGMENTS.....	4
LIST OF TABLES.....	10
LIST OF FIGURES.....	14
LIST OF ABBREVIATIONS.....	15
ABSTRACT.....	16
CHAPTER	
1 INTRODUCTION.....	18
1.1 The Socio-historical Context for Language Contact.....	19
1.2 Uruguay and the Brazilian Border.....	24
1.2.1 Economic and Social Aspects.....	25
1.2.2 Educational Policy in Uruguay.....	27
1.3 Statement of the Problem under Investigation and an Overview of Some Related Issues.....	32
1.3.1 Fronterizo.....	33
1.3.2 Research Questions.....	39
1.4 Organization of the Study.....	40
2 THEORETICAL FRAMEWORK.....	41
2.1 Variation Theory.....	41
2.1.1 Theoretical Principles of the Quantitative Framework.....	42
2.1.2 The Apparent-Time Construct.....	44
2.2 Speech Community.....	46
2.3 Social Networks.....	49
2.4 Previous Studies of Linguistic Varieties in the Uruguayan-Brazilian Border... 2.4.1 UP in Artigas City.....	52
2.4.2 Brazilian Portuguese.....	59
2.4.3 Uruguayan Spanish.....	61
2.4.4 Studies on the Spanish in Rivera.....	62
2.5 Linguistic Variables under Investigation.....	63
2.5.1 Palatalization.....	64
2.5.1.1 The process of palatalization.....	64
2.5.1.2 Palatalization in Portuguese.....	65
2.5.1.3 Palatalization in UP.....	69
2.5.2 Nasalization.....	71
2.5.2.1 Vowel nasalization in Romance languages.....	72
2.5.2.2 Portuguese nasal vowel system.....	72

2.5.2.3	Phonemic interpretations of Portuguese nasal vowels	76
2.5.2.4	Analysis of vowel nasalization in Portuguese	81
2.5.2.5	Variation in Brazilian Portuguese nasal vowels	89
2.5.2.6	Vowel nasalization in UP	91
3	METHODOLOGY	96
3.1	Quantitative Methods and Dialect Research	96
3.2	The speech community of Rivera.....	97
3.3	Fieldwork	103
3.3.1	Preliminary fieldwork	103
3.3.1.1	An ethnographic approach.....	105
3.3.1.2	Entering the community via social networks	107
3.3.2	Data Collection Fieldwork.....	109
3.3.3	Type of Data Collection	112
3.3.3.1	Individual interviews	114
3.3.3.2	Group interviews.....	115
3.3.3.3	Equipment	116
3.4	The Rivera Corpus.....	117
3.4.1	Speaker Selection Criteria	117
3.4.2	Speech Sample	117
3.5	Variables under Investigation.....	119
3.5.1	Linguistic Variables	119
3.5.1.1	The variable palatalization of /ti/, /di/	120
3.5.1.2	The variable vowel nasalization	121
3.5.2	Social Factors.....	122
3.6	Data Analysis.....	123
3.6.1	Extraction	124
3.6.2	Transcription	125
3.6.3	Coding.....	126
3.6.4	Quantitative Analysis.....	127
3.6.4.1	GoldVarbX.....	127
3.6.4.2	Binomial step-up/step-down analysis	129
4	QUANTITATIVE ANALYSES OF PALATALIZATION	131
4.1	Background.....	131
4.2	Research Questions	132
4.3	Circumscribing the Variable Context.....	133
4.4	Exclusions.....	135
4.5	Linguistic Constraints.....	135
4.5.1	Syllable Stress.....	136
4.5.2	Following Phonological Environment.....	137
4.5.3	Preceding Phonological Environment.....	139
4.6	Social Factors	140
4.6.1	Age.....	140
4.6.2	Socioeconomic Status.....	142

4.6.3 Gender	143
4.7 Results and Discussion.....	144
4.7.1 Overall Distribution of Variants	145
4.7.2. Factor-by-Factor Distributional Analysis.....	147
4.7.3 Multivariate Analysis of the Contribution of Linguistic Factors of Palatalization of /ti/, /di/.....	149
4.7.3.1 Following phonological context.....	152
4.7.3.2 Preceding phonological context.....	157
4.7.3.3 Tonicity of the syllable	159
4.7.4 Multivariate Analysis of the Contribution of Extralinguistic Factors of Palatalization of /ti/, /di/.....	163
4.7.4.1 Age	165
4.7.4.2 Socioeconomic group	170
4.7.4.3 Gender.....	172
4.7.4.4 Cross-tabulations of social factors.....	174
4.8 Discussion	180
5 QUANTITATIVE ANALYSES OF NASALIZATION	184
5.1 Background.....	184
5.2 Research Questions	185
5.3 Circumscribing the Variable Context.....	186
5.4 Exclusions.....	188
5.5 Linguistic Constraints.....	188
5.5.1 Syllable Stress.....	189
5.5.2 Following Phonological Environment.....	190
5.5.3 Preceding Phonological Environment.....	191
5.5.4 Syllable Structure	191
5.5.5 Functional Category of the Word.....	192
5.6 Social Factors	193
5.7 Results and Discussion.....	193
5.7.1 Overall Distribution of Variants	194
5.7.2 Factor-by-Factor Distributional Analysis.....	194
5.7.3 Multivariate Analysis of the Contribution of Linguistic Factors of Vowel Nasalization in UP.	199
5.7.3.1 Functional category of the word.....	203
5.7.3.2 Preceding phonological context.....	210
5.7.4 Multivariate Analysis of the Contribution of Extralinguistic Factors of Vowel Nasalization in UP.	215
5.8 Discussion	218
6 CONCLUSIONS	223
6.1 Research Questions	223
6.1.1 Palatalization	223
6.1.2 Vowel Nasalization	231

6.2 Methodological Conclusions 236
6.3 Limitations and Recommendations for Future Research 237
6.4 Final Conclusions..... 238

APPENDIX

A PARTICIPANT'S DEMOGRAPHIC INFORMATION 241
B MODULES FOR THE SOCIOLINGUISTIC INTERVIEWS IN RIVERA..... 243
C IRB APPROVAL OF PROTOCOL 245
D IRB RENEWAL OF PROTOCOL 246
LIST OF REFERENCES 247
BIOGRAPHICAL SKETCH 256

LIST OF TABLES

<u>Table</u>	<u>page</u>
1-1 Alternation between [a] and [ẽ] in Carioca and Belém dialect	37
1-2 Stressed and unstressed non-low vowels in Belém and Carioca dialects	37
2-1 Palatalization of /ti/ and /di/ in EP and BP	66
2-2 Nasal vowels	73
2-3 Nasalized vowels	74
2-4 Non-derived nasal diphthongs in BP	75
2-5 Nasal diphthongs derived by inflection in BP	75
2-6 Word-internally nasal diphthongs	76
2-7 Nasal vowels alternations in basic word and suffixation	77
2-8 Rule 1: Stressed vowels followed by a nasal consonant	83
2-9 Rule 2: Stressed vowel followed by a nasal consonant in a closed syllable	83
2-10 Sub-rule 2.1: Deletion of nasal consonants in final position	83
2-11 Rule 3: Vowel nasalization before the palatal nasal [ɲ]	84
2-12 Surface oral vs. nasalized vowels in BP	84
2-13 Nasalization of low vowels and raise to mid position	85
2-14 Stressed nasal vowels	85
2-15 Pre-stressed nasal vowels	85
2-16 Rhotics after nasal and non-nasal vowels	86
2-17 Base word derivations with prefix /in-/, /im-/ before a consonant	86
2-18 Base word derivations with prefix /in-/ before a vowel	87
2-19 Alternation between nasal vowel/vowel plus nasal consonant in EP	87
2-20 EP nasal diphthongs	87
3-1 Speech sample	118

3-2	Palatalization linguistic factor groups and factors	120
3-3	Nasalization linguistic factor groups and factors	121
3-4	Social factor groups and factors	123
4-1	Stressed /i/.....	133
4-2	Unstressed /i/.....	134
4-3	Unstressed /e/ raised to [i].....	134
4-4	Palatalization of /t/, /d/ preceding the oral vowel /i/.....	134
4-5	Palatalization of /t/, /d/ preceding the nasal vowel [ɪ]	134
4-6	Palatalization of /t/, /d/ preceding the palatal glide [j].....	134
4-7	Palatalization of dental stops according to syllable stress among monolingual and bilingual speakers.....	137
4-8	Examples of palatalization of /ti/, /di/ according to syllable stress.....	137
4-9	Examples of palatalization of /ti/, /di/ according to following phonological context.....	138
4-10	Examples of palatalization of /ti/, /di/ according to preceding phonological context.....	139
4-11	Age distribution in each of three age groups for each speech sample	142
4-12	Overall distribution of the realization of tokens of /ti/, /di/ in UP (2007 data).....	145
4-13	Overall distribution of the realization of tokens of /ti/, /di/ in UP (1995 data).....	145
4-14	Distribution of palatalization of /ti/, /di/ by syllable tonicity in UP (2007 data) ...	147
4-15	Distribution of palatalization of /ti/, /di/ by a following phonological segment in UP (2007 data)	148
4-16	Distribution of palatalization of /ti/, /di/ by preceding phonological segment in UP (2007 data)	148
4-17	Variable rule analyses of the contribution of linguistic factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (2007 data)	150
4-18	Variable rule analyses of the contribution of linguistic factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (1995 data)	151

4-19	Comparison of palatalization of dental stops according to syllable stress among bilingual group (Bisol 1991) and Rivera speakers (2007 data)	160
4-20	Variable rule analyses of the contribution of social factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (2007 data)	164
4-21	Variable rule analyses of the contribution of social factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (1995 data)	165
5-1	Example of contrastive nasal vowels.....	186
5-2	Example of vowel + nasal in the same syllable	187
5-3	Example of vowel + nasal in the following syllable	187
5-4	Examples of vowel nasalization in UP according to syllable stress	189
5-5	Examples of vowel nasalization in UP according to following segment	190
5-6	Examples of vowel nasalization in UP according to preceding context	191
5-7	Examples of vowel nasalization in UP according to syllable structure.....	192
5-8	Examples of vowel nasalization in UP according to functional category of the word.....	193
5-9	Overall distribution of the realization of tokens of vowel nasalization in UP	194
5-10	Distribution of nasalization by tonicity of the syllable in UP	194
5-11	Distribution of nasalization by following phonological segment in UP.....	195
5-12	Distribution of nasalization by preceding segment in UP	196
5-13	Distribution of nasalization by syllable structure in UP	197
5-14	Distribution of nasalization by functional category in UP	198
5-15	Variable rule analyses of the combination of linguistic factors selected as significant to the probability of nasalization in UP	200
5-16	Overall distribution of the realization of tokens of vowel nasalization in UP	202
5-17	Variable rule reanalysis of the combination of linguistic factors selected as significant to the probability of nasalization in UP	202
5-18	Cyclic application of the stress rule in Portuguese	207

5-19	Variable rule analysis of the combination of extralinguistic factors selected as significant to the probability of nasalization in UP.....	215
A-1	Participant's demographic information.....	241

LIST OF FIGURES

<u>Figure</u>		<u>page</u>
4-1	Overall distribution of the realizations of tokens of palatalization of /ti/, /di/ in UP.	146
4-2	Probability of palatalization of /ti/, /di/ according to following phonological environment in UP.	153
4-3	Probability of palatalization of /ti/, /di/ according to syllable stress in UP.	159
4-4	Comparison of rates of palatalization of dental stops followed by /i/ according to age in UP.	167
4-5	Comparison of rates of palatalization of dental stops followed by /i/ according to socio-economic status in UP.	172
4-6	Comparison of rates of palatalization of dental stops followed by /i/ according to gender in UP.	173
4-7	Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to age and gender (2007 data).	175
4-8	Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to gender and socioeconomic class (2007 data).	178
4-9	Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to socioeconomic class and age (2007 data).	179

LIST OF ABBREVIATIONS

BP	Brazilian Portuguese
CERP	Centro Regional de Profesores
PBP	Popular Brazilian Portuguese
PP	Prescriptive Portuguese
SBP	Standard Brazilian Portuguese
UP	Uruguayan Portuguese
VBP	Vernacular Brazilian Portuguese

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

LINGUISTIC VARIATION IN A BORDER TOWN:
PALATALIZATION OF DENTAL STOPS AND VOWEL NASALIZATION IN RIVERA

By

Rosa María Castañeda-Molla

August 2011

Chair: Hélène Blondeau
Cochair: David Pharies
Major: Romance Languages

This study focuses on the analysis of variation at the phonological level, specifically the variable realization of palatalization of dental stops before the high vowel /i/ and vowel nasalization in the speech of bilingual speakers of Uruguayan Portuguese (UP) in the city of Rivera, Uruguay. The data were collected in participant-observation and sociolinguistic interviews with fifty-four local UP speakers conducted by the researcher in the summers of 2006 and 2007. The study examines linguistic and extralinguistic factors influencing phonological variation.

Variable rule analyses using GoldVarb X (Sankoff, Tagliamonte & Smith 2005) revealed that palatalization of dental stops is conditioned by linguistic and social factors. I implemented a trend methodology to compare apparent-time data from two studies at different points in time, 1995 and 2007. However, the hypothesized increase in the use of this variant over time among younger speakers is not supported in this study. Cross-sectional evidence indicates that palatalization of dental stops has stabilized at the speech community level. Results also indicate that palatalization of dental stops is a

sociolinguistic marker, that is, sensitive to both linguistic and social context factors carrying both social interpretation and evaluation (Labov 1972).

Vowel nasalization is a linguistic variable constrained mainly by morphophonological and sociophonetic factors. Phonological processes interact with affixation in inflectional and derivational morphology in the process of vowel nasalization. Results show that functional category of the word and preceding phonological environment play a significant role in the distribution of nasal variation in contemporary UP in Rivera.

CHAPTER 1 INTRODUCTION

The present study investigates a variety of Portuguese spoken in Rivera, Uruguay, namely Uruguayan Portuguese (UP). UP is a stigmatized minority variety spoken in several bilingual communities along the Uruguayan-Brazilian frontier since colonial times (Elizaincin 1997). The research site is the city of Rivera, the largest bilingual community along this borderland. While research on UP was initiated in the 1960s by Rona, the first sociolinguistic study on the Uruguayan-Brazilian border was carried out by Hensey in 1972.

The current research focuses on the analysis of variation at the phonological level, the variable realization of palatalization of dental stops before the high vowel /i/ and vowel nasalization in the speech of bilingual speakers of UP. For the analysis of palatalization of /ti/, /di/ I implemented a trend methodology to compare apparent-time data from two studies at different points in time, 1995 and 2007. Based on data collected in participant-observation and sociolinguistic interviews with fifty four local UP speakers, the study examines linguistic and extralinguistic factors influencing phonological variation.

Though mainly monolingual and Spanish-speaking, Uruguay contains enclaves of native Portuguese speakers. The northeast part of the country was settled by Portuguese peasants who remained in Uruguayan territory after the borders were defined (Barrios et al. 1993). Historically, Uruguay's territory was disputed between the kingdoms of Spain and Portugal, as far back as to the arrival of the first Portuguese and Spanish explorers in the New World. Nowadays, the border between these two countries represents a language contact situation with intricate historical, cultural, and

linguistic ties. Thus, a good understanding of the history, geography, and social aspects of the border is necessary in order to comprehend fully the complex social factors that have given rise to the formation of UP.

1.1 The Socio-historical Context for Language Contact

Spanish and Portuguese languages have had a strong presence in the Uruguayan-Brazilian border since the early 1500s when the first Portuguese and Spanish explorers arrived in the New World. Attempts at colonization of the region and the political treaties that ensued determined in many ways the linguistic inheritance of this disputed region. In addition, economic issues and geography played a crucial role in the struggle for the territory, the delimitation of territories, and nations (Lipski 1994).

The Treaty of Tordesillas (1494) was the major decisive factor in the initial expansion of the Spanish and Portuguese languages in the region. Under the Treaty of Tordesillas, Spain and Portugal set up an imaginary north-south line dividing the western hemisphere between them into separate zones of exploration, influence, and commerce. The placement of the line of demarcation 370 leagues west of the Cape Verde Islands,¹ allowed the Spanish crown to acquire the title of the western part of the continent. Portugal acquired all territories to the east of the line. This demarcation was progressively pushed much further to the west in the course of subsequent events, allowing the Portuguese to colonize the region in the first decade of the XVI century.² Moreover, in order to deter the French from competition for dyewood and to stop their

¹ The islands are located off the west coast of Africa.

² In 1494, the year in which Spain and Portugal concluded the Treaty of Tordesillas, the geography of the western Atlantic shores was unknown. Thus, at that time there was no suspicion that the demarcation line would give Portugal territory in America (Bakewell 2004).

threat to the safety of the Portuguese fleets, Portugal secured the Brazilian coast by establishing permanent settlements (Bakewell 2004:322).

Exploration of the vast new coast continued throughout the XVI century. During the XVII century the *bandeirantes*³ began their journeys to the interior of today's Brazil. For Bakewell the frontier-expanding *bandeirantes* might be called the makers of Brazil, because it was their roaming to these lands that established Portugal's claim to vast territories west of the Tordesillas line. Along with the explorations inland, cattle were moved into the *sertão* or backlands, long before the flood of gold seekers took place in the early XVIII century. As Bakewell attests, "cattle were an important instrument of the European occupation of the land in Brazil, as they were also in the pampas further to the south" (2004:348). As colonial population grew, cattle raising spread inland from the coast to several areas of the country, including the lowest reaches of Brazil, the Rio Grande do Sul of today.

The first Spanish *conquistadores* arrived in Uruguay for the first time in 1516 with the Juan Diaz de Solis expedition. The Spanish explorers did not receive a friendly welcome from the *Charrúas* Indians.⁴ The *Charrúas* offered strong resistance to the Spanish explorers, killing Diaz de Solis and rejecting any other attempt of conquest. The Solis expedition found neither the gold nor the interoceanic route that they were searching for. Neither did they find the legendary city 'El Dorado' nor the 'Sierra de la Plata'. Consequently, this region remained forgotten and indifferent to the Spanish crown for almost two centuries. The *Banda Oriental*, original denomination of the

³ The *bandeirantes* were members of the XVI to XVIII century South American slave-hunters and gold-seekers explorations (Bakewell 2004).

⁴ Refer to Uruguayan indigenous group who resisted Spanish conquest for several centuries and remained as a community well into the nineteenth century (Lipski 1994:339).

present-time *República Oriental del Uruguay*, was known with the stigma of '*tierras de ningún provecho*' 'useless lands' (Elizaincin 1997:10).

Nevertheless, at the beginning of the XVII century, livestock in this region had become increasingly important due to the fertile pastures. This situation attracted Argentinean *Gauchos*⁵ to the *Banda Oriental* who established the marketing of hides and opened business in this area (Lipski 1994:338). Suddenly, the *Banda Oriental* became extremely important for the Spaniards, who this time were in search of '*minas de carne y cuero*' 'meat and hide mines' (Elizaincin 1997). Meat and hide businesses were also very attractive resources for the Portuguese. This common commercial interest, added to the already long dispute over the delimitation of this area of America, created a point of conflict between the two countries.

According to Elizaincin (1997), during colonial times, these borderline areas constituted an open and deserted zone where Spanish, Portuguese, and *criollos*⁶ performed unlawful activities commercializing cattle goods. There did not exist a well defined borderline in the area. The passage from present-day *Rio Grande do Sul* in Brazil to the *Banda Oriental* only had control to limit livestock smuggling.

Portugal, recognizing the economic advantages of controlling the waterways of the Uruguay River and the estuary of the Rio de la Plata, attempted to push its limits south and west. The Portuguese established their first permanent settlement on the Uruguayan coast, founding the *Nova Colônia do Sacramento* on the Río de La Plata estuary in 1680. However, for nearly a hundred years thereafter, this territory was

⁵ Gaucho initially refers to a vagabond and cattle thief but later came to mean the farm hand and warrior normally associated with the figure of the horseman. Nowadays the term is used as a patronymic for the Rio Grande do Sul citizens.

⁶ A 'creole' was a person of European ancestry born in the New World.

disputed. To repel Portuguese advances and to defend the territory, the Spanish founded the city of *San Felipe y Santiago de Montevideo* in 1724 (Elizaincin 1992, 1997). Moreover, in 1800 with the sole aim of stopping Portuguese immigration to the area, viceroy Lastarría allowed Castilian and Austrian immigrants to settle in the borderline along Brazil.

The primary objective of the establishment of cities was military defense. Montevideo was considered strategic in the Spanish defense of the La Plata region. At this time, the Spanish crown decided to support the colonization efforts in this region with overseas elements: twenty-five Canary Island families and a second contingent that arrived in the New World in 1729. More Spaniards arrived later from other regions of the Peninsula. Nevertheless, the Banda Oriental remained almost deserted through the XVIII century (Elizaincin 1997).

At the end of the XVIII century, Spain, then a French ally, went to war with England, and the British invaded Buenos Aires. One of the ways to undermine Spanish power was to attack Spanish territories. Consequently, the British attempted to seize control of the Spanish colonies located around the Plata Basin and the city of Buenos Aires was occupied in 1806. Montevideo, where the British maintained military reinforcements, was occupied for several months in 1807. Then, Buenos Aires established a government independent from the Spanish crown, anticipating the eventual declaration of independence in 1816. This independence war was a joint effort of Argentines and inhabitants from the *Banda Oriental* fighting the Spanish rule. The Uruguayan national hero José Artigas fought to achieve Uruguayan self-rule and to avoid annexation to Argentina (Bakewell 2004).

Later on, the territory of present-day Uruguay was contested during the independence period between Buenos Aires and Brazil. For a time Uruguay was annexed to Brazil as the 'Cisplatine' province. This event is of importance in the further solidification of Portuguese in the northern part of Uruguay (Lipski 1994:338). During a period of uncertainty in the 1820s, the region was administered at different times by both countries. An agreement made between Brazil and the Argentine Federation, at British urging, created the sovereign nation of Uruguay in 1828 (Bakewell 2004:392). It was not until the end of the XIX century that Uruguay finally achieved some kind of political and social stability after repelling several Argentine invasions ordered by the dictator Juan Manuel de Rosas (Lipski 1994).

For Barrios (1995), the independence of Uruguay was not the result of political action by a nation that was homogenous and defined linguistically and culturally. On the contrary, Uruguay was constituted as the union of two regions with different cultural and linguistic traditions; consequently, the newly independent nation struggled for cultural autonomy. On the other hand, the government started a campaign to promote the nationalization of northern Uruguay. One of the ways of achieving this goal was the foundation of twin cities adjacent to existing Brazilian towns. The objective was to limit Brazilian influence and to halt the use of the Portuguese language. On May 7th of 1862, Villa Ceballos, later renamed Rivera, was founded by government decree, alongside the Brazilian town of Santana do Livramento (Elizaincin 1976). Along with the creation of border towns, strong language policies were implemented. Uruguayan language planning was then based on the model of a monolingual nation establishing in 1877 the *Ley de Educación Común* that made general education obligatory and Spanish the

language of instruction for the whole country. Despite the existence of a rich linguistic tradition in the frontier, the educational-linguistic planning of the border communities followed the national monolingual model.

1.2 Uruguay and the Brazilian Border

Known officially as the '*República Oriental del Uruguay*', the country has long been called the *Banda Oriental* of the River Plate. Sometimes Uruguayans refer to themselves as *Orientales*. Uruguay is bounded on the west by Argentina, on the north and northeast by Brazil, and on the southeast by the Atlantic Ocean. On the south it borders the Rio de la Plata, a broad estuary located between Argentina and Uruguay. The Rio de la Plata estuary provides access to the Rio de la Plata and the Rio Uruguay, the main navigable rivers in the area. Montevideo, the capital and major port, sits on the banks of the Rio de la Plata.

Uruguay is the smallest Spanish-speaking country in South America. Its population is 3.3 million people (2006) of whom 1.3 million live in the capital Montevideo.⁷ As discussed above, Uruguay's geographical space was a source of conflict between the kingdoms of Spain and Portugal, and between two linguistic poles, one located in Buenos Aires, capital of the Spanish vice-royalty, and the other in Rio Grande do Sul (Elizaincin 1996). The political boundaries between Uruguay and Brazil extend all the way from the town of Bella Union to the confluence of the Chuy River with the Atlantic Ocean. This borderline is about one thousand kilometers long and is not always defined by natural or manmade landmarks. Throughout this long stretch,

⁷ Source: *Instituto Nacional de Estadística*, Uruguay 2006.

estancias, fazendas ‘cattle ranches’ alternate with urban settlements even today (Elizaincin 1976:124).

Uruguay is divided into *departamentos* ‘states,’ and each *departemento* is divided into *provincias* ‘provinces.’ The border *departamentos* are Artigas, Rivera, Cerro Largo, and Rocha. The border population is concentrated in a set of twin cities, on each side of the Uruguayan-Brazilian border. The departamento of Rivera, roughly equivalent to a state or province, is located in northeastern Uruguay. The city of Rivera is the capital of the *departemento* of Rivera and is located 500 kilometers north of the national capital of Montevideo. Rivera’s Brazilian twin city, Santana do Livramento, is a city in the southernmost state in Brazil, while Rio Grande do Sul is located directly across from Rivera. Santana do Livramento is located 500 kilometers southwest from its state capital Porto Alegre.

The presence of *Fronterizo* (§1.3.1) has been documented in these areas but also in cities away from the borderlands, such as Tacuarembó, Salto and Treinta y Tres (Elizaincin et al. 1976). Nevertheless, the northern communities of Artigas and Rivera are where the influence of Portuguese language and culture is considered more profound. According to Hensey (1972), the gradual transition from Standard (Rio Grande) Portuguese to standard (Uruguayan) Spanish takes place wholly within Uruguayan territory. He notes that “the general picture for Uruguay is one of a series of parallel zones of Portuguese penetration, strongest at the border and decreasing southward, with a phasing-in of relatively pure Uruguayan Spanish” (Hensey 1972:13).

1.2.1 Economic and Social Aspects

The Uruguayan economy relies heavily on trade, particularly of agricultural exports. The country’s principal natural asset is agricultural land. Agriculture and agro-

industry account for 23% of the gross domestic product (GDP), and for over two-thirds of total exports. The main industries include meat processing, agribusiness, wood, wool, leather production, apparel, textiles, and chemicals.

Uruguay is a founding member of Mercado Común del Sur, (Southern Common Market) *Mercosur*,⁸ which is headquartered in Montevideo. *Mercosur* was established as an initiative of Argentina and Brazil, longstanding rivals in South America, against protectionism and import substitution. *Mercosur* is also an attempt to foster cultural integration and geo-linguistic dynamics in the whole region. Its purpose is not only to promote free trade and the fluid movement of goods, people, and currency but also to support educational integration, taking into consideration cultural and linguistic factors (Hamel 2003:115).

Rivera and Santana share the same main economic activities such as ranching and grain production. However, more recently, Rivera's economy has come to rely on duty-free shops, where imported products are found at lower prices. Duty-free shopping was established in 1986 in Rivera with the idea of attracting Brazilian tourists to the area. On the other hand, Santana has a bigger and stronger economic base than Rivera; Rio Grande do Sul is one of the most prosperous Brazilian states. Its main economic activities are grain production, ranching, and viticulture. The industrial sector is the biggest component of GDP at 42.6% followed by the service sector at 41.1%.

Agriculture represents 16.3% of GDP (IPEA 2005).⁹

⁸ The Southern Common Market founded in 1991 comprises Argentina, Brazil, Uruguay, and Paraguay as member states. Chile and Bolivia have the status of associated members. As the largest member, Brazil carries much of the weight in the *Mercosur* economy. Brazil represents 71% of the GDP, 71% of the territory and 78.7% of the population.

⁹ Instituto de Pesquisa Economica Aplicada.

Due to its proximity to the gigantic economic power of Brazil and its easy access, community residents cross the border to purchase groceries and household items at substantially reduced prices. Small merchants take advantage of this situation as well, acquiring considerable amounts of everyday products to stock their stores or to sell them at public markets. The flow of goods and the fluctuation of currency values have been a pattern of life in the border. Both Riverans and Santana residents take advantage of changes in economic conditions and the disparate value of the currencies of both countries.

Another interesting economic activity is the presence of *camelós*, or street vendors. Street vendors line up right along the *Parque Internacional* (International Park) between Rivera and Santana, offering all sorts of local and foreign goods, including movies, music, clothes, electronics, toys, etc. This situation puts street merchants at the center of commercial exchanges and negotiations providing a potential *locus* for language contact.

1.2.2 Educational Policy in Uruguay

Portuguese language in northern Uruguay has had a long and conflictive history that can be traced back to the time of the dominion of the Kingdoms of Spain and Portugal in the New World. While Buenos Aires and Montevideo share linguistic, historical and cultural factors, northern Uruguay maintains linguistic, historical, and cultural ties with its northern neighbor. Primary education in Uruguay, financed by the government has been free, secular and compulsory. Uruguay's literacy rate is one of the highest in Latin America, and enrollment in free secondary education is also high. Nevertheless, with the downturn in the economy, this situation has changed.

Nowadays, private education for those who can afford it is favored over poorly funded public education institutions.

Historically, Uruguayan language policy has consistently opposed the presence of Portuguese language in the territory. The Uruguayan government deemed the presence of Luso-speakers in the country as a threat to national sovereignty and a sign of the cultural expansionism of their historical rival. It is in this context that in 1877 the Law of Common Education established obligatory elementary school education in Spanish for the whole country (Behares and Gabiani 1987). As Hamel argues, the attempt was to assimilate the Portuguese-speaking population using public education as the main vehicle (2003:121). Through the establishment of language policies, the government intended to promote the national language and create a 'homogeneous' Uruguayan identity (Church 2007:11).

As a consequence of this initiative, Uruguayan-Portuguese speaking children did poorly in Spanish-only schools. Thus, in 1967 a study was commissioned by the Uruguayan National Council of Primary and Secondary Education to investigate the problem. The Council assumed that there were high levels of dyslexia in the school populations along the bilingual border. After unsuccessful attempts to solve the assumed problem, the Council hired a specialist from the Inter-American Children Institute. The specialist's subsequent report found that the poor school achievement was due to the existence of a high proportion of children who did not speak Spanish as their mother tongue (García-Etchegoyen 1975). Nevertheless, the Council and several other governmental agencies concerned about the educational problem concentrated their efforts around nationalistic objectives, and focused on the notion of "one nation,

one state, one language.” The situation was only exacerbated during the Uruguayan military dictatorship years¹⁰ (1973 to 1984), when UP was deemed to be anti-national (Behares 2004).

Throughout the subsequent years, the government attempted not only to promote Spanish language monolingualism but to advance its nationalistic agenda by opposing the presence of Portuguese language along the border. Thus, the promotion of Spanish language monolingualism was perceived as a tool in the construction of national identity. Along with the nationalistic discourse about the linguistic situation on the frontier, the military regime¹⁰ sponsored a number of publications, issued by educational entities, fostering the Spanish language as the language of national identity and sovereignty. Furthermore, these initiatives were supplemented by the creation of more schools and an increased number of Spanish language classes, the creation of teachers’ training centers, televised Spanish courses, and newspaper articles promoting Spanish as the state language. This nationalistic propaganda was concentrated along Uruguayan-Brazilian border cities in an attempt to educate its inhabitants and eradicate their linguistic and cultural heritage (*Academia Nacional de las Letras* 1982).

Nevertheless, with the establishment of *Mercosur*, whose objectives go far beyond trade, different dynamics between Spanish and Portuguese were established¹¹. One of *Mercosur’s* main objectives is to attain regional integration and strengthen the international position of its member countries. It is in this context that the Commission

¹⁰ During the military dictatorship the promulgation of the exclusive use of Spanish was extended to every aspect of public life (Elizaincin 1979).

¹¹ At the beginning of the nineteenth century Spanish was present in many Brazilian areas such as in the educational system and abundant Hispanic literature. In a sense, a Hispano American community was postulated rather than Ibero American unity. As Hamel discusses, Hispanic countries maintained a historical barrier in the face of Portuguese (2003: 118).

of Ministers of Education approved the Triennial Plan for the Educational Sector of *Mercosur* in 1992. This plan considers educational and cultural integration to be prerequisite for all economic and political integration (Hamel 2003:129). In addition, it provides for the teaching of the two official languages of *Mercosur*. Spanish in Brazil and Portuguese in Argentina, Paraguay and Uruguay.¹²

After a long linguistic policy struggle in the country, a bilingual pilot program was implemented in the city of Rivera in 2003. Portuguese language instruction is now being offered as a 'dual immersion program' in public schools. This implementation could not have been possible outside the *Mercosur* context. Under *Mercosur's* linguistic policies, member states of the economic bloc have agreed to adopt Spanish and Portuguese as languages of 'wider communication', 'integration' and 'participation' rather than languages 'foreign' to each other (Barrios 1999). In this respect Hamel argues that:

Argentina, Paraguay and Uruguay - who have experienced the presence of Portuguese inside their borders as a threat (especially Uruguay, because of the historical presence of Portuguese dialects within its territory) - now find themselves in need of promoting the Portuguese language, which they so battled with before, as a language of integration within their own territory (2003:128).

It may be worth pointing out the new attitude toward the teaching of foreign languages instituted since the incursion of *Mercosur*. Before the implementation of the economic bloc, the teaching of Portuguese language was seen as a threat, and as such was excluded from public education. The rationale behind it was that Portuguese was a menace to Uruguayan sovereignty and linguistic homogeneity (Barrios 1999).

¹² The plan establishes also the development of a favorable awareness among the citizenry concerning integration, and trains human resources so as to contribute to development, and it also makes educational systems compatible and harmonious (Hamel 2003:129).

The transition from language homogenization to bilingual education is being implemented, at least at the local level, through a 'dual immersion program'.¹³ The program started in 2003 with two schools in Artigas and Rivera. The Uruguayan bilingual education program consists of two modalities: partial immersion in English and dual immersion in Spanish and Portuguese. In the frontier area, the implementation has been basically through the dual program in Spanish and Portuguese. Under this modality, students with Spanish and UP backgrounds comprise a group and receive instruction in both languages. Each group of students has two teachers, one Spanish-speaking and one UP-speaking. Both teachers are in charge of the school curriculum in their language specialty.

In this section I have described geographic, economic, social, and educational aspects pertaining to the Uruguayan-Brazilian border. I have briefly discussed relevant economic features of its neighboring country, Brazil, whose superior economic power brings better employment and educational opportunities for Rivera's citizens. As discussed above, the twin cities of Rivera and Santana share a longstanding historical and cultural tradition. Current dynamics of integration and globalization, at least at the local level, seem to reinforce traditional interactions and systems of communication (Hamel 2003). The establishment of *Mercosur*, whose objectives go far beyond trade, has created new language dynamics on the border. One example of the new language dynamics on the Uruguayan-Brazilian border is the implementation of a bilingual pilot program in the city of Rivera in 2003. The sociolinguistic implications of the teaching of

¹³ A dual immersion program is a type of bilingual education. Its main characteristic is that it imparts education to students with different mother tongues in the same classroom (ANEP personal communication).

the two official languages of *Mercosur*, Spanish and Portuguese, and its repercussions in the speech of Riverans will be discussed later. In what follows, I discussed the linguistic variables under examination and provide an overview of some of the related issues.

1.3 Statement of the Problem under Investigation and an Overview of Some Related Issues

For this investigation, my objective is to conduct a classic sociolinguistic study of phonological variation in the variety of Uruguayan Portuguese spoken in the city of Rivera, Uruguay. The proposed investigation is based on sociolinguistic interviews conducted in Rivera. The participants are UP bilingual speakers born and raised in this city. The corpus is composed of male and female speakers of different socioeconomic status and from three generations. The analysis in this study relies solely on the output of the sociolinguistic interviews with UP speakers. A specific goal in this type of studies is to gain access to the ‘vernacular’ since it is “thought to be the most systematic form of speech” (Tagliamonte 2006:8). With this goal in mind, I conducted two fieldwork trips to the city of Rivera during the summers of 2006 and 2007. During the first phase of fieldwork, I performed intensive participant-observation activities and assessed the feasibility of sociolinguistic research. The data collection, consisting of 106 sociolinguistic interviews, was conducted during the second fieldwork trip during the summer of 2007.

The phonological variables selected for analysis are: The realization of /t/ and /d/ before /i/, as a dental stop or as an affricate and the absence or presence of vowel nasalization in Uruguayan Portuguese. The two variables under investigation are coded for both internal (linguistic) and external (social) factors. Along with an analysis of the

sociolinguistic distribution of palatalization of /ti/ /di/ and vowel nasalization in UP, I will compare my palatalization results with those of Carvalho's 1998 study. The linguistic variables chosen for investigation were selected on the basis of two factors: First, it was clear from the preliminary fieldwork conducted in the area that there is significant variation in these forms in local speech. Second, the variables are high in frequency and therefore likely to produce a sufficient number of tokens with which to perform multivariate analysis.

The following section provides background information meant to explain the richness of the language contact situation in the Uruguayan-Brazilian frontier. It chronicles the trajectory of research conducted in the area, dating back to the earliest studies initiated in the decade of the 1960s by Rona and modern quantitative variation analysis (e.g., Carvalho 1998, 2003). An understanding of how contemporary UP variety evolved, under complex historical, geographical, and social circumstances is necessary to achieve this goal.

1.3.1 Fronterizo

As a consequence of the extensive coexistence of Spanish and Portuguese-speaking populations along the border of Uruguay and Brazil, a situation of cultural and language contact exists. This long-standing cultural and language contact has had linguistic impact not only in the northern states of Uruguay but also in the southern cities of Rio Grande do Sul, Brazil. Although this area has also welcomed European immigrants (large communities of Germans, Italians, Poles and Ukrainians have settled here), the border area's basic ethnic groups are known locally as (*luso*) *brasileiros* and *uruguayos* (or *castellanos*) (Hensey 1972:1). The speech of southern Brazil is known

as *Portuguese Gaucho*, and the variety spoken along northern Uruguay is known as *Fronterizo*.

The term *Fronterizo* has been used to refer to the dialects of Uruguay's northern states '*departamentos*' as Rivera, Cerro Largo, Rocha and Artigas, along the border with Brazil. Popular denominations include the names of '*carimbão*', '*brasileiro*' and '*basãno*' (Elizaincin et al. 1987:12). Further, Uruguayan scholars have classified *Fronterizo* as a dialect of Portuguese and proposed the term *dialectos portugueses del Uruguay* 'Portuguese Dialects of Uruguay' (DPU)¹⁴. Uruguayan Portuguese has been characterized as a dialect in free variation (Elizaincin 1992) and as presenting monostylistic variation (Behares 1984:232), while Carvalho's quantitative results show that UP stylistic and sociolinguistic variation exist and follow systematic patterns of diffusion (1998:142).

The long tradition of Portuguese language and culture in Uruguay has been attested in several descriptive studies (Rona 1965, Hensey 1972, 1980, 1982, Elizaincin 1979, 1981, 1992, 1995, 1996, 1997, 2004, and Carvalho 1998, 2004). However before Carvalho (1998), social and stylistic variation in Uruguayan Portuguese, as well as the social significance of language choice between Portuguese and Spanish, had not been extensively investigated (Carvalho 1998).

Carvalho's 1998 study represents the first large-scale sociolinguistic analysis of linguistic and social factors that condition variability in the use of UP phonological forms. Her study draws from a database of 54 bilingual speakers from Rivera, Uruguay. The study analyses the sociolinguistic distribution of two phonological variables: the

¹⁴ Elizaincin et al. (1987) refer to 'dialects' to emphasize the high degree of variability of the dialect along the Uruguayan-Brazilian border.

linguistic realization of the palatal liquid /ʎ/ and the linguistic realization of /t/ and /d/ in – /i/. Carvalho's VARBRUL results show that for the linguistic variable (lh), style and socioeconomic group were the two most important factors, and age was the least important, making this variable a sociolinguistic marker in the speech community of Rivera (Carvalho 1998:178). Results for palatalization of /ti/ /di/ demonstrate that age is the most important factor followed by socioeconomic class. VARBRUL results show a sharp difference between the youngest group (16 to 29 years old), with a probability weight as high as .91, and the oldest group (59 to 70 years old), with a low probability value of .05 (Carvalho 1998:179).

Previous descriptions of UP dialect contain little or no mention of palatalization (Rona 1965, Hensey 1972, Lipski 1994). Carvalho (1998) argues that the application of the palatalization rule in UP illustrates her theory of dialectal diffusion in Rivera. She further posits that dialect diffusion and the resulting linguistic change in progress in UP are made possible through greater contact with the target dialect, Urban Brazilian Portuguese (UBP). Greater contact has been caused by social changes during the last 30 years in Rivera. Further, Carvalho argues that the impact of television and urbanization opened the relatively isolated border rural community to a new social and linguistic model with which they had little in common (Carvalho 1998:189).

The selection criteria of palatalization of /ti/, /di/ for reexamination are based on previous research. Strong quantitative apparent-time evidence exists showing that palatalization of /ti/, /di/ is undergoing change (Carvalho 1998, 2004), while real-time data suggest little or no dental palatalization (Rona 1965, Hensey 1972, Lipski 1994). Linguistic variables undergoing change are "excellent targets for analysis since they

give insights into the process of change itself” (Tagliamonte 2006:85). Further, this is a phonological variable that is frequent, highly stratified, and easy to spot and palatalization of /ti/, /di/ is variable across varieties of Portuguese. As Hensey (1972) and Bisol (1991) furthermore argue, the conservative pronunciation of dental stops in Rio Grande do Sul is receding. These facts make palatalization of /ti/,/di/ an interesting linguistic variable to investigate. It is relevant also to determine if this is indeed a variable undergoing change and what stage of the process it has currently reached. By reexamining the speech community of Rivera, it is feasible to verify whether the change in progress hypothesized by Carvalho (1998) has continue to advance or whether it has stabilized at the speech community level. Thus, palatalization of /ti/,/di/ is an excellent candidate for reexamination.

As for the treatment of the second linguistic variable under analysis, the absence or presence of vowel nasalization in UP, it is relevant to point out that nasal sounds are a distinctive characteristic of Portuguese. Portuguese is one of the two standard Romance varieties having nasal vowels as independent phonemes (Sampson 1999:175). Unlike in French, where the alternations between nasal vowels and oral vowels are clearly indicated, in most dialects of Portuguese, vowel nasalization occurs more or less generally whenever a vowel is followed by a nasal consonant, regardless of syllable structure (Lipski 1975:67).

Shaw (1986) reports variation in nasalization across dialects in Brazilian Portuguese. In the varieties of Belém, Pará, and of Recife, Pernambuco, low vowels (viz., /a/) (stressed and unstressed) are heterosyllabically nasalized, but in Carioca dialect there is a morphonological alternation between [a] and [ẽ] (examples from Shaw

1986:83). As Shawn further points out, although there is a correspondence between stressed [ẽ] and [a] in the Carioca dialect, realizations of an unstressed low nasal vowel are also found in this dialect, as in Maracanã [marakẽ'nẽ], bananada [bana'nada] / [banã'nada] 'sweet banana dessert'.

Table 1-1. Alternation between [a] and [ẽ] in Carioca and Belém dialect

		Glossary
<i>cana</i>	[kẽna]	'sugar cane'
<i>canavial</i>	[kẽnavi'aw]	'sugar-cane field' (Belém variety)
	[kanavi'aw]	'sugar-cane field (Carioca variety)
<i>banana</i>	[bẽ'nẽna]	'banana' (Belém variety)
	[ba'nẽna]	'banana' (Carioca variety)

Variation in the linguistic realization of the high vowel /u/ has also been documented, as in: *fumo* ['fumu] / ['fũmu] 'I smoke', *único* ['uniku] / ['ũniku] 'the only one'. In addition, in the Belém and Carioca dialects, stressed and unstressed non-low vowels are not nasalized (in citation form), that is, they are not perceived as nasal (examples from Shaw 1986:83).

Table 1-2. Stressed and unstressed non-low vowels in Belém and Carioca dialects

		Glossary
<i>cúmulo</i>	['kumulu]	'absurd, total, extreme'
<i>túmulo</i>	['tumulu]	'tomb'
<i>renegado</i>	[xene'gadu]	'renegade, pariah'
<i>cômico</i>	['komiku]	'funny'
<i>minado</i>	[mi'nadu]	'mined'

Previous phonetic representation accounts have dealt with vowel nasality indirectly as a subsection of some other phonological issue, such as stress, or development of diphthongs, etc. Moreover, the tendency towards 'normalized' representations and morphophonological, phonetic, or dialectal variation or alternations are ignored (Shaw 1986:6). Thus, the description of the distribution, alternation, and variation of nasal vowels is of paramount importance.

Rona (1965:35) finds nasal vowels in UP but does not provide any quantitative data. He remarks that in the *Melense* variety, Portuguese words ending in *-ão* and Spanish words ending in *-ón* have yielded only one ending– *ão* (1965:43). The other three *Fronterizo* varieties in Rona’s classification are said to have kept the Portuguese diphthong *-ão*. Hensey (1982:15) argues that /a/ raises to /ə/ when preceded by a nasal. Hensey’s results show that Riverans nasalize /a/ as a low vowel in 70% of the cases.

For Lipski “one direct measure of the ‘Spanish’ or ‘Portuguese’ nature of a given *Fronterizo* specimen is the degree of approximation to the Portuguese vowel system” (1994:343). Azevedo (1981:23) claims that there are individual and dialectal variations of nasality in Brazilian Portuguese. However there is no cohesive description of these phenomena.

Thus, the analysis of nasalization in UP dialect will shed interesting light on this linguistic process in particular and on the nature of language variation and change in general. In addition, the sociolinguistic approach of this research will account for dialectal variations from spontaneous and informal speech, a method that is not commonly used to describe the nasalization process. Shaw emphasizes that “there is a need for extensive and accurate data collection in this area, and not only should this data reflect the slow, deliberate speech of citation forms, but it must also come from spontaneous speech in various styles” (1986:87).

In addition, this study responds to a current need for a phonological analysis of vowel nasalization variation in UP. Therefore, the sociolinguistic analysis of these phenomena in UP represents a challenging and exciting area of linguistic inquiry since

this phonological process has not been fully investigated from a language in contact and variationist perspective. In this analysis I will show how language choice and sociolinguistic attitudes account for different meanings such as linguistic meaning and social meaning with reference to both external (social) and internal (systemic) factors in the discussion section of this study. Additionally, issues related to the nature of linguistic attitudes, language choice, and identity formation of UP speakers will also be discussed.

1.3.2 Research Questions

The current investigation in the border community of Rivera will address the following research questions:

1. What is the sociolinguistic stratification of palatalization of /ti/, /di/ in UP according to the social variables of age, socioeconomic status, and gender?
2. What are the linguistics constraints of palatalization of /ti/, /di/ in UP?
3. What are the driving forces of the variant selection? Are these factors linguistic, social, or both? Can this linguistic process be considered a change in progress? At what stage?
4. How do my results compare with previous studies on palatalization?

Vowel nasalization research questions:

1. Is variation of vowel nasalization in UP random or conditioned? If so, what factors condition its variability?
2. If vowel nasalization is conditioned, what is its sociolinguistic stratification according to the social variables of age, socioeconomic status, and gender?
3. What are the linguistic constraints of vowel nasalization in UP?
4. What are the driving forces of the variant selection? Are these factors linguistic, social or both?
5. Can this linguistic process be considered a change in progress? At what stage?

1.4 Organization of the Study

The current study has been organized as follows. Chapter 1 provides background information on the history, geography, and a social setting of the Uruguayan-Brazilian border and the statement of the problem under investigation. Chapter 2 presents the theoretical framework that supports this study. I explore relevant issues in a literature review of variation theory and of analytical units it posits such as speech community and social networks. A literature review of the *Fronterizo* variety covers studies dating from the decade of the 60's with pioneer work conducted by the Uruguayan linguist Pedro Rona, to the most updated sociolinguistic research work conducted in Rivera, Uruguay. The literature review on palatalization and nasalization is presented along with the working hypotheses guiding this investigation. Chapter 3 consists of a complete description of the methodology used, fieldwork, data collection and analysis of linguistic and extralinguistic factors. In Chapter 4 I compare data from two cross-sectional studies conducted at two different points in time (1995 and 2007) to verify whether the change in progress hypothesized by Carvalho (1998) has continued to advance or whether it has stabilized at the speech community level. Chapter 5 contains a discussion and interpretation of vowel nasalization results, and Chapter 6 presents the conclusions and main findings of the investigation.

CHAPTER 2 THEORETICAL FRAMEWORK

2.1 Variation Theory

The variationist approach to sociolinguistics began in the 1960s, with the groundbreaking work of William Labov. Labov's classic sociolinguistic studies in Martha's Vineyard (1963) and New York City (1966) demonstrated that the trajectories of linguistic changes could be inferred from the observation of patterns of variation in present-day speech communities. Labov's influential work was in clear opposition to traditional approaches to linguistic description, namely structural linguistics, which held that "the synchronic study of language states was an endeavor entirely separate from the diachronic study of language change" (Milroy & Gordon 2003:2). Further, Labov reacted against the methods and assumptions of contemporary dialectological research, although more recently, dialectologists have turned to quantitative methods to deal with variable forms more effectively and to represent variability among sample populations.

With the founding of sociolinguistics, social factors began to play a significant role in the field of linguistics, especially in the analysis and modeling of speech. Subsequent research carried out by Labov using his methods and analysis of language variation and change developed into what is nowadays known as variation theory (Tagliamonte 2006). This new approach to analyzing speech attempts to account for the paradoxes of language change. Tagliamonte (2006:5) argues that while formal theories of language attempt to describe language as a set of fixed rules or principles, language changes constantly. As Weinreich et al. (1968:38) note, "structural theories of language [...] have saddled historical linguistics with a cluster of paradoxes, which have not been fully overcome." Thus, as Tagliamonte rightly points out, the ultimate goal of the

variationist sociolinguist is to study the “interplay between variation, social meaning and the evolution and development of the linguistic system itself” (2006:5).

2.1.1 Theoretical Principles of the Quantitative Framework

The central ideas of this approach are that variable and categorical processes are both inherent components of natural languages and that the variation we witness at all levels of language is not random. Indeed, the basic principle motivating variable-rule analysis is the hypothesis that linguistic heterogeneity, like homogeneity, is rule-governed (Sankoff 1978). Hence, as Sankoff asserts, for any area of variation, it should be possible to identify categories (or factors) that statistically determine the relative proportions of each variant (1978:159).

Several assumptions underlie the quantitative approach to the study of language variation and change. Among the more important principles are the “principle of quantitative modeling” and the “principle of multiple causes” (Young & Bailey 1996). As Bailey states, the “principle of quantitative modeling” means that

we can examine closely the forms that a linguistic variable takes, and note what features of the context co-occur with these forms. By context is meant the surrounding linguistic environment and the social phenomena that co-occur with a given variable form. With a large enough set of data, we are able to make statements about the likelihood of co-occurrence of a variable form and any one of the contextual features in which we are interested (2002:118).

Bailey argues that these statements allow the researcher to express quantitatively the strength of correlation between a contextual feature and a linguistic variable. On the other hand, the “principle of multiple causes” states that “it is unlikely that any single contextual factor can explain the variability observed in natural language data” (2002:118). It is worth noting that the majority of studies of linguistic variation has

shown that the variables examined are sensitive to several linguistic and/or extralinguistic factors.

In addition to the principles of quantitative modeling and multiple causes, two other principles are fundamental to the quantitative paradigm. These are summarized by Guy (1991):

Individual speakers may differ in their basic rate of use of a variable rule, that is, in their input probability for the rule. Individuals should be similar or identical in the factor values assigned to linguistic constraints on the rule. (This assumption is usually qualified to apply just to people who belong to the same speech community).

Many sociolinguists have adopted the quantitative approach to the study of language in communities around the world, among them: Panama (Cedergren 1973), Norwich, England (Trudgill 1974), Anniston, Alabama (Feagin 1979), Guyana (Rickford 1987), Rio de Janeiro, Brazil (Guy 1981), Montreal (Sankoff et al. 1976), etc. The wealth of research in the quantitative paradigm has demonstrated the systematic nature of the linguistic variation that was previously thought to be random. In addition, quantitative research has shown that linguistic variables are constrained by both linguistic and social factors. These factors can potentially influence a language user's choice of one or another variable form (Bayley 2002:123).

Portuguese nasalization is a perfect example of this argument. Although the literature on this topic is extensive, there is no agreement on the appropriate analytical framework to account for this type of phenomenon. As Guy (1997:125) observes, there is opposition between what is considered the essential system of the language and the operations and products of that system, that is, the actual usage of language by speakers. He rightly points out that "on the one hand there is the abstract, not directly observable construct, the grammar, *langue*, competence, and on the other hand, there

is the concrete, observable sum of language production, *parole*, performance, utterances” (Guy 1997:125). Nevertheless, this opposition is undermined by two fundamental principles emerging from the study of language variation: inherent variability and orderly heterogeneity. Guy argues that the latter implies that there is variation within competence, while the former implies systematicity within performance (Guy 1997:140).

The concept of ordered heterogeneity was coined by Weinreich et al. (1968:100) and Labov (1982:17). This concept challenges the invariant grammar assumption, and it was proposed in order to account for linguistic elements that alternate freely. The interpretation of this position was that such items were randomly distributed. Nevertheless, several decades of quantitative research have proved that alternating linguistic forms, although non-categorical, are not randomly distributed, and that variants are rule-governed and show strong quantitative regularities.

2.1.2 The Apparent-Time Construct

The use of apparent-time differences to study language change in progress has been a useful analytical tool in quantitative sociolinguistics for more than forty years. Labov (1963) used it in his research conducted on Martha’s Vineyard for his study of the [ay] and [aw] diphthongs. Labov found out that that the nuclei of both diphthongs were progressively higher with each younger age cohort. In order to discern between two possible explanations, namely age-grading and apparent-time, Labov compared the Martha Vineyard data with earlier records. By comparing the older speakers interviewed in 1933 for the Linguistic Atlas of New England (LANE) to the older speakers in the 1963 interviews, Labov was able to confirmed the apparent-time interpretation (Bayley et al.1991:242).

The apparent-time construct is based on the assumption that individual vernaculars remain stable throughout the course of an adult lifetime (Bayley 2002:320). In providing a mirror of real time change, apparent-time forms the basis of a conceptual framework for exploring language change in progress. This 'synchronic approach' to study of sound change has been an excellent strategy to examine the issues involved in the mechanism of change, that is, the transition, embedding, and evaluation problems (Labov 1972:161).

There are two types of real-time studies that can help disambiguate between age-grading or change in progress, a panel or a trend study. A longitudinal or panel study involves resampling the same speakers, (i.e.), individuals must be followed for an extended period of time. A cross-sectional or trend study involves resampling the same age range of speakers in the same speech community at different points in time (Bayley 2002). While a panel study can answer questions about the stability or instability of individual vernaculars, a trend study is apt to answer questions about stability or instability at the speech community level (Labov 1994).

In the absence of adequate real-time data, the apparent-time construct provides "an excellent surrogate for real time evidence" (Bayley 2002:329). As seen above, by adding a trend methodology to the study, it is possible to compare apparent-time data from two studies at different points in time, 1995 and 2007. I explore this approach with the objective of substantiating the change in progress hypothesized by Carvalho (1998). As Labov notes "since a trend study includes two studies of apparent time, it will both detect unstable behavior of individuals and distinguish stable from unstable

communities [...]. In that sense, the trend study would be the best possible approach to gathering data on language change (Labov 1994:85).

2.2 Speech Community

The speech community concept, regarded as a key component in empirical linguistics, has been seen at the intersection of several basic problems in sociolinguistic theory and method (Patrick 2002). In the early 1960s, sociolinguists elaborated definitions of the speech community, moving from structural to functional approaches along the way. It is thus necessary to examine these definitions and some of the subsequent refinements. Labov's early definition of the speech community was

the speech community is not defined by any marked agreement in the use of language elements, as much as by participation in a set of shared norms; these norms may be observed in overt types of evaluative behavior, and by the uniformity of abstract patterns of variation which are invariant in respect, are in principle replicable (1972:120).

This definition, together with Labov's own research, suggests the existence of four criteria for the characterization of a speech community: the nativeness of speech community members, the presence of uniform patterns of linguistic variation, the shared social evaluation of linguistic parameters, and the systematic identity of the linguistic varieties on all linguistic levels (Kerswill 1993:36). Nonetheless, this definition has been found wanting by some linguists. Their main objection is that, according to this definition, New York City is considered a single speech community (Labov 1966:125). Thus, speakers from lower to higher status agree in viewing the presence of postvocalic [r] as prestigious. In this respect, Milroy (1980:13) argues that Labov's definition is a large-scale concept since all social classes are united by their common evaluation of linguistic norms. For other linguists, members of a speech community share a sense of

belonging to a local territory and of participating in an interacting network inside this territory (Hymes 1974, Milroy 1980).

Gumperz's (1982) definition of the speech community is more concerned with exploring how interaction, including language, constitutes social reality. From this perspective, Gumperz challenges the notion of agreement on the social meaning of linguistic variables

members of such a community typically vary with respect to certain beliefs and other aspects of behavior. Such variation, which seems irregular when observed at the level of the individual, nonetheless shows systematic regularities at the statistical level of social facts (1982:24).

A later reformulation of this definition reflects Gumperz's interest in face-to-face interaction: "if meaning resides in interpretive practices (...) located in the social networks one is socialized in, then the 'culture-' and 'language-' bearing units are not nations, ethnic groups or the like but rather networks of interacting individuals" (Gumperz & Levinson 1996:11). Gumperz's reformulation of the concept of speech community has served to introduce several questions still considered problematic in the field, such as the following: "has the speech community become restricted to certain (possibly incompatible) paradigm of sociolinguistics, or is a broad conception still viable?" (2002:582). Patrick argues that although the idea of speech community was originally applied to particular contexts, efforts tended toward generalization (2002).

Hymes's definition states that a "speech community is a necessary, primary concept...It postulates the unit of description as a social, rather than linguistic, entity. One starts with a social group and considers the entire organization of linguistic means within it" (1974:47). Hymes's definition shows a broad perspective of the concept of speech community and shares with Gumperz the shift in focus from varieties to the

relationships among speakers. Further, for Hymes, the speech community is not a methodological prime, since one cannot know what practices are critical, or who shares them, before a study has been carried out. Moreover, for Hymes, the starting point of description is a repertoire of ways of speaking taking into consideration speakers' communicative competences and verbal repertoires (Patrick 2002:582).

Milroy and Milroy (1992) argue against Labov's notion of 'shared norms of evaluation' throughout the speech community. Milroy and Milroy argue that this sociolinguistic model reflects a consensual view of society, where the community is envisaged as cohesive and self-regulating (3), whereas they feel that "the vitality and persistence of nonstandard vernacular communities uncovered by many researchers (including Labov) are more readily interpretable as evidence of conflict and sharp divisions in society than as evidence of consensus" (1992:3). Thus, the Milroys view society as a conflictual model of society in order to account for the phenomenon of linguistic change, with which some kind of social conflict is generally associated.

From all this discussion, it is clear that Labov's seminal study attributes crucial importance to the diverse patterns of evaluation in the speech community under investigation. Labov's early study identified several levels of generalization such as local unity, patterns of divergence, and shared acceptance of external norms by members of different speech communities (Patrick 2002:588).

The sociolinguistic model of the speech community was adopted to analyze phonological variation in Rivera. The speech community is a primary and necessary concept that starts with the social group shifting its focus from varieties to the relation among speakers (Hymes 1974). The city of Rivera can be classified as a speech

community since its members share a sense of belonging to the local territory. Community members in Rivera also share participating in an interacting network. Please refer to the methodological section of this investigation (Chapter 3) for a detailed account of the speech community of Rivera.

2.3 Social Networks

The speech community of Rivera is a close-knit community, and a social networks approach can account for the patterns of relationships between its members. Social network analysis was developed by social anthropologists during the 1960s and 1970s. Network analysis, in a broad sense, is “a structural strategy which is primarily concerned with relations among the individuals in any group” (Bortoni-Ricardo 1985:69). Sociolinguistic research carried out by L. Milroy (1987) and Milroy and Milroy (1992) espoused the impact of studying the networks of a speech community. The Milroys based their studies on previous sociological research (Mitchell 1969, Boissevain & Mitchell 1973), paying special attention not only to intergroup interactions but also to the personal relationships of the speakers with other individuals.

The Milroys established a number of indicators as a way of facilitating network analysis, based on the concepts of ‘density’ and ‘plexity’. While a network is said to be dense if a large number of members of a person’s network are in touch with each other, plexity is a measure of the range of different types of transactions people are involved in with other individuals. On the other hand, a uniplex relationship is one in which the link with another person occurs in only one area, whereas multiplex relations involve interactions with others along several dimensions (e.g., a workmate may also be a neighbor and member of the same church, etc.).

These personal communities are constituted by individuals who engage in a variety of endeavors on a daily basis and create interpersonal ties of different types and strengths. Thus, a fundamental premise of network analysis is that “individuals create personal communities to provide a meaningful framework for solving the problems of daily life” (Mitchell 1986:74). Another premise of network analysis is that structural and content differences between networks impact individuals critically (Milroy & Gordon 2003:117).

Consequently, if a personal network consists of strong ties that are multiplex, and if the network is relatively dense, then such a network has the capacity to sustain its members in practical and symbolic ways. Conversely, such a network can also impose unwanted constraints on its members. As Milroy and Gordon argue, a strong network, that is, one containing dense and multiplex ties, supports localized linguistic norms, resisting pressures from competing external norms. On the other hand, a weakening of these ties produces conditions favoring contexts of language change. Thus, network analysis is a useful analytical tool in variationist analysis since it can help explain why speakers support a particular linguistic system that stands in opposition to forces of standardization, and why another system might be more sensitive to extralinguistic influences (Milroy & Gordon 2003:118).

Network analysis has been implemented widely by scholars in several disciplines. Although no standard procedure for analyzing social networks can be identified, variationists have adopted it for several reasons. First, it provides a set of procedures for studying small groups where speakers belong to a rather homogenized social group, as for example, the southeastern United States island communities investigated by

Wolfram, Hazen, and Schilling-Estes (1999). It has been used in studying minority ethnic groups, migrants, rural populations, or populations in non-industrialized societies. Another advantage is that, since social network is a concept that relates to local practices and norms, it can reveal the social dynamics within the speech community that are driving language variation and change. Lastly, network analysis is an analytical tool capable of dealing with variation among individual speakers, rather than among groups constructed with reference to predetermined social categories (Milroy & Gordon 2003:120).

The idea of using social networks as a speaker variable was developed in the Belfast study (Milroy 1987) as a way of investigating the capacity of close-knit networks to function as a mechanism to enforce norms (Milroy 1987:106). A network approach was employed in many studies in variationist sociolinguistics during the decade of the 1980s and 1990s. Among these are Gal's (1979) study of the town of Oberwart, a German/Hungarian bilingual community near the Austrian border; Russell's (1982) study of Mombasa, Kenya; Schmidt's (1985) study of Australian Aboriginal adolescents; Bortoni-Ricardo's (1985) study of rural migrants in Brazlandia, a satellite city of Brazil; V. Edwards's (1986) study of the language of British black adolescents; Schooling's (1990) study of language differences among Melanesians in New Caledonia; Lippi-Green's (1989) study of the rural alpine village of Grossdorf, among others.

Labov and his colleagues in their studies of Philadelphia neighborhoods used the network concept at the fieldwork stage (Labov & Harris 1986). A network approach to fieldwork can account for patterns of members' relationships in the speech community of Rivera, providing the set of procedures for analyzing relationships where speakers

belong to a relatively small and homogeneous group such as in Rivera. Another advantage of a network-based approach to fieldwork is that, since social network is a concept that relates to local practices and norms, it can reveal the social dynamics driving language variation and change (Milroy & Gordon 2003). Please refer to the methodology section (Chapter 3) for specifics about entering the speech community of Rivera via social networks.

2.4 Previous Studies of Linguistic Varieties in the Uruguayan-Brazilian Border.

Earlier studies of *Fronterizo* (Rona 1965, Elizaincin 1979, Elizaincin et al. 1987) have focused on this variety, which has been classified as a *tercera lengua* ‘third language’ (Lipski 1994:342). Later on, Elizaincin et al. (1987), challenging Rona’s (1965) *Fronterizo* classifications, stated that this dialect was more variable than Rona’s defined regional varieties would suggest. Elizaincin et al. (1987) classified *Fronterizo* as a dialect of Portuguese and proposed the name *Dialectos portugueses del Uruguay* (DPU) “Portuguese Dialects of Uruguay”, *Fronterizo* being one of them.

One of the first scholars to document this dialect was José Pedro Rona. Rona (1958, 1965) distinguishes two different *Fronterizo* dialects: the first a Portuguese-based *Fronterizo* with Spanish influence, in other words one that has a phonological and lexical system, that is essentially Portuguese; the second a Spanish-based *Fronterizo* with Portuguese influence in which “el sistema fónico se diferencia casi del resto del Uruguay y las influencias léxicas, morfológicas y sintácticas, portuguesas, aunque numerosas, no llegan a predominar” “phonic system differs most from the rest of Uruguay and the lexical, morphological and syntactic Portuguese influences, although numerous, do not come to predominate” (Rona 1965:8 my translation). In addition, Rona argues that the delimitation of isoglosses are evidence of four sub-

dialectal *Fronterizo* varieties denominated as: *artiguense*, *tacuareboense*¹, *melense* y *yaguaronense*. Nevertheless, current studies have not supported Rona's hypothesis.

The first linguistic study on the Uruguayan-Brazilian border was carried out by F. Hensey (1972). Through the application of the PLIM questionnaire (Sapón's Pictorial Linguistic Interview Materials), Hensey (1972:34) gathered samples of the segmental phonology and of lexical items in order to test the frequency with which supposed interference phenomena occurred. Participants were asked to describe the sketches in the PLIM and to comment on the contact situation, particularly the linguistic aspect.

Hensey examines the influence of Spanish phonology on the Portuguese of bilinguals living in the border. For Hensey "contemporary *Fronterizos* developed from Standard Portuguese by under-differentiations which led to reinterpretations of distinctive features and eventually to restructuring. Phone substitutions, whether traceable to Spanish or to areal traits of pronunciation, may have assisted in bringing about some changes" (1972:90). Hensey describes the community of Rivera as bilingual, where Portuguese is acquired in childhood without the benefit of later formal study. He also argues that such bilinguals learn both languages simultaneously, Portuguese being the language preferred by children to communicate with parents, siblings, and peers. He notes that for Uruguayans, bilingualism is less the acquisition of Portuguese than an indication that the individual has acquired Spanish. Hensey also notes that Spanish, which is spread by an effective public education system, is forced to compete at a disadvantage with sub-standard Portuguese (Hensey 1972:137-42).

¹ For Rona "*esta variedad cubre los departamentos de Rivera y Tacuarembó*" "this variety covers the Rivera and Tacuarembó states" (Rona 1965:14 my translation).

Although most of the population in Rivera speaks a variety of Portuguese, Uruguayans themselves judge their speech as unsatisfactory, and to most Brazilians this is an unacceptable form (Hensey 1972:142).

Hensey (1972:55-61) provides several examples of Spanish phonological interference in the speech of bilingual speakers:

1. final unstressed /e/ and /o/ are frequently realized as mid vowels [e] and [o] instead of high vowels [i] and [u], (30.8%)²;
2. nasalized /a/ (-N), realized as a low central vowel [ã] rather than a mid central vowel in tonic position [ẽ], (70%).
3. syllable final /l/ realized as an alveolar lateral with firm apical occlusion rather than a posterior semivowel, (60.5%);
4. initial and intervocalic /rr/ realized as an alveolar trill rather than a voiceless velar fricative, (83.3%);
5. palatal nasal [ɲ] (orthographic nh) realized as an alveopalatal nasal with firm occlusion rather than a nasalized yod, (58.0%);
6. intervocalic /b/, /d/, and /g/ realized as simple fricatives rather than occlusives, (58.1%);
7. /ti/ and /di/ realized as simple stops rather than palatalized or affricate consonants, (80%).

Hensey (1972) adds to these seven types of phone substitution the following *potential* (my emphasis) structural interferences in the form of underdifferentiation:

1. underdifferentiation of Portuguese open and closed E/e and O/o, (9.1%);
2. underdifferentiation of Portuguese s/z and š/ž, in favor of the voiceless member, (15%);
3. underdifferentiation of Portuguese b/v, (16.6%).

² Hensey (1972) only provides overall rates of interference.

Hensey's treatment of interference made use of relatively few informants, only two per group³; therefore, as he suggests, results are presented without assumption of significance. Nevertheless, the phonic interference in the form of phone substitutions points to potential structural consequences which are not clear: that is, the preference for a simple dental stop rather than a palatalized allophone for /t/ /d/ before /i/ (Hensey 1972:77). He determines that Spanish is the first language of these participants based on their nationality, that is, it is assumed that if a participant is born in Rivera or Rio Branco, the two Uruguayan cities surveyed, their dominant language is Spanish. Hensey does not take into consideration social factors, deemed to be crucial in contact-induced language change situations.

In a long and sustained language contact situation such as the one found along the Uruguayan-Brazilian border language interference and other language contact phenomena can be expected. It is a challenging task to establish potential structural interference since Spanish and Portuguese are languages typologically close. However, the phonological system represents the most salient difference between these two grammars. In this light, Cabrelli and Rothman (2010) examine the linguistic implications of non-native phonological acquisition of language pairings such as Spanish and Portuguese.⁴ In the present study, the speech of bilinguals in Rivera is conceptualized as varying across continua of proficiency according to speakers' social and ideological

³ Hensey (1972) surveyed two sets of twin cities along the border area. The Uruguayan cities of Rivera and Rio Branco, and the Brazilian cities of Santana do Livramento and Yaguaraõ (17).

⁴ Cabrelli and Rothman (2010:278) propose the Phonological Permeability Hypothesis (PPH),” which predicts that if native and seemingly successful non-native phonological systems are learned/constructed in the same manner, then an addition of a third language will affect these systems (somewhat) equally within the same timeframe. Alternatively, if they are constructed in a different manner (and are thus mentally configured differently), then the successive system will undergo much more rapid and pervasive cross-linguistic interference from the L3 on the L2 as proficiency in the L3 increases.”

characteristics. In this sense, participants are perceived as members of a speech community who share a sense of belonging to a local territory and participate in an interacting network inside this territory (§ 2.2). The approach to language variation following modern sociolinguistics, is the speech community not the isolated individual. As Sankoff (2001:640) points out “the linguistic outcomes of language contact are determined in large part by the history and social relations among populations, including economic, political and demographic factors.”

Elizaincin et al. (1987), challenging Rona’s (1965) *Fronterizo* classifications, stated that this dialect was more variable than Rona’s defined regional varieties would suggest. They further point out that although DPU presents an invariant linguistic system, it also shows a tendency toward linguistic simplifications. However, this study does not discuss simplification processes or attribute them to language contact between Spanish and Portuguese. Unfortunately, the study relies on impressionistic and qualitatively data to describe the speech of monolingual speakers of Portuguese in different towns along the Uruguayan-Brazilian border from Rivera, and lacks treatment of quantitative data.

In Lipski’s 1994 analysis, *Fronterizo* is classified as a *tercera lengua* ‘third language’. Lipski argues that the reasons for the formation of a *Fronterizo* variety, rather than simple bilingualism, “are rooted in a complex set of sociohistorical facts, in which the rural residents of an isolated and marginalized zone were pulled linguistically in two directions, but where neither was strong enough to completely coalesce into a single base language” (1994:342). In addition, Lipski posits that the *Fronterizo* variety is not just confined to the immediate Uruguayan-Brazilian border, but penetrates deep into

Uruguay. He suggests that the reasons for the heavy influence of Portuguese lexical, phonological and syntactic forms into Uruguayan speech are many, but the most important is the fact that in the Northern regions, better economic opportunities are to be found in Brazilian territory.

Lipski (1994:343) identifies the following phonological characteristics of the *Fronterizo* variety:

1. Portuguese has, in addition to the five vowels of Spanish, two mid lax vowels, a centralized unrounded schwa-like vowel (found only in unstressed contexts and derivable phonologically from /a/), and five distinctive nasal vowels. In unstressed contexts, particularly word-finally, /e/ usually raises to [i] and /o/ raises to [u]. One direct measure of the 'Spanish' or 'Portuguese' nature of a given *Fronterizo* specimen is the degree of approximation to the Portuguese vowel system. It is more frequent for a five-vowel system to emerge among oral vowels (even many monolingual Brazilians are moving in this direction), while distinctive nasal vowels are retained. Unstressed vowel raising is variable in *Fronterizo*.
2. The frequent Brazilian 'palatalization' of /t/ and /d/ to [tʃ]/[dʒ] before [i] is rare in *Fronterizo* speech, nor is it categorical in regional dialects of southern Brazil.
3. Portuguese distinguishes the pairs /s/ - /z/ and /ʃ/ - /ʒ/; in *Fronterizo* this distinction is also variable, especially since Uruguayan Spanish /y/ has the same groove fricative realization as Portuguese /ʒ/.

Carvalho (1998) represents the first large-scale sociolinguistic analysis of the speech of Riverans. Drawing from a corpus of 54 bilingual participants from Rivera, Carvalho identifies the social and linguistic factors that condition variability of two phonological variables: realization of /ti/ and /di/ and realization of the palatal liquid /ʎ/. Carvalho points out that recent urbanization of border communities has allowed greater acceptance of urban Brazilian Portuguese, which has caused local Uruguayan Portuguese to be pulled in the direction of the more prestigious variety. Carvalho opposes the use of the term *Fronterizo* to characterize the Portuguese of Uruguay.

Instead a dialectal continuum is proposed where local Uruguayan Portuguese can be situated at one end and urban Brazilian Portuguese at the other.

As Carvalho posits, “urbanization of UP, thus, entails a movement away from its rural and hybrid origin, toward an assimilation of linguistic features that are stereotypically Brazilian, as the result of a desire to emulate speakers of larger urban monolingual communities in central Brazil, whose dialect is shown daily on television” (2004:128).

2.4.1 UP in Artigas City

Douglas (2004) examines language shift, displacement and loss in the city of Artigas, Uruguay. She maintains that UP in Artigas does not fit into any current theory or standard model of language change, such as language shift and death, dialect leveling, or decreolization. Comparing data from speakers of the town of Artigas and the villages of Bernabé Rivera and Siqueira, Douglas finds that UP is undergoing both functional and structural transformations as it is displaced, leading to its eventual loss as a native tongue. Further, she argues that language change in UP is socially stratified as UP speakers abandon the variety and adopt new features from the competing standards (322).

To account for the complex language environment in Artigas, Douglas proposes two alternative models to examine the transformation of UP: the proficiency continuum, to demonstrate functional displacement, and the post-creole continuum, as an example of structural transformation during the process of displacement (2004:111). She furthermore argues that the proficiency continuum is the model of language change within the area of language shift and death that accounts for the progressive decline of one language in favor of another based on the speaker’s linguistic proficiency in the

displaced variety. In other words, this model assumes that bilingual speakers, having attained a certain degree of proficiency in both varieties, gradually lose proficiency in the subordinate variety (112).

Moreover, for Douglas the mixed characteristic of UP bears significant resemblance to the intermediate varieties of a decreolizing creole that emerges as creole speakers incorporate features in their approximation of the standard (127). Douglas maintains that the decreolization approach is a model that can be applied to varieties confronting language displacement in the face of a dominant standard (2004:126). She argues that the repertoire of a UP speaker is composed of features drawing from the contact of all three varieties, standard Uruguayan Spanish, standard Rio Grande do Sul Portuguese and UP. Yet, “each speaker’s individual realizations of their language variety are affected by the sociopolitical and psychosocial constraints that form a speaker’s behavior” (2004:158). As Douglas points out, individual speakers’ linguistic realizations of their variety are determined by their social and ideological characteristics. That is, there is no cohesion at the speech community level. Data results show that speakers have a variety of phonological forms from which to choose.

2.4.2 Brazilian Portuguese

The Portuguese variety spoken in Brazil, like many other varieties spoken over a large territory, presents overlapping regional and social linguistic variation (Azevedo 2005:211). Azevedo asserts that such variation is directly related to speakers’ educational level, which in turn is linked to their socioeconomic status. In fact, as he further points out, the most salient contrasts within Brazilian Portuguese (BP) are not regional but social.

There is divergence between the vernacular, the speech of the educated minority, and the normative language dictated by prescriptive grammars which is based on the formal written usage found in Portuguese literary works. However, there is a third variety spoken by educated speakers in casual speech and informal types of writing which do not require Prescriptive Portuguese known as Standard Brazilian Portuguese (SBP). In order to help understand this intricate situation, Azevedo proposes to visualize it as a triangle, where one of the vertices represents Vernacular Brazilian Portuguese (VBP), another vertex corresponds to normative or Prescriptive Portuguese (PP), and the last one to SBP. Although, it is common for languages to have a vernacular and a distinctive standard, in the case of Brazil the presence of vernacular features in the unmonitored speech of educated speakers is common, suggesting that VBP and SBP are a fundamental part of Brazilian Portuguese as a whole and not mere discrete varieties (2005:212-13).

Traditionally, the literary variety has been considered to be the only valid variety.⁵ Furthermore as Azevedo asserts, “it has been determined that poor theoretical and unsystematic selection of examples have led normative grammars to contradict each other” (2005:211). Nevertheless, current linguistic research on Brazilian linguistics has invalidated this view, and it has been shown that vernacular features are an integral part of the language.

Another possible source for the unique features of Brazilian Portuguese is contact with other languages. Portuguese has long had contact with speakers of African

⁵ This attitude toward the actual language use has been a major challenge for low social strata Brazilian students who are not exposed to the educated variety varieties of speech. This situation has been reported to hinder students' opportunities to access higher education.

languages spoken by the 3.5 million slaves taken to Brazil between 1500 to 1852. The Atlantic slave trade has had huge linguistic consequences not only for Brazilian Portuguese but also for other major slave-holding centers, such as Jamaica, Haiti, the southern states of the USA, the Lesser Antilles, and Guyana (Guy 1981:4).

2.4.3 Uruguayan Spanish

The Spanish variety spoken in Montevideo, Uruguay is an extension of the *porteño* speech of Buenos Aires, Argentina. No striking differences can be found between these two varieties, although dwellers of each city maintain the contrary. Yet, linguistically, Uruguay can be divided, once social factors are considered, along an urban-rural axis with bilingualism along the Brazilian border. While the Montevideo dialect is the main representative of Uruguayan speech and considered to be the 'standard' national model, rural speakers from the interior exhibit speech patterns not found elsewhere (Lipski 1994:338). Along the Uruguayan-Brazilian border, UP dialect and different degrees of bilingualism are found.

Phonologically, Uruguayan Spanish exhibits the following characteristics (Lipski 1994:340-41):

1. The phonemes /y/ and /ɲ/ have merged into a groove fricative pronunciation [ʒ] known as *žeismo* or *sheismo*.
2. Preconsonantal /s/ is aspirated except in careful speech. Deletion is strongly favored at the lowest sociolinguistic levels. Phrase-final /s/ is maintained in educated speech, but it is deleted among the lower social classes. Word-final prevocalic /s/ is realized as [s] in prestigious speech, whereas aspiration [h] is stigmatized.
3. Word-final /n/ is realized as alveolar.
4. Intervocalic /d/ is elided in all registers of speech.
5. Posterior fricative /x/ becomes palatal before /i/.

Although the Uruguayan lexicon has been extensively documented, there is as yet no comprehensive account. In general, Uruguayan Spanish shares most of its lexicon with Buenos Aires, including *lunfardo*⁶ slang. While Uruguayan Spanish does not exhibit notable differences from patterns found in other Spanish-speaking varieties, in its syntax, the use of *voseo* as the preferred form of address in Montevideo is striking.⁷ *Tú* is favored in several northern and southeastern areas of the country, while *vos* and *tú* compete in the intervening areas (Lipski 1994:341). In the border area the forms of address of choice are *tú*, *vos*, and *o/a señor/a*, *el/la señor/a*, depending on the sociolinguistic characteristics of the speaker.

2.4.4 Studies on the Spanish in Rivera

Waltermire (2006) examines the sociolinguistic conditioning of two phonological variables in the Spanish of Rivera, Uruguay: the realization of intervocalic /d/ as either occlusive [d] or as phonetic zero [∅] and the realization of syllable and word-final /s/ as aspirated [h] or a phonetic zero [∅]. Waltermire finds that occlusive realizations of intervocalic /d/ are favored in word initial, stressed syllables whereas /d/ deletion is favored in word-medial, unstressed syllables. Members of the community with non-professional occupations tend to prefer occlusive articulations, while /d/ deletion is favored by members of the younger generation.

⁶ *Lunfardo* (sometimes shortened to *lunfa*) developed among the socially marginalized classes of Buenos Aires. Although considered to originate as a criminal argot, Lipski argues that in its broader sense, *lunfardo* is the vernacular speech of the Buenos Aires working classes, similar to the Cockney of London (1994:175).

⁷ *Voseo* paradigm in Uruguay includes combinations such as *tú* with verb forms corresponding to *vos*, (e.g., *tú volvés* (you return); an analogical final /-s/ is often added to preterit forms, e.g., *dijistes* 'you said', etc.). Verbal forms corresponding to *vos* alternate with those belonging to *tú* in the present subjunctive (Lipski 1994:341).

As for /s/ aspiration, Waltermire argues that women and students favor it in pre-consonantal environments, while deletion is the choice of preference by men and non-professionals. Furthermore, Waltermire suggests that participants who have positive attitudes towards Brazil and language mixing tend to incorporate loan articulations from Portuguese into their Spanish more often than speakers who prefer Spanish and have negative attitudes toward Brazil.

This section concludes the outline of linguistic varieties on the Uruguayan-Brazilian border. As shown above, there exist several linguistic varieties in contact in the standard and dialectal form. While the Spanish spoken in Rivera can be classified as a variety of Uruguayan Spanish, Uruguayan Portuguese can be characterized as a language contact variety combining southern Brazilian Portuguese and Uruguayan Spanish. Due to complex historical, socio-economic, and political factors, these language varieties have coexisted along the Uruguayan-Brazilian border for centuries. These competing varieties are part of the language admixture available to speakers according to their social characteristics. Social factors compel a speaker to adopt or resist a linguistic variant. Bilingualism occurs in the border populations varying from speaker to speaker. This bilingualism can be characterized as scalar rather than discrete. In order to account for phonological variation in UP in Rivera, I will examine two linguistic variables.

2.5 Linguistic Variables under Investigation

The study investigates the sociolinguistic distribution of two phonological variables in the speech of bilingual speakers of UP in Rivera, Uruguay: palatalization or dental realization of /ti/, /di/, and the presence or absence of vowel nasalization.

2.5.1 Palatalization

One of the dependent variables of the study is palatalization of /t/ /d/ before /i/. The actual phonemic articulation in some varieties of Brazilian Portuguese (BP) of /t/ as [tʃ] and /d/ as [dʒ] before [i] results from the phonological process called *palatalization*. The conservative articulation, where the process of palatalization is not operative, is characteristic of other Portuguese varieties, namely European Portuguese, and varieties from northern Brazil; in which /t/ and /d/ before /i/ are realized as the dento or dento-alveolar (Azevedo 2005).

2.5.1.1 The process of palatalization

Palatalization can be described as a process in which the primary articulation is changed so that it becomes more palatal. As Ladefoged asserts, “sounds are said to be palatalized if the point of articulation moves toward the palatal region in some particular circumstance” (2001:218). Yet, in order to use the term *palatalization*, two conditions must be fulfilled. First, “the environment that induces the change must be a ‘palatalizing environment’ (i.e., it must be a front vowel, a palatal semivowel, or a palatal or palatalized consonant), and [that] the sound that results must be palatal or have a secondary palatal articulation” (Bhat 1978:49). Second, palatalization does not refer to a single phenomenon, but it is used as a cover term for three different diachronic processes that can occur alone or in different combinations. These processes include tongue fronting, tongue rising, and spirantization⁸ (Bhat 1978:50).

⁸ Spirantization is defined as “the process by which stridency or friction is added to a consonant in a given environment” (Bhat 1978:50).

Mattoso Câmara argues that phonological changes which occurred in the informal style as well as intrusions from sub-dialects⁹ have had repercussions in the modern consonantal system of Portuguese. These changes can be traced historically through the evolution of the Portuguese consonantal system from the Latin language. Further, an important development in the received language,¹⁰ at least in certain areas of Brazil, was the creation of an affricative positional variant of /t/ /d/ before –i. In this environment the stop becomes a mid palate fricative with a slight bushing sound as in *tia* [tʃía] ‘aunt’, *dia* [dʒía] ‘day’.

2.5.1.2 Palatalization in Portuguese

One of the most salient characteristics of the Carioca dialect and several other Brazilian dialects¹¹ is the alternation of the dento-alveolar plosives /t/ and /d/, with the affricates [tʃ] [dʒ]. Palatalization is also one of the main characteristics that differentiate European from Brazilian Portuguese. In Brazilian Portuguese pairs like *tipo* [‘tipu] ~ [‘tʃipu] ‘type’ and *digo* [‘digu] ~ [‘dʒigu] ‘I say’ are pronunciation variants of the same word. This phonetic articulation in Brazilian Portuguese of /t/ as [tʃ] or /d/ as [dʒ] before [i] results from the *palatalization* process.

Azevedo (1981:31) ascertains that the apico-dental realization of /ti/,/di/ is the conservative realization of the phoneme, as in *tio*, *dia*. However, these phonemes

⁹ Mattoso Câmara states that sub-dialects of this type have different phonological systems than those of the received dialect. Further, he offers several examples, such as the elimination of /ʃ/ in favor of /tʃ/ in certain Brazilian dialects (1972:43).

¹⁰ For Mattoso Câmara in both Brazil and Portugal, there is a tendency toward the creation of a slight differentiation between popular (or ‘vulgar’) speech and the normal, accepted pronunciation of educated speakers. This fact has inevitably impacted the consonantal system, developing several new positional variants that modify the interrelations of the individual consonants (1972:44).

¹¹ This phenomena varies according to sociolinguistics factors in the dialect of Sao Paulo. Giangiola (2001:138) reports that in the Northeastern states of Sergipe and Pernambuco /d/ and /t/ are pronounced as stops [d] and [t] in all cases, which sounds provincial to those Brazilians who do palatalize.

undergo several degrees of palatalization. He posits that in *Paulista* (São Paulo dialect) and in *Mineiro* (dialect from Minas Gerais, Brazil), palatalization varies, when it occurs, from a slightly affricated articulated in the pre-palatal region to a full affricate, which is its normal realization in Carioca dialect (1981:31).

In other Portuguese varieties, such as European Portuguese (EP), the phonological process of palatalization is not operative, hence, /ti/ and /di/ are always pronounced as dentals [ti], [di]. Table 2-1 show examples rendering of /ti/ /di/ in European and Brazilian Portuguese (Mateus & d’Andrade 2000:17):

Table 2-1. Palatalization of /ti/ and /di/ in EP and BP

EP	BP	Glossary
<i>tia</i> [tía]	[tʃía]	‘aunt’
<i>día</i> [día]	[dʒía]	‘day’
<i>pote</i> [‘poti]	[‘potʃi]	‘pot’
<i>pode</i> [‘podi]	[‘podʒi]	‘s/he can’

The occurrence of the affricates is context dependent. It is determined by the presence of a following /i/. This phenomenon is described as a palatalization undergone by the plosives. As shown in Table 2-1, this is a variable feature in BP; it is categorical in EP.

There has been much debate about the issue of EP and BP being “the same language,” or whether BP has changed enough to be considered a “different language”. In fact, for many scholars the standard for BP is partially different from the standard for EP. Although much variation exists between these two varieties, differences in speech are more intensely felt, and familiarity with one dialect does not ensure immediate comprehension of the other (Azevedo 2005:20).

Many scholars have argued about the prestige of the palatal realization of /t/ /d/ before /i/ (Giangiola 2001). The author notes that the palatal variants’ rise to prestige

since the mid-1990s is said to coincide with the advent of radio and television broadcasting in Brazil¹², which popularized certain aspects of the speech of Rio de Janeiro¹³. In the prestige dialect /d/ is pronounced as the palatal affricate [dʒ] before [i] (also [y] and [ĩ]); likewise, the [t] before these same vowels is pronounced [tʃ]. Furthermore, /d/ and /t/ “are palatalized before ‘inserted’ [i], as in *advogado* ‘lawyer’, *admitir* ‘to admit’, *ritmo* ‘rhythm’ and *étnico* ‘ethnic’ (Giangola 2001:138).

While in the popular Portuguese spoken in southern Brazil the rendering of /ti, /di/ is historically the conservative pronunciation, the application of the palatalization rule continues to advance. In fact, data show that palatalization is becoming mainstream in Rio Grande do Sul, the state adjacent to Rivera, mostly in large metropolitan cities (Hensey 1972:59, Bisol 1991:108). Hensey’s (1972) study, conducted in the cities of Santana do Livramento and Santa Maria, Rio Grande do Sul, analyzed palatalization of dental stops. His results show that speakers from the interior city of Santa Maria palatalized 79% of the time, whereas speakers in Santana applied the palatalization rule at a lower rate, 47% of the time.

More recently, in subsequent research conducted in Rio Grande do Sul, Brazil, Bisol (1991b) analyzes palatalization of dental stops followed by /i/. The study covers speech samples from 15 monolingual speakers from Porto Alegre, the state capital, 15 from the border city of Santana do Livramento, 15 bilinguals from a German settlement, and 15 bilinguals from an Italian settlement. All of these participants reached only

¹² The influence of TV as a source of prestigious speech has been discussed also by Carvalho (1998, 2004).

¹³ It has been argued that palatalization of dental stops /ti/ and /di/ originated in Rio de Janeiro and has spread as a prestige feature across the country (Bortoni-Ricardo 1985:14).

primary school education. In her study she uses a control group of 15 graduate students living in the capital.

The following linguistic factor groups are included in Bisol's study: syllable, juncture, preceding context, and following context. As for social factors, ethnicity and age are analyzed. For the syllable factor group, which tests the influence of stress, she found that the application of the palatalization rule in the capital favors the relative stronger positions, in the following order: stressed, pre tonic, and post tonic syllable. The reverse order was found in the bilingual groups (Bisol 1991:107). While preceding phonological context highlights the role of the sibilants /s/, /z/ as a strong inhibitor of the palatalization rule, laterals and nasals show to favor it. On the other hand, following phonological context shows that the lateral and the nasal palatal favor the application of the palatal rule. While trills have an irregular behavior, nasals seem to play an unfavorable role. Yet, vowel, other consonants and pause are not relevant (Bisol 1991:120).

As for the social factors the results for ethnicity showed that capital dwellers palatalize the most (.88), followed by speakers from Livramento (.72), and bilingual groups (Germans at .40, and Italians at .08) palatalize the least. As for age, the younger speakers recorded the highest figures of rule application in all the communities except the capital speakers (popular speech). Bisol's interpretation is that through apparent time the palatalization rule is in process of expansion. She furthermore argues that although this is not confirmed by the standard speech sample, it is supported by the general evidence (Bisol 1991:111). Furthermore, Bisol concludes that the contact of the

Gaucho dialect with languages which do not palatalize dental stops (Spanish, Italian, and German) inhibits the application of the palatalization rule (1991:120).

As Hensey (1972) and Bisol (1991) studies show, the conservative pronunciation of dental stops in the Rio de Grande do Sul state is receding. Palatalization of /ti/, /di/ is becoming the new trend among young speakers willing to align themselves with standard Brazilian Portuguese. In this way, the progression of the change cannot be separated from the influence of social and affective factors toward the prestige feature.

2.5.1.3 Palatalization in UP

Rona (1965), one of the first scholars describing *Fronterizo* (see § 2.4 for further discussion), documents the existence of a slight degree of palatalization in this variety. Rona (1965:40) points out that ‘los fonemas oclusivos dento-alveolares se palatalizan ante vocales anteriores, como en portugués, adoptando las realizaciones [tʃ] y [dʒ]. En la variedad tacuarembense¹⁴, sin embargo, esta palatalización es mucho menos perceptible y es más próxima a [t] y [d].’ “occlusive dento-alveolar phonemes are palatalized before front vowels, as in Portuguese, taking the realizations [tʃ] and [dʒ]. In Tacuarembense variety, however, this palatalization is much less noticeable and is closer to [t] and [d]” (my translation).

Hensey’s (1972) research in several communities along the Uruguayan and Brazilian border attempts to describe the language distribution in the area. Hensey’s (1972) approach to the study of interference applied research techniques for general social sciences projects. The PLIM (Sapon’s Pictorial Linguistic Interview Materials)

¹⁴ As seen previously, Rona (1965:14) distinguishes four subdialectal varieties of *fronterizo*: *artiguense*, *tacuarembense*, *melense* and *Yaguaronense*. The *Tacuarembense* variety covers Rivera and Tacuarembó and the oriental part of Artigas and Salto.

questionnaire was implemented to gather speech samples from three groups: (1) six native speakers of Portuguese from the interior of Brazil, (2) six speakers from Santana, and (3) six bilingual speakers from Rivera. His data on application of the palatalization rule in the speech of bilingual speakers in Rivera show 20% of affricate realizations, whereas the dental stop was produced 80% of the time. Hensey's 1972 study refers to UP as *portuñol*, relegating its status as a sign of linguistic interference of Spanish in Portuguese. Thus, the high frequency of dental realizations is attributable to Spanish interference. Hensey's results show that while women from the upper and middle classes favored the palatal realization of dental stops, lower socio-economic speakers and men from the upper and middle groups disfavored it. Lipski (1994) in a survey of Latin American varieties, argues that the frequent Brazilian 'palatalization' of /t/ and /d/ to [tʃ]/[dʒ] before [i] is atypical in *Fronterizo* speech, nor is it categorical in regional varieties of southern Brazil.

Carvalho's (1998) sociolinguistic research in Rivera constitutes the first study that has investigated both social and linguistic factors that condition variation in UP. Carvalho investigates the sociolinguistic distribution of two phonological variables: the palatal liquid /ʎ/ and its variants the alveolar lateral followed by a high semivowel [lj], or the palatal glide [j], and the dental or palatal realization of /ti/, /di/. Data were collected during five months of fieldwork in Rivera. Participants were all residents of Rivera and were selected on the basis of availability. The speech sample consists of 54 participants and an output of 2,248 tokens for the palatal linguistic variable. Participants were grouped according to their socioeconomic status (working-class, lower-middle-class, and mid-middle-class), age (15-29, 30-49, 50-70 years old), and gender. The

linguistic factors considered were: tonicity of the environment, preceding and following segment, and juncture (Carvalho 1998:171).

Statistical results show that palatal realization occurred 32%, and dentals were realized 68% of the time. Across social groups, Carvalho's results show a pattern of stratification in rendering the palatal pronunciation of dental stops. For Carvalho palatalization in UP is a variable related mainly to age. In the youngest group its application is very frequent with a probability weight as high as .91, whereas in the oldest group palatalization is very rare, with a probability value of .05. The second most important factor is socioeconomic status. The mid-middle-class group palatalized more than members of the other groups, showing a value of .81. Lower-middle-class and working class members show very low factor values at .34 and .30 respectively. As expected, women favor the palatal rendering of dental stops more than men, showing a probability of .60 in the application of the rule, whereas men show a probability factor weight of .39 (1998:150-59).

Carvalho (1998) argues that the tendency to palatalize among the mid-middle socioeconomic group shows that speakers are using the symbolic value of the standard variable to signal urban orientation, different from the traditions of the rural border community. Speakers from the working socioeconomic group, men, and the elderly, who normally rely on local connections and resources, favor a more conservative form of UP.

2.5.2 Nasalization

The second dependent variable under investigation is vowel nasalization in UP. As has been already mentioned, in most varieties of Brazilian Portuguese vowel nasalization occurs generally whenever a vowel is followed by a nasal consonant,

regardless of syllable structure. Further, Lipski notes that this vowel nasalization process is not addressed in current descriptions of the Portuguese language, although it is an accepted phenomenon in Brazilian Portuguese (Lipski 1975:67). Thus, as Lipski (1975) observes, in order to account for what appears to be a basic and ever-spreading fact of vowel nasalization in Portuguese, the criteria selection was extended to cover every instance of nasalization phonemic or not.

2.5.2.1 Vowel nasalization in Romance languages

Nasal vowels can be found across Romance languages, although two varieties in particular have been widely accounted for, namely French and Portuguese. Sampson (1999) argues “these are far from being the only forms of Romance in which significant levels of nasality have developed in vowels” (1999:32). As Sampson points out, French and Portuguese have nasal vowel phonemes, while other Romance varieties present high levels of allophonic nasality.

Nasalization phenomena affect several other Romance varieties, among them Galician-Portuguese, Andalusian-Spanish, Gallo-Romance, some varieties of Rhetoromance, North Italian varieties (including Gallo-Italian varieties transplanted to Sicily), varieties of Corsican (especially in the north-west), varieties of Sardinian (especially in the center and south), and Romanian. Historically, it seems that vowel nasalization might have been found in other Romance varieties as well, but due to the process of subsequent denasalization, its traces have been camouflaged (Sampson 1999: 32).

2.5.2.2 Portuguese nasal vowel system

There are two ways of indicating nasalization in modern Portuguese orthography: a consonant letter */m* or */n/*, or a diacritical mark called ‘til’ (~) written above the vowel (Mattoso Câmara 1972:51). The phonetic inventory of Portuguese nasal vowels is a

controversial issue among linguists in that they disagree on the number of nasal vowels. On the other hand, there are reports attesting the presence of open nasalized [E] and [O] in some varieties, raising the possibility that there can be distinctive contrasts among them (Shaw 1986:21).

For Wetzels (1997), Brazilian Portuguese has a system of seven oral vowels /i,u,e,o,ɛ,ɔ,a/ that is fully exploited in stressed syllables only (204). In her study on the speech of Brazilian Portuguese, Shawn (1986) maintains that there are five nasal vowels, fourteen nasal diphthongs, and eight triphthongs in the phonetic inventory of Brazilian Portuguese. Moreover, the literature on Portuguese nasal vowel system distinguishes between nasal vowels, nasalized vowels, and nasal diphthongs.

Traditionally phonologies of Portuguese distinguish two types of nasal vowels: one which is said to be (surface) contrastive; the other allophonic. Conventionally the former are referred to as ‘nasal vowels’, and the latter class as ‘nasalized vowels’ (Wetzels 1997:205). In Brazilian Portuguese, nasal vowels occur in stressed as well as in unstressed syllables, both word-internally and word-finally, as shown in Table 2-2 and 2-3 (examples from Wetzels 1997:205).

Table 2-2. Nasal vowels

		Glossary
a. word-internal stressed		
[ˈnũka]	<i>nunca</i>	‘never’
[ˈpẽtʃi]	<i>pente</i>	‘comb’
b. pretonic		
[ĩterési]	<i>interesse</i>	‘interest’
[bõgó]	<i>bongó</i>	‘bongo’
c. word-final stressed		
[aleˈmẽ]	<i>alemã</i>	‘German fem.’
[aʁmaˈzẽ]	<i>armazém</i>	‘storeroom’
d. word-final unstressed		
[áwbũ]	<i>álbum</i>	‘album’
[móxmõ]	<i>mórmom</i>	‘Mormon’

Nasal vowels are usually represented in the orthography by the presence of nasal consonant in the syllable coda.¹⁵ Along with nasal vowels, Brazilian Portuguese presents another type of nasalization, “which is triggered by an intervocalic nasal consonant from which the nasal feature spreads to the vocalic element(s) of the preceding syllable” (Wetzels 1997:217). For generativists, who adopt a biphonemic representation of contrastive nasality, both types of nasalization are treated as the result of a single rule of leftward spread (Saciuk 1970, Brasington 1971, Almeida 1976, Quicoli 1990). However, different analyzes of the nasalization processes argue against a unified spreading rule.

Table 2-3. Nasalized vowels

		Glossary
a. stressed before /n,m/		
[‘kẽma]	<i>cama</i>	‘bed’
[‘fũmu]	<i>fumo</i>	‘smoke’
b. unstressed before /n,m/		
[tenás]	<i>tenaz</i>	‘tenacious’
[bo’neka]	<i>boneca</i>	‘doll’
c. stressed before /ŋ/		
[ko’zĩ ŋa]	<i>cozinha</i>	‘kitchen’
[se’gõŋa]	<i>cegonha</i>	‘stork’
d. unstressed before /ŋ/		
[kẽŋótu]	<i>canhoto</i>	‘left-handed’
[kũŋádu]	<i>cunhado</i>	‘brother-in-law’

Wetzels (1997) has proposed that contrastive nasalization is obligatory at any point in the sequence in which it occurs. He further argues that allophonic nasalization is the result of a variable rule, constrained by both linguistic and non-linguistic variation¹⁶. Wetzels maintains that in all varieties of Brazilian Portuguese, allophonic

¹⁵ In the specific case of /a/, whether word-final or part of a nasal diphthong, the orthographic diacritic (~) is used to mark contrastive nasality: *lã* ‘wool’, *lá* ‘there’, etc. But word-internally [ãj] orthographic practice allows both (ãi) and (aim/n), as in *cãibra* and *caimbra* ‘cramp’ (Wetzels 1997:217).

¹⁶ In the Carioca dialect, allophonic nasalization is obligatory for stressed vowels (Wetzels 1997), whereas allophonic nasalization of post-tonic vowels was relatively rare in all dialects, including the Carioca dialect (Abaurre & Pagotto 1996).

nasalization is most systematic in stressed vowels, whereas contrastive nasalization is realized independently of stress. In the present study, stress is deemed to be a factor potentially influencing variation in UP vowel nasalization.

In Brazilian Portuguese there are derived and non-derived nasal diphthongs. Only three occur in the non-derived vocabulary: [ãw, ãj, ũj]. The diphthongs [ãw], [ãj], and [ẽj] can also arise as the result of affixation in inflectional morphology. In verb forms, the third person plural always ends in [ãw] or [ẽj], as in [falẽw] *falam* ‘they speak PRES IND’, or [falẽj] *falem* ‘they speak PRES SUBJ’ from the verb *falar*. The diphthong [ãj] occurs as the irregular plural of words whose singular forms ends in [ãw], as in [kãw] *cão* ~ [kẽjs] *cães* ‘dog(s)’. The diphthong [õj] also arise in irregular verbs where alternations such as: [pox] *pôr* ‘to put’ ~ [põju] *ponho* ‘I put’ ~ [põj] *põe* ‘he puts’ (Wetzels 1997:222).

Tables 2-4, 2-5 and 2-6, provide an overview of derived and non-derived nasal diphthongs (examples from Wetzels 1997).

Table 2-4. Non-derived nasal diphthongs in BP

Diphthong		Glossary
[ãw]	<i>canhão</i>	‘cannon’
[ãj]	<i>mãe</i>	‘mother’
[ũj]	<i>muito</i>	‘much’

Table 2-5. Nasal diphthongs derived by inflection in BP

Diphthong		Glossary	
[ãw]	<i>falam</i>	‘they speak PRES IND’	from <i>falar</i> ‘to speak’
[ãj]	<i>cães</i>	‘dogs’	from <i>cão</i> ‘dog’
[õj]	<i>põe</i>	‘he puts’	from <i>pôr</i> ‘to put’
	<i>canhões</i>	‘cannons’	from <i>canhão</i> ‘cannon’
[ẽj]	<i>falem</i>	‘they speak PRES SUBJ’	from the verb <i>falar</i> ‘to speak’

As shown in Tables 2-4 and 2-5, nasal diphthongs occur predominantly in word-final position. Words which end in a nasal diphthong usually are stressed in the final

syllable. Thus, nasal diphthongs do not occur in syllables closed by a consonant.

Wetzels also argues that nasal diphthongs occur word-internally only in derived words, as shown in Table 2-6:

Table 2-6. Word-internally nasal diphthongs

Diphthong		Glossary
[ãw]	<i>mãozada</i>	'handshake'
[õj]	<i>coraçõezinhos</i>	'little hearts'
[ãj]	<i>cãezinhos</i>	'little dogs'

2.5.2.3 Phonemic interpretations of Portuguese nasal vowels

Vowel nasality in Portuguese has not been a peaceful field of enquiry for linguists. The thorniest problem of all has been establishing an adequate phonemic description and analysis of nasal vowels (Head 1970). However, it has been shown that the disagreement is due more to differences in the theoretical approach adopted by scholars than to differences in the phonetic facts (Vandressen 1975). Thus, this complexity has led to numerous studies dealing with the Portuguese vowel nasalization process mainly from a generative theoretical framework. Almeida (1976:369) points out the two main reasons for the controversy surrounding the phonemic interpretation of Portuguese nasal vowels: the existence of an imperfect knowledge of the phonetics' phenomena and a rigid taxonomical analytical procedure.

Analyses of Portuguese nasal vowels have been basically within the generative theoretical framework. The main hypothesis has been that nasality is predictable in Portuguese. Nevertheless, this hypothesis has been theoretically and empirically challenged. The basic generative hypothesis postulates that the surface nasality of Portuguese vowels and diphthongs is derived by assimilation. Thus, all nasality is derived from an underlying tautosyllabic nasal consonant and its emergence as a full

consonant in derivation provides the main supporting evidence of this hypothesis. To illustrate this statement, we will consider the following pairs in Table 2-7 (examples from Shawn 1986:116):

Table 2-7. Nasal vowels alternations in basic word and suffixation

		Glossary
<i>um</i>	[ũ]	‘one’
<i>único</i>	[‘uniku]	‘only one’
<i>bem</i>	[běj]	‘well/goodness’
<i>benéfico</i>	[be’nefiku]	‘beneficial’

Table 2-7 shows a nasal vowel in the basic word alternates with an oral realization followed by a heterosyllabic nasal consonant. Yet, the sequence [Ũ] and [VnV] is also found in prefixation, such as the prefix of negation /in-/, as in *impossível* [ĩpu’sivew] ‘impossible’, *possível* [pu’sivew] ‘possible’; *inofensivo* [inofěj’sivu] ‘inoffensive’, *ofensivo* [ofěj’sivu] ‘offensive.’¹⁷ Consequently, as Shawn argues, the generative approach does not account adequately for [VnV] sequences and dialectal variations. Nevertheless, the analysis of Portuguese nasal vowels has been handled differently by structuralists who are of the opinion that both oral and nasal vowels are phonemic.

The following represents a systematic review of former interpretations of the phonemic interpretation of Portuguese nasal vowels. They are divided into three fundamental views: the biphonemic view, the archiphonemic view, and the monophonemic view (adapted from Almeida 1976:369-72).

The ‘biphonemic view’ (Hall 1943, and Reed & Leite 1947): The biphonemic view “considers Portuguese vocalic nasality as a suprasegmental phoneme which can overlap with vowels and which occurs after the nasalized vowels, before open juncture

¹⁷ Shawn (1996:117) maintains that the generativist treatment of the [VnV] surface sequences range from marking words with a diacritic feature, such as learned, popular, foreign, native or nonnative, which accounts for their failure to undergo certain rules.

as [N] or zero, or before a plosive as consonantal nasalization” (Almeida 1976:369). Hall’s (1943) analysis constitutes the first study on Brazilian pronunciation. This description is based on the speech of a native from Vitória, capital of Espírito Santo in southeastern Brazil, supplemented by material from a Portuguese grammar book. With regard to nasal vowels, Hall proposes a (~) as a phoneme of nasalization. This phoneme would be superimposed on an oral vowel phoneme in the same way suprasegmental phonemes such as stress or pitch are superimposed on various vocalic segments (Lipski 1975:63).

Reed and Leite (1947) represent the second analysis of the segmental phonemes of Brazilian Portuguese. The study is based on the speech of São Paulo, Brazil. This analysis represents a seven vowel system and treats nasal vowels as allophones of their respective oral vowels followed in the same syllable by a nasal consonant phoneme (Reed & Leite 1947:197-98).

The ‘archiphonemic view’ (Morais-Barbosa 1962, and Mattoso Câmara 1953, 1970): The ‘archiphonemic view’ proposes an analysis of Portuguese nasal vowels as a sequence of vowel plus nasal archiphoneme. Morais-Barbosa (1962) considers each nasalized vowel to be followed in the same syllable by an archiphoneme of nasality /N/. Morais-Barbosa argues that this treatment is a more economical description because it gives one single nasal archiphoneme instead of five nasal vowels. In addition, Morais-Barbosa brings forward another argument in favor of the ‘archiphonemic’ approach to vowel nasalization. He notes that the /b,d,g/ phonemes, when intervocalic, show allophonic realizations [β, ð, γ] but not so after closed syllables or nasal vowels, in which case the variants are the plosives [b,d,g].

Câmara (1953, 1970) provides the first analysis of the segmental phonology of Brazilian Portuguese carried out by a native speaker. He interprets nasalized vowels as a vowel phoneme followed by an archiphoneme of nasality. In addition, Mattoso Câmara discusses the following arguments against the 'biphonemic' analysis of nasal vowels in Brazilian Portuguese: (a) nasality occurs in all vowels which are followed by a nasal consonant, whether the consonant is in the same or in the following syllable (both in *cama* 'bed' as in *campo* 'field' the vowel before the nasal consonant is said to be nasalized); (b) nasal vowels have the same effect as a closed syllable. Evidence of this fact is the presence of the intermittent [r] which occurs word-medial after closed as well as open syllables, while the flap [r] occurs word-medially only after an open syllable; after a nasal vowel the only possible R-sound is the intermittent [r]; therefore, as Mattoso Câmara argues, a syllable with nasal vowels is to be considered as closed; (c) word-final nasal vowels cannot go into crasis with a following word-initial vowel; (d) the existence of an epenthetic nasal consonant between nasal vowels and following vowels (*ũa* > *uma* 'one', *nio* > *ninho* 'nest'); (e) the existence of a diphthongized vowel word-finally before a pause, in which the second element is a homorganic nasalized vowel (Mattoso Câmara 1953:89-97).

The 'monophonemic view' (Hammarström 1954, 1962, and Lüdtkke 1953):

Hammarström (1954, 1962) and Lüdtkke (1953) propose treating nasal vowels as single phonemic units. Further, the 'monophonemic view' argues for the communicative irrelevance of the nasal consonantal segment after nasal vowels. For Hammarström this segment is "phonetically non-existent except before plosives and even here only as

a reduced transition segment; moreover, it is said not to be present in the consciousness of the native speaker” (1962:25).

Azevedo (2005) in his introductory overview of the Portuguese language states that Portuguese is one of the two standard Romance varieties in which nasal vowels appear as independent phonemes, the other case being standard French. In his treatment of Portuguese vowels, Azevedo posits that nasal vowels contrast with their oral counterparts as in: *lá* [la] ‘there’, *lã* [lẽ] ‘wool’; *cito* [‘situ] ‘I cite’, *cinto* [‘sĩntu] ‘belt’. Moreover, Azevedo also discusses the ways in which the phonological nature of nasal vowels has been interpreted. The first interpretation postulates five independent nasal phonemes /ã, ê, ĩ, õ, ũ/, which yields the phonetic nasal vowels [ẽ, ẽ, ĩ, õ, ũ]. The second interpretation postulates phonological sequences of vowel plus a nasal consonant that may be interpreted as /n/, thus: /an, en, in, on, un/. As Azevedo argues, each sequence undergoes two phonological processes: vowel nasalization followed by loss of the nasal consonant (/an/ → /ãn/ → [ẽ]) (2005:37).

As these differing approaches demonstrate, the phonemic interpretation of Portuguese nasal vowels is a controversial issue among linguists. The studies cited have sought to determine whether Brazilian Portuguese nasal vowels are monophonemic, biphonemic or present a variant form. Moreover, these conflicting proposals show two problems: the number of vowel phonemes posited and the interpretation of the nasal vowels. Further, each analysis refers to a different Brazilian Portuguese variety and uses a different application of linguistic theory. As Almeida (1976) argues, the difficulty in finding an adequate phonemic interpretation of the Portuguese nasal vowels does not lie in the facts but in how theory is applied to them.

On the other hand, for Lipski all these classification attempts are quite arbitrary since they depend on formal patterns. He furthermore discusses that the different studies cited above “point to the fact that one can, depending on the particular data considered, and also on the data ignored, present a suitable case for either possible interpretation of the nasal vowels” (1975:63). In this respect, Lipski proposes a more realistic analysis that would take into account the structure of the entire language as well as different aspects of the nasalization process itself.¹⁸

Thus, in order to account for vowel nasalization phenomena in UP in Rivera, it is indispensable to take into consideration the variation in aspects of the nasalization process present within the same variety, and the divergence of this process among Portuguese varieties. Further, it is imperative to avoid the tendency to look for language-specific data to justify universal hypothesis of vowel nasalization.

2.5.2.4 Analysis of vowel nasalization in Portuguese

Mattoso Câmara (1972) provides a diachronic and synchronic analysis of Portuguese nasal vowels. He notes that although optional nasalization of stressed vowels in position before a syllable beginning with a nasal consonant constituted a new datum in the phonological system of European Portuguese, this process was always the general rule in Brazilian Portuguese, where it was associated with a concurrent change from /a/ to /ẽ/ and from an open mid-vowel to the corresponding closed mid vowel.

Mattoso Câmara observes that in Latin any consonant, nasal or non-nasal, could close a syllable. But, early in the history of the language, syllable final nasals were

¹⁸ For Lipski, the difference between these interpretations is a matter of terminology and does not result in a substantially different analysis from the standpoint of the overall phonological process (1975:63).

dropped in position immediately before /s/. As a consequence of this change, the first syllable was opened (i.e., *consul* > /kosul/, *mensis* > /mesis/, the remaining /s/, which became intervocalic, underwent the normal lenition to /z/ (ex.: *mesa* /meza/, from *mexa*) (1972:50). Mattoso Câmara further emphasizes that syllable final nasals were reduced in the environment of any other following consonant, and the phonological closing was completed by strongly nasalizing the vowel. Mattoso Câmara points out that this process occurred only in the Lusitanian Romance; in Castilian the nasal consonant alone, as in Latin, persisted (1972:50).

In addition, Mattoso Câmara posits that eventually the way to indicate nasalization in modern Portuguese was to adopt the practice of writing /m/ or /n/, according to the Latin usage, in syllable internal position and in syllable final position after /e/, /i/, /o/ and /u/ while reserving the ‘til’ (~) for diphthongs or final /a/ (i.e., *lana* > *lãa* > *lã*, *orphãnu* > *órfãõ*).

Regarding final nasal vowels in Portuguese, Mattoso Câmara considers them as phonetically diphthongized and a characteristic especially noticeable in the São Paulo variety. Further, this phenomenon has received special attention, particularly in the case of the pair /e(n)/, which is a (phonetic) diphthong in both Brazil and Portugal. Yet, phonologically, the diphthong /ei(n)/ “does not exist in Brazil since there is no non-diphthongized nasal vowel with which it can contrast in order to create a distinctive opposition” (Mattoso Câmara 1972:51). This phenomenon also operates for /i(n)/, /u(n)/, /o(n)/, and even /a(n)/ when the diphthong is conditioned by a nasal closing. In these cases, one can find a “quick asyllabic vowel, which is necessarily homorganic to the syllabic vowel” (Mattoso Câmara 1972:52).

Quicoli (1990) proposes an analysis for the phenomenon of vowel alternation and nasalization in Brazilian Portuguese. In this analysis he does not account for nasalized diphthongs. Quicoli's treatment of nasalized vowels is based on two major rules, Nasalization and Nasalized Vowel Raising (NV Raising), and the way these two rules interact with cyclic stress to explain some unusual effects (1990:329). Quicoli presents the rules that account for vowel nasalization and some alternations affecting nasalized vowels in the 'official dialect' of Brazilian Portuguese. He distinguishes 'official dialect' from a common dialect spoken in Rio de Janeiro and São Paulo, Brazil, where all that is required for vowel nasalization is the presence of a following nasal consonant. In the dialect of Portuguese under investigation, there are essentially three basic environments in which vowels can be nasalized.

Table 2-8. Rule 1: Stressed vowels followed by a nasal consonant

		Glossary
f[ĩ]no	af[i]nádo	(fine – sharpened)
p[ê]na	p[e]nacho	(feather – headpiece).
f[ũ]mo	f[u]máça	(tobacco – smoke)

Table 2-9. Rule 2: Stressed vowel followed by a nasal consonant in a closed syllable

		Glossary
p[ĩ]ngo	p[ĩ]ngado	(drop – dropped)
p[ê]nte	p[ê]nteado	(comb – hairdo)
f[ũ]ndo	af[ũ]nadado	(bottom – sunk)

Quicoli argues that this rule, plus a sub-rule that deletes nasal consonants in final position, accounts for nasalization in forms such as *lã* 'wool', *maçã* 'apple'. Table 2-10 sub-rule 2.1 shows deletion of nasal consonants in final position.

Table 2-10. Sub-rule 2.1: Deletion of nasal consonants in final position

/# lan #/	/# masan #/	
ã	ã	Nasalization
∅	∅	Nasal deletion
[lã]	[masã]	

Table 2-11. Rule 3: Vowel nasalization before the palatal nasal [ɲ]

		Glossary
p[ê]nha	p[ê]nhásco	(rock - cliff)
verg[õ]nha	verg[õ]nhóso	(shame – shameful)
p[ũ]nho	p[ũ]nhádo	(fist – fistful)

Table 2-11 shows examples where a vowel is nasalized before the palatal nasal [ɲ] (spelled *nh*), regardless of stress. The three cases, presented in Tables 2-8 through 2-11, can be summarized as: “a vowel will be nasalized when followed by any nasal consonant; but if the vowel is unstressed, then it will be nasalized only if the following nasal consonant is either high (i.e., the palatal nasal) or is followed by another consonant or word boundary” (1990:322). He argues that this rule subsumes the core cases of nasalization in Portuguese ‘standard’ dialect. The differences between nasal/non-nasal are assumed to be categorical in the formulation of the nasalization rule.

Moreover, to account for the change of [ã] to [ã̃], it is argued that in the official dialect of Brazilian Portuguese there are no nasalized low vowels in surface representation. The contrasts between surface oral vs. nasalized vowels are shown in Table 2-12:

Table 2-12. Surface oral vs. nasalized vowels in BP

(a) Oral vowels			(b) Nasalized vowels		
+hi, -lo:	i	u	ĩ	ũ	
hi, -lo:	e	o	ẽ	ã̃	õ
-hi, +lo:	E	a	O		

The characterization of Brazilian Portuguese [E, O, a] as [+low], seems to be supported by the view that these vowels behave as a class when affected by

nasalization. Thus, to account for this phenomenon, Quicoli proposes a rule that raises low vowels to mid position when they are nasalized, as shown in Table 2-13:

Table 2-13. Nasalization of low vowels and raise to mid position

/kama/	/fOnte/	/tEmpo/	
Á	Ó	É	Stress
á	ó	é	Nasalization
ã	õ	ê	NV Raising
[kã ma]	[fõ nte]	[tê mpo]	

The empirical claim made by the rule of NV Raising is that it applies only to vowels that have undergone Nasalization, in other words, NV Raising is fed by Nasalization (Quicoli 1990:324).

Mateus and d'Andrade (2000) compare vowel nasalization in European Portuguese and Brazilian Portuguese. Mateus and d'Andrade discuss that at the phonetic level the two varieties have the same nasal vowels and these vowels are always [-low]. Further, the authors present an inventory of nasal vowels following word stress position (examples from Mateus & d'Andrade 2000:21):

Table 2-14. Stressed nasal vowels

Non-final		Glosse		Final		Glosse	
[ẽ]	<i>canto</i>	['kẽtu]	'song'	[ẽ]	<i>irmã</i>	[ir'mẽ]	'sister'
[ê]	<i>entre</i>	['ẽtri]	'between'				
[ɨ]	<i>cinco</i>	['sɨku]	'five'	[ɨ]	<i>fim</i>	[fɨ]	'end'
[õ]	<i>ponto</i>	['põtu]	'point'	[õ]	<i>som</i>	[sõ]	'sound'
[ũ]	<i>fundo</i>	['fũdu]	'deep'	[ũ]	<i>comum</i>	[ko'mũ]	'common'

Table 2-15. Pre-stressed nasal vowels

			Glosse
[ẽ]	<i>cantar</i>	[kẽtár]	'to sing'
[ê]	<i>entrar</i>	[ẽtrár]	'to enter'
[ɨ]	<i>findar</i>	[fɨdár]	'to end'
[õ]	<i>apontar</i>	[apõtár]	'to point'
[ũ]	<i>untar</i>	[ũtár]	'to oil'

Mateus and d'Andrade argue that underlyingly there are no nasal vowels in Portuguese, and that it is advisable to treat them as sequences of oral vowel plus nasal segment. In addition, they discuss the following arguments against the evidence of lexical nasal vowels (2000:21):

(i) Rhotics [ʀ] and [r].

Only [ʀ] occurs in EP after a syllable-final consonant, (e.g., *desregrado* [diʒʀigrádu] 'unruly', *Israel* [iʒʀeél] 'Israel'). The pronunciation of /r/ after a nasal vowel only allows [ʀ]. Mateus and d'Andrade (2000) provide examples of rhotics after nasal and non-nasal vowels to illustrate their hypothesis.

Table 2-16. Rhotics after nasal and non-nasal vowels

a. Nasal vowels				b. Non-nasal vowels			
[õ]	<i>ronronar</i>	[ʀõʀunár]	'to purr'	[o]	<i>coral</i>	[koráw]	'choral'
[ẽ]	<i>tenro</i>	[tẽʀu]	'tender'	[u]	<i>curral</i>	[kuráw]	'stable'
				[é]	<i>pera</i>	[pére]	'pear'
				[é]	<i>perra</i>	[pére]	'hardy' (fem.)
)
[õ]	<i>honra</i>	[õʀa]	'honour'	[ó]	<i>coro</i>	[kóru]	'choir'
				[ó]	<i>corro</i>	[kóru]	'I run'

The examples shown above illustrate the diverse behavior of nasal and oral vowels. Mateus and d'Andrade argue that "this diversity is due to the presence of an underlying nasal segment that is phonetically realized as the nasal feature of the vowel" (2000:21). Table 2-17 and 2-18 show examples of base words which have the prefix /in-/ , /im-/.

(ii) Derivation from base words which have the same prefix /in-/ , /im-/.

Table 2-17. Base word derivations with prefix /in-/ , /im-/ before a consonant

		Glosse
<i>intenção</i>	[ĩtẽ'sãw]	'intention'
<i>incapaz</i>	[ĩkepá]	'unable'
<i>imposto</i>	[ĩpóftu]	'tax'

Table 2-18. Base word derivations with prefix /in-/ before a vowel

		Glosse
<i>inacabado</i>	[inakebádu]	‘unfinished’
<i>inoportuno</i>	[inoportúnu]	‘inopportune’
<i>inaceitável</i>	[inesejtávɛl]	‘unacceptable’

These words are derivations of base words: *tenção* ‘intention’ / *intenção* ‘intention’; *capaz* ‘able’ / *incapaz* ‘unable’; *posto* ‘put in place’ / *imposto* ‘forced’; *acabado* ‘finished’ / *inacabado* ‘unfinished’; *oportuno* ‘opportune’ / *inoportuno* ‘inopportune’; *aceitável* ‘acceptable’ / *inaceitável* ‘unacceptable’. These examples show that before a consonant the prefix is pronounced [ĩ], while before a vowel it is realized as an oral vowel and a nasal consonant [in]. In order to account for this phenomena, Mateus and d’Andrade propose that “this particular prefix has a single underlying representation, but is phonetically realized as a nasal vowel before a consonant, or as a vowel followed by a nasal consonant, when the following context is a vowel” (2000:22).

The alternation nasal vowel/vowel plus nasal consonant is further shown with word-final nasal vowels and EP nasal diphthongs:

Table 2-19. Alternation between nasal vowel/vowel plus nasal consonant in EP

a. Word-final nasal vowels				b. Vowel plus nasal consonant		
[ẽ]	<i>irmã</i>	[ir’mẽ]	‘sister’	<i>irmanar</i>	[irmɛnár]	‘fraternize’
[ĩ]	<i>fim</i>	[fĩ]	‘end’	<i>final</i>	[fináw]	‘end’
[õ]	<i>som</i>	[sõ]	‘sound’	<i>sonoro</i>	[su’nOru]	‘sonorous’

The sequence of vowel plus nasal consonant (b) corresponds to the word-final nasal vowels (a). Table 2-20 shows nasal diphthongs in European Portuguese.

Table 2-20. EP nasal diphthongs

<i>Pão</i>	[pẽũ]	‘bread’	<i>panito</i>	[penítu]	‘small bread’
<i>Leão</i>	[ljẽũ]	‘lion’	<i>leonino</i>	[liunínu]	‘leonine’

The examples shown above reflect a distribution gap with respect to nasal consonants: they occur syllable-initially (e.g., [pẽ-nítu]) but they do not occur syllable-

final *[pɛn-zítu]). It is worth pointing out that words like *[pin], *[bam] and *[sɔŋ] are not allowed in Portuguese (with a few exceptions ending in [ɛn] like *abdómen*, [ɛb'dOmen] or *sémen* ['semen]). In BP these words have a final nasal diphthong (e.g., [ɛb'dOmẽj]) (Mateus & d'Andrade 2000:23). In sum, Mateus and d'Andrade present enough evidence to support their hypothesis that, underlyingly, Portuguese nasal vowels receive their nasality from a nasal segment that is deleted at the phonetic level (2000:23).

Azevedo (2005) discusses that in Portuguese there are nasal diphthongs and triphthongs, as in: *mãe* [mẽj] 'mother', *pão* [pẽw] 'bread', *quão* [kwẽw] 'as', etc (2005). Moreover, Azevedo asserts that *muito* [mũjtu] 'a lot of, much' (as well as its obsolete clipped variant *mui*) is the only instance of nasal [ũj] in all varieties of Portuguese, although in BP *ruim* 'bad' tends to be nasalized ['hũj]. The same goes for variant forms such as *ruindade* 'cruelty', *ruinzão* 'cruel', *ruinzinho* 'shabby.' The nasal vowel [õ] in final position tends to diphthongize: *dom* 'gift' [dõ] ~ [dõw], *som* 'sound' [sõ] ~ [sõw] (Azevedo 2005:32).

Furthermore, he posits that in Brazilian Portuguese a nasal consonant in syllable-initial position tends to nasalize the preceding vowel. A word like *cama* 'bed', *tenho* 'I have' present a slightly nasalized stressed vowel. Another distinguishing feature of Azevedo's analysis in contrast with previous descriptions is that it considers the process of phonetic nasalization by assimilation to be responsible for regional variation and differences between from one speaker to another (Azevedo 2005:38). In Brazilian Portuguese, the lexical nasal consonant spreads the nasal feature over the preceding vowel when stressed, (e.g., *cama* ['kãma] 'bed'). Moreover, in many Brazilian varieties,

the dorsal nasal consonant loses its [+consonant] feature and is realized as a glide, (e.g., *unha* [ˈũjɐ] ‘nail’).

2.5.2.5 Variation in Brazilian Portuguese nasal vowels

Linguistic variation is rarely referred to in the literature on Portuguese nasal vowels although different types of linguistic variation have been briefly mentioned in the literature on vowel nasality. To my knowledge, there has not been an adequate description of Portuguese vowel nasal phenomena from a variationist perspective. However, Shaw (1986) provides evidence of the existence of dialectal variations conditioned by stylistic and sociolinguistic factors such as social class (80).

Vandresen (1975) remarks that the tendency for stressed vowels before a nasal consonant in the next syllable to be nasalized is supported by the assumption that the degree of nasality is intensified by stress, which in general intensifies other parameters as well.¹⁹ Further, Vandresen also points out that the alternation of unstressed nasalized [ã] and unstressed [a]; and stressed non-low nasalized vowels (that is, [ẽ], [õ], [ĩ], [ũ]) alternate in free variation with the oral vowels corresponding in quality (that is, stressed [e], [o], [i], [u]). Thus, it is relevant at this point to ask if we can account for the conditioning factors deriving these alternations, although different phonetic degrees of nasality proposed by Vandresen (1975), Almeida (1976) and other researchers are not analyzed in the current investigation. Degrees of nasalization do not appear to be linguistically (i.e., psychologically) relevant since there appears to be no language in

¹⁹ While it is normally agreed that there are different phonetic degrees of nasality, linguists differ as to the possible number of degrees and the context in which they occur. However, it is generally assumed that vowels nasalized tautosyllabically are stronger than those nasalized heterosyllabically; the latter are also believed to be allophonic while the former can be either allophonic or phonemic (Shaw 1986:75). It has been argued that degree of nasality is generally stronger in Brazilian Portuguese than in European Portuguese. It is also believed that vowel nasality is stronger in French than in Portuguese (Morais-Barbosa 1962).

which degrees of nasalization are employed to differentiate meaning (Quicoli 1990). Further, distinctions between degrees of nasalization are compelling for acoustic or instrumental treatments of nasalization, but are not a fruitful distinction for our purposes in the present study.

Lipski's (1975) study of the Carioca variety of Brazilian Portuguese, spoken in Rio de Janeiro, reports that vowel nasalization before a nasal consonant in the following syllable is ignored in many descriptions of the language, although it is an accepted phenomenon in Brazilian Portuguese. Lipski further points out:

Although this latter sort of nasalization in the Carioca dialect is much more marked in some words than in others, it appears to be a basic and ever-spreading facet of the vowel nasalization process, in fact its more general manifestations, and therefore the basic nasalization rule must be further extended to cover every instance of vowel nasalization, phonemic or otherwise (1975:67).

Lipski (1975) strongly points out the need to account for every instance of vowel nasalization phenomena in Brazilian Portuguese although even though this type of vowel nasalization does not result in a phonemic contrast with its oral counterparts. Further, Lipski remarks that these phonological manifestations show that BP is moving in the direction of adopting the maximally general universal schema of vowel nasalization: $V > \tilde{V} / ___ N$.

Azevedo (1981) documents the existence of some variation among dialects with regard to the possibility of stressed nasalized /O/. In Carioca speech [o] is the norm (Mattoso Câmara 1953:77, Head 1964:179), whereas for speakers from São Paulo and Minas Gerais, both options exist. Azevedo argues that in this case nasalization is less frequent and rather slight (1981:23).

As the literature review indicates, dialectal variation in vowel nasalization in Portuguese has been somehow neglected. Although vowel nasalization before a nasal consonant in the following syllable has been attested in EP and BP the linguistic constraints conditioning its variation has not been investigated. One of the challenges seems to be the disagreement on the adequate incorporation of linguistic variation into grammatical theory. An additional aspect to take into consideration is the hypothesis-then-data approach that favors implied assumptions or generalizations. Thus, the quantitative analysis of vowel nasalization phenomena in contemporary UP is of paramount importance since it would provide a sociolinguistic distribution of a neglected linguistic feature in this variety.

2.5.2.6 Vowel nasalization in UP

Although the literature on UP contains incidental references to the presence of vowel nasalization in this variety, this phenomenon has not been investigated yet. A review of the literature on UP indicates that vowel nasalization is a variable feature. However, one of the challenges for the description of UP vowel nasality remains the lack of previous research.

Rona (1965) attests to the presence of the Portuguese distinction of oral and nasal vowels in all the *Fronterizo* varieties but does not provide any quantitative data. Rona observes that in Portuguese words, nasal vowels are maintained, whereas in Spanish words closed word-finally by /N/, the nasal is lost and the vowel is nasalized, thus, creating lexical items that do not exist in either language, (i.e.), [botõ] *botón* 'button' vs. [botó] *verbo botar* 'to throw away' (examples from Rona 1965:43).

Furthermore, Rona remarks that in the *Melense* variety, Portuguese words ending in *-ão* and Spanish words ending in *-ón*, have yielded only one ending– *ão* (1965:43).

The other three *Fronterizo* varieties in Rona's classification are said to have kept the Portuguese diphthong –*ão*. This has caused an opposition between a nasal and an oral diphthong in *Fronterizo*: [botáu] *botado* 'to throw away (participle)' / [bo'tãu] *botón* 'button' (1965:35 my translation).

Moreover, Rona states that vowel nasalization, before a nasal consonant in the following syllable, is not characteristic of *Fronterizo*. Rona analyzed the writings of *Fronterizo* schoolchildren and found the /n/ deletion in words such as: **domigo* (*domingo*) 'Sunday', **auque* (*aunque*) 'although' and **pieso* (*pienso*) 'I think'. For Rona these examples are evidence that nasal vowels are unique phonemes in *Fronterizo*. "Para el hablante *Fronterizo* las vocales nasales son fonemas únicos²⁰. (Rona 1965:36 my translation).

Hensey (1982:15) argues that /a/ raises to /ə/ when preceded by a nasal. Hensey's results show that Riverans nasalized /a/ as a low vowel in 70% of the cases. On the other hand, Lipski (1994) in a study of Latin American dialectology posits that vowel nasalization in *Fronterizo* is variable and can be measured according to its degree of approximation to the Portuguese vowel system (1994:343).

As it can be observed, the existence of Portuguese vowel nasalization studies is sparse, although they do indicate the presence of the phenomena in UP variety. Thus, the quantitative analysis of vowel nasalization in UP would provide empirical evidence of the alternations available for speakers in this variety. It is therefore of paramount importance to base analysis on observable data to account appropriately for the linguistic and social variation of vowel nasalization in UP.

²⁰ Rona notes "los niños habían aprendido a escribir conforme a las reglas castellanas" children have learned to write according to Spanish rules (1965:36 my translation).

In this chapter I have outlined the theoretical framework that supports the present study. I have explored the main aspects of the quantitative variationist approach to sociolinguistics to account for the phonological variation in UP. One of the central tenets behind quantitative sociolinguistics is that variable and categorical processes are not random but rather rule-governed (Sankoff 1978). A quantitative combined with a qualitative approach, which provides a better understanding of the intersection of the linguistic and social factors, is implemented in the present investigation. Indeed, quantitative research has shown that linguistic variables are constrained by both internal and external factors. These factors can potentially influence speakers' choice of one or another variable form.

The speech community and social networks analytical units are regarded as key components in empirical linguistics. The city of Rivera is a close-knit speech community and thus a social network approach can account for the patterns of relationships between people and the way its affect linguistic variables' selections. Further, network analysis has been employed in many studies in variationist studies from the 1980s to the present. The idea of using social network as a speaker variable was developed in the Belfast study (Milroy 1987), as a way to investigate the capacity of close-knit networks to function as a norm enforcement system. Thus, speech community and social networks are adopted in this project as analytical tools.

In addition, I have outlined the linguistic varieties coexisting along the Uruguayan-Brazilian border. Due to intricate socio-political and economic circumstances, Spanish and Portuguese and its regional varieties, have coexisted for many centuries in the

frontier. The competing varieties provide the speaker with a selection of linguistic variables to choose from according to their social and ideological characteristics.

The literature reviewed has described the main aspects of the two linguistic variables under investigation, linguistic realization of /ti/ and /di/, as a dental stop or as an affricate and the absence or presence of vowel nasalization in Uruguayan Portuguese. Palatalization of dental stops is one of the most salient features of Carioca variety and several other Brazilian varieties. Previous descriptions of UP mention none or little palatalization of dental stops (Rona 1965, Hensey 1972, Lipski 1994). In studies conducted in the Rio de Grande do Sul state, Hensey (1972) and Bisol (1991) show that the conservative pronunciation of dental stops is receding. In fact, palatalization of /ti/, /di/ is becoming the new trend among young speakers willing to align themselves with standard Brazilian Portuguese. This new trend seems to be spreading across national boundaries since Carvalho's (1998) statistical results show a pattern of social stratification in rendering the palatal realization of dental stops in Rivera. Carvalho points out that the application of the palatalization rule in UP illustrates a theory of dialectal diffusion in Rivera. Indeed, Carvalho argues that palatalization of dental stops in UP is a variable related mainly to age. Further, mid-middle socioeconomic class women are using the symbolic value of the standard variable to signal urban orientation, different from the traditions of the rural border community.

The literature reviewed on Portuguese vowel nasalization has shown two important aspects that motivates the analysis of vowel nasalization in UP. On the one hand, linguistic variation is rarely referred to in the literature on Portuguese nasal vowels. Although, different types of linguistic variation across individuals and varieties in

BP has been briefly mentioned in the literature on vowel nasality. However, to my knowledge, there has not been an adequate description of Portuguese vowel nasal phenomena from a variationist perspective. On the other hand, analyses of Portuguese nasal vowels have been basically within the generative theoretical framework. The main hypothesis has been that vowel nasalization is predictable in Portuguese. Nevertheless, this hypothesis has been theoretically and empirically challenged. Thus, in order to account for vowel nasalization phenomena in UP in Rivera, it is indispensable to take into consideration the variation of aspects of the nasalization process present within a same variety, and the divergence of this process among Portuguese varieties. Further, it is crucial to avoid the tendency to look for language-specific data to justify universal hypothesis of vowel nasalization. Therefore, the quantitative analysis of vowel nasalization in UP, would provide empirical evidence of the alternations available for speakers in this variety. The present study, in sum, represents an attempt to fill this research gap.

The next chapter describes the research methodology. It includes a description of the speech community of Rivera with emphasis on social and economic aspects. An account of the fieldwork, both preliminary and data collection phase of the research, is described as well as the sociolinguistic interview techniques to collect optimal data for analysis. In addition, I detail the speakers' selection criteria and the composition of the final speech sample. The linguistic and social variables under consideration are circumscribed, and data analysis including the extraction, transcription, coding, and quantitative analysis of the final sample is described.

CHAPTER 3 METHODOLOGY

3.1 Quantitative Methods and Dialect Research

William Labov (1972:99) discussing linguistic methodology, classified the different subfields of linguistics according to whether their practitioners were primarily to be found working in “the library, the bush, the closet, the laboratory ...[or] the street.” As Schilling-Estes furthermore states, sociolinguistics steps beyond the laboratory and out into the street, to gather data on language as people use it in everyday life (2002:17). My approach to linguistic methodology was informed mainly by Labov’s (1972) ideas on linguistic research, inasmuch as my main objective was to gain access to the vernacular, the uncensored style in the speech of the people from Rivera in their daily lives. In conducting sociolinguistic research, it is important to study the community *in situ* and to overcome what Labov (1972:61) has described as the ‘observer’s paradox’.¹ In fact, the observer’s paradox can be a more complex issue for bilingual researchers like me because of the influence of audience in determining language choice (Milroy & Gordon 2003:71).

My approach to data collection was also informed by Milroy’s (1985, 1992) ethnography of communication research in Belfast² as well as Blom and Gumperz’ (1972) ethnographic work in the Norwegian town of Hemnes. One of the first challenges I encountered was how to enter and present myself to a community about which I had

¹ For Labov the goal of sociolinguistic research is “to observe the way people use language when they are not being observed” (1972a:61).

² The Milroy’s carried out research in Belfast, Northern Ireland, in three working class enclaves. Belfast’s rigid ethnic and religious divisions make it necessary that the fieldwork be conducted by a woman, Lesley Milroy, rather than a man, and important that she enters each community not as an outsider but as a “friend of a friend.” These techniques of data collection proved seminal for undertaking sociolinguistic research within a social network framework (Chambers 2003:134).

acquired knowledge only through readings and library research. It was important for me to familiarize myself with the speakers' day-to-day experience and the socio-geographic unit that is the speech community.

In this chapter I will describe the research site that is the speech community of Rivera. I will also describe the two fieldwork trips I carried out in Rivera: the preliminary fieldwork, in which much of the ethnographic work was done, and the data-gathering fieldwork, during which most of sociolinguistic interviews were conducted. I will also describe the Rivera corpus, speakers' selection criteria and the linguistic and social variables under examination. I will provide as well a description of the data analysis, including the data extraction techniques used, data transcription, and coding. Lastly, I discuss the main statistical analysis performed in standard quantitative sociolinguistics.

3.2 The speech community of Rivera

The city of Rivera and its Brazilian twin city Santana do Livramento form one urban complex; in a way, it is one city with strong cultural, linguistic and ethnic ties. The population of the city of Rivera is approximately 100,000 inhabitants. It is considered to be the largest urban center on the border. Santana do Livramento has a slightly smaller population with 90,000 inhabitants. Currently, Rivera and Santana do Livramento are economically and demographically the largest and most important cities on the Uruguayan-Brazilian frontier.

The long sustained interaction and contact between both cities allow citizens from these two countries to frequently cross borders to carry out everyday life activities. Lack of immigration or customs checkpoints along this border allows community members of both cities to interact freely. It is common to see community residents from both cities crossing the Parque Internacional to carry out daily activities, such as working,

attending school, grocery shopping, playing sports, etc., without any customs control or checkpoint.

There are no geographic barriers separating Rivera from Santana do Livramento; thus, it is commonly known as *la frontera de la paz* 'border of peace'. The *Parque Internacional* which is located between the two cities celebrates the unity and integration of the two countries. In the center of the *Parque Internacional* is an obelisk with two clocks, showing Uruguayan and Brazilian time. There are also plaques that narrate the foundation of the cities along with Uruguayan and Brazilian flags waving side by side.

At night young people from both cities gather downtown, along the main avenue, *Avenida Sarandí*, to socialize and drink *mate*³, an infusion prepared with dried leaves and one of the main *Gaucha* culture social practices. Both ethnic groups, Brazilians and Uruguayans, share the *Gaucha* traditions of the *Pampas*.⁴ As a consequence of the geographical, cultural and social closeness, mixed marriages and domestic partnerships are a frequent fact of life. It is common practice and view as an advantage to have one child born on Uruguayan soil and another in Brazil. The term *doble chapa*⁵ 'double license plates', refers to inhabitants who have dual nationality either by birth or mixed marriage. Being a *doble chapa* is perceived as an advantage in this community,

³ *Mate* is traditionally drunk in a social setting among family and friends. It is considered to be the national drink of Argentina, Paraguay and Uruguay. It is also a common social practice in the Rio Grande do Sul area.

⁴ The common *Gaucha* tradition is reflected in a body of regionalist literature in Spanish or Portuguese, such as Hernández' *Martín Fierro* (Hensey 1972:11).

⁵ The term originated during the 60s when Uruguay and Brazil established a car registration system in which a vehicle could circulate within Rivera or Santana city limits.

since it entails better education and job opportunities not only in Santana but anywhere in Brazil.

The main economic activities are duty-free shopping, sales, and services. Informal commerce is also an important source of revenue for the two cities. Along the imaginary line⁶ separating Uruguay and Brazil, right next to the *Parque Internacional*, it is common to find food stands, informal money exchangers, and an enormous array of stands selling Paraguayan and Argentinean contraband goods. Contraband, on both a small and large scale, is part of Rivera-Santana's daily economic activity. The presence of a customs office right along the border, in my own opinion, does not seem to present an obstacle for this lucrative activity. When asked about this fact, community dwellers seem to perceive it as an ordinary and natural commercial activity characteristic of their unique historical circumstances.

Along Rivera's main avenue, *Avenida Sarandi*, 'free shops', offer a wide variety of local and international products. Rivera's duty-free shops attract Brazilians from cities as far away as Porto Alegre, mainly during long weekends. The presence of Brazilian dwellers in Rivera increases the opportunities to communicate in Portuguese language. It is interesting to note that people from Santana are not as keen to speak Spanish as Riverans are to speak Portuguese. As a result, Riverans working in the downtown area, where the majority of economic opportunities exist, feel the need to communicate in Portuguese on a daily basis.

⁶ The term 'imaginary line' is normally used in reference to Rivera/Santana do Livramento borderline as a way to signal fraternity and the meeting point between the two 'nations'. Further, this concept has also been used to refer to Anderson's theory of the nation as an imagined community in relation to identity construction in borderlands (Church 2007:18)

Portuguese is the language commonly used along the border, since all the commercial activities are located in this busy area, especially along *Avenida Sarandi*. On the other hand, Spanish language is not used in Santana. When crossing to Santana to shop or to work, Riverans are expected to communicate in Portuguese. During my fieldwork on the border, I witnessed many verbal exchanges at duty-free shops, department stores, and informal commercial booths. Store employees at the duty-free shops and department stores communicate in a variety closer to 'standard' Portuguese, enabling them to carry out a flawless communicative interaction with the Portuguese monolingual buyers.

Uruguayans are not allowed to shop in 'duty-free' stores, but these businesses provide an important source of employment for them. Self-reported data from participants revealed their opportunities to engage in daily interactions with Santana shoppers and their willingness to 'speak the language of the buyer.' Public school teachers, mainly females, revealed previous employment as duty-free employees. It is in these businesses, where face-to-face interactions take place on a daily basis, that Riverans derive their Portuguese linguistic model.

During the month of July 2007, when I conducted the first fieldwork, Brazilian tourists in Rivera were so numerous that it became a problem due to a lack of hospitality services available in the city. The increase in tourism was accompanied with a bit of resentment from Rivera residents, who saw their city invaded by a large number of Brazilian shoppers with more buying power. Mixed opinions can be found among residents, about the influx of Brazilian tourism. It is common to hear Riverans complaining about the fact that Brazilian tourists are buying up much-needed basic

products. However, for duty-free shop owners and small store keepers, it is always good news to see an increase of tourists with buying power.

A similar situation is reported by Labov (1963, 1972) in conducting his first fieldwork on the small island of Martha's Vineyard off Cape Cod in Massachusetts. He notes that the island is divided into two distinctive sections: up-island, where the summer homes are located, is strictly rural and contains few villages and farms. Down-island is where three-fourth of the population lives (Labov 1972:4). Labov found a social correlation between centralization of the diphthongs (ay) and (aw) with expressions of strong resistance to the incursions of summer visitors on the island. In addition, Labov reports that while people in close-knit groups opposed seasonal visitors on the island, residents in the up-island section welcomed them. Labov argues that summer people have " had relatively little direct influence on the speech of the Vineyard, although the constant pressure from this direction, and the growing dependence of the island upon a vacation economy, has had powerful indirect effects upon the language changes which we will consider" (1972: 6).

Opportunities for communicative interactions with Portuguese speakers are vast in Rivera. Not only do commercial interactions provide a platform for linguistic exposure, Riverans are also eager consumers of Portuguese media. Brazilian radio stations broadcasting popular music are favored over Uruguayan stations, many times played using loudspeakers to advertise sales or special events. Community dwellers access the powerful Brazilian television network *Globo* for free, while access to Uruguayan national television is accessed through paid cable. It was my experience while conducting fieldwork, that community members from Rivera were more aware of

Brazilian social and political issues than Uruguayan politics. The impact of Portuguese media on Rivera's linguistic norms has been documented (Carvalho 1998, 2004).

As discussed above (§1.2.1), Rivera and Santana do Livramento maintain strong historical and cultural ties. The twin cities also share community traditions, values, and language usage norms. Both cities celebrate international festivities such as *Carnaval de la Integración*, *Cielo sin Fronteras*, *Fiesta de la Hermandad y el Patriotismo*, and *Desfile Internacional de la Farroupilha*.⁷ These celebrations bring dwellers from both cities together, where the municipal band plays traditional *Gaúcho* music in the *Parque Internacional*, followed many times by a patriotic speech, where the twin-cities' unique fraternal conviviality is reiterated.

Although national borders can be thought as a place where sharp dividing lines are drawn, the dynamics of integration, globalization and transformation on the Uruguayan-Brazilian border gives evidence to the contrary. As Hamel (2003) posits, "rather than dividing lines, they appear to be areas of ancient interaction, constituting strips of fluid contact and developing hybrid cultures and systems of communication" (131). Nevertheless, this regional integration at the local level, where trade, cultural contact, and exchange are reinforced, contrasts with the slow action of the government (Hamel 2003:132).⁸

⁷ *Revolução Farroupilha* was a Republican uprising that began in the Brazilian state of Rio Grande do Sul in 1835 due to difference between the economies of this state and the rest of the country.

Source: *Intendencia Municipal de Rivera*.

⁸ As Hamel argues, governments' slow implementation of *Mercosur* initiatives show a bit of resistance to integration itself (2003:131).

3.3 Fieldwork

The fieldwork was conducted during two separate periods of time, during the summers of 2006 and 2007. The first period lasted six and the second eight weeks. The first trip was basically preliminary fieldwork in order to assess the feasibility of the project and to establish social contacts in order to gain access to the community. The second period of fieldwork was devoted to the data collection phase of the project. Gaining access to the community, and more importantly, to the vernacular is one of the most challenging tasks for a sociolinguist. In order to achieve this goal, I adopted throughout both fieldwork trips a participant-observation role, which entails participant involvement with the community in their natural environment. These social contacts proved extremely useful especially during the second fieldwork trip when the data collection phase of the project took place.

3.3.1 Preliminary fieldwork

For the preliminary fieldwork, one of my objectives was to get acquainted with the area and its surrounding cities. An additional objective was to observe participants' linguistic behavior, to acquaint myself with their ways of life and to obtain a good sense of speakers' attitudes towards UP. During this phase of the fieldwork, I immersed myself in what Blom and Gumperz (1972) call "a period of relatively unstructured observation," through which I learned the social symbolism of the two codes and the opposition between local and non-local values in the Rivera speech community.

Prior to arriving in Montevideo, I had established preliminary contact with faculty members of *Universidad de la República*, in Montevideo. It is at this institution that Drs. Elizaincin, Barrios, and Behares have been conducting research on the *Dialectos Uruguayos del Portuguese*, or DPU (Uruguayan Portuguese Dialects), as it is known by

linguists. These scholars gave me their advice, support and all the necessary information on the linguistic situation in the cities along the Uruguayan-Brazilian border. In addition, they met with me on several occasions to discuss general issues regarding their research on the border and provided me with excellent contact information in Rivera.

While in Montevideo, I visited university and public libraries, and governmental offices (*Instituto Nacional de Estadística, Mercosur office, Superintendencia de Montevideo*) to gather information related to the research. I also conducted informal interviews with locals, which provided me with an insight into people's attitudes toward the UP variety spoken in Rivera or *baiano* as it is commonly known among the capital city dwellers. The information about attitudes toward UP gathered in Montevideo confirmed the thoughts and feelings shared by the speakers of the speech community of Rivera. UP is also known as '*baiano*' or '*habla abasilerada*' (Brazilian style speech) by community members in Montevideo. The local variety has been stereotyped and mocked, considered to be a sign of lack of education and patriotism. Community members of Rivera are aware of the stigma attached to their speech and prefer not to reveal it to outsiders.

Faculty at the *Universidad de la República* in Montevideo put me in contact with the director of the *Centro Regional de Profesores CERP* in Rivera.⁹ CERP is a three-year educational institution where students from different small towns in Rivera and surrounding *departamentos* attend classes in order to become school teachers. Students willing to become school teachers must have graduated from the *liceo*, or high

⁹ The *Centro Regional de Profesores CERP* is part of the *Asociación Nacional de Educación ANEP*. ANEP is the institution in charge of all major educational decisions in Uruguay.

school, and pass an entrance exam designed and evaluated in Montevideo. This center offers school teacher training in several areas such as math, social sciences, language and literature, physics and English as a foreign language. The center does not train teachers for the teaching of Portuguese.

Many of the students at CERP, especially those coming from Rivera *departamento*, are UP speakers. During my fieldtrips in Rivera, I stayed at the female residence building at CERP. This unique setting allowed me numerous opportunities to observe, learn, and interpret rules of language choice, language use, and linguistic attitudes in the speech community. The center's educational facilities and female residence are located on the outskirts of the city and at the entrance to Rivera city, on the main interstate and just 15 miles away from the city downtown. This location in the outskirts of the city put me close to the peripheral *barrios* or neighborhoods where most of the inhabitants speak UP. Furthermore, being part of the setting that I was studying gave me an advantage in gaining access to the vernacular speech.

3.3.1.1 An ethnographic approach

One of the challenges in sociolinguistic research is obtaining insider knowledge about the communities under investigation. This local knowledge is necessary to discover what is important for community members in order to be able to use this knowledge to interpret speech data. It is through local knowledge that a researcher can come to understand that the social value of phonological variants may differ from community to community. The ethnographic approach to sociolinguist inquiry enables the researcher to achieve this goal, and it is especially effective when the researcher is not a member of the community, as in my case. Thus, I modeled Blom and Gumperz's (1972) work in Norway by adopting the ethnographic approach for this research. This

method allowed me to “observe vernacular speech which entailed an explicit analysis of local cultural categories before any structured elicitation of language was even attempted” (Milroy 1987:65).

Although I did not conduct as many interviews in UP as I had planned during the preliminary fieldwork, I was able to gather a good amount of qualitative data. Indeed, the period of time in which I engaged in participant-observation activities in Montevideo and Rivera, Uruguay and in Santana do Livramento, Brazil, was fundamental to obtaining local cultural knowledge and comprehending participants’ linguistic behavior. In fact as Feagin (2002:33) observes, participant-observation is a qualitative method of data collection that supplements and aids in the interpretation of quantitative data. Further, as Milroy and Gordon (2003:68) emphasize, the benefits of participant-observation are the amount and quality of the data collected and the familiarity with community practices gained by the investigator.

During this phase of the research, I was given permission by the local school authorities to visit public schools. I visited most of the public and private schools in Rivera, volunteering as teacher aid and substitute. At public schools, I could hear students communicating with each other in UP mainly during lunch break and recess. At private institutions, students were quick to distance themselves from UP speakers by claiming the ‘prestige’ of the Portuguese variety they speak. At the same time, private school students were proud to point out the uniqueness of Rivera’s border culture. Parallel to my work with the students, I established contacts with teachers, administrators and parents, who would share their impressions about the recent implementation of the teaching of Portuguese in public schools.

In my attempt to experience different spheres of social life in Rivera, I attended several community gatherings such as soccer games, open-air markets, religious services, free-shops, baking classes at the *Universidad del Trabajo del Uruguay* UTU¹⁰, talks at *Mundo Afro*,¹¹ cultural events organized by the *Intendencia Municipal de Rivera*, and *Escuela Agraria* classes, and I volunteered occasionally as a tutor at the residence. Thus, by adopting an ethnographic approach, I was able to become knowledgeable about the local norms in the speech community and establish social relationships with several community members who were in a position to introduce me to potential participants for the study.

3.3.1.2 Entering the community via social networks

The director at CERP was my initial contact with the speech community. She kindly provided me with the first contacts with teachers and students in the area. This decision proved not to be very satisfactory. People would refer to me as ‘the director’s friend’, and therefore did not agree to be interviewed or they would refer me to other potential speakers because as speakers stated ‘they speak better than I do.’ This situation constituted an obstacle for the research, and it also taught me to distance myself from any kind of authority in the community. As the authors argue, referring to Eckert’s research in the Detroit-area schools, any association with the institution might have limited students’ willingness to speak frankly with her (Milroy & Gordon 2003: 68). My way of overcoming this situation was to distance myself from any affiliation with the authorities and to avoid any official role in the schools. I continued volunteering in the

¹⁰ UTU offers technical education to young adults.

¹¹ Uruguay has a black population that few people acknowledge. From the middle of the eighteenth century, large numbers of African slaves were imported into the River Plate, a substantial number of which ended up in the Uruguayan cattle-raising interior (Lipski 1994:339).

classrooms, especially in the dual-immersion program, but introduced myself as a volunteer. By volunteering in the dual-immersion program, geared initially toward primary school students, I did not jeopardize my 'unofficial' role since I did not consider participants younger than 15 years old eligible to take part in the project.

An additional challenge to overcome was being perceived as a community outsider. Many times people did not feel quite at ease talking UP when I was around them. At times people would quickly code-switch from UP to Spanish upon noticing my presence. Most of the time outsider status represents a challenge to carry out research (Milroy & Gordon 2003:68). It was interesting to observe the code-switching and the reasons the speakers offered for it '*a senhora não é daqui, não?*' "you (Portuguese 2nd pers. sing. formal) are not from around here, are you?" switching quickly to Spanish to carry on with the conversation. Nevertheless, with time I was able to overcome this difficulty and was successful in establishing and developing links with insiders in the community.

Students at the residence started to show interest in my research when they realized that I could speak my own variety of Portuguese, enjoy Brazilian music, *novela da tarde* or soap operas, and 'all things Brazilian,' just like them. Many of them volunteered to be interviewed once they got to know me better. Students even 'baptized' me with the Brazilian version of my name *Rosinha*. They were a great source of practical local information about schools, events, institutions, etc. As Milroy (1987) points out, these initial relationships are crucial to the design of the more structured part of the investigation, and it proved to work for the data collection phase of the fieldwork.

3.3.2 Data Collection Fieldwork

The data collection phase of the current project was conducted during the summer of 2007. An advantage of having performed preliminary fieldwork in the Rivera community was that I had established social links with insiders and had interacted with them in several community events. In addition, these relationships and the knowledge I had gained from them were very important for the design of the interview modules and for the structure of the whole data collecting phase of the research.

I reentered the community by introducing myself as a “friend of a friend,” interested in the local history of Rivera. My approach was to contact the person I had kept in touch with. I will refer to her as *Adita*, a working class single parent of four children, with whom I communicated occasionally via email upon my return to the United States. Being interested in the local history and having a friend as a link to the community was extremely helpful in getting participants for the project.

The convenient location of the residence was suitable for gaining access to the *barrios*. Rivera’s downtown area is surrounded with peripheral *barrios* such as *barrio Manduví*, *La Pedrera*, *barrio Bicio*, *Rivera Chico*, *Santa Teresa*, *Santa Isabel*, *Cerro de Marco*, etc. Among the more populated neighborhoods in Rivera are *barrio La Pedrera*, across the street from the CERP, and *barrio Manduví*, within walking distance of it. Most of the interviews with working class participants were conducted in these neighborhoods.

Adita, my contact in *barrio La Pedrera*, introduced me to some of her friends from church and community organizations. Befriending a popular community member was a successful way to get access to the close-knit working class community of Rivera. *Adita* was not only an insider in her neighborhood, she was also well liked, well known to

community members and regarded as one of the more active community members in the neighborhood.

My experience was that when I approached potential speakers and mentioned *Adita's* referral, people felt at ease and showed a willingness to participate in the study. Community members started to become familiar with me, offering me local recipes and advice on how to go around Rivera. A similar situation is reported in the Belfast study (Milroy 1980), where fieldworkers were received with warmth, friendliness and trust, when adopting the 'friend of a friend' role, especially in the poorer inner-city areas.

The school setting proved to be an excellent source of young informants. The Uruguayan public school system maintains an extensive schedule to cater to several school populations throughout the day. A typical *liceo* starts class at around 7.30 am to 12 pm, followed by another session starting at 1 pm till 6pm, and there is also an *escuela nocturna* that caters to working young adults that starts at 8pm and ends at midnight. At the *escuela nocturna*, I interviewed participants who had suffered from the dictatorship's educational missteps, having dropped out of school because of their alleged 'learning disabilities' or because of the language teachers' attitudes towards UP.

At high schools and evening schools, my approach was similar to that of Eckert¹²: I tried to maintain a low profile and stayed outside of classrooms, preferring public areas such as cafeterias, hallways, and open areas in the school. This was an opportunity for me to observe students' behavior and provided me with the opportunity to interact with them and eventually ask them for an informal interview.

¹² Eckert (2000) spent two years studying a suburban high school in Detroit, and "although her research was authorized by school authorities, she intentionally avoided an official role in the school" (Milroy & Gordon 2003:68).

Most of the working and lower-middle class participants were interviewed in the *barrios* while performing daily activities such as cooking, harvesting, building houses, fixing cars, cleaning, looking after children, cattle ranching, etc. Mid-middle class speakers were interviewed at their workplaces or at home. Working and lower-middle class participants were not interested nor did they have the time to sit with me for an interview, so they agreed to 'just talk' while they were performing other activities. The fact that the focus was not the interview event but rather the task at hand reduced the pressure of the interview.

The main indicator for determining social class was the speakers' or parents' occupation. As Labov (1972) argues, this factor correlates best with linguistic variation. An additional indicator considered to determine participants' socioeconomic group was neighborhood. The speech community of Rivera is a highly stratified society. The wealthy and middle class inhabitants, who identify with Montevideo culture, live in the downtown area. The poor and working class inhabitants, who identify with local border culture, live in the *barrios* or neighborhoods located away from the downtown center.

While contacting and interviewing working and lower-middle class participants was a fairly uncomplicated task (as speakers were easily identified by the neighborhood where they reside and the type of close-knit networks to which they belonged), reaching into the upper level of Rivera's society was quite challenging. The main obstacle was that people in the upper socioeconomic strata do not acknowledge the use of UP in their lives. However, in my experience it is quite difficult to get by in Rivera without some understanding of UP. One way to overcome this situation was to visit private institutions such as private schools and professional and governmental organizations. Younger

speakers of the mid-middle socioeconomic group interviewed for the present study attend private schools and either travel to Brazil for pleasure, or take Portuguese classes at the *Instituto de Idiomas* 'Institute of Languages.' Thus, their linguistic repertoire falls short of that of the close-knit network speakers. Through these professional and governmental institutions I was able to secure mid-middle class speakers for interviews. Among the professionals I interviewed were journalists, lawyers, writers, business-owners, land-owners, government and educational authorities, etc.

I must add that methodologically it was a sound decision to start out with the interviews in the *barrios*. Middle-class speakers in government and educational institutions were more interested in knowing the reasons why I was concerned with local culture and the speech of Rivera. I was even asked to participate in televised and radio interviews to give my opinion about Rivera's culture. Many of these participants offered negative evaluations of the culture and speech of the *barrios*, clearly distancing themselves from it

3.3.3 Type of Data Collection

In order to analyze the phonological variation in UP systematically, it was important to design an interview schedule that would provide many instances of the linguistic variables in casual speech (Labov 1972:14). Labov's approach to stylistic variation identified two types of conversational style, casual and formal. This procedure was motivated by his now famous axiom "styles can be arranged along a single dimension, measured by the amount of attention paid to speech" (Labov 1972:208).

Hence, casual style, or the style closest to the so-called *vernacular*, is said to be the product of the minimum amount of conscious self monitoring (Milroy & Gordon 2003:200).

As is common practice in sociolinguistic studies, the interviews were structured around pre-determined conversational modules. The conversational modules included a group of questions around particular topics. Based on insider knowledge acquired during the preliminary fieldwork for this research, I selected relevant conversational topics for the speech community of Rivera, such as football, 'soccer', street-festivities celebrated in Rivera, carnival, soap operas, local stereotypes, the teaching of Portuguese in public schools, the existence of 'free-shops', tourism in the city, etc. Additional modules were modified from the ones used for a class project at the University of Florida, directed by Professor Blondeau investigating linguistic variation and change in the speech community of Gainesville, FL. The modules were structured around more general topics such as family, celebrations, experiences from childhood, etc.

Questions concerning attitudinal and value judgments about UP and BP were also fruitful topics. Demographic data such as age, occupation, residence, education, language history, family relations, etc. necessary for sociolinguistic analysis were gathered at the beginning of the interview. Participants were asked to give me their oral consent to participate and to allow me to record the interview. Due to the nature of the informal interviews and objectives of the project, written consent was not required.¹ The length of the interviews varies between 45 and 65 minutes each. The high frequency of

¹ Please refer to the Appendix section for Institutional Review Board (IRB) forms.

the variables selected - namely, palatalization of dental stops and vowel nasalization provided ample tokens from which to select.

A total of one hundred and six interviews were conducted *in situ*, by myself. Fifty-four of them were selected for analysis. The output of these interviews constitutes the prime focus of the present study.

3.3.3.1 Individual interviews

The starting point for individual interviews was the social networks found in the *barrios*. My position as a student interested in Rivera's local history lowered my status to one of an apprentice, decreasing the degree of authority between the researcher and the speaker. According to Labov, the counter-strategy of the sociolinguistic interview is to emphasize the position of the interviewer as a learner (Labov 1972:40). In addition, the favorable location of the residence where I stayed contributed to gaining access to potential participants. I took care to dress according to local customs so as not to create social distance with participants. When interviewing adolescents, I wore casual clothing, drank *mate* with them, many times joining them sitting on the floor to chat and as a way to show solidarity. Thus, I immediately created a connection with the speakers of the working class group. In fact, many interviews were conducted in more than one session showing the speakers' willingness to meet again. Indeed, it was not difficult to get speakers involved in spontaneous conversations. In this respect, Riverans are regarded as being as friendly and outgoing as their Brazilian neighbors.

Being a 'neighbor' in the working-class community gave me the advantage of observing and identifying the quality of the relationships that exist in the community. The structural characteristics of the local networks in the *barrios* are close-knit, dense and multiplex (Milroy 1980). Speakers are related by several indicators such as

neighborhood, kin, religious and recreational associations, friendship and work ties. Indeed, several participants indicated that they were born and raised in the neighborhoods and that most of their family still remains there. These indicators create close-knit ties where solidarity and local identity are precious values in the community.

3.3.3.2 Group interviews

Most of the interviews with adolescents were pair or group interviews. The use of pair interviewees creates a three-way conversation, which eliminates some of the awkwardness of two strangers having to speak one-on-one. Using this technique, the conversation seems to flow smoothly giving the fieldworker time to assess the flow of the interview event and determine whether to keep going with the same topic or introduce a new one.

Another technique used to break down the interview structure was to study groups. The procedure used to elicit the vernacular from adolescents was modeled on the work of Labov and his colleagues (1972) in the African-American community in Harlem. An advantage of resorting to group interviews is that it steers the dynamic of the interview away from the one-on-one format facilitating the production of casual speech. This may be accomplished by having either two or more interviewers or two or more interviewees (Milroy & Gordon 2003:66). Having an additional interviewer was not an option for me, but interviewing participants in a group setting was feasible for the present study. This technique proved to be very useful for my data collection in Rivera, especially when interviewing teenage boys and girls both in public and private educational institutions. Many times, during my visits to schools, I would approach a small group of adolescents who were either talking or playing on schools grounds, and I would start up a conversation with them. Normally I would start out with a group of four

or five speakers and would continue the interview with the most talkative participants. These conversations took place away from classrooms in public school areas.

An additional source of participants was found at the residence. Female adolescents were interviewed in groups and then individually. The group interviews were conducted in dormitories, while female participants were relaxing or preparing to go out. The use of peer-interviewing was a way to identify local norms, attitudes toward existent linguistic varieties, and gave me direct access to the vernacular. A similar situation is reported by Blom and Gumperz (1972), Milroy and Milroy (1978), among other linguists working with group sessions to obtain linguistic data. Indeed, as Labov (1966) rightly points out, the close supervision exercised by the group over vernacular norms is so strict that a speaker must adhere to them or risk being taunted.

3.3.3.3 Equipment

All interviews were digitally recorded using a SONY ICD-SX68 Digital Voice Recorder. I selected the recording setting mode STQH high-quality (stereo recording mode) to obtain the best sound quality possible. Digital interviews were saved on digital folders, then downloaded into a computer and converted into MP3 files. Sound files were then classified into PC folders according to the social characteristics of the speaker. In addition, PC folders were saved on a USB drive. An additional piece of equipment used was a foot pedal control to complete the transcription process.

This discussion of fieldwork has served to illustrate the methodology adopted for both the preliminary and data collection phase of the present study. I have described the way I entered the speech community, gathered participants for the project, and the two types of sociolinguistic interviews conducted. The next section presents the speech

sample, participant selection criteria, and linguistic and extralinguistic variables under investigation.

3.4 The Rivera Corpus

The Uruguayan Portuguese/Spanish computerized corpus consists of one hundred and six sociolinguistic interviews with bilingual UP and Spanish speakers. Participants are divided by gender, by three age groups ranging from 15 to 70 years old, and by socioeconomic group, working, lower-middle and mid-middle. Fifty-four participants out of the computerized corpus were selected for phonological analysis in the present study.

3.4.1 Speaker Selection Criteria

For the speaker selection criteria it was determined that the speaker had to be born or raised in Rivera and be a life-long resident of the city or its immediate rural hinterlands. However, as already pointed out, as a consequence of the geographical, cultural and social closeness, mixed marriages and domestic partnerships are common. It is a common practice and viewed as an advantage to have one child born in Uruguayan soil and another one in Santana. This is an ordinary fact of life in Rivera.

Many of the participants in the current project are *doble chapa*, a colloquial term normally used to designate inhabitants who have dual nationality either by birth or mixed marriage. These participants have either married a Brazilian partner or have been born in Santana and reside in Rivera. The criterion for inclusion of *doble chapa* speakers in the sample was to be a life-long resident of Rivera.

3.4.2 Speech Sample

The final sample is shown in Table 3-1. The data presented here were taken from the total Rivera corpus sample of 106 speakers. In order to provide a sample of the

speech community comparable with other studies, I included in the final sample fifty-four participants. Age, gender, and socioeconomic class were taken as independent or extralinguistic variables. Participants are grouped according to their social characteristics.

- AGE. Three age groups (1) 15-29, (2) 30-49, and (3) 50-70 years old.
- GENDER. 27 females (F) and 27 males (M).
- SOCIECONOMIC CLASS. Three groups (1) mid-middle, (2) lower-middle, and (3) working socioeconomic group.

As Table 3-1 indicates, participants were assigned a speaker identification number and grouped by age at the time of interview, socio-economic status and gender.

Additional social information, such as occupation, and date of birth, etc. can be found in the appendix section.

Table 3-1. Speech sample

Age groups	Working C.	Low Mid. C.	Mid Middle C	Gender	N
15-29 years old	CL003 - 16	CL004 - 19	KL002 - 15	F	18
	MY012 - 23	CH003 - 21	SB008 - 15	F	
	MX023 - 23	PA005 - 15	DR010 - 15	F	
	PF024 - 19	WR014 - 16	LY021 - 15	M	
	TN025 - 16	DD026 - 19	XNN13- 16	M	
	AW022 - 18	JG016 - 19	YY055 - 26	M	
30-49 years old	AQ074- 41	AA064- 46	RM039- 40	F	18
	MD043 - 37	FF062- 48	MA040- 38	F	
	IC034 - 30	MS028 - 35	ME070 - 49	F	
	HJ049 - 34	CL051 - 36	PP058 - 33	M	
	AI082 - 42	HF044 - 35	ET053 - 31	M	
	AS046 - 40	HV050 - 30	VW057 - 40	M	
50-70 years old	MB072 - 50	JJ061 - 52	MA067 - 54	F	18
	SW093 - 61	GW085 - 62	DS066 - 50	F	
	MN063 - 50	TY087 - 64	SS088 - 55	F	
	GE106 - 63	HA099 - 58	VV103 - 60	M	
	NN081 - 52	TS097 - 57	FW101 - 70	M	
	TK083 - 50	DV077 - 54	AE080 - 54	M	
					N = 54

This section concludes the description of the Rivera corpus. As shown above, the final speech sample consists of fifty-four participants grouped by age, gender, and socio-economic status. All the participants selected for the final speech sample are bilingual UP speakers. Furthermore, additional speaker selection criteria were discussed. The next section describes the dependent and independent variables analyzed in the present study. In addition, I outline in detail the linguistic and extralinguistic factor groups and factors considered to condition the two linguistic variables under examination in the present project.

3.5 Variables under Investigation

This study focuses on the analysis of variation at the phonological level, the variable realization of palatalization of /t/, /d/ and vowel nasalization in the speech of bilingual speakers of UP. Based on data collected in participant-observation and sociolinguistic interviews with fifty four local UP speakers, the study examines linguistic and extralinguistic factors influencing phonological variation. In what follows, I describe the linguistic and social factor groups included in the analysis of the two linguistic variables under examination.

3.5.1 Linguistic Variables

The study investigates the sociolinguistic distribution of two phonological variables in the speech of bilingual speakers in Rivera, Uruguay: palatalization of /t/, /d/ in -/i/, and vowel nasalization. The linguistic variables selected for the current investigation were chosen based on their frequency in unstructured interviews, their saliency, and the asymmetric social stratification they showed in preliminary explorations.

3.5.1.1 The variable palatalization of /t/, /d/

One of the dependent variables in the study is the realization of /t/, /d/ in -i/ as a dental stop or as an affricate. The non-standard pronunciation is represented by the dental realization. The palatal pronunciation is considered the ‘standard’ variant, although this is a variable feature in several Brazilian varieties and in UP. This variable can occur in pairs like *tipo* [‘tipu] ~ [‘tʃipu] ‘type’ and *digo* [‘digu] ~ [‘dʒigu] ‘I say’. The linguistics factors considered in the present study are shown in Table 3-2.

Table 3-2. Palatalization linguistic factor groups and factors

Dependent variable	
p	palatal realization of /t/, /d/ in _i
d	dental realization of /t/, /d/ in _i
Independent variables	
Linguistic factors	
1. <i>Tonicity</i>	
s	stressed syllable
p	pre-tonic syllable
x	post-tonic syllable
2. <i>Following environment</i>	
n	nasal consonant
p	stop
l	lateral
s	sibilant
v	vowel
r	vibrant
o	pause, zero phonological environment
3. <i>Preceding environment</i>	
n	nasal consonant
l	lateral
s	sibilant
v	vowel
r	vibrant
o	pause, zero phonological environment

The total number of tokens coded to analyze palatalization of dental stops in UP is 2,526. Each token was coded for the operation of internal, or linguistic, and external, or extralinguistic, constraints. Tokens are distributed as dental realizations 1,783 (71%) and palatal realizations 743 (29%). The three linguistic factors commonly found in the literature that condition the variable pronunciation of dental stops in BP (Bisol 1991) and UP (Carvalho 1998) are: tonicity, following, and preceding linguistic environment.

3.5.1.2 The variable vowel nasalization

The second dependent variable under analysis is the absence or presence of vowel nasalization in UP. The total number of tokens coded to analyze vowel nasalization in UP is 2,121. Each token was coded for the operation of internal or linguistic and external or extralinguistic constraints. Tokens are distributed as oral realizations 1,674 (79%) and nasal realizations 447 (21 %). Each token was coded for a series of phonological and morphological factors that could have an effect on vowel nasalization. Due to the lack of quantitative research on vowel nasalization in varieties of Portuguese, linguistic factors were extrapolated from the historical and contemporary literature and from formal, prescriptive, and sociolinguistic studies that have been reported to have an effect on vowel nasalization. The linguistics factors considered in the present study are shown in Table 3-3.

Table 3-3. Nasalization linguistic factor groups and factors

Dependent variable	
n	nasal vowel
o	oral vowel
Independent variables	
Linguistic factors	
1. <i>Tonicity</i>	
s	stressed position (non-final/word internal)
f	final stressed (word final stressed)
p	pre-tonic position

Table 3-3. Continued

Independent variables	
<i>2. Following environment</i>	
n	nasal consonant (non-palatal)
a	palatal nasal
p	stop
f	fricative (non-sibilant)
s	sibilant
d	glide
o	pause, zero phonological environment
<i>3. Preceding environment</i>	
n	nasal consonant (non-palatal)
a	palatal nasal
p	stop
f	fricative (non-sibilant)
s	sibilant
d	glide
l	lateral
r	vibrant
o	pause, zero phonological environment
<i>4. Functional category</i>	
n	noun
t	noun + diminutive
v	verb (no gerund or progressive forms)
g	gerund, progressive forms
j	adjective
d	adverb
e	preposition
p	pronoun
c	conjunction
<i>5. Syllable structure</i>	
m	monosyllabic
p	polysyllabic

3.5.2 Social Factors

The extralinguistic or independent variables considered in this study for both palatalization and nasalization linguistic variables are the following: participants, age, gender, and socio-economic status. Each individual correspond to a factor in the factor group.

Table 3-4. Social factor groups and factors

Social factors

1. *Participants*

54 speakers

2. *Age*

1 15 – 29 years old

2 30 – 49 years old

3 50 – 70 years old

3. *Gender*

F female

M male

4. *Socio-economic group*

1 Mid-Middle

2 Low-Middle

3 Working

Palatalization linguistic and extralinguistic quantitative results will be discussed in Chapter 4. Nasalization linguistic and extralinguistic quantitative results will be discussed in Chapter 5.

3.6 Data Analysis

Variationist analysis takes variation to be inherent to language. The mathematical and statistical principles of variationist analysis were developed by Sankoff, in collaboration with Cedergren, Labov, and Rousseau. Sankoff's analysis program called VARBRUL is a computer program developed to handle statistical methods used in variationist analysis of linguistic phenomena. It handles both linguistic and social distribution of variant linguistic forms. The preferred statistical model of variationist sociolinguistics is logistic regression. As Paolillo (2002) points out, logistic regression is closely related to linear regression, which is another type of statistical modeling. These

techniques provide a way to “make reasonable guesses about the possible relationships among different phenomena that a researcher investigates” (3).

For the data analysis of the corpus, I used the traditional protocol for phonological analysis. My first task was to listen to all the interviews. All speakers were assigned a unique pseudonym that correlates with the interview report², the transcription file and the recorded data. While I listened to the interviews, my primary objective was to identify linguistic variation across speakers of different social backgrounds, ages, and gender. At the phonological level, this is a straightforward task, that is, the variants may differ by an extra phonological feature or two (Tagliamonte 2006:70).

For the present study, several alternations were considered, but either they did not fulfill the requirements to be considered a linguistic variable or did not show social distribution across speakers. Upon selection of the linguistic variables under investigation, palatalization of /t/, /d/ in /-i/, and vowel nasalization, the next step was to circumscribe the linguistic environments. Palatalization and vowel nasalization linguistic and extralinguistic factor groups will be discussed on Chapter 4 and Chapter 5 respectively. The final section of this chapter describes the data handling procedure and the techniques implemented to represent the speech data faithfully in writing. All steps of the data handling of natural speech, extraction, transcription, coding, and GoldVarb analyses were performed by the researcher.

3.6.1 Extraction

In order to provide a sample of the community comparable with other studies, I included in this analysis the interviews of fifty-four speakers. I listened to each entire

² An interview report is “a document which provides anthropological information and observations about the speaker and the interview context” (Tagliamonte 2006:51).

interview in order to capture the most animated and unmonitored section of it, in which the vernacular is most likely to be found. This procedure was repeated several times in order to represent the recorded data faithfully and consistently, and to achieve greater reliability (Tagliamonte 2006:55).³

The two phonological variables selected for analysis, palatalization of /ti/,/di/ and vowel nasalization, are very high in frequency of occurrence. Thus, ample data were collected from a rather small amount of recorded speech from each participant. With plentiful data available, the extraction process was limited to approximately fifty tokens per speaker. Additionally, because some lexical items are more frequent than others, I followed the standard approach of type-token sampling (Wolfram 1969:58, 1993:214), restricting the number of tokens per speaker to five. The type-token question is determined by “whether to include frequently occurring items every single time they occur, or include only some” (Wolfram 1969:58). Type-token sampling is appropriate for phonological analysis “where the inclusion of frequently occurring words with exceptional distribution patterns may distort the results” (Tagliamonte 2006:95).

3.6.2 Transcription

The transcription was performed using a transcription foot pedal to control the computerized digital recorder. All tokens were written out on a coding sheet, prepared individually for each speaker, with its surrounding phonological context. Additionally, I phonetically transcribed all the words that contained the linguistic variable under investigation. Since the study deals with quantitative analysis of the data, I transcribed

³ Hansen (2001:213) in the study of lexical diffusion in French nasal vowels, reports the unsuccessful attempt to use a panel of transcribers, instead of one transcriber only, due to the ‘across transcriber variability’.

features relevant to the study; it was not considered necessary to transcribe all the interviews in their entirety. Upon completion of the transcription process, the number of occurrences was calculated.

3.6.3 Coding

Coding is probably the most time-consuming and important task in VARBRUL analysis. Each token- that is, every realization of the linguistic variable under investigation- is coded according to the linguistic environment presumed to exert effect on the variable form. For Bayley and Preston “Coding refers to the process of identifying each token of the variable in the data, and then assigning values to all the hypothesized independent variables as they contextualize a token” (1996:260).

Coding of palatalization of /ti/ /di/ was performed first. I included a phonetic transcription of the interval of speech containing the token under investigation and its surrounding linguistic environment. In coding the data, I classified the tokens as palatal realizations or application of the palatalization rule (p); and dental realizations or non-application of the palatalization rule (d). As it is standard procedure in variationist linguistics methodology, preceding and following phonological context were coded for both the underlying phonological and the surface phonetic environment. For the coding of the linguistic factor syllable stress, no distinction was made between primary, secondary or tertiary stress.

Coding of vowel nasalization was quite an intricate and lengthy task. As already discussed in the literature review, one of the main challenges was the appropriate approach to account for all instances of vowel nasalization in UP variety, regardless of preconceived models of the system of Portuguese. After many theoretical reviews and considerations, tokens were analyzed as either showing the absence or presence of

vowel nasalization. Thus, tokens were classified as either oral realizations (o); or nasal realizations (n). The objective was to count the absence or presence of every instance of vowel nasalization, phonemic or not, regardless of syllable structure (Lipski 1975:67)- that is, to account for the diverse aspects of the nasalization process in UP, regardless of whether it follows the so-called rules of vowel nasalization of standard Portuguese.

The tokens selected for analysis were individually coded for all the linguistic and extralinguistic factors considered in the study. Coding was first completed manually and then transferred to an Excel data sheet. In addition to the pseudonym assigned during the transcription process, each participant was given a speaker number. For the purpose of the analysis that follows and consistent with current sociolinguistic research procedure, I coded the data for linguistic and extralinguistic factors. All the tokens analyzed for the present study were coded impressionistically by the researcher. Instrumental analysis was not performed. Once all the data were coded on Excel, it was then transferred to GoldVarb X in order to perform the quantitative analysis.

3.6.4 Quantitative Analysis

Nowadays, most linguistic variation can be carried out by statistical software programs, usually under the name of logistic regression. VARBRUL, which has been used widely in quantitative linguistics analysis, is an application program designed for performing variable rule analysis (Bayley & Preston 1996:256). One of the most extensively used versions is GoldVarb. To conduct the quantitative analysis of the present study, GoldVarb X version was used.

3.6.4.1 GoldVarbX

GoldVarbX is a multivariate analysis application and a key methodological tool for conducting variationist sociolinguistics (Sankoff, Tagliamonte, & Smith 2005).

GoldVarbX variable rule application for Windows was used to handle the quantitative analysis of the two variables under investigation for the current project.

Upon completion of the extraction, transcription, coding, and transfer of the tokens into an Excel spread sheet, the data was converted into a machine-readable corpus. Data was then transferred as a text file into the GoldVarb X program. The next step was to perform the first distributional analysis of the data. The output of this initial analysis provides a quick overview of how the data is distributed in each factor group. The information included contains the raw numbers and percentages of rule application involving each factor, the input probability and the weights assigned by the program to each factor (Bayley & Preston 1996:269). Once the first GoldVarbX run was obtained, it revealed 'singleton' and 'knockout' factor groups. The term 'singleton' refers to the presence of only one factor in a factor group. A 'knockout' indicates that there is a 0 per cent or a 100 per cent value in one of the cells in the variationist analysis, thus signaling that the data is not variable (Tagliamonte 2006:152-3). This is a normal procedure when performing quantitative variationist analysis. This fact just indicates the need to run subsequent analyses. With respect to this point, Bayley and Preston argue that

to gradually refine the model of variation until is reliable (i.e. it contains no interactive factors, no knockout factors, and no singleton factor groups) and it is parsimonious (i.e. several factors that are theoretically similar and that seem to be exerting a similar influence are collapsed into a single factor (1996:278).

Upon eliminating or recoding factor groups, and once the data is free of bad distributed cells, it is time to run the binomial analysis. This analysis reveals whether or not a particular factor or factor group contributes significantly to the model of variation under investigation.

3.6.4.2 Binomial step-up/step-down analysis

This analysis is also known as a stepwise regression procedure. Paolillo argues that this analysis “considers incrementally complex models by adding factor groups and comparing each new model with the last using the likelihood ratio statistic” (2002:85). This analysis is conducted in two phases; the first one is the step-up. In the step-up analysis, the regression starts at level 0 and adds one factor group at a time, comparing each new model with the last using the likelihood ratio statistic. Once a model is found that cannot be improved upon by adding any new parameters, the results for the analysis are reported.

The second phase of the analysis is called step-down. In this phase the program “starts by calculating the likelihood of the model when all the factor groups are included in the regression simultaneously” (Tagliamonte 2006:143). Thereafter, the program considers the less complex models, dropping the factor groups that do not have a significant effect on the likelihood of the model (Paolillo 2002:85). Factor groups are excluded one at a time at each level until the best model is found, that is, when none of the factors can be excluded without affecting significantly the likelihood of the model. At this point, step-down stops and the results are reported. Under normal circumstances both results from the stepping-up/stepping-down analysis are the same, that is, they contain the same factor groups. Several analyses of this type were performed until reaching the best model for the data. A full account of this and other data analyses performed will be included in the next chapters and in the discussion section.

In this chapter I have outlined the methodological approach to phonological variation implemented for the current project. I have described relevant social aspects of the speech community of Rivera, and described in detail both the preliminary and the

data collection fieldwork conducted for the present study. I have also described the individual and group sociolinguistic interviews along with the interview modules designed to elicit the unmonitored speech of bilingual speakers of UP in Rivera. I have outlined the speakers' selection criteria and the final sample for investigating phonological variation of the two linguistic variables under investigation.

A detailed account of the linguistic and extralinguistic factor groups and factors coded to analyze the two linguistic variables under examination was provided along with an overview of quantitative linguistic analysis commonly used in sociolinguistic research was discussed. The following chapter (Chapter 4) presents the quantitative analysis of palatalization of /t/, /d/ in /-i/. I will discuss the factor groups and factors considered in the analysis. The results of the distributional and of the binomial step-up/step-down analysis will be discussed. I will then compare these statistical results with Carvalho's (1998) work conducted on palatalization in the speech community of Rivera.

CHAPTER 4 QUANTITATIVE ANALYSES OF PALATALIZATION

4.1 Background

In this chapter, I present quantitative results for the first linguistic variable under investigation, that is, palatalization of dental stops before /i/ in Rivera. As seen above (§ 2.5.1), the actual articulation in some varieties of BP of /t/ as [tʃ] and /d/ as [dʒ] before [i] results from the phonological process called *palatalization*. The conservative articulation, in which the process of palatalization is not operative, is characteristic of other Portuguese varieties -namely, EP and varieties from northern Brazil; in these varieties /t/ and /d/ before /i/ is realized as dental or dento-alveolar. Further, the palatal articulation of dental stops before [i] is variable across varieties of BP (Azevedo 2005).

While in the popular Portuguese, spoken in southern Brazil, /ti/ and /di/ are historically rendered with the conservative pronunciation, the application of the palatalization rule continues to advance. In fact, palatalization of dental stops is becoming mainstream in Rio Grande do Sul, the Brazilian state adjacent to Rivera (§2.5.1.2). As Bisol's (1991:108) research in Rio Grande do Sul shows, the palatal variant is favored by young speakers, mostly in large metropolitan cities. These findings are confirmed by a recent study conducted in Antônio Prado, a small southern city in Rio Grande do Sul. In this bilingual city, founded by Italian immigrants, it was found that the overall rate of palatalization is 29% (Battisti & Hermans 2009). Further, along the Uruguayan-Brazilian border, palatalization of /ti/, /di/ has been attested. Carvalho's (1998) sociolinguistic research in Rivera constitutes the first study that has investigated both linguistic and extralinguistic factors that condition linguistic variation in UP.

Carvalho (1998:223) provides quantitative apparent-time evidence suggesting that palatalization of dental stops is undergoing linguistic change.

In what follows, I present quantitative analyses of the palatalization of dental stops. I add a trend component to the analysis by comparing apparent-time data from two studies collected at different points in time, 1995 and 2007. By reexamining the same speech community, it is feasible to verify whether the change in progress hypothesized by Carvalho has continued to advance or whether it has stabilized at the speech community level. As Labov (1972) notes, the only way to test the validity of apparent-time data and predictions is to make observations of the same community at least twice, at two different points in time.

4.2 Research Questions

The dental or palatal realization of /ti/, /di/ has been a topic of interest within the domain of Portuguese linguistics in Brazil and in the frontier city of Rivera, Uruguay. Previous descriptions of UP variety mention little or no palatalization (Rona 1965, Hensey 1972, Lipski 1994). To my knowledge, early explorations of the phonetic realizations of dental stops before /i/ in Rivera have applied interpretive, qualitative techniques to analyze this phenomenon. Carvalho (1998), in contrast, examines both linguistic and extralinguistic factors that condition the palatalization of dental stops in Rivera. In fact, she argues that the young, women, and middle class-speakers are the groups leading diffusion in Rivera, which has caused the rise of this linguistic change (223).

In the present investigation, I followed variationist methodology by using quantitative and qualitative analysis to describe and explain the patterns followed by the speakers of the speech community of Rivera, with regard to palatalization of dental

stops before /i/. I investigate whether the hypothesized change in progress has continued to advance or has stabilized at the speech community level. If the hypothesis proposed by Carvalho is corroborated, then an increment in the palatalization rate would be expected. Thus, the prediction is that there will be an increase in palatalization among the young, women and mid-middle class speakers. On other hand, if no increase in the palatalization rate is found, then I would argue that the language change in progress hypothesized has stabilized in Rivera. I will also identify the driving forces responsible for the variant selection and the linguistic factors conditioning palatalization of dental stops in UP.

4.3 Circumscribing the Variable Context

In the data of a variationist study, the researcher must identify all the linguistic contexts in which variation of the feature in question may occur. Since there may be situations where no variation is possible, the inclusion of environments where the use of the linguistic variant or feature is categorical obscures the actual constraints that may apply to the data (Labov 1969:728).

In order to examine the behavior of palatalization of /t/, /d/ before /-i/, it is necessary to delimit its context of occurrence. In most varieties of Brazilian Portuguese, both an underlying high vowel /i/ in stressed or unstressed positions and a phonetic [i] rose from an underlying /e/ in unstressed positions may palatalize the preceding dental stop. Tables 4-1 to 4-3 show examples (Battisti & Hermans 2009:236).

Table 4-1. Stressed /i/

Stressed /i/		Glossary
<i>tio</i>	[tʃiw]	'uncle'
<i>medida</i>	[medʒida]	'measurement'
<i>ativo</i>	[atʃivu]	'active'

Table 4-2. Unstressed /i/

Unstressed /i/		Glossary
<i>diretor</i>	[dʒíretóχ]	'director'
<i>difícil</i>	[dʒífisiw]	'difficult'
<i>ótimo</i>	[óʃímu]	'great'

Table 4-3. Unstressed /e/ raised to [i]

Unstressed /e/ raised to [i]		Glossary
<i>ponte</i>	['põʃi]	'bridge'
<i>vinte</i>	['vĩʃi]	'twenty'
<i>sede</i>	['sedʒi]	'thrust'

For the present study, the envelope of linguistic variation (Labov 1972), that is to say, the variable context, included the dental or affricate realization of /t/ or /d/ before an underlying high vowel /i/ in stressed or unstressed position or a phonetic [i] raised from an underlying central vowel /e/ in unstressed position. Hence, I incorporated tokens as a dental or affricate realization of /t/ or /d/ preceding the vowel /i/, this vowel being oral, nasal or glide. Tables 4-4 to 4-6 shows examples extracted from the data.

Table 4-4. Palatalization of /t/, /d/ preceding the oral vowel /i/

		Glossary
<i>tia</i>	[ʃía]	'aunt'
<i>dia</i>	[dʒía]	'day'
<i>pote</i>	['potʃi]	'pot'

Table 4-5. Palatalization of /t/, /d/ preceding the nasal vowel [ĩ]

		Glossary
<i>tinta</i>	[ʃĩta]	'paint'
<i>tinha</i>	[ʃĩna]	'to have 1 st , 3 rd pers.'
<i>mandinga</i>	[mã'dʒĩga]	'witchcraft'

Table 4-6. Palatalization of /t/, /d/ preceding the palatal glide [j]

		Glossary
<i>diurno</i>	['dʒjuxnu]	'daytime'
<i>ódio</i>	['odʒju]	'hate'
<i>mandioca</i>	[mã'dʒjoka]	'cassava'

As discussed above (§2.5.1.2), rates of palatalization of dental stops differ significantly among speech varieties in Brazilian Portuguese (Bisol 1991). Previous

studies suggest that variation correlates also with social factors such as age, gender, and socio-economic status. Thus, in the present investigation three linguistic and three extralinguistic factors have been analyzed to examine palatalization of dental stops in contemporary UP in Rivera.

4.4 Exclusions

I included in the analysis all words containing underlying /t/ or /d/ followed by an underlying high vowel /i/ in stressed or unstressed position or a phonetic [i] raised from an underlying central vowel /e/ in unstressed position. As seen above (§4.3), in most varieties of BP, pretonic mid-vowels /e/ and /o/ raise to [i] and [u] respectively and may palatalize the preceding dental stop (Bisol 1989, Battisti & Hermans 2009:236). While vowel raising is a known phenomenon in the Portuguese language and in other Romance languages, such as Spanish (Hualde 1989, Holmquist, 2001; among others) and Italian (Maiden 1991), further explorations of vowel raising variation will not be included in this analysis since its inclusion goes beyond the scope of the present investigation.

As it is standard in the methodology of variationist sociolinguists, I excluded from the analysis the following: false starts or truncated utterances, repetitions, and utterances that were not understandable or not audible.

4.5 Linguistic Constraints

Deciding which factor groups and factors to test in any variationist study entails a deep understanding of the linguistic and or social influences that may condition the choice of a linguistic variable. Such factor groups are a mutually exclusive set of factors that may influence the phonetic realization of the linguistic variable. As the literature review reveals, there are three linguistic factors most commonly found to condition the

variable pronunciation of palatalization of dental stops: stress and following and preceding linguistic environment (Bisol 1991, Carvalho 1998). These linguistic factor groups were included in the present study in direct response to the body of literature of palatalization of /ti/, /di/ in BP and UP.

4.5.1 Syllable Stress

Because of the fundamental relevance of stress to the entire Portuguese phonological system, it is worthwhile to look at stress as a potential constraint on variation. Mattoso-Câmara points out that “since, in Portuguese at least, a syllable is stressed by increasing the relative strength with which the breath is released, it is necessarily accompanied by an increase in the frequency of the voice” (1972:23). Furthermore, in Portuguese, stress may be placed on the last, the penultimate, or the antepenultimate syllable. Penultimate stress is dominant and antepenultimate stress can be considered as marginal in Portuguese (Mattoso-Câmara 1972:25).

Based on previous research (Bisol 1991, Carvalho 1998), it can be inferred that tonicity of the syllable is the most important linguistic constraint. Bisol’s (1991) study in the southern state of Rio Grande do Sul shows that stress is a conditioning factor in the application of the palatalization rule. Bisol (1991) sampled two groups: monolinguals (speakers from the capital city, Porto Alegre, and from the border city of Santana) and bilinguals (speakers from Italian and German settlements). Table 4-7 shows the distribution of palatalization of dental stops according to syllable stress among monolingual and bilingual speakers in Bisol’s (1991) and Carvalho’s (1998) data.

As Table 4-7 shows, Bisol found out that the monolingual group from Porto Alegre, favor the relative stronger positions, in the following decreasing order: stressed (.60), pre-tonic (.48), and post-tonic (.42). The bilingual group favored the weakest positions;

post-tonic (.57), stressed (.50), and pre-tonic (.43). Carvalho's (1998) findings show a pattern that correlates with Bisol's (1991) monolingual group, that is to say, a decreasing order of statistical results: stressed syllables a (.57) weight value, followed by pre-tonic positions (.54), and an inhibiting value of (.41) for post-tonic positions (1998:171).

Table 4-7. Palatalization of dental stops according to syllable stress among monolingual and bilingual speakers

	Monolingual speakers			Bilingual speakers	
	Porto Alegre	Santana	Carvalho		Italian
Stressed	.60	.64	.57	Post-tonic	.57
Pre-tonic	.48	.51	.54	Stressed	.50
Post-tonic	.42	.35	.41	Pre-tonic	.43

Following previous studies, three degrees of stress were distinguished: stressed, pre-tonic, and post-tonic syllable. In order to consider a syllable as stressed, any degree of primary or secondary stress was considered. It was hypothesized that syllabic stress plays a pivotal role on the conditioning of the linguistic variable. Stressed syllables were predicted to have the greatest influence.

Table 4-8. Examples of palatalization of /ti/, /di/ according to syllable stress

Syllable Stress			Glossary
Stressed syllable	<i>dica</i>	[dʒíka]	'hint'
Pre-tonic syllable	<i>tirar</i>	[tʃiráχ]	'to take away/out'
Post-tonic syllable	<i>ódio</i>	[ˈɔdʒju]	'hate'

4.5.2 Following Phonological Environment

The nature of the phonological segment that follows /ti/ and /di/ has proven to be a strong linguistic constraint. Bisol's (1991) study show that laterals (.79) and palatal nasals (.76) tend to favor the palatalization rule, while nasals have an unfavorable effect (.50), and finally zero (.66), vowels (.40), and other consonants (.55) are not

relevant. It is worthwhile to point out the role of sibilants, which clearly serve as an inhibiting factor (.05) in the application of the palatalization rule.

Carvalho's (1998) data show that two factors exert the greatest effect on palatalization: nasal consonants tend to favor the palatal variant (.63), while sibilants disfavor it (.13). Carvalho reports that after subsequent analysis of the data, she found that most of the nasals in this environment were palatal nasals.¹ She argues that palatalization in this environment may be triggered by regressive assimilation. The inhibitor role of the sibilants has been attributed to a "process of minimization of articulatory effort, which is fully achieved through the deletion of the intervening vowel" (Bisol 191:113). The presence of a following sibilant in this environment produces forms like: *disculpe* [dskúlpɨ], [diskúlpɨ] 'I am sorry'; *quente* ['kêts], ['kêtis] 'hot', plural form. As results reveal, the dental variant is the most frequent realization in this environment. Table 4-9 shows examples of palatalization of dental stops according to following phonological environment.

Table 4-9. Examples of palatalization of /t/, /d/ according to following phonological context

Following context			Glossary
Vowel	<i>teatro</i>	[tʃiátrw]	'theater'
Lateral	<i>diluir</i>	[dʒi'lujɣ]	'to dilute'
Vibrant	<i>director</i>	[dʒiretóɣ]	'director'
Stop	<i>medida</i>	[medʒída]	'measurement'
Nasal	<i>tímido</i>	[tʃímidu]	'timid'
Zero	<i>de</i>	[dʒí]	'of'
Sibilant	<i>desconhecido</i>	[dʒi]kɔnesídu]	'unknown'

¹ Carvalho (1998:174) reports that the palatal nasal is high in frequency in her corpus due to the constant presence of the word *tinha*. *Tinha* is '1st and 3rd person singular of the past imperfect of the verb *ter*, 'to have'. Additional high frequency words in Carvalho's data are *dinheiro* 'money' and words with the diminutive suffix *-inho* (*zapatinho* 'little shoe', *festinha* 'small party', *gatinho* 'little cat', etc.). However, it is not made clear in Carvalho's methodology or data analysis whether a limit was set on the number of tokens extracted for certain frequent lexical items.

It was hypothesized that the following phonological environment would be a strong linguistic constraint that conditions the linguistic variable under study. It was also predicted that the effect of the following environment would be stronger than that of the preceding phonological environment.

4.5.3 Preceding Phonological Environment

The preceding phonological context has been shown to be a relatively weak linguistic constraint in previous studies of dental stop palatalization (Carvalho 1998). Carvalho reported that the preceding phonological context was eliminated in the final statistical run (173). Bisol (1991) reported the inhibiting role of sibilants with a .28 factor weight. Other factors show no relevancy either because of statistic irregularity or lack of data (109). In order to test the role of the preceding phonological context in conditioning the palatalization rule and specifically the role of the sibilant, I coded the preceding environment in the present study. It was predicted that the sibilant would an important role in conditioning the linguistic variable under investigation.

Table 4-10. Examples of palatalization of /ti/, /di/ according to preceding phonological context.

Preceding context			Glossary
Vowel	<i>ótimo</i>	[óʃimu]	'great'
Liquid	<i>perdido</i>	[peχdʒidu]	'lost'
Nasal	<i>vinte</i>	[vĩtʃi]	'twenty'
Zero	<i>te</i>	[tʃi]	'2 nd . pers. sing.pronoun'
Sibilant	<i>festive</i>	[feʃfivu]	'festive'

As mentioned above, three linguistics factors were coded to account for the variable realization of palatalization of /ti/, /di/ in Rivera. These linguistic factors are: tonicity of the syllable and following and preceding phonological environment. In what follows, I describe the extralinguistic or social factors included in the present study.

4.6 Social Factors

Previous studies have shown the importance of social or extralinguistic factors when analyzing language variation and sound change. Social factors are essential in modern sociolinguistic research since they allow researchers to predict the choice of a linguistic variable, and to determine if the variable under consideration is undergoing change or whether there are other factors at play. The many aspects of the interplay of social factors and language have been widely discussed. A more critical issue to be considered here is whether social factors, “are deeply involved in the most systematic processes of phonological and grammatical change” (Labov 1972:266). The three extralinguistic factors most commonly found to constrain the variable pronunciation of dental stops are the following: age, socioeconomic status, and gender. Thus, these social factors were included in the present investigation.

4.6.1 Age

It is of special importance to incorporate age in a variationist analysis since it can help the researcher determine if the speakers of different generations demonstrate similar or different patterns of use of the linguistic variable under investigation. If so, these different rates may point toward age-grading or a change in progress (Bailey 1991:241).

Carvalho’s (1998) study provides strong apparent-time evidence suggesting that palatalization of dental stops in Rivera is undergoing linguistic change. The basic principle underlying the apparent-time construct is that “differences among generations of adults mirror actual diachronic developments in a language when other factors, such as social class, are held constant. The speech of each generation is assumed to reflect the language as it existed at the time when that generation learned the language”

(Bailey1991:242). The apparent-time method assumes that individual vernaculars remain basically stable after the formative period of language acquisition. As apparent tries to reach from the present to the future, real diachrony entails a link from the present to the past (Bailey et al.1991).

Through the comparison of two sets of apparent-time data, I will be able to test Carvalho's hypothesis and determine the path of the linguistic change hypothesized. This task is performed by comparing speech samples from Carvalho's data and from my own sample; grouped in comparable age-cohorts, that is, Generation 1, formed by younger speakers aged between 15 and 29 years old; Generation 2, formed by young adults aged between 30-49 years old; and Generation 3, older speakers formed by speakers aged between 50-70 years old. It should be noted that the 1995 sample refers to Carvalho's 1998 research in Rivera. As it is customary in variationist methodology, speakers' ages are determined by the year in which the actual interviews were recorded. The year of Carvalho's recordings is 1995 and, thus, they will be referred to as such. Table 4-11 outlines the age limits of the younger, young-adult, and older generations for each of the two samples under study.

It should be noted that each age group is formed by an equal number of male and female speakers, that is, nine for each gender, representing the three socioeconomic groups established for the study (§3.4.2). The two samples shown above in Table 4-11 are comparable in size, age distribution among age groups, socioeconomic class, and gender. Thus, the sample is adequate for comparability purposes in real-time sociolinguistic research (Bailey et al. 1991).

Table 4-11. Age distribution in each of three age groups for each speech sample

	1995 sample	2007 sample
Younger speakers (Generation 1) N=18	16 – 29 years old (born ~ 1979 - 1966)	15 - 29 years old (born ~ 1992 – 1978)
Young-adult speakers (Generation 2) N=18	30 - 49 years old (born ~ 1965 - 1946)	30 - 49 years old (born ~ 1977 – 1958)
Older speakers (Generation 3) N=18	50 - 70 years old (born ~ 1945 – 1925)	50 - 70 years old (born ~ 1957 – 1937)
	Total N= 54	Total N= 54

Note: The 1995 sample corresponds to Carvalho's study.

Based on previous research (Bisol 1991, Carvalho 1998, Battisti & Hermans 2009), I can infer that age is the strongest extralinguistic constraint conditioning palatalization of dental stops and that younger speakers tend to prefer the innovative palatalized variant. Thus, the hypothesis is that younger speakers will show an increase in the use of the palatal variant.

4.6.2 Socioeconomic Status

When sociolinguists first approached the study of language variation and change, speakers' socioeconomic status was considered to be the primary correlate of language change. It was Labov (1966) who advanced our understanding of the interrelation between social class and level of consciousness. That is, when a sound change is above the level of awareness, speakers located in the upper levels of society tend to favor the innovative variant more often, whereas when a sound change is below the level of awareness, speakers situated in the lower classes prefer to use the variant more frequently (Labov 1972).

The speech community of Rivera is a highly stratified society (§3.3.2). Previous research shows that wealthy and middle class inhabitants, who identify with Montevideo culture, favor palatalization of dental stops, whereas poor and working class inhabitants, who identify with local border culture, disfavor it (Carvalho 1998). Therefore, the prediction is that middle-class speakers would use the palatalized variant more often than working and low-middle class speakers.

4.6.3 Gender

A speaker's sex has become one of the most important social factors in the quantitative study of phonological variation. This notion has been advanced so as to encompass the social construction of sex, that is, gender. For Eckert (1997), sex is a biological category that constitutes the foundation for the differentiation of roles, norms, and expectations in all societies. These roles, norms, and expectations form the basis of gender.

As Eckert states, "the correlations of sex with linguistic variables are only a reflection of the effects on linguistic behavior of gender- the complex social construction of sex- and it is in this construction that one must seek explanations for such correlations" (1989:245). The interpretation of the role of gender in variationist sociolinguistics is a critical issue for researchers studying language change in progress. In fact, gender differences are extremely complex, principally in modern societies where women are adopting new roles and moving towards the marketplace. Gender roles and ideologies allow men and women to create different ways to experience life, culture, and society (Eckert 1989).

Carvalho (1998) found that gender differences between working and mid-middle class speakers show opposite tendencies

women and men in the working-class focus their dialect around the local variety, while in the mid-middle class they diffuse towards UBP. On the other hand, the lower-middle class is where men and women differ the most, women being the group that assimilates the mid-middle class' linguistic behavior, while men maintain a more conservative dialect, similar to that of the working-class (183).

For Carvalho (1998), women appear to be leading the process of linguistic change in Rivera. If the palatalization of dental stops is indeed undergoing linguistic change in Rivera, then it is expected that women will use the palatalized variant more frequently than men. As Eckert (1989) proposes, the interpretation of gender roles and ideologies will be analyzed within the social context of the speech community in Rivera in order to better understand the sociolinguistic processes that differentiate linguistic behavior between women and men.

As mentioned above, three extralinguistic or social factors were examined to account for the variable realization of /ti/, /di/ in Rivera. The most commonly analyzed social factors in quantitative sociolinguistic research are gender, socioeconomic status, and age.

Thus these social factors were coded to examine the social stratification of the palatalization of /ti/, /di/ in the speech community of Rivera. Both linguistic and extralinguistic factors are instrumental in the interpretation of sociolinguistic phenomena. In what follows, I present and discuss results of multivariate analyses for both internal and social factors.

4.7 Results and Discussion

The data set amounted to 2526 tokens, which I analyzed using GoldVarbX (Sankoff, Tagliamonte, & Smith 2005). The following section presents an overall

distribution of the variants, a factor-by-factor distributional analysis, and multivariate analysis of the contribution of factors in the palatalization of /ti/, /di/ in UP.

4.7.1 Overall Distribution of Variants

An overall distribution of variants refers to the relative frequency of each variant of the linguistic variable without considering any linguistic or extralinguistic factor (Tagliamonte 2006:135). Table 4-12 shows the overall distribution of the data grouped according to whether there was a dental or a palatalized variant. In addition, Table 4-12 shows that the overall rate of palatalization of /ti/, /di/ is 29% (N=743) and that dental realization is 71% (N=1783) for a total of 2526 tokens analyzed.

Table 4-12. Overall distribution of the realization of tokens of /ti/, /di/ in UP (2007 data)

Palatal realization		Dental realization	
%	N	%	N
29	743	71	1783
		Total N	2526

As Table 4-12 shows, 29% of dental stops are palatal realizations whereas dental variants make up 71% of the data. This distribution corroborates empirical reports in other varieties of BP such as that of Battisti and Hermans' (2009) study and to a lesser extent that of UP research by Carvalho (1998). It is noteworthy to point out that the same frequency rate of rule application (29%) is found in the bilingual southern city of Antônio Prado in Rio Grande do Sul, Brazil. I will return to this point in the discussion section. Table 4-13 replicates, as far as I can tell, the overall distribution of variants presented in Carvalho (1998:171).

Table 4-13. Overall distribution of the realization of tokens of /ti/, /di/ in UP (1995 data)

Palatal realization		Dental realization	
%	N	%	N
32	719	68	1529
		Total N	2248

As Table 4-13 shows, the overall distribution of linguistic variants identified in Carvalho (1998) are palatal realizations, 32% (N=719), and dental realization or non-palatalization, 68% (N=1529), out of 2248 tokens analyzed. Let's now investigate how these overall frequencies compare between the two studies.

Figure 4-1 compares the results of the overall distribution of the realizations of tokens of palatalization of /ti/, /di/ in Carvalho's (1998) findings.

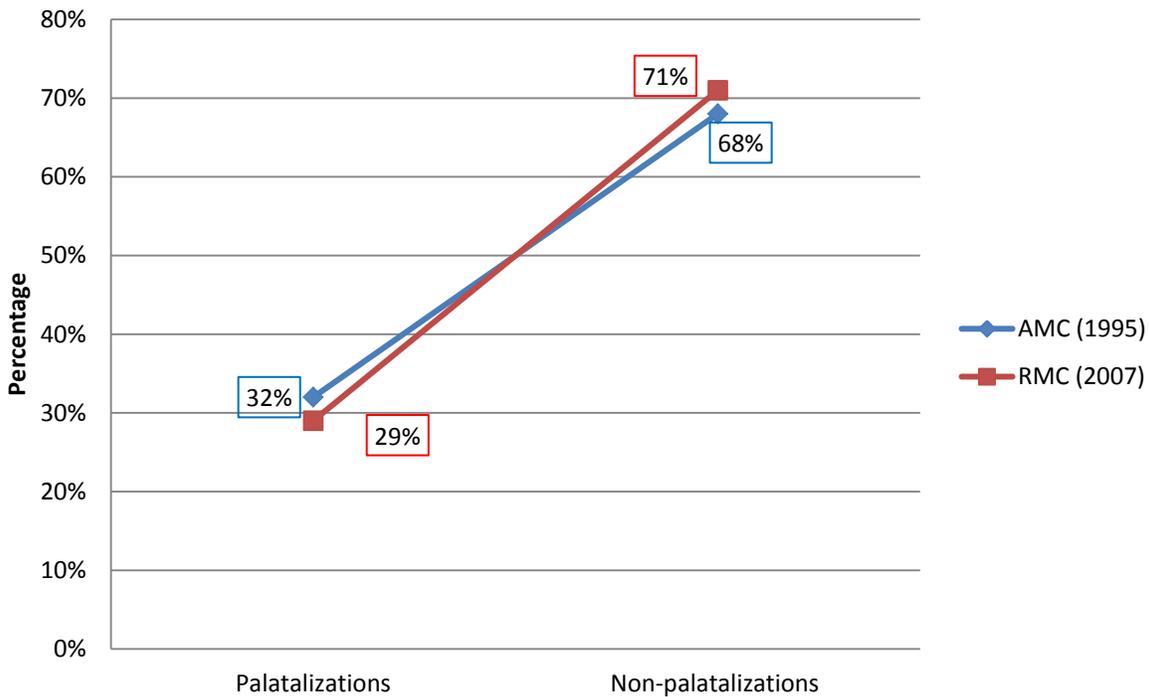


Figure 4-1. Overall distribution of the realizations of tokens of palatalization of /ti/, /di/ in UP. AMC= Ana Maria Carvalho's (1995) data, RMC= Rosa-María Castañeda's (2007) data.

Figure 4-1 shows that the overall frequency rate of rule application in the 2007 study is slightly lower than the one reported in 1995. The comparison of overall frequencies found in the 1995 and 2007 data (32% and 29% respectively) points to a relative stability of linguistic variation at the speech community level. Nevertheless, the difference in overall rate is not in itself indicative of a difference in the grammar of

palatalization of dental stops (Tagliamonte 2006). The next step is to examine the independent factors conditioning the linguistic variable under investigation.

4.7.2. Factor-by-Factor Distributional Analysis

A factor-by-factor analysis shows “how a context (independent factor) constrains the use of the (dependent) variant” (Tagliamonte 2006:193). A factor-by-factor analysis considers each independent variable one at the time; it also provides factor weights, that is to say, the values assigned by the variable rule program indicating the probability of rule application (Tagliamonte 2006).

Table 4-14 shows the distribution of palatalization of dental stops according to syllable stress in UP. While palatalization in stressed and pre-tonic syllables reveals comparable rates of rule application, 30% (N=899) and (N=342) respectively, the palatalized variant can be seen to occur slightly less frequently in post-tonic syllables 28% (N=1285).

Table 4-14. Distribution of palatalization of /ti/, /di/ by syllable tonicity in UP (2007 data)

Syllable tonicity	%	N
<i>Stressed</i>	30	899
<i>Pre-tonic</i>	30	342
<i>Post-tonic</i>	28	1285

Table 4-15 reports the effect of following phonological environment on palatalization of /ti/, /di/. Sibilants have a relatively low rate of palatalized variant, only 18% (N=135). The highest rate of palatalization is with following vowels 42% (N=174), while the effect of following liquids (laterals and vibrants were collapsed in a final statistical run) is 37% (N=67). The effect of stops is 36% (N=501), and of nasals 34% (N=191). All three show comparable palatalization proportions. Apparently, UP is a variety where following liquids pattern with following stops and nasals.

On the other hand, a following pause or zero phonological environment stands out amongst the factors analyzed with an intermediate rate of palatalization, 26% (N=1458).

Table 4-15. Distribution of palatalization of /ti/, /di/ by a following phonological segment in UP (2007 data)

Following phonological segment	%	N
<i>Vowel</i>	42	174
<i>Liquids (laterals and vibrants)</i>	37	67
<i>Stop</i>	36	501
<i>Nasal</i>	34	191
<i>Zero</i>	26	1458
<i>Sibilant</i>	18	135

Table 4-16 outlines the effect of the preceding phonological environment on /ti/, /di/ palatalization. As seen in following phonological environment, sibilants show a relatively low rate of palatalized variants, 22% (N=147). This rate is comparable to the proportion of palatalized variants for preceding liquids (laterals and vibrants collapsed in a single factor): 22% (N=254). On the other hand, palatalized variants can be seen to occur more frequently with preceding vowels, 31% (N=474), nasals 31% (N= 872), and pause or zero phonological environment 30% (N=779). These last three factors show comparable rates of palatalization.

Table 4-16. Distribution of palatalization of /ti/, /di/ by preceding phonological segment in UP (2007 data)

Preceding phonological segment	%	N
<i>Vowel</i>	31	474
<i>Nasal</i>	31	872
<i>Zero</i>	30	779
<i>Liquids (laterals and vibrants)</i>	22	254
<i>Sibilant</i>	22	147

In sum, the tabulations of effects just presented suggest that the three internal factors included in the present study condition the occurrence of /ti/, /di/ palatalization in UP. Although a factor-by-factor analysis offers many insights into the factors conditioning the linguistic variable under investigation, it does not provide the combined

impact of all the factors together. In the next section, I analyze the data using the variable rule application. This analysis reveals whether a particular factor or factor group contributes statistically significant effects to variant choice when all are considered simultaneously, as well as the relative magnitude of effects vis-à-vis each other (Tagliamonte 2006).

It must be noted that factor weights can be values anywhere from 0 to 1. While a factor weight closer to 1 is interpreted as ‘favoring’ the application value, a factor weight closer to 0 is interpreted as ‘disfavoring’ it (Tagliamonte 2006:145). Factor weights showing values around .50 are interpreted as having a neutral effect on the application value. However, as Tagliamonte (2006) further points out, what represents an accurate criterion for interpreting results is the relative position of factor weights in relation to each other.

4.7.3 Multivariate Analysis of the Contribution of Linguistic Factors of Palatalization of /ti/, /di/.

Table 4-17 shows the results of the multivariate analysis of the contribution of linguistic factors of palatalization of dental stops. The factors are selected by the stepwise multiple regression procedure incorporated in the variable rule program as significant to the probability of palatalization of /ti/, /di/ in UP.

Table 4-17 reports the binomial step-up and step-down analysis of the data. The linguistic factor groups selected as presenting statistically significant effects on the palatalization of /ti/, /di/ in UP are the following and preceding phonological segment and tonicity of the syllable. Table 4-17 also shows that following and preceding phonological contexts distinguish segments based on manner of articulation.

Table 4-17. Variable rule analyses of the contribution of linguistic factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (2007 data)

Corrected mean			.29
Log likelihood			1494.993
Total N			2526
Following phonological segment	Factor weight	%	N
Vowel/glide	.66	42	174
Liquids (vibrant + laterals)	.65	37	67
Stop	.62	36	501
Nasal	.59	34	191
Zero/Pause	.43	26	1458
Sibilant	.38	19	135
<i>Range</i>	28		
Preceding phonological segment			
Vowel/glide	.53	31	474
Nasal	.53	31	872
Zero/pause	.51	30	779
Sibilant	.39	22	147
Liquids (vibrant + laterals)	.39	22	254
<i>Range</i>	14		
Tonicity			
Post tonic position	.54	29	1285
Stressed position	.46	30	899
Pre tonic position	.44	30	342
<i>Range</i>	10		

Note: All factor groups selected as statistically significant.

For illustration purposes, let's now look at Carvalho's (1998) findings. Table 4-18 replicates, as far as I can tell, the variable-rule analysis of application of the palatalization according to linguistic factors presented in Carvalho (1998:171).

Table 4-18 indicates that the following phonological context and tonicity of the syllable contribute a statistically significant effects on palatalization of /ti/, /di/ in UP. Preceding phonological environment and juncture factors were eliminated in the final statistical run (Carvalho 1998:171). As Tables 4.17 and 4.18 indicate, the following

phonological context is the strongest factor group conditioning palatalization of dental stops in Rivera. While tonicity of the syllable is also selected as statistically significant, its position in the ranking differs in both sets of data. The next section provides a detail description and comparison of every factor group selected as significant in both studies.

Table 4-18. Variable rule analyses of the contribution of linguistic factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (1995 data)

Total N	2248		
Following phonological segment	Factor weight	%	N
Nasal	63	39	315
Other consonants	53	33	440
Zero/pause	52	33	918
Vowel	50	31	341
Lateral	.48	36	11
Vibrant	47	28	67
Sibilant	13	9	148
<i>Range</i>	<i>50</i>		
Tonicity			
Stressed	57	33	889
Pre tonic	54	30	461
Post tonic	41	32	898
<i>Range</i>	<i>16</i>		
Preceding phonological segment			
Lateral	[.60]	38	24
Nasal	[.56]	38	581
Vowel	[.55]	30	540
Vibrant	[.49]	27	151
Sibilant	[.44]	27	85
Zero/pause	[.43]	31	867
Juncture			
Initial	[.54]	29	840
Medial	[.54]	35	502
Final	[.44]	31	866
Clitic	[.44]	57	40

Note: Factor groups not selected as significant appear in square brackets.
(adapted from Carvalho 1998).

4.7.3.1 Following phonological context

First, the greatest effect is presented by the following phonological context, with a relative magnitude of its effect at 28. This finding is consistent with previous studies of UP and across dialects of BP. Carvalho (1998) and Bisol (1991), found that the following environment applies the strongest effect with a 50 and 53 of relative magnitude respectively.

Vowels and liquids (laterals were collapsed with vibrants in a final run), exert the highest effect on favoring the palatalization rule with a .66, and .65 probability, respectively. This finding provides evidence to suggest that palatalization of /ti/, /di/ is more likely to occur when followed by another vowel or glide, forming a diphthong, and a lateral or a vibrant. In BP, laterals in syllable-final position are usually realized as a velar glide [w], which forms a diphthong with the preceding vowel (Azevedo 2005:49). Hence, it appears that diphthongs create a favorable linguistic constraint promoting palatalization of dental stops in this environment. On the other hand, stops at (.62), and nasals at (.59) favor the palatalization rule, whereas a following pause or zero phonological context (.43) and sibilants (.38) disfavor it.

Table 4-18 shows that in the 1995 data the following context separates nasals (including the palatal nasal) from other consonants (including stops) and distinguishes laterals from vibrants, with pause, vowels, and sibilants treated separately. The two types of following environments contributing to exert the most notable effect on palatalization of /ti/, /di/ are nasals favoring palatalization of dental stops (.63) and sibilants disfavoring it (.13). One of the most significant aspects resides in the behavior of a following sibilant. Carvalho (1998) reports a low .13 probability, which indicates an inhibitor effect on the application of the palatalization rule.

The next question to ask is how consistent the findings are in both data sets. With that question in mind, I compare the linguistic factors selected as significant in both studies. I will start with following phonological context selected as significant in both samples. Figure 4-2 compares both data sets.

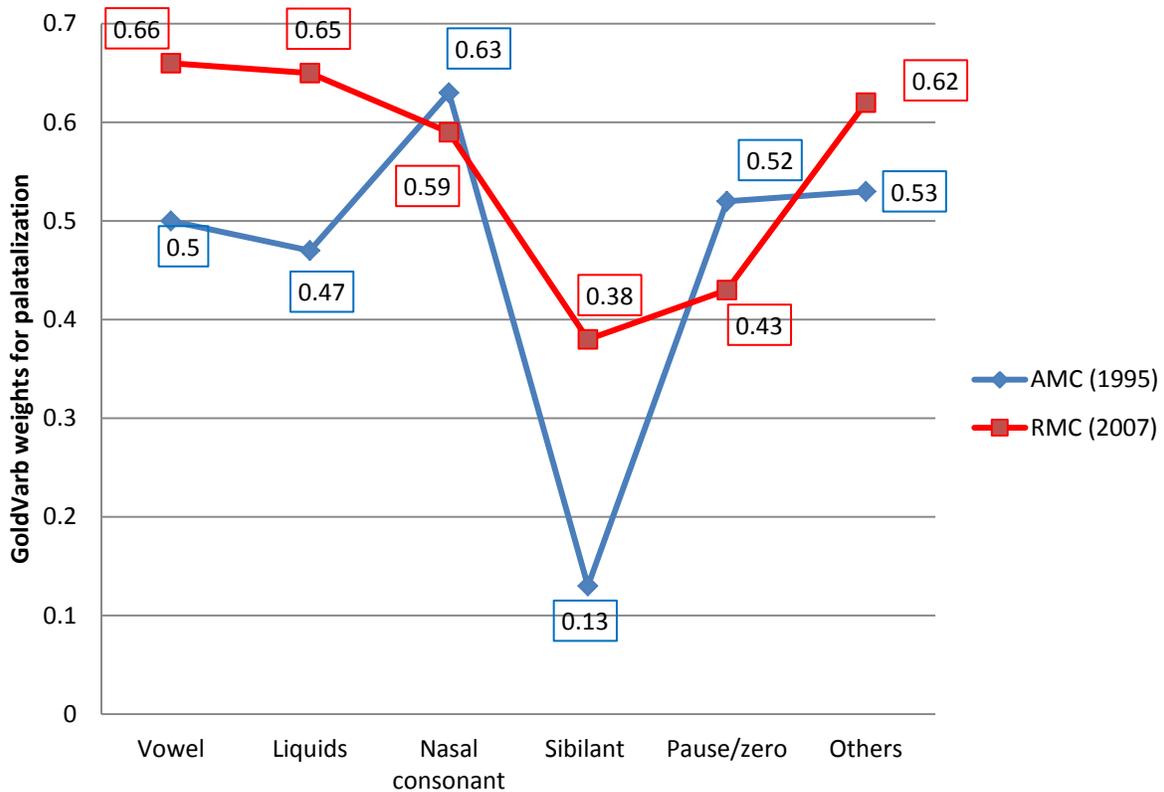


Figure 4-2. Probability of palatalization of /ti/, /di/ according to following phonological environment in UP.

As Figure 4-2 shows, while in the 1995 data, vowels exert a rather neutral effect on the application of the palatalization rule (.50), in the current study they exert the strongest effect (.66). However, in another variety of Portuguese, namely Portuguese Gaucho, vowels show a neutral effect. In Bisol’s study vowels show (.55) for the bilingual and a disfavoring (.40) for the metropolitan speakers.

Laterals and vibrants, collapsed into a single factor group in the present study as liquids, proved to be a strong linguistic factor favoring palatalization (.65), while Carvalho (1998) found that laterals (.48) and vibrants (.47) disfavor it. However, the present study results are consistent with Bisol's (1991) analysis. Bisol's (1991) study shows that laterals exert the most significant effect on the application of the palatalization rule (.73) for the bilingual and (.79) for the metropolitan group. Although in Bisol's analysis vibrants were coded as a separate factor group, vibrants exhibit an irregular behavior due to their low number of occurrence in the data (1991:110).

A following nasal shows evidence of exerting the strongest effect in Carvalho's analysis (.63), while in the 2007 study nasals show a slightly lower effect, at (.59). In the present analysis, palatal nasals were collapsed with the bilabial and alveolar nasals in a final run to better account for the data. Although collapsed into a single factor group, nasal consonants exert a slightly favoring effect of the application of the palatalization rule.

Carvalho argues that the effect of a following nasal favoring palatalization could be explained as "a result of a high frequency of palatal nasals in the corpus, which because of regressive assimilation, triggered anticipation of the point of articulation of [ɲ], instigated by the environment of [i]" (1998:174). In Bisol's (1991) study, palatal nasals (.60 and .76) for the bilingual and metropolitan group respectively, exert a strong effect on rule application. It is worth noting that the difference in probabilities between the bilingual group in Bisol's study (.60) and the current study (.59) is negligible.

As Figure 4-2 shows, and consistent with previous research, a following /s/ promotes dental realizations of /ti/, /di/ in UP. The 1995 and 2007 samples exhibit a

very low probability for the sibilant (.13 and .43) respectively. These results are also comparable cross-dialectally. Bisol's study reports very low factor weights (.20 and .05) for the bilingual and metropolitan groups, respectively, signaling the tendency of a sibilant to hinder the application of the palatalization rule (111). On the other hand, in the 2007 data, following pause strongly disfavors palatalization of dental stops (.43), while in the 1995 sample, following pause exerts a rather neutral effect of rule application (.52).

The present study shows that stops favor palatalization (.62), while in the 1995 data stops were collapsed with other consonants, providing a combined factor weight of .53. This fact obviously obscures the individual potential role of stops constraining the linguistic variable under investigation in this environment, hence impeding statistical comparisons as well.

The position of vowels at the highest position in the hierarchy requires some comment. As mentioned above, the present study examines palatalization of dental stops before /i/, where unstressed mid vowel /e/ raised to a high vowel [i] and the palatal glide /j/ are taken into account. The use of high vowels in place of mid vowels results from a phenomenon known as vowel raising (Mattoso Câmara 1953, Bisol 1989)². Vowel raising is pervasive, and its use is variable in colloquial Portuguese language, and seemingly at play in UP as well, as data results suggest. However, the variable use of high vowels in place of mid-vowels will not be examined in the present study.³

² In Brazilian Portuguese there is a vowel raising rule which raises the pretonic /e/ and /o/ vowels to /i/ and /u/ respectively. This rule is conditioned by linguistic and social factors and thus treated as a variable rule (Bisol 1989).

³ The role of the high vowel feeding the palatalization rule in Portuguese has been attested (Bisol 1991, Battisti & Hermans 2009). Battisti and Hermans found in the community of Antonio Prado that the amount of unstressed mid vowels raised and palatalized were only 13%, most of them in final post-tonic

The point of articulation of the palatal nasal provides a favorable environment for palatalization. The extensive use of the suffix *-nho, -nha* in UP must be taken into account. The frequent use of diminutives in BP has already been reported (Giangola 2001). The author points out that both young and adult Brazilians are given to the use of diminutives. The use of diminutives appears to be more frequent in conversational speech, expressing many subtle shades in meaning. Diminutives are formed by the application of suffixes. This type of productive suffixal derivation “is employed in order to indicate a greater or lesser degree, dimension, or intensity of a derivative noun or adjective with respect to the corresponding simple form” (Mattoso Câmara 1972:199). As Mattoso Câmara further argues, the principal diminutive suffix in Portuguese is

-inh(o, a), which is considered to be unrestricted in use (e.g., *casinha* ‘little house’, *gatinho* ‘little cat’).

Carvalho (1998:174) also reports a high frequency of words with the diminutive suffix *-nho* in her data. It can be argued that UP speakers have incorporated the productive diminutive suffix in their speech. However, the semantic and pragmatic functions of diminutives in UP remained to be examined.

As shown by previous studies, sibilants have an inhibitory effect on palatalization of /ti/, /di/. The 2007 results show the unfavorable role of the sibilant, restricting the palatal realization of dental stops in UP. Carvalho (1998) and Bisol (1991) report similar findings. Carvalho’s results show a strong inhibiting effect applied by the sibilant, with a probability weight as low as .13 (1998:174). Bisol reports (.20 and .05) for the bilingual

positions. Battisti and Hermans argue that this linguistic environment is disfavorable to palatalization (.23), due to low rates of mid-vowel raising and the influence of Italian dialects spoken in the city (2009:238).

and metropolitan groups respectively, signaling the tendency of a sibilant to hinder the application of the palatalization rule (1991:111). The behavior of a following sibilant, at the bottom of the hierarchy in both varieties, suggests that across dialects the underlying grammar producing the surface form is basically the same, at least for this linguistic factor. As Tagliamonte (2006:241) argues, if two varieties share the same constraint rankings, it is an indication of the similarity of their grammars.

As expected, 2007 data confirm that the following context conditions palatalization of dental stops in UP. Furthermore, the following phonological segment has been shown to be a robust linguistic constraint not only in UP but cross-dialectally as well. The following environment also confirms that /s/ promotes dental realizations of /ti/, /di/ in UP and across different dialects of BP. On the other hand, nasals favor palatalization of dental stops in this linguistic environment. The present analysis highlights the fact that palatalization of dental stops is more likely to occur when followed by a vowel, glide or lateral (realized as a velar glide [w] in coda position).

4.7.3.2 Preceding phonological context

Consistent with previous studies, it was found that the effect of the preceding phonological environment was not nearly as strong as that of the following segment. This factor group exerts the second highest magnitude of effect in the analysis, obtaining a range of 14. While in the present study and in Bisol's analysis the presence of a preceding segment proved to be statistically significant, in the 1995 sample, this factor group was eliminated in the final statistical run.

As in the following phonological context, vowels exert the most significant effect on applying the palatalization rule in this environment, with a probability of (.53). It must be noted that this is a rather neutral effect. This result is consistent across dialects as well.

In fact, in Bisol's analysis, vowels show an identical factor weight (.53) for the bilingual participants. Preceding nasal consonants apply also a rather neutral effect of rule application at (.53). In Bisol's analysis, nasals present a slightly higher effect, at (.59) for the bilingual group.

In the present investigation, it was found that a preceding pause exerts a neutral effect of rule application (.51). This finding is consistent cross-dialectally. In fact, Bisol's analysis reports that pause lacks statistical significance in this environment. On the other hand, liquids (laterals and vibrants) disfavor palatalization of dental stops (at .39). In line with previous research, the disfavoring role of the sibilant shows a similar pattern in UP and in BP. Bisol reports a low probability (.24) for bilingual speakers, while in the present analysis, sibilants show a disfavoring role (.39). Bisol (1991) proposes a phonetically-based explanation to account for the blocking force of the sibilant in the application of the palatalization rule

There is a physically definable connection between the stop [t,d] and the fricative [s,z] which motivates the retention of the alveolar. It is the neutral behavior of the full alveolars [s,z] which opposes the raising and fronting of the body of the tongue necessary for the articulation of the palatal, thus eliminating the physical effort involved in the articulation of the affricates [tʃ,dʒ] (1991:113).

Bisol furthermore argues that this mutual attraction, caused by the features that the stops [t,d] and the fricatives [s,z] have in common -[-high] in distinctive feature theory- represents a mere process of minimization of articulatory effect that tends to prevent the assimilation of the high vowel that causes palatalization (1991:113).

In sum, multivariate analysis confirms that the preceding phonological environment constrains palatalization of dental stops, but does not exert nearly the effect that the following segment does. The present study shows that vowels and nasals slightly favor

palatalization of dental stops, while pause have a neutral effect of rule application.

Preceding liquids and sibilants disfavor palatalization of /ti/, /di/. The role of the sibilant disfavoring palatalization in this linguistic context patterns across dialects.

4.7.3.3 Tonicity of the syllable

The last linguistic group to be selected as significant in the current investigation is tonicity of the syllable with a relative magnitude of 10. In Carvalho's study, tonicity of the syllable was the second most significant linguistic factor group. As in previous studies (Carvalho 1998, Bisol 1991), the lesser effect is contributed by tonicity of the syllable. In the present study the range (10) is very similar to Carvalho's (16) and Bisol's (14) analysis of the bilingual participants. Figure 4.3 compares both data sets.

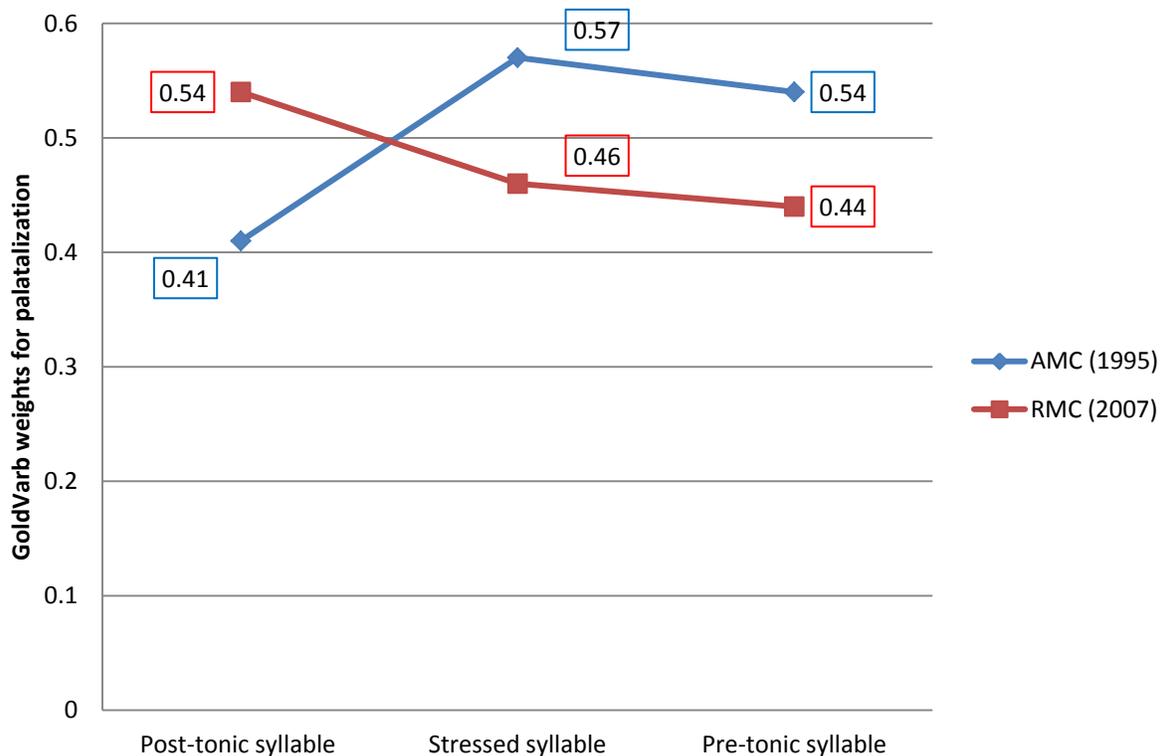


Figure 4-3. Probability of palatalization of /ti/, /di/ according to syllable stress in UP.

Multivariate analysis of the 2007 sample shows that post-tonic syllable stress favors palatalization (.54) while stressed (.46) and pre-tonic syllable stress (.44) disfavor

application of the palatal rule. However, in the 1995 sample, results show that palatalization is more frequent in stressed syllables (.57) followed by pre-tonic (.54) and post-tonic stressed syllables (.41).

Figure 4-3 shows the probability of dental stops according to syllable stress across studies. The position of the post-tonic syllable at a higher point in the hierarchy in the 2007 study, however, requires some comment. Interestingly, the constraint hierarchy found in the present investigation -that is, the post-tonic, stressed and pre-tonic syllable- mirrors the constraint hierarchy of the bilingual group in Bisol's (1991) study. In fact, Bisol reports that palatalization frequencies show an inverse behavior in the dialects of the settlement area, in which the more frequently occurring environment for rule application is the unstressed syllable (Table 4-19).

Table 4-19. Comparison of palatalization of dental stops according to syllable stress among bilingual group (Bisol 1991) and Rivera speakers (2007 data)

	Bilingual speakers	
	Italian settlement	Rivera speakers (2007)
Post-tonic syllable	.57	.54
Stressed syllable	.50	.46
Pre-tonic syllable	.43	.44

As Table 4-19 shows, the Italian group exhibits the same syllable stress pattern as the 2007 data -that is, post-tonic, stressed, and pre-tonic syllables. Metropolitan and border groups in Bisol's study illustrate a pattern of favoring the stronger position in the decreasing order: stressed, pre-tonic and post-tonic syllable stress (Table 4-7). This constraint hierarchy is consistent with Carvalho's (1998) findings.

Bisol (1991) notes that this contradictory pattern is based on the principle of saliency, which states that "a less prominent innovation is more likely to be successful than a more prominent innovation" (1991:118). Furthermore she argues that since the

affricate realization of dental stops is a new rule, which is not existent in the Italian or German language, palatalization is fulfilled in weak syllables first, where it is less salient, and gradually spreads to other contexts (118). The favored position of post-tonic syllable stress at the highest point in the constraint hierarchy and its parallel pattern with Bisol's bilingual group could be analyzed as a consequence of Spanish language contact. Affricate realization of dental stops is not operative in the Spanish language, and thus it can be argued that it is an innovation for UP speakers analyzing them through unstressed syllables.

Summing up, tonicity of the syllable has shown to be the weakest factor group conditioning palatalization of /ti/, /di/ in UP. Multivariate results show that the more frequent environment for rule application is the unstressed syllable. This is an unexpected result. It may be recalled that, based on the literature review, it was hypothesized that stressed syllables would exert the highest influence on rule application. However, it appears that contact with the Spanish language, where the affricate realization of dental stops is not operative, is a contributing factor favoring a less salient environment for rule application. These results are consistent with Bisol's (1991) study, where bilingual participants favor the weakest positions (1991:108). The analysis of this finding may be interpreted as a consequence of UP and Spanish language contact in the speech community of Rivera.

In sum, as far as the linguistic constraints are concerned, the 2007 data are generally consistent with previous research both in UP and across varieties of BP. As multivariate analysis results indicate, following and preceding phonological environment

and tonicity of the syllable play a significant role in conditioning the variable realization of palatalization of /ti/, /di/ in contemporary UP.

Following phonological environment proved to exert the highest effect of rule application not only in UP but across dialects of BP as well. The most outstanding finding is the role of the sibilant in preventing the application of the palatal rule in both the following and preceding segments in UP and other varieties of BP. As Tagliamonte (2002:731) argues, “the constraint hierarchy of factors provides a diagnostic for comparison.” She notes further that not only rates of application of the rule or environmental constraints are critical in language change but the constraint hierarchy as well. Hence, there seems to be a language specific constraint preventing clusters where the following/preceding alveolar sibilant blocks the affricate pronunciation of dental stops before /i/. The position of /s/ at the bottom of the constraint hierarchy suggests that the underlying grammar producing the dental variant is basically the same in both UP and BP.

As expected, the preceding phonological constraint does not have nearly the effect that the following segment does. This finding patterns cross-dialectally but does not correlate with the 1995 sample. The present study shows that vowels and nasals slightly favor palatalization of dental stops, while liquids and sibilants disfavor it. The role of the sibilant disfavoring palatalization in this linguistic context patterns across dialects.

Tonicity of the syllable exerts the lesser effect constraining palatal stops in UP. The constraint hierarchy shows a contradictory order. It was expected that stressed syllables would favor rule application the most; however, the only favorable environment

for rule application is post-tonic syllables. The unexpected results indicate a potential influence of the Spanish language, where palatalization of dental stops is not operative.

In the next section, data will be analyzed using the variable rule application in order to examine the effect of extralinguistic factors conditioning palatalization of dental stops in UP. As already discussed, this analysis reveals whether a particular factor or factor group contributes statistically significant effects to variant choice when all the factors are taken into account at the same time. The analysis also reveals the strength or relative magnitude of the extralinguistic factors when calculated against each other (Tagliamonte 2006).

4.7.4 Multivariate Analysis of the Contribution of Extralinguistic Factors of Palatalization of /ti/, /di/.

Table 4-20 shows the results of the multivariate analysis of the contribution of extralinguistic factors selected as significant to the probability of palatalization of /ti/, /di/ in contemporary UP. The factors are selected by the stepwise multiple regression procedure incorporated in the variable rule program as significant to the probability of palatalization of /ti/, /di/ in UP.

As shown in Table 4-20, all the extralinguistic factors are selected as presenting statistically significant effects on palatalization of dental stops before /i/. Table 4-20 also reports that the greatest and most significant effect is exerted by the factor age group with a range of .49. This is a notable finding in the study since age is the primary social correlate of language change (Chambers 2002:349). The cross-sectional analysis among the two samples will shed light on the process of generational preference of the palatal variant in Rivera. Thus, language change and age-grading will be analyzed as possible linguistic outcomes in the discussion section.

Table 4-20. Variable rule analyses of the contribution of social factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (2007 data)

Corrected mean			24
Log likelihood			1206.903
Total N			2526
Age	Factor weight	%	N
15-29	.70	45	829
30-49	.62	35	874
50-70	.21	7	823
<i>Range</i>	<i>49</i>		
Socio-economic group			
Mid-Middle class	.76	53	728
Low-Middle class	.39	25	7415
Working-class	.39	16	1083
<i>Range</i>	<i>37</i>		
Gender			
Female	.62	35	1303
Male	.38	23	1223
<i>Range</i>	<i>24</i>		

Note: All extralinguistic factor groups selected as significant.

The last two factor groups selected as significant are socio-economic status and gender with a relative strength of 37 and 24 respectively. In order to find out how these results compare with the 1995 data, I now turn to present the multivariate analysis of extralinguistic factors in Carvalho's study.

Table 4-21 replicates, as far as I can tell, the variable-rule analysis of the application of palatalization of /ti/, /di/, according to extralinguistic or social factors presented in Carvalho (1998:176). As seen below, all social factors are selected as statistically significant. Age, socioeconomic status and gender contribute statistically significant effects to palatalization of /ti/, /di/ in contemporary UP. These findings correlate with the 2007 data. As shown in Table 4-21, the most important social factor conditioning palatalization in UP is age with a relative strength of 86. The other social

factors selected as significant are socio-economic status and gender with a strength of 56 and 31, respectively.

Table 4-21. Variable rule analyses of the contribution of social factors selected as significant to the probability of palatalization of /ti/, /di/ in UP (1995 data)

Total N			2248
Age	Factor weight	%	N
(16-29)	.91	61	1017
(30-49)	.29	13	637
(50-70)	.05	2	594
<i>Range</i>	86		
Socio-economic group			
Mid-Middle	.81	52	764
Low-Middle	.34	24	693
Working	.30	19	791
<i>Range</i>	51		
Gender			
Female	.60	35	1166
Male	.39	29	1082
<i>Range</i>	21		

Note: All extralinguistic factor groups selected as statistically significant. (adapted from Carvalho 1998).

As Tables 4-20 and 4-21 show, there is an identical pattern between the two data sets. Not only are all the factor groups selected as significant but the constraint ranking in each factor group patterns similarly. As expected, age is clearly the dominant variable, applying the strongest effect conditioning palatalization of /ti/, /di/. In what follows, I discuss each individual extralinguistic factor, comparing both samples.

4.7.4.1 Age

First, the greatest effect is contributed by the factor group age, with a relative magnitude of 49. This is the strongest social constraint conditioning palatalization of stops in contemporary UP in Rivera. As expected and consistent with previous studies, the youngest speakers (15-29 years old) tend to prefer the palatal variant at (.70).

This finding mirrors previous studies of UP and different varieties of BP. In fact, 1995 data show that the youngest participants (15-29 years old), strongly favor the palatal variant at (.91). This pattern can also be found across dialects. In Bisol's (1991) study, the youngest group, formed by speakers aged 25-35 years old, used the innovative variant more often, presenting a factor weight of .63. In the Antônio Prado study (§4.1), Battisti and Hermans (2009) report that the palatal variant is favored by young people who live in the city's urban area.

Figure 4-4 shows the distribution across ages in the 1995 and 2007 data. Clearly, younger speakers strongly favor the innovative variant of /ti/, /di/ in contemporary UP, while older speakers disfavor it. These findings are evidence that palatalization of dental stops is strongly conditioned by speakers' age. As Labov (1972) argues, when the conservative variant has a proportionately higher ratio of occurrences among older speakers, and when the innovative variant finds higher ratio of preference among younger speakers, age stratification of this sort may be interpreted as an index of change, (i.e.), 'change in apparent-time.' However, the synchronic generational differences found in the present study point also to the possibility of age-grading, thus; for the time being, I will consider both interpretations.

As Figure 4-4 shows, there is a repeated age-gradient distribution among the groups. While in the 2007 sample young and young adults favor the innovative variant, older speakers disfavor it. The 1995 sample shows that while young people prefer the palatal variant, young adults and older speakers disfavor it. However, a cross-sectional analysis shows that the decreasing frequencies among the 1995 and 2007 Generation 1

group points out that the latter generation has adopted the innovative variant but at a slower pace than the former generation did (Table 4-11).

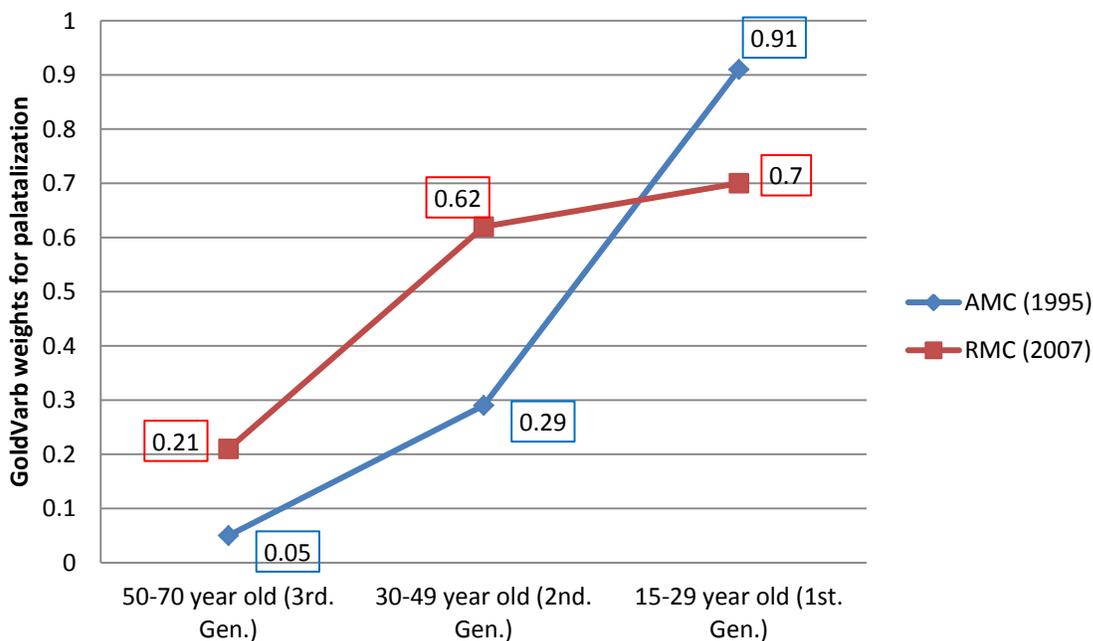


Figure 4-4. Comparison of rates of palatalization of dental stops followed by /i/ according to age in UP.

On the other hand, the present study shows that speakers in the 2007 Generation 2 group (30 – 49 years old) tend to favor the innovative variant at (.62), while the 1995 data shows a different scenario: speakers in this age bracket tend to favor the dental variant showing a low probability (.29). This finding can be interpreted as a ‘sustained’ use of the palatal variant over time by this generation. That is, speakers in the 2007 Generation 2 group (30-49 years old) were 18 and 37 years old, respectively, twelve years earlier, which is the time depth of the study. Carvalho reports an almost categorical (.91) probability of use of the palatal variant among speakers in the 1995 Generation 1 group and (.29) for speakers in the Generation 2 group. The generational differences across studies indicates that the 1995 Generation 1 group (15-29 years old) started out at (.91) probability of rule application. These speakers have continued

favoring the palatal variant but at a much slower pace as indicated by the decrease (.62) in the 2007 Generation 2 group.

In direction that is similar to the findings of previous research; 2007 data show that Generation 3 speakers (50-70 years old) prefer the conservative variant at (.21). Older participants in the 1995 sample show a mere (.05) of preference for the palatal variant. Cross-dialectally, the same pattern can be found. Bisol (1991) reports that the older group, speakers aged 36-55 years old, favors the conservative pronunciation of dental stops, showing a probability of rule application of (.37)

Comparing across studies, speakers in the 2007 Generation 3 group (50-70 years old) were 38 and 58 years old, respectively, in 1995. The probability of palatalization for speakers in this age-cohort in 1995 falls between Generation 2 (.29) and Generation 3 (.05). These results indicate that for speakers in this age-group, the dental variant is still the norm. However, these speakers, also, slightly favor the palatal variant at very sparse rates, reaching in 2007 an unfavorable (.21) of rule application.

It is worth noting that linguistic variables undergoing change might reach a point of relative stability. In fact, this is not an unusual finding. As Chambers (2002:364) points out, “linguists long recognized that rates of change fluctuate, and that periods of relative stability can be followed by periods of considerable flux.” Carvalho’s (1998) results show strong rates of palatalization distributed across age-groups ranging from 0.05 to 0.91. Thus, the time window⁴ captured in the 1995 data signaled a synchronic pattern

⁴ For Cedergren (1987:58) “the time window captured by synchronic studies of linguistic variation is limited by many factors, among which is the average life span of individuals of the particular time of the survey.”

of a vigorous change. However, twelve years later, comparative data indicate that the linguistic change has come to a pause.

In line with previous research, Battisti and Hermans (2009:235) report that palatalization of dental stops shows signs of stabilizing in the speech community of Antônio Prado due to strong social conditioning. The fact that apparent-time data from a neighboring state in Brazil shows an identical distribution further strengthens the results. This is a worthwhile finding since it indicates that UP in the speech community of Rivera is marching in line with southern BP varieties in response to regional changes.

In sum, as expected, age is the strongest social factor conditioning palatalization of dental stops in Rivera. Apparent-time evidence of both data sets corroborates that palatalization of dental stops is age-related, since the frequencies of palatalization are strongly associated with age differences. Data results confirmed the hypothesis that younger speakers tend to prefer the innovative variant. However, the hypothesized increase in the use of the palatal variant over time among the younger generation is not confirmed in the present study. As seen above, cross-sectional evidence indicates that palatalization of dental stops in the speech community of Rivera has stabilized.

As Chambers (2002:360) argues, change in progress shows incremental increases in the use of a particular variant in the speech of younger people. Although such an increment in the use of palatalization of dental stops is found across age groups in apparent-time; cross-sectional comparisons point toward a state of relative stability at the speech-community level.

On the other hand, the age distributions indicate that speakers of all ages participate in palatalization of dental stops in Rivera, but different age groups represent

different palatalization rates. This finding points out what (Labov 1972) would call a 'social marker'. The analysis of the next factor group, socio-economic status, will clarify the classification of palatalization of dental stops as a 'social marker' in the speech community of Rivera.

4.7.4.2 Socioeconomic group

Consistent with previous studies, the socioeconomic factor group does not have nearly as great an effect as the factor group age. The socioeconomic group demonstrates the second highest magnitude of effect in the analysis, obtaining a range of 37. This finding is consistent with previous studies of UP and across varieties of BP. Not only is this factor selected as significant but the constraint ranking mirrors that of the 1995 data.

Results show that participants in the higher socio-economic class bracket, mid-middle class, strongly favor the palatal variant (.76), whereas low-middle and working class speakers exhibit the same low probability of palatalization of dental stops (.39). It is worth noting that speakers in the low-middle and working class groups show the same tendency to use the innovative variant. This finding may indicate that palatalization of dental stops is moving along social spheres over time. Once more, these findings resemble 1995 data results. Mid-middle class speakers produced more palatalized variants (.81), whereas low-middle and working class speakers tended to favor the conservative pronunciation of dental stops at (.34 and .30), respectively.

As in previous research, palatalization of dental stops shows a clear social stratification. The wealthy and middle class inhabitants, who identify with Montevideo culture and distance themselves from UP speakers, favor palatalization of dental stops, whereas the poor and working class inhabitants, who identify with local border culture,

disfavor it. Furthermore, these results are consistent across dialects of BP. Battisti and Hermans (2009) found that speakers living in the urban area give room to the innovative palatalized variants, while informants living in rural areas prefer the more conservative non-palatalized variant.

Figure 4-5 shows a clear pattern of social stratification in which the wealthiest speakers tend to prefer the incoming palatalized variant, while the low-middle and working class speakers favor the conservative form. The extralinguistic factor socio-economic status provides an unambiguous picture. The results of this analysis indicate that palatalization of dental stops in Rivera can be interpreted as a sociolinguistic marker since it seems to signal social class, due to the clear break among the social groups. In fact, Labov (1972:220) argues that for a prestige marker, the higher a speaker's socioeconomic status, the higher the frequency of use, whereas for stigmatized markers, the reverse is true. This result points to the fact that palatalization of dental stops is a 'social marker' in the speech community of Rivera.

As expected, socioeconomic status proves to be a strong social constraint conditioning palatalization of dental stops. As hypothesized, mid-middle class speakers tend to use the innovative variant more often than low-middle and working class speakers. However, speakers in the latter groups present a very similar probability of rule application. These results are in line with previous research in UP and across dialects as well.

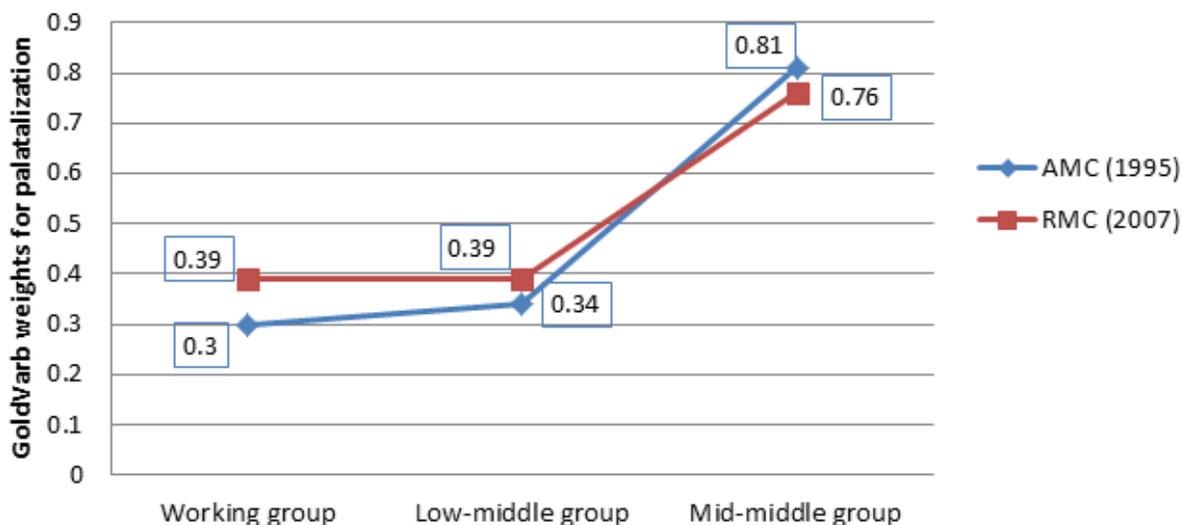


Figure 4-5. Comparison of rates of palatalization of dental stops followed by /i/ according to socio-economic status in UP.

4.7.4.3 Gender

The last extralinguistic factor group tested was gender. This social factor showed the lesser magnitude of effect in the analysis, obtaining a range of 24. Once again, the two sets of data show consistency. As expected, statistical results clearly reveal that women tend to produce more palatalized variants (.62) than men (.38). These results also pattern with the 1995 data, where women favored the innovative variant (.60) whereas men at (.39), showed a clear preference for the conservative realization of /ti/, /di/. Figure 4-6 compares the rate of palatal variants in both 1995 and 2007 data sets according to gender.

Figure 4-6 shows the findings in both studies. As seen above, the picture is unambiguous, showing that females are clearly ahead of men in using the innovative variant. Not only do genders pattern similarly across studies, they also exhibit almost identical probability of preference for the innovative variant. Noticeably, women lead men by a considerable margin in palatalization of dental stops. These results indicate

that females are leading the adoption of the innovative variant in the speech community of Rivera.

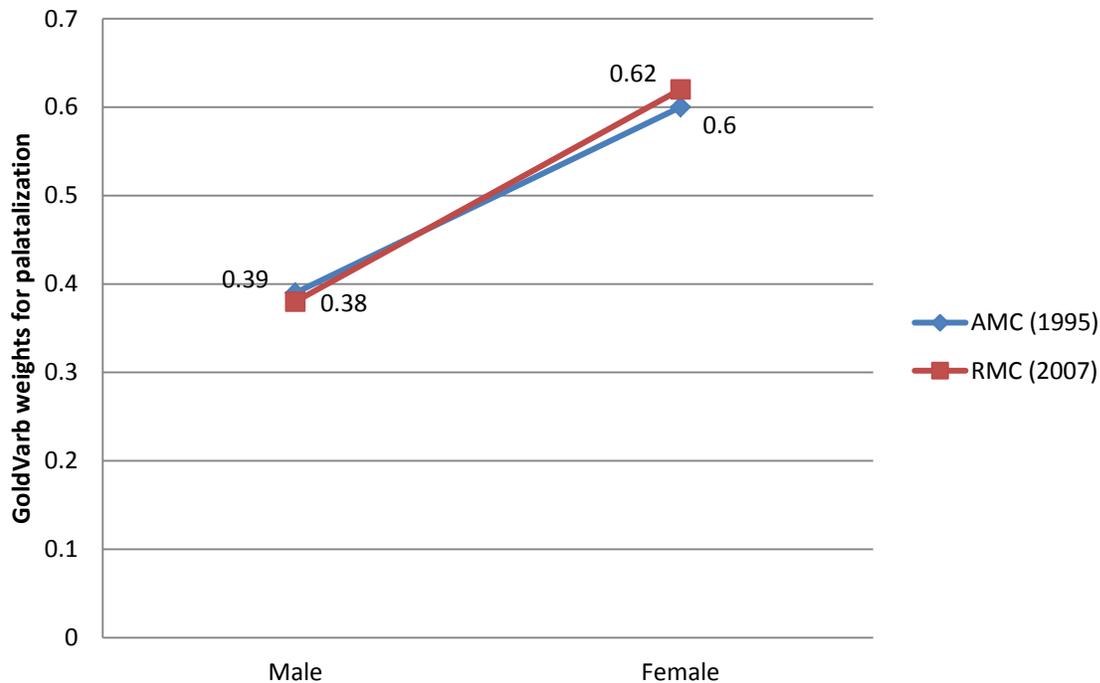


Figure 4-6. Comparison of rates of palatalization of dental stops followed by /i/ according to gender in UP.

The results of this analysis pattern across speech communities where sociolinguistic research has identified the important role of women in advancing language change. It is well known that women use fewer non-standard variants than men of the same social group. In fact, as Chambers (2002) argues, the linguistic correlations with gender are consistent and partly predictable (352). Thus, unsurprisingly, women proved to be advancing the process of adoption of the palatal variant in contemporary UP in Rivera.

In sum, as far as the social factors are concerned, the 2007 data are generally consistent with previous research both in UP and across dialects of BP. As expected, young people, females, and mid-middle class speakers favor the innovative variant,

while older people, males, and low-middle and working class speakers tend to disfavor it.

As hypothesized, the factor group speakers' age proved to exert the strongest social constraint conditioning palatalization of /ti/, /di/ in Rivera. Data results confirmed the hypothesis that younger speakers tend to favor the palatal variant. However, the hypothesized increase in the use of this variant over time among the younger speakers is not confirmed in the present investigation. Cross-sectional evidence indicates that palatalization of dental stops has reached a relatively stable mode at the level of the speech community. In line with previous research, stability is also found across varieties of BP. This finding signals that UP is marching alongside southern varieties of BP. Furthermore, here we have an example of a linguistic variable that is stabilizing as a sociolinguistic marker.

As expected, socioeconomic status has been found to be a strong social constraint conditioning palatalization of dental stops. As multivariate analysis results indicate, mid-middle class speakers tend to use the innovative variant more often than low-middle and working class speakers. As predicted, women are ahead of men by a considerable margin in palatalization of dental stops. These results indicate that females are advancing the adoption of the innovative variant in the speech community of Rivera.

4.7.4.4 Cross-tabulations of social factors

In order to further explore the interactions between social factors in the speech community of Rivera, it was necessary to run cross-tabulation analyses. Cross-tabulation analyses allow us to find out how the data are distributed for each intersection of factors (Tagliamonte 2006:182). In what follows, I present GoldVarb

results of cross-tabulations of each social factor group. I will start by cross-tabulating age and gender social factors.

Figure 4-7 shows the cross-tabulation results of age and gender. As Figure 4-7 shows, there is a clear age and gender-based pattern. Young females exhibit a considerably higher ratio of palatalization of dental stops than older males. The youngest group presents the biggest difference between females and males in the adoption of the innovative variant. However, both males and females in the Generation 2 group show a similar pattern, with women slightly in the lead. It is also interesting to note that males in the Generation 1 and 2 groups pattern similarly in the adoption of the palatal variant. While older speakers are the most linguistically conservative group altogether, older males present almost categorical use of the dental realization of /ti/, /di/.

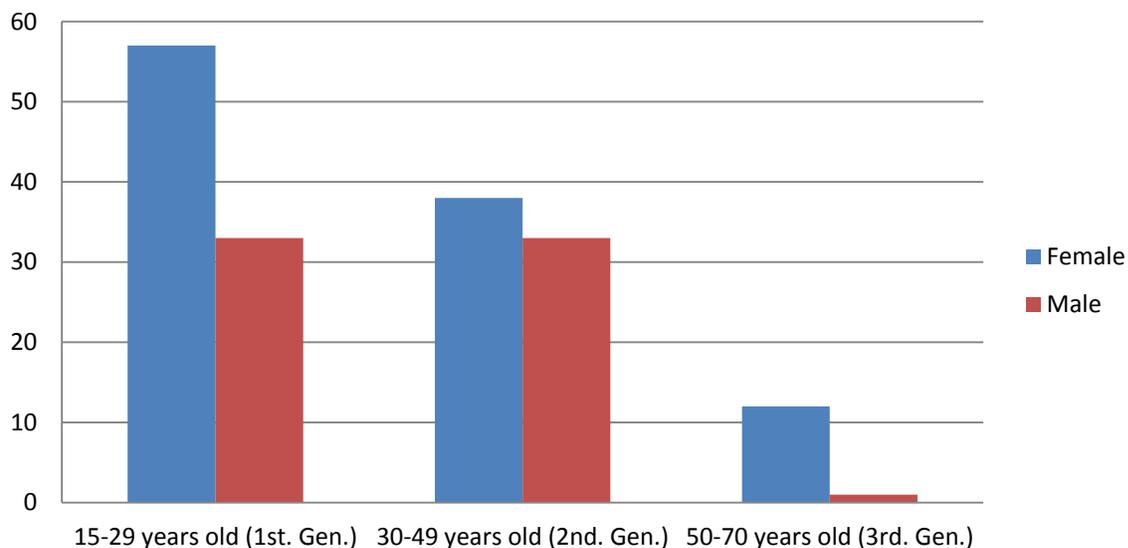


Figure 4-7. Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to age and gender (2007 data).

The linguistic behavior of speakers in the Generation 2 group (30-49 years old) requires some comment. It can be argued that these speakers are entering a

professional stage in their lives and as such are more sensitive to the social advantages of the incorporation of standard features into their speech. The linguistic marketplace concept (Sankoff & Laberge 1978) has been applied in sociolinguistics research to examine the relationship between linguistic variation in society and speaker's economic activity or occupation. We cannot underestimate the potential role of professional pressures operating on UP speakers wishing to advance in society. The job market in the area of public school education looks promising for community members with a good command of 'standard' Portuguese; UP is not regarded as an equivalent alternative. Public school teachers, mainly females, revealed previous employment as duty-free employees.

Self-reported data from participants revealed their opportunities to engage in daily interactions with Santana shoppers and their willingness to 'speak the language of the buyer.' In these daily commercial interactions, speakers feel compelled to approximate their variety to the standard. Above all, younger generations in Rivera are aware of the social capital attached to the standard language. In this respect, participants expressed their desire to learn standard Portuguese for practical reasons, in order to become more marketable in their professional life. As one speaker expressed (4.1)

(4.1) A gente têm que olhar para o Brasil, lá têm mais oportunidades de emprego. temos que pensar no futuro e estar preparado, não é? (YY055 m26)

'We have to look at Brazil, there are more job opportunities there, we have to think about the future and be prepared, right?'

The perception of language as a tool in order to ascend higher in society is evident among the young and young adults. Young Riverans are quite aware of the linguistic value of standard Portuguese and its potential value not only in the job market but also

for educational opportunities. However, Rivera dwellers are considerably aware of the stigma attached to the variety spoken in the city. In this respect, Riverans of all social classes share a community norm of linguistic evaluation: the social evaluation of UP as a 'mixed-language' '*a lingua misturada*'. Riverans even refer to UP speakers as *rompe-idioma* 'language-breakers'. While working class community members recognize the stigma attached to Rivera speech as part of their mixed identity and as a byproduct of conviviality with neighboring Brazil, mid-middle class speakers attach negative evaluations to the variety and express their dissociation with UP non-standard linguistic features.

Figure 4-8 shows cross-tabulations by gender and socioeconomic class. The Figure reveals a strong interaction between gender and social status. As seen below, there is a clear gender and socioeconomic-based pattern. Women in the highest socioeconomic group in Rivera present the highest frequency of the innovative variant, followed by females in the low-middle and in the working class groups. The social stratification of men is less dramatic. This finding conforms to the stance of sociolinguistic markers commonly found across speech communities. Labov (1981) argues that "for stable sociolinguistic markers, the mean values for women are shifted towards the upper end of the hierarchy" (184).

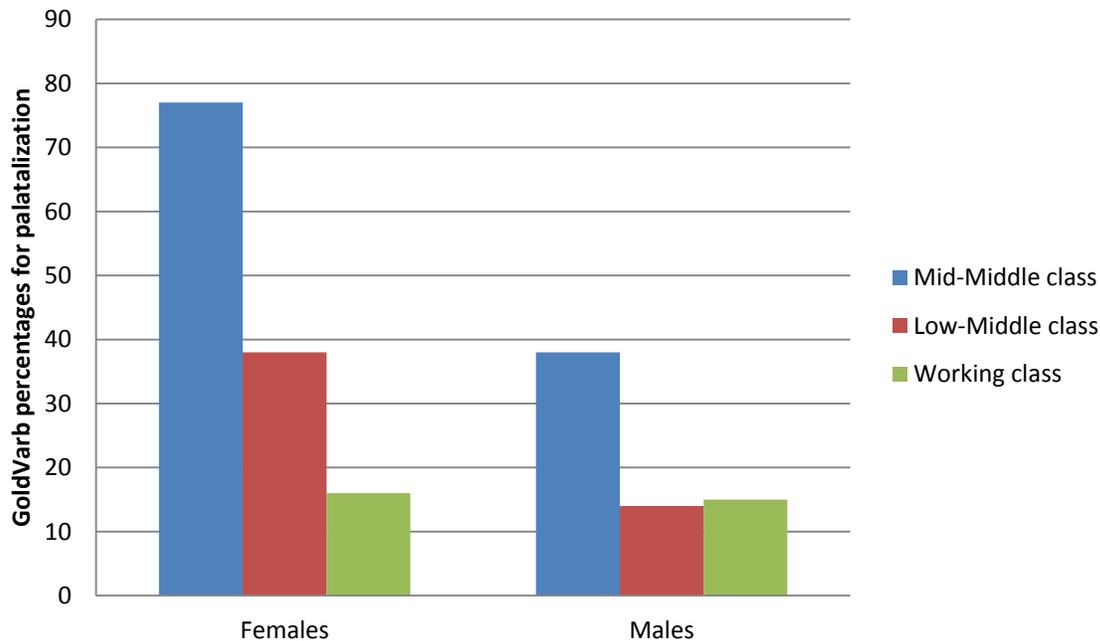


Figure 4-8. Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to gender and socioeconomic class (2007 data).

The very similar linguistic behavior of males and females in the working-class group can be interpreted within the social networks framework. Working class males and females share the same linguistic norms, reinforced through close-knit social networks. As previously discussed (§2.3), Rivera is a close-knit community, and thus speakers' networks are dense. People in the *barrios* engage in a variety of activities on a daily basis. These activities many times involve other community members in different capacities such as neighbors, kin, coworkers, etc. This type of social interactions reinforces local linguistic norms and may also diminish the impact of external linguistic models.

Feelings of 'linguistic insecurity' (Labov 1966) are common in both working and low-middle class Rivera residents. Women are especially sensitive to external higher standards of correctness in language associated with upward social mobility (Labov

1990:214). Women in Rivera are sensitive to the social pressures imposed on them. Due to their weaker social standing in the community, women tend to pay attention to external standards of ‘correct’ speech. This situation is exacerbated with the implementation of the teaching of Portuguese in public schools, which has brought a change in linguistic attitudes among Rivera residents. Parents, mainly women, initially opposed the idea of having Portuguese classes at school. Parents feared that children will eventually switch to UP, defeating the whole purpose of attending school.

Figure 4-9 shows cross-tabulation of socioeconomic class and age. The results shown in Figure 4-9 indicate that palatalization of dental stops correlates both with socioeconomic status and age. As seen below, the stratification decreases from left to right down the social domain from mid-middle to lower middle and working class.

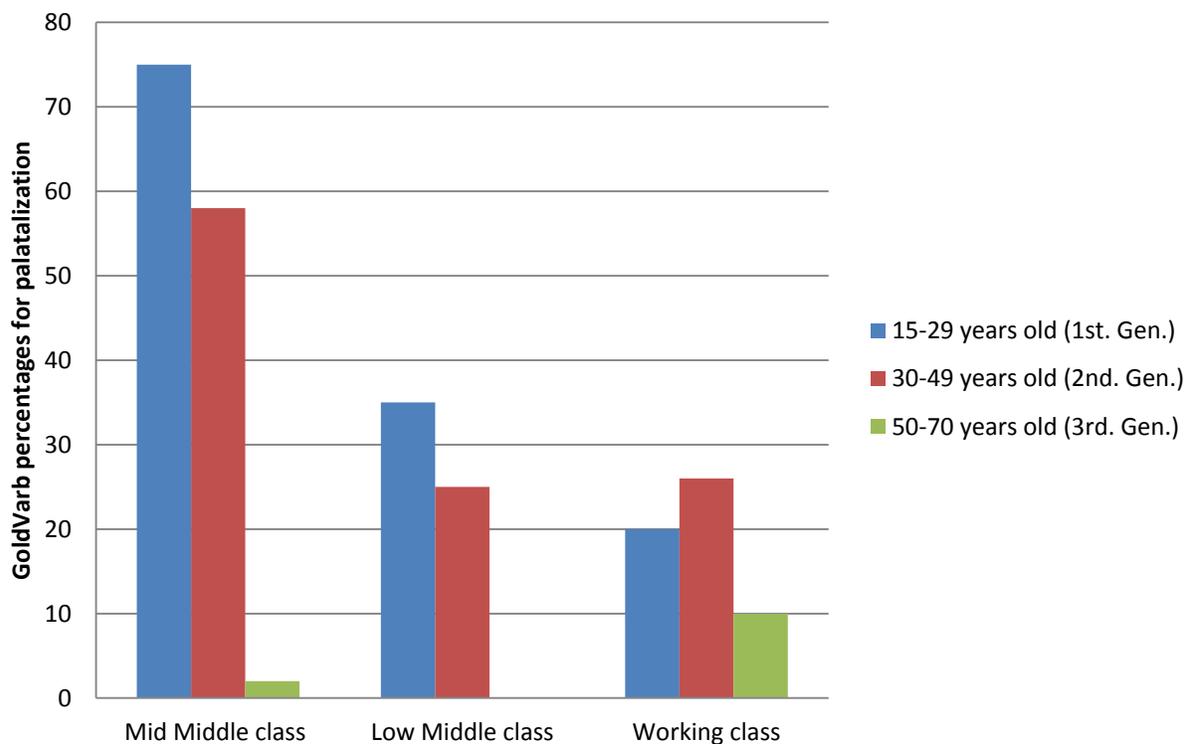


Figure 4-9. Cross-tabulation of overall percentages of palatalization of /ti/, /di/ according to socioeconomic class and age (2007 data).

Figure 4-9 also shows that mid-middle class females are the leaders of the adoption of the innovative variant in Rivera. It must be noted that mid-middle class speakers view the incorporation of standard Portuguese as a way to increase their advancement in society. Mid-middle class adolescents in Rivera attend private schools where English and Portuguese languages have long been an essential part of the school curriculum. They also attend the *Instituto de Lenguas* 'Languages Institute', where standard Portuguese is taught. Language classes are complemented with trips to popular Brazilian destinations, such as, Porto Alegre, Santa Catarina, São Paulo and Rio de Janeiro.

Young people in Rivera of all social classes are avid followers of Brazilian media. Brazilian music, dances, movies, soap-operas, shows in general is preferred. The powerful Brazilian television network *O Globo* is ubiquitous in Rivera's homes and public events. Riverans can easily access Brazilian television and radio stations for free, while the paid national networks do not seem to appeal to Rivera inhabitants.

As discussed above, young adults in the low-middle and working classes present an interesting pattern. These speakers, just as their coetaneous in the mid-middle class, seem to have incorporated the standard variant into their linguistic repertoire in order to attain social mobility. Young adult speakers in the working class group have incorporated the prestige variant into their speech at much higher rates than young participants in the same social group. As discussed earlier, social and professional pressures may be responsible for this linguistic behavior.

4.8 Discussion

Making use of standard variationist methodology, I have put to empirical test a number of hypotheses about the nature of linguistic and extralinguistic factors

conditioning the choice of the phonetic realizations of dental stops in UP. In the present investigation, I have compared data from two cross-sectional studies conducted at different points in time (1995 and 2007) with a time depth of twelve years. Cross-sectional studies are well suited to answer questions about language change or stability at the speech community level. Labov (1981) advises that the most straightforward approach to the study of change in progress is to combine studies of age distribution with points in real time.

By adding a longitudinal perspective to the study, it was possible to obtain a clear picture of the sociolinguistic evolution of palatalization of dental stops in the speech community of Rivera. The trend methodology implemented in the study allowed me to compare apparent-time data from two studies at different points in time, 1995 and 2007. I have explored this approach with the objective of substantiating the change in progress hypothesized by Carvalho (1998). Based on this hypothesis, an increment in palatalization rates was expected if palatalization was indeed undergoing change; however, statistical analyses do not support this prediction.

As seen above, the linguistic variable under investigation has not increased over time; instead, palatalization of dental stops has reached a state of relative stability at the speech community level. The first confirmation of this conclusion is obtained from the overall distribution of the variants. In the present investigation, the overall distribution of variants shows that 29% (N=743) of the tokens analyzed are palatal realizations, while 71% (N=1783) correspond to the dental realizations of the variant. On the other hand, Carvalho reports 32% (N=719) palatal realization and 68% (N=1529) of non-palatalizations of the variant. As mentioned above, an increase of palatalization over

time was expected in order to confirm the hypothesized change in progress. The overall distribution of the palatal variant points to a relative stability at the speech community level when compared at two discrete points in time 12 years apart.

As Labov (1981) discusses “if we want to propose that change in progress has been detected in a given speech community, we will need evidence to show that some variation within the community is a direct result of the fact that in the recent past language learners acquired a different form of the language than they are acquiring now” (177). The confirmation of this proposal is given by the fact that the proposed change has moved further in the same direction. In fact, results show that palatalization of /t/, /d/ has not increased over time but rather has reached a relative stability.

The time window captured in the 1995 data signaled a synchronic pattern of a vigorous language change in apparent-time. Regression analyses showed that the most important social factor conditioning palatalization is age, clearly signaling change in apparent-time. Additional evidence contributing to the language-in-change hypothesis was the existence of sharp differences across age groups in the data (Carvalho 1998:179). Unfortunately, one of the challenges in quantitative sociolinguistics is the scarcity of real-time data. In the specific case of Rivera, the only type of real-time data available are early qualitative descriptions of UP, in which the dental variant is characterized as the norm among UP speakers. Therefore, taking this account into consideration as real-time evidence, it is reasonable to assert that at least in the late 1950s dental stops before /i/ in Rivera had only one linguistic variant.

The linguistic variable palatalization of dental stops in the speech community of Rivera is heavily conditioned by extralinguistic factors, but it is also linguistically

constrained. As seen above, social factors, especially speaker's age, play a more significant role than linguistic factors. These results indicate that palatalization of dental stops is a sociolinguistic marker, that is, sensitive to both linguistic and social context factors carrying both social interpretation and evaluation (Labov 1972).

In this chapter I have discussed quantitative analyses of palatalization of dental stops in Rivera. I have stated the rationale behind the hypothesis and reformulated the research questions. Linguistic and extralinguistic constraints were also presented along with distributional and multivariate analyses. In addition, I conducted a cross-sectional analysis of the data to further explore the linguistic variable under examination.

The following chapter (Chapter 5) presents the quantitative analysis of vowel nasalization in UP. I will discuss the linguistic and extralinguistic factor groups and factors considered in the analysis. The results of both distributional and multivariate analyses will be discussed.

CHAPTER 5 QUANTITATIVE ANALYSES OF NASALIZATION

5.1 Background

In this chapter I present quantitative results for the second linguistic variable under examination in the present study, that is, the presence or absence of vowel nasalization in UP. Nasal vowels can be found across Romance languages, although they are found particularly in two varieties, French and Portuguese. Portuguese language is one of the two standard Romance varieties having nasal vowels as independent phonemes (Sampson 1999:175). Unlike in French, where the alternations between nasal and oral vowels are clearly indicated, in most varieties of Portuguese, vowel nasalization occurs generally whenever a vowel is followed by a nasal consonant, regardless of syllable structure (Lipski 1975:67).

Lipski (1975) reports that vowel nasalization before a nasal consonant in the following syllable is ignored in many descriptions of BP, although it is an accepted phenomenon in this variety. Individual and dialectal variations on BP vowel nasalization have been attested by Azevedo (1981:23) and Shaw (1986). Previous phonetic accounts have dealt with vowel nasality indirectly as a subsection of some other phonological issue, such as stress or development of diphthongs. However, vowel nasalization has not been fully accounted for. As seen above (§2.6.1.5), the tendency has been to look for language-specific data to justify universal hypotheses of nasalization failing to account for a general description of Portuguese nasal vowels. The hypothesis-then-data approach favored implicit assumptions about phonetic representations. The tendency towards ‘normalized’ representations and

morphophonological, phonetic, or dialectal variation or alternations has been ignored (Shaw 1986:6).

Although the literature on UP contains incidental references to the presence of vowel nasalization, this phenomenon has not been yet examined (§2.6.1.6). The sociolinguistic approach of this research will account for dialectal variations from spontaneous and informal speech, a method that is not commonly used to describe the vowel nasalization process. The quantitative analysis of vowel nasalization in UP will provide empirical evidence of the alternations available for UP speakers in contemporary Rivera.

5.2 Research Questions

Linguistic variation is rarely referred to in the literature on Portuguese nasal vowels although there is evidence of the existence of dialectal variations conditioned by stylistic and sociolinguistic factors such as social class (Shaw 1986:80). As indicated in the literature review (§1.3.1), early descriptions of UP have applied qualitative and interpretative techniques to analyze vowel nasalization in UP, but there has been no a quantitative description of UP vowel nasalization from a variationist perspective. Rona (1965:35) remarks that in the *Melense* variety, Portuguese words ending in *-ão* and Spanish words ending in *-ón* have yielded only one ending *-ão* (1965:43). The other three *Fronterizo* varieties in Rona's classification are said to have kept the Portuguese diphthong *-ão*. Hensey (1982:15), in a study analyzing the influence of Spanish phonology on the Portuguese of bilinguals living in the Uruguayan-Brazilian border, argues that /a/ rises to /ẽ/ when preceded by a nasal consonant. Lipski (1994:343) points out that vowel nasalization in UP is variable and can be measured according to its degree of approximation to the Portuguese vowel system

The sociolinguistic analysis of vowel nasalization in UP represents a challenging and exciting area of linguistic inquiry since this phonological process has not been investigated from a variationist perspective. My variationist approach to account for the distribution, alternation, and variation of vowel nasalization in UP will fill a research gap in this field of inquiry. In this study I have included phonetic, morphological and social factors in order to determine which internal and external mechanisms have a significant effect on the distribution of the variation. I first discuss the linguistic factors conditioning the variant selection. I will then discuss the social factors selected as presenting statistically significant effects on vowel nasalization in contemporary UP in Rivera.

5.3 Circumscribing the Variable Context

Traditional phonologies of Portuguese distinguish two types of nasal vowels: one contrastive or phonological, the other allophonic or phonetic. Conventionally the former are referred to as ‘nasal vowels’, (i.e.), those capable of entering into a phonemic opposition with a corresponding oral vowel; the latter class is considered to be ‘nasalized vowels’ or non contrastive (Mattoso-Câmara 1970, 1972; Wetzels 1997:205).

In order to decide what would constitute an instance of vowel nasalization, it was necessary to choose from among competing analyses of Portuguese vowel nasalization. A main concern was whether to consider only contrastive nasal vowels (e.g., *lã*, ‘wool’, *la* ‘there’) or to include also vowel + nasal (VN) followed in the same or in the following syllable (e.g., *campo* ‘field’, *cama* ‘bed’).

Table 5-1. Example of contrastive nasal vowels

[lẽ]	<i>lã</i>	‘wool’
[la]	<i>la</i>	‘there’
[ũ]	<i>um</i>	‘one’
[u]	<i>o</i>	‘the’

Table 5-2. Example of vowel + nasal in the same syllable

['kẽpu]	<i>campo</i>	'field'
['mũdu]	<i>mundo</i>	'world'

Table 5-3. Example of vowel + nasal in the following syllable

['kẽma]	<i>cama</i>	'bed'
[kũpádu]	<i>cunhado</i>	'brother-in-law'

A more critical point to take into consideration is the one raised by Lipski (1975) where he claims that restricting vowel nasalization analysis to “those cases where the nasal vowels appear to be analyzable as being followed in the same syllable by a nasal consonant [...] would fail to describe the phenomenon of vowel nasalization in its greatest generality”¹ (Lipski 1975:67). As mentioned above, in most dialects of Portuguese, vowel nasalization occurs generally whenever a vowel is followed by a nasal consonant regardless of syllable structure. In order to account for what appears to be a basic and consistent fact of Portuguese vowel nasalization, the criteria selection were extended to cover every instance of nasalization phonemic or not.

For the present study the envelope of linguistic variation (Labov 1972), that is to say, the variable context, included the presence or absence of a fully nasal vowel or a nasalized vowel followed by a nasal closure (VN). No distinction was made to differentiate between nasal or nasalized vowels; instead, they were merged into a single linguistic variable. The selection criterion was based on Lipski’s (1975) argumentation for a more realistic analysis of vowel nasalization in BP, in order to account for every realization as it occurs in naturally occurring speech. The presence of vowel nasalization was coded as (n) or application of the nasalization rule; the absence of vowel nasalization was coded as (o) or non-application of the nasalization rule. The

¹ Lipski (1975:67) asserts that it is only in these positions where phonemic nasal vowels occur in Portuguese; vowel nasalization in the Carioca dialect is not confined to these environments.

dependent variable was defined as binary, that is, as the presence or absence of vowel nasalization in UP. As indicated in the data analysis section (§3.6), instrumental analysis was not performed.²

5.4 Exclusions

I included in the analysis all words containing the presence of a fully nasal vowel or a sequence of a perceived nasal quality of the vowel followed by a nasal closure (VN). As it is standard in the methodology of variationist sociolinguists, I excluded from the analysis false starts or truncated utterances, repetitions and not understandable or not audible utterances.

Distinctions between degrees of nasalization were not included in the analysis. As discussed above (§2.6.5), degrees of nasalization do not appear to be linguistically relevant since there appears to be no language in which these gradations are employed to differentiate meaning (Quicoli 1990). Further, distinctions between degrees of nasalization are compelling for acoustic or instrumental treatments of nasalization, but their treatment goes beyond the scope of the present study.

5.5 Linguistic Constraints

Deciding which factor groups and factors to test in any variationist study involves a deep understanding of the linguistic and or social influences that may condition speaker choice of a linguistic variable. In order to carry out the quantitative analysis of vowel nasalization in UP, I conducted an exhaustive literature review on the process of BP nasalization (§2.6.1). The criteria for the selection of the linguistic factor groups were extrapolated from the literature review on nasalization and denasalization across

² A similar procedure was used by Hansen (2001) in the study of lexical diffusion in French nasal vowels and Guy's (1981) study of denasalization in Brazilian Portuguese.

languages and prescriptive Portuguese language grammars. I integrated factor groups and factors in direct response to the most relevant issues raised in the body of literature on the nasalization process in BP.

Previous studies reveal that stress, following and preceding phonological environments, syllable structure, and functional category of the word are among the most common factor groups conditioning the variable pronunciation of vowel nasalization across languages. These factor groups were included in the analysis of vowel nasalization in UP.

5.5.1 Syllable Stress

As discussed above (§4.5.1), stress is fundamental to the entire Portuguese phonological system. It is a sound decision to test the effects of stress conditioning vowel nasalization in UP. Nasal vowels occur in stressed as well as in unstressed syllables, word-initial, medial, and final. Wetzels (1997) maintains that in all dialects of BP, allophonic nasalization is most systematic in stressed vowels, whereas contrastive nasalization is realized independently of stress.

In order to consider a syllable as stressed any degree of primary or secondary stress was taken into account. It was hypothesized that vowel nasalization in UP would be more frequent in stressed syllables.

Table 5-4. Examples of vowel nasalization in UP according to syllable stress

Syllable Stress			Glossary
Pre-tonic	<i>untar</i>	[ũtáχ]	'to rub'
Final stressed	<i>irmã</i>	[ix'mě]	'sister'
Word internally stressed	<i>canto</i>	['kětu]	'song'

5.5.2 Following Phonological Environment

The nature of the following phonological context has proven to be a strong linguistic constraint. In his study on the denasalization process in PBP³, Guy (1981) discusses the importance of testing the effect of the segments following and preceding the target nasal vowels, “particularly with respect to whether they themselves were nasal or not” (203). Guy also argues that historically the Portuguese language has had vast documented cases of both progressive (e.g., *muito* [‘mũjtw] ‘a lot of, much’) and regressive vowel nasalization (e.g., *cegonha* [se’gõɲa] ‘stork’). I deemed appropriate the need to test the hypothesis that being adjacent to another nasal segment might favor the nasalization process.

In order to discriminate as finely as possible the nature of vowel nasalization in UP, I coded seven factors to test their impact on the nasal vowels. As the literature review suggests (§2.6.14), I considered it necessary to code nasals separately, that is, alveolar and dental nasals in one group and palatal nasals in other. This procedure was followed for both following and preceding phonological contexts. It was predicted that following phonological environment is a strong linguistic constraint that would condition the nasalized variant.

Table 5-5. Examples of vowel nasalization in UP according to following segment

Following context			Glossary
Nasal consonant	<i>cama</i>	[‘kẽma]	‘bed’
Palatal nasal	<i>cegonha</i>	[se’gõɲa]	‘stork’
Glide	<i>muito</i>	[‘mũjtw]	‘a lot of, much’
Stop	<i>boneca</i>	[bo’nẽka]	‘doll’
Fricative	<i>enfim</i>	[ẽ’fɨ]	‘at last, finally’
Sibilant	<i>uns</i>	[ũ]	‘some (masc. plural)’
Pause	<i>alemã</i>	[ale’mẽ]	‘German fem.’

³ PBP stands for Popular Brazilian Portuguese.

5.5.3 Preceding Phonological Environment

As stated above (§5.5.2), preceding phonological context has been shown to influence the denasalization process in BP (Guy 1981). In order to examine the nature of the preceding phonological segment and the impact of progressive nasal assimilation, if any, I coded nine linguistic factors. I followed the same procedure as in following phonological context on coding the nasal consonants separately. The prediction is that preceding phonological context constrains vowel nasalization in UP.

Table 5-6. Examples of vowel nasalization in UP according to preceding context

Preceding context		Glossary	
Nasal consonant	<i>mãe</i>	[mẽj]	‘mother’
Palatal nasal	<i>amanhã</i>	[amẽjẽ]	‘tomorrow’
Stop	<i>punho</i>	[‘pũju]	‘fist’
Fricative (non-sibilant)	<i>fim</i>	[fĩ]	‘end’
Sibilant	<i>som</i>	[sõ]	‘sound’
Lateral	<i>malandro</i>	[ma’lẽdru]	‘crook’
vibrant	<i>roncar</i>	[Rõ’kaʃ]	‘to snore’
Glide	<i>quão</i>	[‘kwẽw]	‘as’
Pause	<i>um</i>	[ũ]	‘one’

5.5.4 Syllable Structure

In the present investigation I have also included two non-phonetic constraints. These factors are syllable structure and functional category of the word. Within this factor group, tokens were classified on the basis of the number of syllables of the lexical item: monosyllabic or polysyllabic. The rationale to include this factor group in the analysis was my initial observations and intuitions from the fieldwork conducted in Rivera. I considered relevant to test whether vowel nasalization was mainly found in monosyllabic words. The prediction is that monosyllabic words are nasalized more frequently than polysyllabic ones.

Table 5-7. Examples of vowel nasalization in UP according to syllable structure

Syllable structure		Glossary	
Monosyllables	<i>mãe</i>	[mẽj]	'mother'
Polysyllables	<i>cafezinho</i>	[kafɛ'zĩɲu]	'little coffee'

5.5.5 Functional Category of the Word

The second non-phonetic linguistic constraint tested is functional category of the word. The functional category of the word has been found to condition a reverse phonological process, weakening and deletion of verbal /n/. Poplack (1979) did not find significant phonological constraints on the deletion rule in Puerto Rican Spanish; however, she reports the significant conditioning of morphological category. As she points out, "deletion of verbal /n/ is not a surface phonological deletion rule, but a grammatical one" (1979:139). Guy's (1981) results on denasalization in BP did not support this finding. Guy found that denasalization applied equally to nasal vowels that were plural markers and to those that were not (1981:331); (e.g., *sabem* 'they know PRES IND', *abram* 'they open PRES SUBJ'; and *homem* 'man', *jovem* 'young').

In order to test the potential role of morphological factors conditioning the variation of vowel nasalization in UP, I included in the analysis the functional category of the word. In this factor group nine factors were examined. I coded nouns and nouns with diminutive suffixation in two separate groups. It was hypothesized that vowel nasalization would affect vowels equally regardless of their morphological function.

Summing up, five linguistic factor groups, three phonetic and two non-phonetic, were coded to account for the variable realization of vowel nasalization in Rivera. These groups were extrapolated from the literature review on nasalization and denasalization in Portuguese and across languages and early intuitions from the fieldwork. The following factor groups were examined: tonicity of the syllable, following and preceding

phonological environment, syllable structure, and functional category of the word. It was hypothesized that vowel nasalization in UP would be more frequent in stressed syllables and monosyllabic words, and that it would affect all words regardless of their morphological status. An additional prediction was that following and preceding phonological environment would condition the selection of the nasalized variant in the speech of bilingual speakers in Rivera. In what follows, I describe the extralinguistic or social factors included in the present study.

Table 5-8. Examples of vowel nasalization in UP according to functional category of the word

Functional category of the word			Glossary
Noun	<i>cozinha</i>	[ko'zĩɲa]	'kitchen'
Noun and diminutive	<i>cafezinho</i>	[kafɛ'zĩɲu]	'little coffee'
Adjective	<i>malandro</i>	[ma'lẽdru]	'crook'
Adverb	<i> muito</i>	['mũjtw]	'a lot of, much'
Progressive form of the verb	<i>morando</i>	[mo'rẽdu]	'to live, reside (gerund)'
Non-progressive	<i>tenho</i>	['tẽno]	'to have 1 st pers. sing ,
Conjunction	<i>embora</i>	[ẽ'bɔra]	'though, although'
Pronouns	<i>quem</i>	[kẽj]	'who'
Preposition	<i>sem</i>	[sẽ]	'without'

5.6 Social Factors

In examining vowel nasalization in UP, I analyzed the same social constraints considered in the analysis of palatalization of /ti/, /di/ (§4.6). These factors include age, gender, and socioeconomic status. It was predicted that these factors would condition the linguistic variable under examination. In the next section I present and discuss the results of multivariate analyses for both internal and social factors.

5.7 Results and Discussion

The data set amounted to 2121 tokens, which I analyzed using GoldVarbX (Sankoff, Tagliamonte, and Smith 2005). The following section presents an overall

distribution of the variants, a factor-by-factor distributional analysis and multivariate analysis of the contribution of factors to condition vowel nasalization in UP.

5.7.1 Overall Distribution of Variants

Table 5-9 shows the overall distribution of the data grouped according to whether there was a nasal or an oral variant. The data show that the overall rate of vowel nasalization in contemporary UP is 21% (N= 447) and the oral realization is 79% (N= 1674) for a total of 2121 tokens coded.

Table 5-9. Overall distribution of the realization of tokens of vowel nasalization in UP

Vowel nasalization		Oral realizations	
%	N	%	N
21	447	79	1674
		Total N	2121

As shown in Table 5-9, 21% of variants are nasal vowels whereas oral vowels make up 79% of the data. In what follows, I present the results of the factor-by-factor distributional analysis. This analysis will allow us to determine the role of the independent factors conditioning the linguistic variable under examination.

5.7.2 Factor-by-Factor Distributional Analysis

As already discussed (§4.6.2), a factor-by-factor analysis considers each independent variable one at the time (Tagliamonte 2006). Table 5-10 displays the distribution of vowel nasalization according to syllable stress in UP.

Table 5-10. Distribution of nasalization by tonicity of the syllable in UP

Syllable tonicity	%	N
<i>Word internally stressed</i>	23	1397
<i>Final stressed</i>	17	724

Three linguistic factors were originally considered for the analysis, that is, pre-tonic, word-internal and final stressed syllable. However, the linguistic factor pre-tonic stressed syllable was excluded in the final analysis because of its low rate of

nasalization (2%). As seen above, nasalization in word-internally stressed syllables is realized 23% (N= 1397) of the time. Note that this context represents twice the number of tokens in comparison with final stress. Final stressed syllables show 17% (N=724) of rate of nasalization.

As Table 5-10 shows, word internal and final stressed syllables account for all instances of vowel nasalization, while the context pre-tonic stressed syllable presented insufficient data. This result indicates that vowel nasalization occurs categorically in stressed syllables in UP. This affirmation is supported by Guy’s (1998) study, where he reports that stressed vowels and diphthongs are inhibitors of denasalization in BP (231). Table 5-11 outlines the effect of following phonological environment in vowel nasalization in UP.

Table 5-11. Distribution of nasalization by following phonological segment in UP

Following phonological segment	%	N
<i>Glide</i>	32	490
<i>Nasal consonant (palatal nasals)</i>	27	286
<i>Stop</i>	21	725
<i>Fricative</i>	16	217
<i>Pause</i>	7	403

Seven linguistic factors were considered to test the effect of following phonological segment: nasal consonants (non-palatal), palatal nasals, stops, fricatives (non-sibilant fricatives), sibilants, glides, and pause. However, in the last statistical run all nasal consonants and all fricatives were collapsed into two separate groups. Table 5-11 shows that glides and nasal consonants present the highest rates of vowel nasalization, 32% (N=490) and 27% (N=286), respectively. The high rate of glides points to a potentially favorable conditioning of a following glide or a vowel raised in this environment producing nasal diphthongs or triphthongs. As mentioned earlier (§4.4)

vowel raising is pervasive in Brazilian Portuguese, raising pretonic mid-vowels /e/ and /o/ to [i] and [u], respectively, in syllable final position. An additional factor to consider for the high incidence of glides in this position is that in BP final nasal vowels are phonetically diphthongized, (i.e.), /e(n)/ is realized as /ei(n)/ (Mattoso Câmara 1972:52). This result also reveals the potential role of the diphthongization process in UP.

The high rate of vowel nasalization following nasals may appear to be an expected result; however, it is also a revealing finding in light of the phonological processes operating in the language. As mentioned previously, both progressive and regressive vowel nasalization can be found in Brazilian Portuguese. Vowel nasalization in the Carioca dialect is found more frequently when any vowel is followed by the palatal nasal [ɲ], as in *tenho* [ˈtẽɲu] ‘I have’, *punho* [ˈpũɲu] ‘fist’ (Lipski 1975:67). This result indicates the potential role of regressive nasal assimilation effects operating in UP.

While stops 21% (N=725) and fricatives 16% (N=217) show relatively moderate rates of effect on nasalization, following pause reveals a very low effect 7% (N=403).

Table 5-12 outlines the effect of preceding phonological segment.

Table 5-12. Distribution of nasalization by preceding segment in UP

Preceding phonological segment	%	N
<i>Pause</i>	38	133
<i>Liquid (vibrant, laterals)</i>	26	341
<i>Stop</i>	20	867
<i>Fricative (sibilants)</i>	19	704
<i>Glide</i>	3	76

To examine the effect of preceding environment conditioning vowel nasalization in UP, I coded nine linguistic factors, namely, non-palatal nasal consonants, palatal nasals, stops, non-sibilant fricatives, sibilants, laterals, vibrants, pause, and glides. After several statistical runs it was necessary to go back to the data to recode, exclude,

and collapse some of the linguistic factors yielding a final count of five factors. Nasals were combined into a single group; however, they were excluded in the final statistical run due to interacting effects with other factors. The interaction will be clarified with the multivariate analysis and cross-tabulation of the data. Four linguistic factors were collapsed into two groups: fricatives and sibilants; and vibrants and laterals were joined into a new factor labeled 'liquids.'

As seen above, pause 38% (N=133) and liquids 26% (N=341) present the highest rate of vowel nasalization in this phonological environment. While stops 20% (N=394) and fricatives 19% (N=704) show comparable rates of nasalization, glides reveal a very low rate 3% (N=76). The presence of preceding pause or zero phonetic environment at the top of this group may indicate that vowel nasalization is analyzed through word-initial syllables in UP. This assumption will be clarified by the multivariate analysis.

The first non-phonetic constraint included in the analysis was syllable structure of the word. I coded the data into two groups, whether a lexical item was a polysyllable or a monosyllable. Table 5-13 shows the marginal results of this analysis.

Table 5-13. Distribution of nasalization by syllable structure in UP

Syllable structure	%	N
<i>Polysyllable</i>	23	1837
<i>Monosyllable</i>	9	284

Table 5-13 reports that polysyllabic lexical items outnumbered monosyllabics 23% (N=1837) to 9% (N=284).

The last group tested was functional category of the word. I coded nine factors in this factor group: nouns, nouns with diminutives, verbs, progressive forms of the verb, adjectives, adverbs, prepositions, pronouns, and conjunctions. Three factors were excluded in the final analysis due to insufficient data in the cells: pronouns, prepositions

and conjunctions. Nouns and nouns containing diminutive suffixation were tested separately but collapsed together into a single group. The final statistical output is shown in Table 5-14.

Table 5-14. Distribution of nasalization by functional category in UP

Functional category of the word	%	N
<i>Progressive forms of the verb</i>	32	184
<i>Noun , (noun and diminutive)</i>	32	904
<i>Adjective</i>	16	323
<i>Adverb</i>	6	306
<i>Verb (non-progressive forms)</i>	6	404

As Table 5-14 shows, progressive form of the verb and nouns show the highest rates of nasalization 32% (N=184 and 904), respectively. While adverbs and non-progressive forms of the verb have a relatively low rate of nasalization, only 6% (N=306 and 404), respectively; adjectives are found in the middle with a 16% rate of nasalization (N=323). The distributional analysis indicates that vowel nasalization is a linguistic variable that implicates both phonology and morphology. Final /n/ functions as suffixal inflection in Portuguese, thus affecting both levels of grammar. This result signals the potential interaction between phonological and morphological rules operating in the process of vowel nasalization in UP.

In sum, the tabulation of effects discussed above suggests that the five linguistic factors examined in the present study condition the occurrence of vowel nasalization in UP. As discussed earlier (§4.7.2), a factor-by-factor analysis, although informative, does not show the combined impact of all factors tested simultaneously (Tagliamonte 2006). In the next section, I analyzed the data using the variable rule application of the program. This analysis will reveal which factor or factor groups contributes statistically significant effects to the probability of vowel nasalization in UP.

5.7.3 Multivariate Analysis of the Contribution of Linguistic Factors of Vowel Nasalization in UP.

Table 5-15 shows the results of the multivariate analysis of the contribution of linguistic factors detected by the stepwise multiple regression procedure incorporated in the variable rule program as significant to the probability of vowel nasalization in UP.

Table 5-15 shows the binomial step-up and step-down analysis of the data. Three conditioning factors stand out as the most salient predictors of vowel nasalization: preceding context, functional category of the word, and following phonological segment. These three groups contribute statistically significant effects to vowel nasalization. Two linguistic factor groups were eliminated by the multiple regression analysis: tonicity of the syllable and syllable structure of the word.

The highest constraint is exerted by preceding environment. Pause or zero phonetic environment favors vowel nasalization (.64) whereas glides and fricatives disfavor it (.15 and .44), respectively. Liquids (.57) followed by stops (.53), slightly promote vowel nasalization in UP. The presence of a pause at the highest point in the constraint hierarchy might indicate that vowel nasalization in UP is more likely to occur in syllable-initial positions. This interpretation seems contradictory with the characterization of pause as neutral in phonological rules (Guy 1981:330).

These results do not seem to provide a plausible explanation of the linguistic variable under analysis. When we look at the following phonological context, the constraint hierarchy shows a reverse order of the preceding context. The odd distribution of the constraint hierarchy in this environment needed to be corrected. Upon noticing this configuration, I ran cross-tabulations of all the linguistic factors and noticed

badly distributed cells and interacting factors. In view of these facts and in order to correct this irrational distribution, I recoded the data and run a new multivariate analysis.

Table 5-15. Variable rule analyses of the combination of linguistic factors selected as significant to the probability of nasalization in UP

Corrected mean			.16
Log likelihood			-955.512
Total N			2121
Preceding phonological segment	Factor weight	%	N
Pause	.64	38	133
Liquids (laterals and vibrants)	.57	26	341
Stops	.53	20	867
Fricatives (and sibilants)	.44	19	704
Glides	.15	3	76
<i>Range</i>	<i>49</i>		
Functional category of the word			
Progressive forms, gerunds	.70	32	184
Nouns	.66	32	904
Adjectives	.47	16	323
Adverbs	.27	6	306
Verbs (non-progressive forms)	.26	6	404
<i>Range</i>	<i>44</i>		
Following phonological segment			
Glides	.62	32	490
Nasal consonants	.59	27	286
Stops	.49	21	725
Fricatives (and sibilants)	.42	16	217
Pause	.35	7	403
<i>Range</i>	<i>27</i>		
Syllable structure			
Monosyllable	[.58]	9	284
Polysyllables	[.49]	23	1837
Tonicity of the syllable			
Final stressed	[.52]	17	724
Word internally stressed	[.49]	23	1397

Note: Factor groups not selected as significant are shown in square brackets.

I must note at this point that the reanalysis of data in methodological sociolinguistics is standard practice. Sometimes it is necessary to go back to the data

and recode and collapse groups in order to account faithfully for the linguistic variable under investigation. For the reanalysis of the data, I excluded two factor groups, tonicity of the syllable and syllable structure of the word. These factor groups were already eliminated in the first multivariate analysis and their factor weights approximate toward the mean (.5), indicating rather neutral effects conditioning the dependent variable. As the factor-by-factor analysis shows, vowel nasalization in UP occurs categorically in stressed syllables. As for syllable structure of the word, we noted that nasalization was more frequent in polysyllabic than monosyllabic words.

Following nasals were excluded from the analysis due to interaction effects with adjectives and adverbs. Following glides were also excluded due to their low percentage (3%). Guy (1988) notes that any context over 95% or fewer than 5% should be removed from variable rule analysis, since they are not variable. As discussed above, preceding pause was excluded from the analysis and adjectives and adverbs were collapsed into a single group due to interacting effects.

In what follows, I present the results of the reanalysis of the data of the contribution of linguistic factors detected by the stepwise multiple regression procedure incorporated in the variable rule program as significant to the probability of vowel nasalization in UP. Table 5-16 shows the overall distribution of the data grouped according to whether there was a nasal or an oral variant. The data show the overall rate of vowel nasalization in contemporary UP is 14% (N= 222) and the oral realization is 86% (N= 1412) for a total of 1634 tokens. These results represent a lower overall rate of vowel nasalization than the first analysis showed.

Table 5-16. Overall distribution of the realization of tokens of vowel nasalization in UP

Vowel nasalization		Oral realizations	
%	N	%	N
14	222	86	1412
		Total N	1634

The next step is to run the binomial step-up and step-down analysis of the data. The log likelihood improved notably, from -955.12 to -596.211, revealing a better fit of the analysis.⁴ Table 5-17 displays the results of the multivariate reanalysis of the contribution of linguistic factors of vowel nasalization in UP.

Table 5-17. Variable rule reanalysis of the combination of linguistic factors selected as significant to the probability of nasalization in UP

Corrected mean			11
Log likelihood			-596.211
Total N			1634
Functional category of the word	Factor weight	%	N
Progressive form of the verb	.77	32	181
Nouns	.62	17	587
Adjectives and adverbs	.46	10	544
Verbs (non-progressive form)	.22	4	322
<i>Range</i>	55		
Preceding phonological segment			
Stops	.59	16	581
Liquids (laterals and vibrants)	.52	16	376
Fricatives (and sibilants)	.47	12	442
Nasals	.42	10	165
Glides	.11	2	70
<i>Range</i>	48		
Following phonological segment			
Stops	[.53]	17	957
Fricatives (and sibilants)	[.51]	13	255
Pause	[.43]	7	422

Note: Factor groups not selected as significant are in square brackets.

⁴ The log likelihood “measures the goodness of fit of the analyses. Figures closer to 0 represent better models than those further removed from 0” (Tagliamonte 2006:156).

Table 5-17 reveals that functional category of the word and preceding phonological environment contribute statistically significant effects to vowel nasalization in UP. The factor group following phonological context was eliminated in the step-down analysis. In the first multivariate analysis (Table 5-15), following context presented the lowest relative strength (27) of the three factor groups selected. Unsurprisingly, in the reanalysis of the data, this factor group was eliminated.

As seen above, functional category of the word is the strongest factor group conditioning vowel nasalization in contemporary UP, followed by preceding phonological environment. This is the reverse order of the first multivariate analysis, where preceding environment was stronger than functional category of the word conditioning the nasalized variant, presenting a range of 49 and 44, respectively (Table 5-15, 5-17). The next section provides a detailed description of each factor selected as significant in the reanalysis of the data.

5.7.3.1 Functional category of the word

First, the greatest effect is contributed by functional category of the word. In this analysis, the constraint hierarchy of the first multivariate analysis is maintained, that is, progressive form of the verb, nouns, adjectives and adverbs, and non-progressive form of the verb (Table 5-15, 5-17). Besides being selected as statistically significant, this factor group shows a relative magnitude of its effect with a range of 55. Not only is this factor group selected as the highest constraint conditioning vowel nasalization in UP, but the relative strength of its effect is quite significant. This finding is consistent with previous studies across languages and varieties of BP. Poplack's (1979) study of weakening and deletion of final /n/ in Puerto Rican Spanish, and Abaurre and Pagotto's

(1996) study of phonetic nasalization in BP⁵, report the favorable effect of morphological status of the word conditioning vowel nasalization.

In the present analysis, verbal categories such as the progressive or gerund forms, favor the nasalized variant at (.77) probability, while non-progressive forms of the verb strongly disfavor it (.22). Nouns, including nouns with diminutives, provide a favorable context for vowel nasalization at (.62). As seen above (Table 5-17), the two favorable contexts, progressive forms of the verb and nouns, pattern with a clear division between them. Adjectives and adverbs (.46) do not constitute a favoring environment for vowel nasalization in UP. These results suggest that vowel nasalization in UP distinguishes major categories of the grammar.

The constraint hierarchy presented in the present study patterns similarly across varieties. Abaurre and Pagotto's (1996) study shows that verbs (.63) favored vowel nasalization the most followed by nouns (.55), while adjectives (.49) and adverbs (.21) disfavor it. Results suggest that the mechanisms that produce variation from the underlying grammars of UP and BP are very similar. The results also reveal that vowel nasalization in UP patterns across dialects.

Progressive forms of the verb exert the highest effect on favoring the nasalization rule with a .77 probability. This finding provides evidence to suggest that vowel nasalization is more likely to occur in sequences such as *-ndo*, found in gerunds and progressive forms. The position of progressive form of the verb at the top of the constraint hierarchy requires some comment. In contemporary BP, the use of a gerund

⁵ In their study of vowel nasalization in BP, Abaurre and Pagotto (1996) did not account for phonological or contrastive nasalization since this is a categorical phenomenon in BP. The scope of their analysis dealt with phonetic or contextual nasalization exclusively (1996:496).

has been extended to indicate a temporary state that would be absent if the simple present were used; as in, *cê num tem cerveja preta?* 'have you got dark beer?' *cê sabe que eu não estou tendo?* 'You know I don't have it (right now)?' (Azevedo 2005:243). It can be argued that UP speakers have grammaticalized the use of the gerund to other functions. However, a discourse-pragmatic analysis would be necessary in order to determine the specialized meaning of the gerund as it is used in the speech community of Rivera.

In informal speech the sequence *-nd-* of the present progressive suffix, (e.g., *falando* 'talking', *comendo* 'eating', and *dormindo* 'sleeping'), may be pronounced simply as [n], (e.g., *falando* [fa.'lẽ.nu], without the /d/) (Lipski 1975, Giangiola 2001:138). For Lipski (1975:64) this realization indicates that illiterate BP speakers analyze nasal vowels as a sequence of oral vowel plus nasal consonant. However, Rona (1965) argues that UP speakers analyze nasal vowels as unique phonemes (§2.6.1.6). Rona bases this assumption on the analysis of writings of schoolchildren in Rivera where he found /n/ deletion (i.e., **domigo* (domingo) 'Sunday').

As Table (5-17) shows, nouns proved to be a strong linguistic factor favoring the nasalization rule with a .62 probability. Lipski (1975:67) points out that vowel nasalization before a nasal consonant in the following syllable is an accepted phenomenon in the Carioca dialect and that this type of nasalization is more marked in some words than in others. In view of this argument and observing the grammatical conditioning of vowel nasalization, we may be looking at lexical effects. However, vowel nasalization before a nasal consonant in the next syllable is an on-going development in modern BP. This development suggests that BP is moving in the direction of adopting

the maximally general universal schema of vowel nasalization: $V > \tilde{V} / ___ N$ (Lipski 1975). It remains to be seen how this type of vowel nasalization will be analyzed by speakers of UP in the speech community of Rivera. I will discuss this point further in connection with the results obtained in preceding phonological environment.

The role of grammatical conditioning has been interpreted as evidence of lexical diffusion. Hansen (2001) examines the notion of lexical diffusion in a study of change in Modern French nasal vowels which appear to be undergoing a counterclockwise chain shift, (i.e.), a vowel change in place of articulation.⁶ Hansen points out that although prosodic and phonetic factors condition the variation of nasal vowels, independent lexical differences exist (2001:248). In this study, Hansen reports that word class seems to constrain the innovative pronunciation of the vowel /ã/, where adverbs (ending in *-ment* particularly) lead the new pronunciation followed by verbs and nouns (243). In order to assess the potential role of lexical effects conditioning vowel nasalization in UP, a word frequency and lexical analysis would be necessary. However, this task will be left to future investigation.

Table 5-17 shows that adjectives and adverbs, collapsed into a single group, do not favor the nasalized variant (.46). Previous studies have suggested a correlation between adjectives and derivational suffixation. As discussed above, Hansen (2001:243) found that word class seems to constrain the new pronunciation of the vowel /ã/ in Modern French. Abaurre and Pagotto (1996:509) report that adverbs block the nasalization rule (.21). Cross-tabulation analysis confirmed the assumption that all adverbial instances contained the suffix *-mente*.

⁶ Hansen (2001:210) argues that “the nasal vowel /ɛ̃/ approaches /ã/, /ã/ approaches /õ/, and /õ/ becomes very rounded and closed (*bain*→[bã], *banc*→[bõ], *bon*→[bõ].”

In the present study, the low probability rate presented by adverbs and adjectives may be interpreted as a result of derivational suffixation, most likely by the diminutive suffix *-(z)inho/a*. Upon looking at the tokens, I noticed this type of adverb and adjective in the data (e.g., *baratinho* ‘somehow affordable’, *gordinha* ‘somehow fat’, *devagarinho* ‘nice and slowly’). There is additional evidence supporting this assumption. Recall that following nasals were excluded from the analysis due to interaction effects. Cross-tabulation of the data reveals that following nasal interacts with adjectives and adverbs (§5.7.3). There seem to be morphophonological internal constraints guiding this pattern.

As discussed above (§2.6.4), Quicoli (1990:322) proposes an analysis for the phenomenon of vowel alternation and nasalization in Brazilian Portuguese. Quicoli argues that the diminutive suffix *-(z)inho/a* is a ‘cyclic suffix’ “in the sense that it is attached at the word level and hence requires a new cyclic application of the stress rule” (1990:322). In addition to the diminutive suffix *-(z)inho/a*, the superlative *-issimo/a* and the adverbial suffix *-mente* make up the class of cyclic suffixes in Portuguese. He notes that these suffixes behave differently from others suffixes, since they affect the application of the nasalization rule in Portuguese. Consider the following examples *caminha* [ka’mĩɲa] ‘he walks’ and *caminha* [kẽ’mĩɲa] ‘little bed’ (examples from Quicoli 1990:322).

Table 5-18. Cyclic application of the stress rule in Portuguese

(a) [kamɨ̃ + a]	(b) [[kam] + iɲa #]	
í	á	primary stress
-----	-----	
	à í	secondary stress
[kamíɲa]	[kàm í ɲa]	
	[kẽ’mĩɲa]	nasalization

As Table 5-18 (a) illustrates, the unstressed vowel in the first syllable is not nasalized as predicted by the nasalization rule (§2.6.4). Table 5-18 (b) shows that the vowel in the first syllable has been marked for secondary stress; it would now undergo the nasalization rule. As stated above, morphological processes such as derivational and inflectional alternations and progressive verb forms might be interfering with the application of the nasalization rule. However, this correlation needs to be further examined (i.e., code the data for root morphemes and suffixal and derivational morphemes) in order to discover other potential morphological phenomena acting upon the process.

Non-progressive forms of the verb (i.e., present, preterit, subjunctive, etc.) disfavor the nasalized variant in UP (.22). This result indicates that UP speakers must resort to some other linguistic strategies to convey verbal plurality in order to avoid grammatical ambiguity. In Standard Portuguese language, nasalization of a final vowel is the principal marker of plurality in the verb, where the verb must agree with its subject in person and number. This type of nasalization is regularly followed by diphthongization. The diphthongs [ẽw], [ẽj], and [êj] arise as the result of affixation in inflectional morphology. In verb forms, the third person plural ends in [ẽw] or [ẽj], as in *falam* [fálẽw] ‘they speak PRES IND’, or *falem* [fálêj] ‘they speak PRES SUBJ’. Guy (1998) notes that “some of the vowels in the singular undergo raising when they are unstressed, so that there are often other phonetic differences between singular and plural in addition to the nasalization” (107).

An additional phenomenon affecting final nasal vowels in popular BP is monophthongization or diphthong contraction. Monophthongization reduces an

unstressed diphthong by eliminating the nucleus creating alternations such as /ẽw~ũ/ and /ẽj~ĩ/ (e.g., *falam* [fálẽw] to [fálũ] ‘they speak PRES IND’, and *sabem* [sábẽj] to [sábĩ] ‘they know PRES IND.’). For Wetzels (1997:221) all nasal vowels may show some degree of phonetic diphthongization especially when stressed and word-finally. Thus, there seems to be a phonotactic restriction in the language that does not allow [ẽ] or unstressed [ẽ] in word-final position. In this respect Lipski argues that:

what appears to be in operation is in effect a surface phonotactic constraint which attaches a nasalized glide at the appropriate place in the word, in order to satisfy the surface structure of the language, a phonotactic constraint learned by each native speaker as part of his automatic competence (1975:71).

Poplack (1979) examined the effect of regular verbs (e.g., *hablaba/hablaban* ‘he/she was speaking/they were speaking’) and irregular verbs (e.g., *es/son* ‘he/she is/they are’) and their effect on loss of final /n/ in Spanish. Results show that regular verbs favor deletion of verbal /n/ at (.73), while irregular verbs disfavor it (.27). Poplack argues that although verbal /n/ deletion on regular verbs could lead to ambiguity, languages have adapted to such processes through changes in morphology and higher levels of grammar. (1979:371). A context for ambiguity in UP would be the absence of nasalization in pairs like *come* [kóme] ‘he eats’ PRES IND., and *comem* [kómẽ] ‘they eat’ PRES IND. As data results reveal, verbs, with the exception of progressive forms, disfavor vowel nasalization. We can infer that UP speakers mark the plurality in the personal pronoun or use some other mechanism to convey verbal plurality. Nevertheless, this is just a speculation. A more detailed account of this phenomenon would be necessary to reach conclusive arguments, the scope of which goes beyond the present investigation.

Summing up, functional category of the word exerts the highest effect conditioning vowel nasalization in UP. This finding is consistent with previous studies across languages and varieties of BP. Poplack's (1979) study of weakening and deletion of final /n/ in Puerto Rican Spanish, and Abaurre and Pagotto's (1996) study of nasalization in BP, report that the morphological status of the word conditions vowel nasalization. The main finding is the presence of interacting effects between the morphological process, derivational and inflectional alternations (i.e., progressive forms of the verb), and the application of the nasalization rule in UP. There seems to be an internal grammatical constraint guiding this pattern. However, this correlation needs to be further examined in order to discover other potential morphological phenomena acting upon the process.

5.7.3.2 Preceding phonological context

The factor group preceding phonological context exerts the second highest effect conditioning vowel nasalization in UP, obtaining a range of 48. This finding is consistent with Hansen's (2001) study. Hansen reports that preceding consonantal effects are stronger than the following segment conditioning nasal vowels in French (2001:225). When comparing across multivariate analyses, it can be noted that the constraint hierarchy was slightly altered (Table 5-15, 5- 17). Preceding phonological environment distinguishes between glides and consonants and classifies them by manner of articulation. Stops favor vowel nasalization (.59), whereas glides (.11), fricatives (.47), and nasal consonants disfavor it (.42). Liquids, collapsed with vibrants, (.52) slightly promote vowel nasalization in UP.

A preceding stop exerts a rather weak effect on vowel nasalization (.59). Guy (1998:210) found that preceding velars favor denasalization in BP. Following Guy's

finding, it would be reasonable to assume that a preceding palatovelar is not a favorable environment for nasalization. Both vowel raising and palatalization of dental stops can interfere with the application of the nasalization rule in this environment. In words such as *ontem* ['õtʃi] 'yesterday' and *ordem* ['oxdʒi] 'order', where a phonetic [i] raised from an underlying /e/ in unstressed position palatalizes the preceding dental stop, the nasalization rule is blocked. As discussed before (§2.6.4), vowel raising does not affect nasal vowels, but rather monophthongal, unstressed, oral mid-vowels, that is, /e/ and /o/. We can see in this phonological context the interaction of the two linguistic variables under study, palatalization of dental stops and vowel nasalization.

Table (5-17) reveals that liquids exert a neutral effect conditioning vowel nasalization at (.52). The neutral effect is indicated by the proximity to (.5). This result is consistent with Abaurre and Pagotto's (1996) study. They report non-nasal consonants conditioning the nasalized variant at (.5). In the present study, nasals disfavor the application of the nasalization rule at (.42). Data analysis shows that a preceding nasal does not favor vowel nasalization, thus blocking its effect and the potential result of progressive nasal assimilation. The disfavoring role of a preceding nasal in this context may be interpreted as an indication that progressive nasal assimilation is not a productive phenomenon in the vowel nasalization process in UP. As discussed above (§2.6.1.2), BP is sensitive to both progressive and regressive nasal assimilation. However, as Lipski (1975:75) argues, progressive nasal assimilation seems to be an on-going process in modern Carioca dialect. On the other hand, regressive nasalization is the predominant historical process that accounts for most nasalized vowels and diphthongs in Portuguese (Shaw 1986:96). As noted above (§2.6.1.4), regressive nasal

assimilation is the most common manifestation of vowel nasalization in BP. That is “when a nasal vowel is followed in the same syllable by an orthographically indicated nasal consonant” (Lispki 1975:64).

The factor-by-factor analysis shows that following nasals obtained a high rate of vowel nasalization (Table 5-11). Cross-tabulation of the data indicates that most of the nasals in this environment are palatal and the vowels present a categorical status (i.e., they are nasal). This result is supported by claims in the literature review stating that nasalization is much more general before [ɲ] than before /m/ or /n/. Allophonic nasalization before palatal nasals occurs independently of the position of primary stress, just like contrastive nasalization does (Wetzels 1997:218). A large-scale survey carried out in Brazil confirmed the robustness of these phenomena. Abaurre and Pagotto (1996) found that nasalization is categorical when the vowel precedes a palatal nasal consonant, regardless of syllable stress. As data results suggest, a following palatal nasal is shown to be a categorical context, that is, when the application of the nasalization rule always applies in UP. This finding is consistent with language universal tendencies attesting that most nasalization occurs through regressive nasal assimilation rather than progressive assimilation.

Glides disfavor the application of the nasalization rule at (.11). Portuguese has both rising or crescent diphthongs and falling or decrescent diphthongs, depending on whether the salience is on the rightmost or the leftmost vocalic element, respectively (Shaw 1986:15). A preceding glide followed by a nasal vowel can be found in rising diphthongs in Portuguese, as in *quando* [ˈkwẽdu] ‘when’. As results show, this environment does not promote nasalization in UP. Cross-tabulated data show that

glides interact with adverbs and adjectives, and verbs (i.e., progressive and non-progressive forms). This result indicates, again, the intersection of different levels of grammar conditioning vowel nasalization in UP.

As expected, preceding phonological environment has been found to have a significant effect on the distribution of the variation. This finding is consistent with studies examining vowel nasalization across languages (Hansen 2001). Stops favor vowel nasalization, while glides, fricatives and nasal consonants disfavor it. Liquids exert a rather neutral effect conditioning the application of the rule. The role of the nasal impeding nasalization in this linguistic context suggests that progressive nasal assimilation is not a productive process operating in contemporary UP. As Lipski (1975:75) argues, progressive nasal assimilation is an on-going development in modern BP. It remains to be seen how this process will develop in contemporary UP.

In sum, as far as the linguistic constraints are concerned, the results are generally consistent with previous research across languages and varieties of BP. As multivariate analysis results indicate, functional category of the word and preceding phonological environment play a significant role in the distribution of the variation. The role of functional category of the word conditioning vowel nasalization in UP comes as an unexpected result. I hypothesized that the nasalization rule would affect equally all words despite of their morphological status. As the results show, vowel nasalization is a linguistic variable, constrained by factors of morphophonological and sociophonetic nature. However, a more detailed analysis modeling the grammatical constraints operating on the variation is needed in order to reach conclusive arguments.

Cross-tabulation analysis of the data shows that preceding nasals and glides interact (i.e., overlap) with adjectives and adverbs, verbs, and non-progressive forms of the verb. This is a natural result when examining naturally occurring speech. Further examination of the data, controlling for detailed morphological aspects, would shed more light on the interplay of the different levels of grammar involved in the variable realization of vowel nasalization in the speech community of Rivera.

Preceding phonological environment constrains vowel nasalization in UP. Results show that stops and liquids favored the nasalized variant while fricatives, nasals and glides disfavor it. The most outstanding finding is the role of a preceding nasal disfavoring the application of the nasalization rule in this phonological environment. This result suggests that progressive nasal assimilation in UP is not a productive phenomenon in the vowel nasalization process in UP. This finding is in line with the contemporary nasalization process development in BP. As data results suggest, nasalization when the vowel precedes a palatal nasal is categorical in UP. This type of nasalization is a result of regressive nasal assimilation. These findings are consistent with language universal tendencies attesting that most nasalization occurs through regressive nasal assimilation than progressive assimilation.

In the next section, data will be analyzed using the variable rule application to examine the effect of extralinguistic factors conditioning vowel nasalization in UP. As already noted, this analysis reveals whether a particular factor or factor group contributes statistically significant effects to variant choice when all the factors are taken into account at the same time (Tagliamonte 2006).

5.7.4 Multivariate Analysis of the Contribution of Extralinguistic Factors of Vowel Nasalization in UP.

Table 5-19 displays the results of the multivariate analysis of the contribution of extralinguistic factors selected as significant to the probability of vowel nasalization in contemporary UP. The factors are selected by the stepwise multiple regression procedure incorporated in the variable rule program as significant to the probability of vowel nasalization in UP.

As seen in Table 5-19, the multivariate analysis selected the factor group age as significant. The other two social factors examined, socio-economic class and gender, were eliminated in the final statistical run. Table 5-19 reports that the social factor age has a significant effect on the distribution of the variation of vowel nasalization in contemporary UP.

Table 5-19. Variable rule analysis of the combination of extralinguistic factors selected as significant to the probability of nasalization in UP.

Corrected mean			.20
Log likelihood			-1344.428
Total N			2688
Age	Factor weight	%	N
30-49	.56	24	933
50-70	.48	19	882
15-29	.46	17	873
<i>Range</i>	<i>10</i>		
Socio-economic group			
Mid-Middle class	[.52]	21	869
Low-Middle class	[.51]	20	893
Working-class	[.47]	19	926
Gender			
Male	[.52]	22	1479
Female	[.47]	18	1209

Note: Factor groups not selected as significant are in square brackets.

Table 5-19 shows that speakers' age contributes statistically significant effects on vowel nasalization in UP, obtaining a range of 10. This group was the only social factor

ranked as statistically significant, while socioeconomic status and gender were eliminated in the binomial step-up and step-down analysis of the data. These results indicate that vowel nasalization is constrained mainly by linguistic factors and thus it may be considered neither a sociolinguistic marker nor an indicator.

Although speakers' age is selected as significant, the strength of its effect is rather low (10). In addition, the ratios of preference among age groups do not represent substantial age stratifications. This result is an indication that vowel nasalization is not a linguistic variable undergoing change in UP. Unlike palatalization of dental stops, discussed in Chapter 4, here the age distributions across generations do not point to any direction of change. Abaurre and Pagotto (1996:505) report a similar result. In their study the factor group age was eliminated, signaling that phonetic vowel nasalization in BP is a stable variable. However geographic region do play a significant role conditioning the variability. Abaurre and Pagotto found more vowel nasalization in northern varieties of BP, Recife (.66) and Salvador (.57), less in southern varieties, São Paulo (.43) and Porto Alegre (.34), with Rio de Janeiro (.52) in the middle.

While data results indicate that there are no significant differences between the age groups, speakers in the Generation 2 group (30-49 years old), slightly favor the nasalized variant at (.56). Speakers in the Generation 1 group (15-29 years old) and in Generation 3 (50-70 years old) pattern similarly; they disfavor the nasalized variant at (.46 and .48), respectively. This finding provides us with an interesting scenario. So far we know that the linguistic variable vowel nasalization is not totally constrained by social factors, but age does seem to be a considerable factor, especially between speakers in the Generation 2 group.

This result is consistent across languages as a similar result was found on a study on vowel nasalization in Southeastern France. Although limited by a small number of participants (N=8), Violin's (2001:52) results show that participants aged 25 to 55 years old, as well as those with a higher level of education and mobility, produce more forms that are similar to Reference French, showing 91.9% of vowel nasalization, more than the other participants. Violin argues that participants in this age bracket are working-age people and expected to project a certain image of responsibility and respectability, achieved through language approximation to Reference French.⁷

As discussed in Chapter 4, speakers in the Generation 2 group (30-49 years old) exhibit a distinctive linguistic behavior. These speakers are entering a professional stage in their lives and therefore are more sensitive to the social advantages of the incorporation of standard features into their speech. We cannot underestimate the potential role of professional pressures operating on UP speakers wishing to advance in society. As discussed above (§1.2), Santana do Livramento, Rivera's twin city, has a bigger and stronger economic base than Rivera; Rio Grande do Sul is one of the most prosperous Brazilian states. Brazil possesses a stronger economy which provides more jobs and educational opportunities.

Summing up, as far as social factors are concerned, results are generally consistent with previous studies across languages and varieties of BP. The only social factor shown to have a significant effect on the distribution of the variation is age, although its effect is relatively moderate. This result is supported by previous studies

⁷ Reference French is used as a neutral label to describe a variety of French that is regarded as a point of reference, in order to avoid the term 'standard French' (Violin 2001:3).

examining vowel nasalization across languages (Violin 2001) and other varieties of Portuguese (Abaurre & Pagotto 1996).

The fact that extralinguistic factors did not play a key role on the distribution of the variation is a somewhat expected result. As Labov (1972:251) argues, “the great majority of linguistic rules are quite remote from any social value.” These results indicate that vowel nasalization is constrained mainly by linguistic factors and thus it may not be considered a sociolinguistic marker or an indicator.

5.8 Discussion

The following conclusions can be drawn from the analysis of vowel nasalization in UP. Vowel nasalization is a linguistic variable constrained mainly by morphophonological and sociophonetic factors. As seen above, phonological processes interact with affixation in inflectional and derivational morphology in the process of vowel nasalization. As data results show, these morphophonological processes highly constrain vowel nasalization in UP.

As for the first two hypotheses postulated in the present study, it was predicted that vowel nasalization would be more frequent in stressed syllables and that following phonological environment would constrain vowel nasalization in UP. The factor-by-factor-analysis reveals that vowel nasalization occurs categorically in contexts of stressed syllables. The distributional analysis also indicates that vowel nasalization is near categorical when a vowel precedes a palatal nasal. This result is supported by claims in the literature review stating that nasalization is much more general before [ɲ] than before /m/ or /n/.

Multivariate analysis shows that functional category of the word has the greatest effect on rule application, followed by preceding phonological environment. This was an

unexpected result. It was hypothesized that vowel nasalization would apply to all words despite their morphological status; however, phonological and morphological effects interact with the application of the nasalization rule. Nouns and progressive forms of verbs promote nasalization while non-progressive forms of verbs, adjectives and adverbs disfavor it. The constraint hierarchy presented by functional category of the word patterns across varieties of BP. The similarity of environmental constraints suggests that the mechanisms that produce variation in the underlying grammars in both UP and BP are basically the same. As Tagliamonte (2006:241) argues, if two varieties share the same constraint rankings, it is an indication of the similarity of their grammars.

Progressive forms of verbs exert the highest effect favoring the nasalization rule. This finding provides evidence to suggest that vowel nasalization is more likely to occur in sequences such as *-ndo*, found in gerunds and progressive forms. It can be argued that UP speakers have grammaticalized the use of the gerund to other functions. However, a narrative-structure examination would be necessary in order to determine the discourse and pragmatic uses of the gerund in the speech community of Rivera.

In the present study, the low probability rate presented by adverbs and adjectives may be interpreted as a result of derivational suffixation, most likely by the diminutive suffix *-inho/a*, (e.g., *bonit + a* 'pretty' + diminutive suffix *-inha* → *bonitiha* 'somehow pretty'). Cross-tabulation of the data reveals that following nasal interacts with adjectives and adverbs (§5.7.3). There seems to be grammatical internal constraints guiding this pattern. This result is supported by claims in the literature arguing that word

class, particularly adverbs, seems to condition the nasalized variant across languages and varieties of BP.

Non-progressive forms of verbs disfavor the nasalized variant in UP. The absence of nasalization of a final vowel may lead to ambiguity, since in standard Portuguese this feature constitutes the principal marker of verbal plurality. It can be inferred that UP speakers mark the plurality in the personal pronoun or use some other mechanism to convey verbal plurality in order to avoid grammatical ambiguity. However, a more detailed account of this phenomenon would be necessary to reach conclusive arguments.

Preceding phonological context conditions the nasalized variant in UP. This finding is consistent with studies examining vowel nasalization across languages. Stops favor vowel nasalization, while glides, fricatives and nasal consonants disfavor it. Liquids exert a rather neutral effect conditioning the application of the rule. Data analysis shows that a preceding nasal does not favor vowel nasalization, thus blocking its effect and the potential result of progressive nasal assimilation. The role of the nasal impeding nasalization in this linguistic context, suggests that progressive nasal assimilation is not a productive process operating in contemporary UP. This finding is consistent with language universal tendencies attesting that most nasalization occurs through regressive assimilation than progressive assimilation.

Guy (1981:203) discusses that throughout its history Portuguese has had numerous documented cases of both progressive and regressive nasal assimilation. For Lipski (1975), progressive nasal assimilation is an on-going process in modern Carioca dialect. Regressive nasal assimilation is the predominant historical process that

accounts for most nasalized vowels and diphthongs in Portuguese (Shaw 1986:96). As noted above (§2.6.1.4), regressive nasal assimilation is the most common manifestation of vowel nasalization in BP. The Portuguese nasal vowel system has been in almost constant flux throughout its history and it is still in flux today (Guy 1981:201). It remains to be seen how progressive nasal assimilation will be analyzed by speakers of UP in the speech community of Rivera.

Concerning the external factors, age was the only social factor ranked as statistically significant; with the Generation 2 group (30-49 year old) speakers favoring the nasalized variant. Two extralinguistic factors were eliminated in the binomial step-up and step-down analysis of the data, socioeconomic status and gender. These results indicate that vowel nasalization is constrained mainly by linguistic factors and thus it may not be considered a sociolinguistic marker or an indicator. Although speakers' age is selected as significant, the strength of its effect is rather low (10). In addition, the ratios of preference among age groups do not represent substantial age stratifications. This result is an indication that vowel nasalization is not a linguistic variable undergoing change in UP.

In this chapter I have discussed quantitative analyses of vowel nasalization in Rivera. I have stated the rationale behind the hypotheses and reformulated the research questions. The linguistic and extralinguistic constraints were also presented along with distributional and multivariate analyses. In the final chapter of this study (Chapter 6), I will answer the research questions and summarize the main findings found to condition the variables under investigation, that is, palatalization of dental stops before /i/ and vowel nasalization in the speech of bilingual speakers in Rivera. I will

discuss the results in light of the quantitative and qualitative data discussed in Chapter 4 and Chapter 5. I will also present the limitations of the study and offer recommendations for future research. Lastly, I will formulate some general conclusions.

CHAPTER 6 CONCLUSIONS

In the final chapter of this study, I present the main results found in the analysis of the two linguistic variables under examination, that is, the variable realization of palatalization of dental stops before /i/ and vowel nasalization in contemporary UP in Rivera. I answer the research questions set forth in Chapter 1 and discuss the limitations of the study with regard to the two linguistic variables under investigation. I present methodological conclusions and offer recommendations for future research. Lastly, I formulate some general conclusions.

6.1 Research Questions

In this section I answer each research question, based on the quantitative and qualitative results for each linguistic variable under examination and discuss the main findings and the limitations of the study. I begin with the first linguistic variable analyzed, palatalization of dental stops before /i/ and continue with vowel nasalization in UP.

6.1.1 Palatalization

The first question guiding the present study concerned the sociolinguistic stratification of the palatalization of /ti/, /di/ in UP according to the social variables of age, socioeconomic status, and gender. I also investigated whether the change in progress hypothesized by Carvalho (1998) has continued to advance or whether it has stabilized at the speech community level.

The examination of age in variationist analysis is crucial since it can help the researcher determine if speakers of different generations demonstrate similar or different patterns in the use of the linguistic variable under investigation. If so, these different rates may point toward age-grading or change in progress (Bayley 1991:241).

In this study I entertained both possibilities at several stages of the analysis of palatalization of dental stops. Multivariate analysis shows that the strongest social factor conditioning the variation is age. Apparent-time evidence of both data sets corroborates that palatalization of dental stops is age-related, since the frequencies of palatalization are strongly associated with age differences.

As discussed above (§4.6.1), Carvalho's (1998) study provides strong apparent-time evidence suggesting that palatalization of dental stops in Rivera is undergoing linguistic change. The basic principle underlying the apparent-time construct is that "differences among generations of adults mirror actual diachronic developments in a language when other factors, such as social class, are held constant. The speech of each generation is assumed to reflect the language as it existed at the time when that generation learned the language" (Bailey 1991:242). The apparent-time method assumes that individual vernaculars remain basically stable after the formative period of language acquisition. As Labov argues, an apparent diachrony tries to reach from the present to the future, real diachrony entails a link from the present to the past (1995:45-70).

In order to substantiate the change in progress hypothesized by Carvalho (1998), I compared data from two cross-sectional studies conducted at two points in time, 1995 and 2007. Based on this hypothesis, an increment in palatalization rates was expected if palatalization was indeed undergoing change; however, the hypothesized increase in the use of the palatal variant over time among the younger generation was not confirmed in this study. Although an increment in the use of palatalization of dental

stops is found across age groups in apparent-time, cross-sectional comparisons point toward a state of relative stability at the speech-community level.

The first piece of evidence that leads to this conclusion comes from the comparison of overall frequencies found in the 1995 and 2007 data (Figure 4-1). In this study, the overall distribution of variants shows that 29% (N=743) of the tokens analyzed are palatal realizations, while 71% (N=1783) correspond to the dental realizations of the variant. Carvalho (1998) reports 32% (N=719) palatal realization and 68% (N=1529) non-palatalization realization of the variant. The overall distribution of the variants suggests that palatalization of dental stops in the speech community of Rivera has not increased over time.

Multivariate analysis demonstrates a repeated age-gradient distribution among the groups (Figure 4-4). However, a cross-sectional analysis (Table 4-11) shows that the decreasing frequencies among the 1995 and 2007 Generation 1 group (15-29 years old) indicates that the latter generation has adopted the innovative variant at a slower pace than the former generation did (.91 and .70), respectively.

Participants in the 2007 Generation 2 group (30 – 49 years old) tend to favor the innovative variant at (.62), while the 1995 data depicts a different scenario: speakers in this age bracket tend to favor the dental variant showing a low probability (.29). This finding can be interpreted as a ‘sustained’ use of the palatal variant over time by this generation. That is, Generation 2 group participants were 18 and 37 years old, respectively, twelve years earlier, which is the time depth of the study. Carvalho reports an almost categorical (.91) probability of use of the palatal variant among participants in the 1995 Generation 1 group as against only (.29) for participants in the Generation 2

group. The generational differences across studies indicates that the 1995 Generation 1 group started out at (.91) probability of rule application. These participants have continued favoring the palatal variant but at a much slower pace as indicated by the decrease (.62) in the 2007 Generation 2 group.

As for the last group, 2007 Generation 3 (50-70 years old), these participants were 38 and 58 years old, respectively, in 1995. The probability of palatalization for speakers in this age-cohort in 1995 falls between Generation 2 (.29) and Generation 3 (.05). These results point out that for speakers in this age cohort, the dental variant is still the norm. The age distributions discussed above show that speakers of all ages participate in palatalization of dental stops in Rivera, but different age groups represent different palatalization rates. This finding indicates what Labov (1972) would call a 'social marker.'

One of the challenges in quantitative sociolinguistics is the scarcity of real-time data. In the specific case of Rivera, the only type of real-time data available are early qualitative descriptions of UP, in which the dental variant is characterized as the norm among UP speakers. Therefore, taking these descriptions as real-time evidence, it is reasonable to assert that at least in the late 1950s dental stops before /i/ in Rivera had only one linguistic variant. The time window captured in the 1995 data signaled a synchronic pattern of a vigorous language change in apparent-time. However, twelve years later, cross-sectional analysis shows that this vigorous linguistic change has reached a relatively stable mode at the level of the speech community. Linguistic variables undergoing change can reach a point of relative stability, but this stability can be followed by periods of considerably flux (Chambers 2002:364). In line with previous

research, stability was also found in the speech community of Antônio Prado, Rio Grande do Sul. This finding signals that UP is a paralleling southern varieties of BP in this respect.

Socioeconomic status proved to be a strong social constraint conditioning palatalization of dental stops. As hypothesized, mid-middle class speakers tend to use the innovative variant (.76) more often than do low-middle (.34) and working class speakers (.30). Speakers in the low-middle and working class groups show the same tendency to use the conservative variant. This finding may indicate that palatalization of dental stops is moving along social spheres over time. The results of this analysis indicate that palatalization of dental stops in Rivera can be interpreted as a sociolinguistic marker since it signals social class, due to the clear break among the social groups. Here we have an example of a linguistic variable that is stabilizing as a sociolinguistic marker in the speech community of Rivera.

The last social factor examined was gender. As expected, statistical results clearly reveal that women tend to produce more palatalized variants (.62) than men (.38). Unsurprisingly, women proved to be advancing the process of adoption of the palatal variant in contemporary UP in Rivera. Young females exhibit a considerably higher ratio of palatalization of dental stops than do older males. The youngest group presents the biggest difference between females and males in the adoption of the innovative variant (Figure 4-7). Cross-tabulation of the data shows a strong interaction between gender and social status. As seen above (Figure 4-8), there is a clear gender and socioeconomic-based pattern. Women in the highest socioeconomic group in Rivera present the highest frequency of the innovative variant, followed by females in the low-

middle and in the working class groups. The social stratification in the speech of men is less dramatic. This finding conforms to the stance of sociolinguistic markers commonly found across speech communities.

The second question concerned the linguistic factors conditioning palatalization of dental stops before /i/ in UP. The linguistic factors shown to have a significant effect on the distribution of the variation are: following and preceding phonological segment and tonicity of the syllable. The greatest effect is presented by the following phonological context, with a relative magnitude of its effect at 28. This finding is consistent with previous studies of UP and across dialects of BP.

This study shows that palatalization of dental stops is more likely to occur when followed by a vowel or glide (.66) or a lateral (.65), or its realization as a velar glide [w] in coda position. In BP, laterals in syllable-final position are usually realized as a velar glide [w], which forms a diphthong with the preceding vowel. It appears that diphthongs create a favorable linguistic constraint promoting palatalization of dental stops in this environment. Stops at (.62) and nasals at (.59) favor the palatalization rule, whereas a following pause or zero phonological context (.43) and sibilants (.38) disfavor it. Following environment also confirms that /s/ promotes dental realizations of /ti/, /di/ in UP and across dialects of BP.

Vowels are found at the highest position in the constraint hierarchy. As mentioned above, the present study examines palatalization of dental stops before /i/, where the unstressed mid vowel /e/ raised to a high vowel [i] and the palatal glide /j/ are taken into account. The use of high vowels in place of mid vowels results from a phenomenon known as vowel raising (Mattoso Câmara 1953, Bisol 1989). Vowel raising is pervasive,

and its use is variable in colloquial Portuguese language, and is seemingly at play in UP as well, as data results suggest.

Preceding phonological environment exerts the second highest magnitude of effect in the analysis, obtaining a range of 14. Results show that vowels or glides (.57) and nasals (.53) slightly favor palatalization of dental stops, while stops (.52) and pause (.51) have a neutral effect of rule application. As in previous studies, pause lacks statistical significance in this environment. Preceding liquids (.39) and sibilants (.39) disfavor palatalization of /ti/, /di/. The role of the sibilant disfavoring palatalization in this linguistic context patterns across southern varieties of BP. The position of /s/ at the bottom of the constraint hierarchy suggests that the underlying grammar producing the dental variant is basically the same in both UP and BP.

Tonicity of the syllable was the weakest linguistic factor conditioning palatalization of /ti/, /di/ in UP, presenting a relative magnitude of 10. Multivariate analysis shows that post-tonic syllable stress favors palatalization (.54) while stressed (.46) and pre-tonic syllable stress (.44) disfavor application of the palatalization rule. This was an unexpected result. It was hypothesized that stressed syllables would exert the highest influence on rule application. However, the constraint hierarchy found in this study -that is, the post-tonic, stressed and pre-tonic syllable- mirrors the constraint hierarchy of the bilingual group in Bisol's (1991) study. The favoring pattern found is based on the principle of saliency, which states that "a less prominent innovation is more likely to be successful than a more prominent innovation" (1991:118). It appears that contact with the Spanish language, where the affricate realization of dental stops is not operative, is a contributing factor favoring a less salient environment for rule application. The

analysis of this finding may be interpreted as a consequence of UP and Spanish language contact in the speech community of Rivera.

The third question was to identify the driving forces behind the variant selection. It can be argued that the social characteristics of speakers determine the selection of the variant. Young community members in Rivera are aware of the social capital attached to the standard language and are quite aware of the linguistic value of standard Portuguese and its potential value not only in the job market but also for educational opportunities. In this respect, participants expressed their desire to learn standard Portuguese for practical reasons, in order to become more marketable in their professional life. At the same time, members of the younger generation of speakers in Rivera, mainly from the working and low-middle class, try to maintain their border identity. The transition from language homogenization to bilingual education has brought language standardization forces to the speech community of Rivera. UP speakers are confronted with conflicting language loyalties as language attitudes and evaluation of the standard and localized varieties are being reexamined not only by educational authorities but by community members as well.

The linguistic behavior of working-age speakers requires some comment. It can be argued that these speakers are entering a professional stage in their lives and as such are more sensitive to the social advantages of the incorporation of standard features into their speech. The linguistic marketplace concept (Sankoff and Laberge 1978) has been applied in sociolinguistic research to examine the relationship between linguistic variation in society and speaker's economic activity or occupation.

Rivera dwellers are considerably aware of the stigma attached to the variety spoken in the *barrios*. Feelings of 'linguistic insecurity' (Labov 1966) are common in both working and low-middle class Rivera residents. In this respect, Riverans of all social classes share a community norm of linguistic evaluation: the social evaluation of UP as a 'mixed-language' '*a lingua misturada*'. Riverans even refer to UP speakers as *rompe-idioma* 'language-breakers'. While working class community members recognize the stigma attached to Rivera speech as part of their mixed identity and as a byproduct of conviviality with neighboring Brazil, mid-middle class speakers attach negative evaluations to the variety and express their dissociation with UP non-standard linguistic features.

Women are especially sensitive to external higher standards of correctness in language associated with upward social mobility (Labov 1990:214). Women in Rivera are sensitive to the social pressures imposed on them. Due to their weaker social standing in the community, women tend to pay attention to external standards of 'correct' speech.

One of the limitations of the analysis of palatalization of /ti/, /di/ was the absence of preadolescents in the sample. Labov (1999:49) advises that we must take into account data from preadolescents from 8 to 11 years old in tracing a variable though apparent-time.

6.1.2 Vowel Nasalization

The first question guiding the study involved identifying which internal mechanisms contribute to the variability of vowel nasalization in UP. I examined three phonetic and two non-phonetic factors. Two factors, one phonetic (preceding phonological context) and one non-phonetic (functional category of the word) were selected as significant to

the probability of vowel nasalization. The greatest effect was presented by functional category of the word, with a relative magnitude of its effect at 55. The role of functional category of the word conditioning vowel nasalization in UP came as an unexpected result. It was hypothesized that the nasalization rule would affect vowels equally regardless of their morphological status. As the results show, vowel nasalization is a linguistic variable, constrained by factors of morphophonological and sociophonetic nature. As seen above, phonological processes interact with affixation in inflectional and derivational morphology in the process of vowel nasalization. These morphophonological processes highly constrain vowel nasalization in UP.

Verbal categories such as the progressive or gerund forms favor the nasalized variant at (.77) probability, while non-progressive forms of the verb strongly disfavor it (.22). Nouns provide a favorable context for vowel nasalization at (.62), while adjectives and adverbs (.46) do not. These results suggest that vowel nasalization in UP is conditioned by major categories of the grammar. The constraint hierarchy presented in the present study patterns similarly across varieties of BP. The similarity of environmental constraints suggests that the mechanisms that produce variation in the underlying grammars in both UP and BP are very similar. If two varieties share the same constraint rankings, it is an indication of the similarity of their grammars (Tagliamonte 2006:241).

Progressive forms of the verb exert the highest effect on favoring the nasalization rule. This finding provides evidence to suggest that vowel nasalization is more likely to occur in sequences such as *-ndo*, found in gerunds and progressive forms. In contemporary BP, the use of a gerund has been extended to indicate a temporary state

that would be absent if the simple present were used. It can be argued that UP speakers have grammaticalized the use of the gerund to other functions.

Adjectives and adverbs do not favor the nasalized variant. Previous studies have suggested a correlation between adjectives and derivational suffixation. Abaurre and Pagotto (1996:509) report that adverbs block the nasalization rule (.21). Cross-tabulation analysis confirmed the assumption that all adverbial instances contained the suffix *-mente*. The low probability rate presented by adverbs and adjectives may be interpreted as a result of derivational suffixation, most likely by the diminutive suffix *-(z)inho/a*. Cross-tabulation of the data reveals that following nasal interacts with adjectives and adverbs (§5.7.3). There seem to be grammatical internal constraints guiding this pattern. This result is supported by claims in the literature arguing that word class, particularly adverbs, seems to condition the nasalized variant across languages and varieties of BP.

Non-progressive forms of the verb disfavor the nasalized variant in UP. The absence of nasalization in a final vowel may lead to ambiguity, since in standard Portuguese this feature constitutes the principal marker of verbal plurality. It can be inferred that UP speakers mark the plurality in the personal pronoun or use some other mechanism to convey verbal plurality in order to avoid grammatical ambiguity.

Preceding phonological context exerts the second highest effect conditioning vowel nasalization in UP, obtaining a range of 48. Preceding phonological environment distinguishes between glides and consonants and classifies them by manner of articulation. Multivariate results show that stops favor vowel nasalization (.59), whereas glides (.11), fricatives (.47), and nasal consonants disfavor it (.42). Liquids exert a

neutral effect conditioning vowel nasalization (.52), as indicated by the score's proximity to (.5). This result is consistent with Abaurre and Pagotto's (1996) study, which report non-nasal consonants conditioning the nasalized variant at (.5).

Data analysis shows that a preceding nasal does not favor vowel nasalization blocking its effect and the potential result of progressive nasal assimilation. The role of the nasal impeding nasalization in this linguistic context, suggests that progressive nasal assimilation is not a productive phonological process operating in contemporary UP. Progressive nasal assimilation is an on-going development in modern Carioca BP (Lipski 1975:75). On the other hand, regressive nasalization is the predominant historical process that accounts for most nasalized vowels and diphthongs in Portuguese (Shaw 1986:96). Throughout its history, Portuguese has had numerous documented cases of both progressive and regressive nasal assimilation (Guy 1981:203). The Portuguese nasal vowel system has been in almost constant flux throughout its history and it is still in flux today (Guy 1981:201). It remains to be seen how progressive nasal assimilation would be analyzed by speakers of UP in the speech community of Rivera.

Preceding nasals and glides interact (i.e., overlap) with adjectives and adverbs, verbs, and non-progressive forms of the verb. This is a natural result when examining naturally occurring speech. Further examination of the data, controlling for detailed morphological aspects, would shed more light on the interplay of the different levels of grammar involved in the variable realization of vowel nasalization in the speech community of Rivera.

As for the two hypotheses postulated in this study, it was predicted that vowel nasalization would be more frequent in stressed syllables and that following phonological environment would constrain vowel nasalization in UP. The factor-by-factor analysis reveals that vowel nasalization occurs categorically in contexts of stressed syllables (Table 5-10). The factor-by-factor analysis also shows that following nasals obtained a high rate of vowel nasalization (Table 5-11). Cross-tabulation of the data indicates that most of the nasals in this environment are palatal and the vowels present a categorical status (i.e., they are nasal). This result is supported by claims in the literature stating that nasalization is much more general before [ɲ] than before /m/ or /n/. Allophonic nasalization before palatal nasals occurs independently of the position of primary stress, just like contrastive nasalization does (Wetzels 1997:218). This finding is consistent across varieties of BP. This finding is also consistent with language universal tendencies attesting that most nasalization occurs through regressive nasal assimilation rather than progressive assimilation.

The second question was whether external mechanisms contribute to the variability of vowel nasalization in UP. Multivariate analysis selected only the factor group age as significant. The other two social factors examined, socio-economic class and gender, were eliminated in the binomial step-up and step-down analysis of the data. While data results indicate that there are no significant differences between the age groups, participants in the Generation 2 group (30-49 years old), slightly favor the nasalized variant at (.56). Participants in the Generation 1 group (15-29 years old) and in the Generation 3 (50-70 years old) pattern similarly, disfavoring the nasalized variant at (.46 and .48), respectively. The ratios of preference among age groups do not

represent substantial age stratifications. This finding is an indication that vowel nasalization is not a sociolinguistic variable undergoing change in UP. Unlike palatalization of dental stops, here the age distributions across generations do not point to any direction of change.

This result is supported by previous studies examining vowel nasalization across languages (Violin 2001) and other varieties of Portuguese (Abaurre & Pagotto 1996). The fact that extralinguistic factors did not play a key role on the distribution of the variation is somehow an expected result. These findings indicate that vowel nasalization is constrained mainly by linguistic factors and thus it may not be considered a sociolinguistic marker or an indicator.

One of the limitations of the analysis of vowel nasalization was the lack of instrumental treatments or acoustic measurements to analyze the nasal vowels. Another limitation was the treatment of the nasal vowels as a phonetic variable. As stated above, I attempted to analyze vowel nasalization from a variationist perspective; however, this analysis needs to be extended in order to further explore the interaction between phonology and morphology. My research is opening a new window on this linguistic phenomenon.

6.2 Methodological Conclusions

Concerning the methodology, the ethnographic approach to sociolinguist inquiry used in the preliminary and data collection fieldwork proved to be crucial in the implementation of this study. Through participant-observation I was able to obtain local cultural knowledge and comprehend participants' linguistic behavior. This local knowledge was fundamental to discover what is important for community members in order to be able to use this knowledge to interpret quantitative data. The ethnographic

approach is especially effective when the researcher is not a member of the community, as in my case. The network concept at the fieldwork stage was implemented in this study to enter the community via social networks. I must add that methodologically it was a sound decision to start out with the interviews in the *barrrios* of the speech community of Rivera.

The trend component implemented in the study allowed me to compare apparent-time data from two studies at different points in time, 1995 and 2007. By adding a longitudinal perspective to the study, it was possible to obtain a clear picture of the sociolinguistic evolution of palatalization of dental stops in the speech community of Rivera.

In this study, it has been shown that insights can be gained from both distributional and multivariate analyses of the data. Numerous attempts were made in order to assess the effect of some of the interacting linguistic factors in the vowel nasalization data from a multivariate analysis alone. However, the examination of each of the variable rule analyses performed in this study (Table 5-12-5-14) as well as the cross-tabulation of the factors tested, revealed the location and character of the relationship between the factors conditioning vowel nasalization in UP.

6.3 Limitations and Recommendations for Future Research

The analysis of palatalization of /ti/, /di/ and vowel nasalization in UP provides a fruitful area for future research. A possible direction would be to extend the examination of palatalization of dental stops to different Portuguese speaking areas to determine its variability across speech communities. Another exciting area of research would be to determine the interaction between vowel raising and palatalization of /ti/, /di/. As discussed above (Chapter 4), in most varieties of Brazilian Portuguese, both an

underlying high vowel /i/ in stressed or unstressed positions and a phonetic [i] derived from an underlying central vowel /e/ in unstressed positions may palatalize the preceding dental stop.

On methodological grounds, adding a panel component to the study would evaluate language change at the individual level in the speech community of Rivera. As Sankoff (2006:12) claims, in most panel studies researchers have found that when a trend study signals change in progress, grouped data from the panelists indicate a modest increase in the direction of the change. In the study of [r] → [R] change in Montreal French (Sankoff & Blondeau 2007), the authors investigate the relationship between language change in the historical sense, and language change at the individual level through the combination of a trend and a panel study.

Vowel nasalization in UP is another productive field of enquiry. One area is the examination of the potential role of lexical effects conditioning vowel nasalization in UP, which would include a word frequency and lexical analysis. Since vowel nasalization variation is part of a more abstract agreement system, an analysis of subject-verb relationship including discourse or pragmatic aspects would determine the mechanisms used by bilingual UP speakers to convey plurality and avoid ambiguity.

6.4 Final Conclusions

The Portuguese language in northern Uruguay has had a long and conflictive history. However, with the establishment of *Mercosur*, different dynamics between the Spanish and Portuguese language have been established along the Uruguayan-Brazilian border. It is in this context that after a long linguistic policy struggle in the country, a bilingual pilot program was implemented in the city of Rivera in 2003. New socioeconomic and cultural initiatives have brought language standardization forces to

the Uruguayan-Brazilian border. Along with these standardization forces, language attitudes and evaluations of the standard and localized varieties are being reexamined by educational authorities and community members. The coexistence of linguistic varieties brings about conflicting linguistic loyalties among speakers in bilingual communities, particularly in minority speech communities such as Rivera. It remains to be seen what effect language standardization forces will have on the speech community of Rivera.

The compound Rivera-Santana do Livramento can be thought as one socio-geographic center, since people from both Rivera and Santana do Livramento cross borders frequently to carry out everyday activities without any control or immigrant inspection. Border inhabitants, who are eager to point out their rivalry, particularly when discussing soccer, are at the same time quick to acknowledge their unique and fraternal linkage to their neighboring twin-city. Although national borders can be thought of as a place where sharp dividing lines are drawn, the dynamics of integration, globalization and transformation on the Uruguayan-Brazilian border give evidence to the contrary. As Hamel notes, “rather than dividing lines, they appear to be areas of ancient interaction, constituting strips of fluid contact and developing hybrid cultures and systems of communication” (131).

Due to complex historical, socio-economic, and political factors, Spanish and Portuguese varieties have coexisted along the Uruguayan-Brazilian border for centuries. These competing varieties are part of the linguistic options available to inhabitants of the speech community of Rivera according to their social and ideological characteristics. As data result reveal, social factors compel a speaker to adopt or resist

a linguistic variant. As discussed above, palatalization of /ti/, /di/ in Rivera shows a clear pattern of social stratification in which the wealthiest speakers tend to prefer the incoming palatalized variant, while the low-middle and working class speakers favor the local dental form. In this respect, palatalization of dental stops is considered a sociolinguistic marker since it signals speakers' social background. Tight knit community networks reinforce and maintain these norms (Milroy 1999:10). It can be argued that localized variants are tied to allegiance to the *barrio* and serve as linguistic marker of social identity.

APPENDIX A
PARTICIPANT'S DEMOGRAPHIC INFORMATION

Table A-1. Participant's demographic information.

Spk No.	Pseud.	Age	Date of birth	Age No.	Gender.	Soc. class	Soc. C No.
1	CL003	16	1991	1	F	Work C	3
2	MY012	23	1984	1	F	Work C	3
3	MX023	23	1984	1	F	Work C	3
4	CL004	19	1988	1	F	Low Mid	2
5	CH003	21	1986	1	F	Low Mid	2
6	PA005	15	1992	1	F	Low Mid	2
7	KL002	15	1992	1	F	Mid Midl.	1
8	SB008	15	1992	1	F	Mid Midl.	1
9	DR010	15	1992	1	F	Mid Midl.	1
10	PF024	19	1988	1	M	Work C	3
11	TN025	16	1991	1	M	Work C	3
12	AW022	18	1989	1	M	Work C	3
13	WR014	16	1991	1	M	Low Mid	2
14	DD026	19	1988	1	M	Low Mid	2
15	JG016	19	1988	1	M	Low Mid	2
16	LY021	15	1992	1	M	Mid Midl.	1
17	XX107	21	1986	1	M	Mid Midl.	1
18	YY055	26	1981	1	M	Mid Midl.	1
19	AQ074	41	1966	2	F	Work C	3
20	MD043	37	1970	2	F	Work C	3
21	IC034	30	1977	2	F	Work C	3
22	AA064	46	1961	2	F	Low Mid	2
23	FF062	48	1959	2	F	Low Mid	2
24	MS028	35	1972	2	F	Low Mid	2
25	RM039	40	1966	2	F	Mid Midl.	1
26	MA040	38	1969	2	F	Mid Midl.	1
27	ME070	49	1958	2	F	Mid Midl.	1
28	HJ049	34	1973	2	M	Work C	3
29	AS046	40	1966	2	M	Work C	3
30	AI082	42	1965	2	M	Work C	3
31	CL051	36	1971	2	M	Low Mid	2
32	HF044	35	1972	2	M	Low Mid	2
33	HV050	30	1977	2	M	Low Mid	2
34	PP058	33	1974	2	M	Mid Midl.	1
35	ET053	31	1976	2	M	Mid Midl.	1
36	WW05	40	1967	2	M	Mid Midl.	1
37	MB072	50	1957	3	F	Work C	3
38	SW093	61	1946	3	F	Work C	3
39	MN063	50	1957	3	F	Work C	3
40	JJ061	52	1955	3	F	Low Mid	2
41	GW085	62	1945	3	F	Low Mid	2
42	TY087	64	1943	3	F	Low Mid	2
43	MA067	54	1953	3	F	Mid Midl.	1
44	DS066	50	1957	3	F	Mid Midl.	1

Table A-1. Continued.

Spk No.	Pseud.	Age	Date of birth	Age No.	Gender.	Soc. class	Soc. C No.
45	SS088	55	1952	3	F	Mid Midl.	1
47	NN081	52	1955	3	M	Work C	3
48	TK083	50	1957	3	M	Work C	3
49	HA099	58	1949	3	M	Low Mid	2
50	TS097	57	1950	3	M	Low Mid	2
51	DV077	54	1953	3	M	Low Mid	2
52	VV103	60	1947	3	M	Mid Midl.	1
53	FW101	70	1937	3	M	Mid Midl.	1
54	AE080	57	1950	3	M	Mid Midl.	1

APPENDIX B
MODULES FOR THE SOCIOLINGUISTIC INTERVIEWS IN RIVERA

The following topics were chosen because they can be adapted to any speech community. For the speech community I am interested in, football is a very popular topic and according to border inhabitants, it is the only issue that 'divides' *Fronterizo/Uruguayan Portuguese (UP)* speaking people and Brazilians.

Q-GEN- Module 1: Football

- 1.- Have you ever watched a football match at the stadium?
 - 1.1 When was that?
 - 1.2 Who was playing?
 - 1.3 How did you describe the game?
 - 1.4 How often do you go watch a game/football?

- 2.- Who do you think play the best football in the region?
 - 2.1 Why do you think that?
 - 2.2 Do you think Brazilians are good at football?

- 3.- How often did you play football when you were a child?
 - 3.1 Have you ever had any fights when playing football/a game?
 - 3.2 What happened?
 - 3.3 Were you scared?

Q-GEN- Module II: Television

People in the border watches Brazilian TV and according to Carvalho (1998) TV serves as a linguistic model for groups who are seeking one (mostly teenagers). Many times people would stop what they are doing to watch a *novela da tarde* (soap opera).

- 1.- What do you think about television?
 - 1.1 Do you watch TV a lot?

- 2.- What are your favorite shows/channels?
 - 2.1 Why do you prefer them?

- 3.- Do you watch Brazilian TV?
 - 3.1 Do you think is better than Uruguayan TV?
 - 3.2 Why?

Q-GEN- Module III: Language Choice

This is a very sensitive topic since people in Rivera often think of Uruguayan Portuguese (UP) is a 'mixed language with no rules'.

1. So where were you born?
Do you consider yourself Uruguayan, Brazilian, or *Fronterizo*?
Why?
2. Who do you speak UP with?
Do your parents punish you for that?
3. Do you prefer to speak Spanish or Portuguese?
Why?
Do you think one language is more important/useful than the other?
Can you explain?

APPENDIX C
IRB APPROVAL OF PROTOCOL



Institutional Review Board

EWA00005790

98A Psychology Bldg.
PO Box 112250
Gainesville, FL 32611-2250
Phone: (352) 392-0433
Fax: (352) 392-9234
E-mail: irb2@ufl.edu
<http://irb.ufl.edu>

DATE: June 9, 2006

TO: Rosa Maria Castaneda
2915 SW 13th Street Apt. 70
Gainesville, FL 32608

FROM: Ira S. Fischler, Chair
University of Florida
Institutional Review Board

SUBJECT: **Approval of Protocol #2006-U-450**

TITLE: Forms of Address in Uruguayan Portuguese Dialect: Sociopragmatic Issues

SPONSOR: Tinker Travel Grant

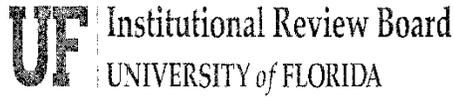
I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants, and based on 45 CFR 46.117(c), authorizes you to administer the informed consent process as specified in the protocol.

If you wish to make any changes to this protocol, including the need to increase the number of participants authorized, you must disclose your plans before you implement them so that the board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

If you have not completed this protocol by **June 4, 2007**, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl

APPENDIX D
IRB RENEWAL OF PROTOCOL



PO Box 112250
Gainesville, FL 32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: May 25, 2007

TO: Rosa Maria Castaneda
2915 SW 13th Street Apt. 70
Gainesville, FL 32608

FROM: Ira S. Fischler, Chair 
University of Florida
Institutional Review Board

SUBJECT: **Renewal of Protocol #2006-U-450**

TITLE: Forms of Address in Uruguayan Portuguese Dialect: Sociopragmatic Issues

SPONSOR: Tinker Travel Grant

Your request to continue your research protocol involving human participants has been approved. Participants are not placed at more than minimal risk by the research. You are reminded that any changes, including the need to increase the number of participants authorized, must be approved by resubmission of the protocol to the Board.

Re-approval of this protocol extends for one year from the date of the review, the maximum duration permitted by the Office for Human Research Protection. If this project will not be completed by June 4, 2008, please telephone our office (392-0433) at least six weeks in advance so we can advise you how to reapply.

It is important that you keep your Department Chair informed about the status of this research project. In addition, if your project is funded, you should send a request to extend your grant along with a copy of this project renewal notification to DSR, Awards Administration, P.O. Box 115500.

ISF:dl

LIST OF REFERENCES

- Abaurre Maria Bernadette, and Emilio Pagotto. 1996. Nasalização do Português do Brasil. *Gramática do Português Falado* 6. 495-522.
- Academia Nacional de Letras Comisión para el Estudio del Español en la Zona Fronteriza. 1982. *Estudio sobre el problema idiomático fronterizo*. Montevideo: La Comisión.
- Almeida, António. 1976. The Portuguese nasal vowels: *Phonetics and phonemics*. *Readings in Portuguese linguistics*, ed by J. Schmidt-Radefeldt, 349-96. New York: North Holland.
- Azevedo, Milton. 1981. *A contrastive phonology of Portuguese and English*. Washington, D.C.: Georgetown University Press.
- Azevedo, Milton. 2005. *Portuguese: A linguistic introduction*. Cambridge: Cambridge University Press.
- Barrios, Graciela. 1995. Planificación lingüística y Mercosur: El caso uruguayo. Associação de Universidades Grupo Montevideo. *Anais do Encontro sobre Políticas Lingüísticas*, 41-49. Curitiba: Universidade Federal do Paraná.
- Barrios, Graciela. 1996. Planificación lingüística e integración regional: El Uruguay y la zona de frontera. *Fronteiras, educação e integração*, ed by Almeda Menice Trindade and Luis Alberto Behares, 83-110. Santa Maria: Pallotti.
- Barrios, Graciela. 1999. Minorías lingüísticas e integración regional: La región fronteriza uruguayo-brasileña. *Políticas lingüísticas para América Latina. Actas del Congreso Internacional 1997*, 85-92. Buenos Aires: UBA.
- Barrios, Graciela; Beatriz Gabbiani; Luis Ernesto Behares; Adolfo Elizaincin; and Susana Mazzolini. 1993. Planificación y políticas lingüísticas en Uruguay. *Políticas del lenguaje en América Latina*, ed. by Rainer Enrique Hamel, 177-90. Mexico: UAM.
- Bakewell, P.J. 2004. *A history of Latin America: 1450 to the present*. Malden, MA: Blackwell.
- Battisti, Elisa, and Ben Hermans. 2009. Fixed and variable properties of the palatalization of dental stops in Brazilian Portuguese in an immigrant community. *Phonetics and phonology: Interactions and interrelations*, ed. by Marina Vigório, Sonia Frota and J. Freitas, 235-46. Amsterdam: John Benjamins.
- Bayley, Guy. 2002. Real and apparent time. In Chambers et al. 2002, 312-32.

- Bayley, Guy; Tom Wikle; Jan Tillery; and Lori Sand. 1991. The apparent time construct. *Language Variation and Change* 3.241-64.
- Bayley, Robert, and Denis R. Preston (eds.) 1996. *Second language acquisition and linguistic variation*. Amsterdam: John Benjamins.
- Behares, Luis Ernesto. 1984. *Planificación lingüística y educación en la frontera uruguaya con el Brazil*. Montevideo: Instituto Interamericano del Niño.
- Behares, Luis Ernesto; Carlos Ernesto Diaz; and Gerardo Halzmann. 2004. *Na fronteira nos fizemo assim*. Montevideo: Universidad de la República.
- Behares, Luis Ernesto, and Graciela Gabbiani. 1987. Educación y lengua en la frontera. *Relaciones* 36. 6-10.
- Bhat, D.N.S. 1978. *A general study of palatalization*. *Universals of human language*, ed. by Joseph Greenberg, 47-92. Stanford: Stanford University.
- Bisol, Leda. 1989. Vowel harmony: A variable rule in Brazilian Portuguese. *Language Variation and Change* 2.185-98.
- Bisol, Leda. 1991. Palatalization and its variable restriction. *International Journal of the Sociology of Language* 89.107-24.
- Blom, J., and John Gumperz. 1972. Social meaning in linguistic structures: Code switching in northern Norway. *Directions in sociolinguistics*, ed. by John Gumperz and D. Hymes, 407-34. New York: Holt, Rinehart, and Winston.
- Bortoni-Ricardo, Stella Maris. 1985. *The urbanization of rural dialect speakers: a sociolinguistic study in Brazil*. Cambridge: Cambridge University Press.
- Boissevain, J., and J. Mitchell. 1973. *Network analysis: Studies in human interaction*. The Hague: Mouton.
- Brasington, R.W.P. 1971. Noun pluralization in Brazilian Portuguese. *Journal of Linguistics* 7.151-177.
- Cabrelli Amaro, Jennifer, and Jason Rothman. 2010. On L3 acquisition and phonological permeability: A new test case for debates on the mental representation of non-native phonological systems. *International Review of Applied Linguistics in Language Teaching* 48.275-96.
- Carvalho, Ana Maria. 1998. *The social distribution of Uruguayan Portuguese in a bilingual border town*. Berkeley: University of California dissertation.

- Carvalho, Ana Maria. 2003. Rumo a uma definição do português uruguaio. *Revista Internacional de Lingüística Iberoamericana* 1.125-49.
- Carvalho, Ana Maria. 2004. I speak like the guys on TV: Palatalization and the urbanization of Uruguayan Portuguese. *Language Variation and Change* 16.127-51.
- Cedergren, Henrietta. 1973. *The interplay of social and linguistic factors in Panama*. Ithaca, NY: Cornell University dissertation.
- Cedergren, Henrietta. 1987. The spread of language change: Verifying inferences of linguistic diffusion. *Language spread and language policy: Issues implications and case studies*, ed by Peter Lowenberg, 44-60. Washington, DC: Georgetown University Press.
- Chambers, J.K. 2003. *Sociolinguistic theory: Linguistic variation and its social significance*. Malden and Oxford: Blackwell Publishers.
- Chambers, J.K.; Peter Trudgill; and Natalie Schilling-Estes (eds.) 2002. *The handbook of language variation and change*. Oxford: Blackwell.
- Church, Meredith. 2007. *Portuñol and border identity: Reconciling identities and claiming space in the national imaginary*. Lawrence: University of Kansas MA thesis.
- Douglas, Kendra L. 2004. *Uruguayan Portuguese in Artigas: Tri-dimensionality of transitional local varieties in contact with Spanish and Portuguese standards*. Madison: University of Wisconsin dissertation.
- Eckert, Penélope. 1997. Gender and sociolinguistic variation. *Readings in language and gender*, ed. by Jennifer Coates, 64-76. Oxford: Blackwell.
- Eckert, Penélope. 1989. *Jocks and burnouts: Social categories and identity in the high school*. New York: Teachers College Press.
- Eckert, Penélope. 2000. *Linguistic variation as social practice: The linguistic construction of identity in Belten High*. Malden: Blackwell.
- Elizaincin, Adolfo. 1976. The emergence of bilingual dialects on the Brazilian-Uruguayan border. *International Journal of the Sociology of Language* 9.122-34.
- Elizaincin, Adolfo. 1979. Algunas precisiones acerca de los dialectos portugueses en el Uruguay. *Foro literario* 3.50-1.
- Elizaincin, Adolfo (ed.) 1981. *Estudios sobre el español del Uruguay*. Montevideo: Universidad de la República.

- Elizaincin, Adolfo. 1992. *Dialectos en contacto: Español y portugués en España y América*. Montevideo: Arca.
- Elizaincin, Adolfo. 1995. La interpretación en la lingüística histórica: La banda oriental del siglo XVIII. *Cuadernos Americanos* 4.213-21.
- Elizaincin, Adolfo. 1996. La sociolingüística en Argentina, Uruguay y Paraguay. *Internacional Journal of the Sociology of Language* 117.1-9.
- Elizaincin, Adolfo. 2004. Las fronteras del español con el portugués en América. *Revista Internacional de Lingüística Iberoamericana* 2.105-118.
- Elizaincin, Adolfo; Luis Behares; and Graciela Barrios. 1987. *Nos falemos brasileiro: Dialectos Portugueses del Uruguay*. Montevideo: Amesur.
- Elizaincin, Adolfo; Marisa Malcuori; and Virginia Bertolotti. 1997. *El español en la banda oriental en el siglo XVIII*. Montevideo: Universidad de la República.
- Feagin, Crawford. 1979. *Variation and change in Alabama English: A sociolinguistic study of the white community*. Washington: Georgetown University Press.
- Feagin, Crawford. 2002. Entering the community: Fieldwork. In Chambers et al. 2002, 20-39.
- Gal, Susan. 1979. *Language shift: social determinants of linguistic change in bilingual Austria*. New York: Academic Press.
- García, Etchegoyen de Lorenzo, María Eloísa. 1975. *Dialecto fronterizo: Un desafío a la educación*. Montevideo: Instituto Americano del Niño.
- Giangola, James. P. 2001. *The pronunciation of Brazilian Portuguese*. Muenchen: Lincom Europa.
- Gumperz, John, and D. Hymes. 1972. *Directions in sociolinguistics*. New York: Holt Rinehart and Winston.
- Gumperz, John. 1982. *Language and social identity*. Cambridge: Cambridge University Press.
- Gumperz, John, and Stephen C. Levinson. 1996. *Rethinking linguistic relativity*. Cambridge: Cambridge University Press.
- Guy, Gregory. 1981. *Linguistic variation in Brazilian Portuguese: Aspects of the phonology, syntax, and language history*. Pennsylvania: University of Pennsylvania dissertation.

- Guy, Gregory. 1991. Explanation in variable phonology: An exponential model of morphological constraints. *Language Variation and Change* 3.1-22.
- Guy, Gregory. 1997. Competence, performance, and the generative grammar of variation. *Variation, change, and phonological theory*, ed. by Frans Hinskens, Roeland van Hout, and W. Leo Wetzels, 125-44. Amsterdam John Benjamins.
- Hall, R.A. Jr. 1943. The unit phonemes of Brazilian Portuguese. *Studies in Linguistics* 1.1-15.
- Hamel, Rainer Enrique. 2003. Regional blocs as a barrier against English hegemony? The language policy of Mercosur in South America. *Languages in a globalizing world*, ed. by Jacques Mauris and Michael A. Morris, 111-141. Cambridge: Cambridge University Press.
- Hammarström, G. 1954. Review of Sten 1944. *Revista do Laboratorio de Fonética Experimental* 2.158-62.
- Hammarström, G. 1962. Review of Carvalho 1958. *Romance Philology* 15.350-6.
- Hansen, Anita. 2001. Lexical diffusion as a factor of phonetic change: The case of Modern French nasal vowels. *Language Variation and Change* 13.209-52.
- Hensey, Frederick. 1972. *The sociolinguistics of the Brazilian-Uruguayan border*. The Hague: Mouton.
- Hensey, Frederick. 1980. El *fronterizo* del norte del Uruguay: Interlingua e interlecto. *Foro Literario* 4.54-9.
- Hensey, Frederick. 1982. Uruguayan *fronterizo*: A Linguistic sampler. *Word* 33.193-97.
- Holmquist, Jonathan C. 2001. Variación vocálica en el habla masculina de Castañer, Puerto Rico. *Cuaderno Internacional de Estudios Hispánicos y Lingüísticos* 1.96-103.
- Hualde, José Ignacio. 1989. Autosegmental and metrical spreading in the vowel-harmony systems of northwestern Spain. *Studies in Romance Linguistics* 27.773-805.
- Hymes, Dell H. 1974. *Studies in the history of linguistics: Traditions and paradigms*. Bloomington: Indiana University Press.
- Kerswill, Paul. 1993. Rural dialect speakers in an urban speech community: the role of dialect contact in defining a sociolinguistic concept. *International Journal of Applied Linguistics* 3.33-56.
- Labov, William. 1963. The social motivation of a sound change. *Word* 19.273-309.

- Labov, William. 1966. *The social stratification of English in New York City*. Washington, D.C: Center for Applied Linguistics.
- Labov, William. 1969. Contraction, deletion and inherent variability of the English copula. *Language* 45.715-62.
- Labov, William. 1972. *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.
- Labov, William. 1981. What can be inferred about change in progress from synchronic descriptions? *Variation Omnibus*, ed. by David Sankoff and Henrietta Cedergren, 177-199. Edmonton, Alberta: Linguistic Research.
- Labov, William. 1982. Building on empirical foundations. *Perspectives in historical linguistics*, ed. by Winfred P. Lehmann and Yakow Malkiel, 17-92. Amsterdam and Philadelphia: John Benjamins.
- Labov, William. 1990. The interaction of sex and social class in the course of linguistic change. *Language Variation and Change* 2.205-254.
- Labov, William. 1994. *Principles of linguistic change, volume I: Internal factors*. London, New York: Blackwell.
- Labov, William, and Wendel A. Harris. 1986. De facto segregation of black and white vernaculars. *Diversity and diachrony*, ed. by D. Sankoff, 1-24. Philadelphia: John Benjamins.
- Ladefoged, Peter. 2001. *Vowels and consonants: An introduction to the sounds of languages*. Malden, Massachusetts: Blackwell.
- Lippi-Green, Rosina L. 1989. Social network integration and language change in progress in a rural alpine village. *Language in Society* 18.213-34.
- Lipski, John. 1975. Brazilian Portuguese vowel nasalization: Secondary aspects. *Canadian Journal of Linguistics* 20.59-77.
- Lipski, John. 1994. *Latin American Spanish*. London: Longman.
- Lüdtke, H. 1953. Fonemática Portuguesa. *Boletim de Filologia* 13.273-88.
- Maiden, M. 1991. *Interactive morphonology. Metaphony in Italy*. London: Routledge.
- Mateus, Maria Helena, and Ernesto d'Andrade. 2000. *The phonology of Portuguese*. Oxford: University Press.
- Mattoso Câmara, Joaquim. 1953. *Para o estudo da fonêmica Portuguesa*. Rio de Janeiro: Editora Simões.

- Mattoso Câmara, Joaquim. 1970. *Estrutura da língua Portuguesa*. Petrópolis: Editôra Vozes.
- Mattoso Câmara, Joaquim. 1972. *The Portuguese language*. Chicago: University of Chicago Press.
- Milroy, Lesley, and Matthew J. Gordon. 2003. *Sociolinguistics: Method and interpretation*. Malden, MA: Blackwell.
- Milroy, James, and Lesley Milroy. 1978. Belfast: Change and variation in an urban vernacular. *Sociolinguistic patterns in British English*, ed. by Peter Trudgill, 19-36. London: Edward Arnold.
- Milroy, James, and Lesley Milroy. 1985. Linguistic change, social network and speaker innovation. *Journal of Linguistics* 21.339-84.
- Milroy, James, and Lesley Milroy. 1992. Social network and social class: Toward an integrated sociolinguistic model. *Language in Society* 21.1-26.
- Milroy, Lesley. 1980. *Language and social networks*. Oxford: Basil Blackwell.
- Milroy, Lesley. 1987. *Observing and analyzing natural language: A critical account of sociolinguistic method*. Oxford: Basil Blackwell.
- Mitchell, J. Clyde. 1969. *Social networks in urban situations*. Manchester: Manchester University Press.
- Mitchell, J. Clyde. 1986. *Network procedures. The quality of urban life*, ed by D. Frick, 73-92. Berlin: de Gruyter.
- Morais-Barbosa, Jorge. 1962. Les voyelles nasales portugaises: interprétation phonologique. *Proceedings of the 4th International Congress of Phonetic Sciences*, 691-708. The Hague: Mouton.
- Patrick, Peter. 2002. The speech community. In Chambers et al. 2002, 573-97.
- Paolillo, John C. 2002. *Analyzing linguistic variation: Statistical models and methods*. Stanford: Center for the Study of Language and Information.
- Poplack, Shana. 1979. Deletion and disambiguation in Puerto Rican Spanish. *Language* 56.371-85.
- Quícoli, A. C. 1990. Harmony, lowering and nasalization in Brazilian Portuguese. *Lingua* 80.295-331.

- Rickford, John R. 1987. *Dimensions of a creole continuum: History, texts and linguistic analysis of Guyanese Creole*. Stanford: Stanford University Press.
- Reed, D.W. and Yolanda Leite. 1947. The segmental phonemes of Brazilian Portuguese: Standard Paulista dialect. *Phonemics*, ed. by Kenneth Pike, 190-202. Ann Arbor: University of Michigan Press.
- Rona, José Pedro. 1958. *Aspectos metodológicos de la dialectología hispanoamericana*. Montevideo: Universidad de la Republica.
- Rona, José Pedro. 1965. *El dialecto fronterizo del norte del Uruguay*. Montevideo: Universidad de la República.
- Saciuk, Bodan. 1970. *Some basic rules of Portuguese phonology*. *Studies Presented to Robert B. Lees by his Students. Papers in Linguistics, Monograph Series I*, ed. by Jerrold M. Saddok and Anthony L. Vanek, 197-222. Edmonton: Linguistic Research.
- Sampson, Rodney. 1999. *Nasal vowel evolution in Romance*. New York: Oxford University Press.
- Sankoff, David. 1978. *Linguistic variation: Models and methods*. New York: Academic Press.
- Sankoff, Gillian. 2001. Linguistic Outcomes of Language Contact. In Trudgill et al. 2001, 638-48.
- Sankoff, Gillian. 2006. Age: Apparent-time and real time. *Encyclopedia of Language and Linguistics*, ed. by A. Anderson et al., 110-16. Oxford: Elsevier.
- Sankoff, Gillian, and Hélène Blondeau. 2007. Language change across the lifespan: /r/ in Montreal French. *Language* 83.560-88.
- Sankoff David, and Henrietta Cedergren. 1976. The dimensionality of grammatical variation. *Language* 52.63-78.
- Sankoff, David, and Suzanne Laberge. 1978. The linguistic market and the statistical explanation of variability. *Linguistic variation: models and methods*, ed. by David Sankoff, 239-50. New York: Academic Press.
- Sankoff, David; Sali A. Tagliamonte; and Eric Smith. 2005. *GoldVarb X*. Toronto: Department of Linguistics, University of Toronto. Online: http://individual.utoronto.ca/tagliamonte/GoldVarb/GV_index.htm.
- Schilling-Estes, Natalie. 2002. Investigating stylistic variation. In Chambers, et al. 2002, 375-401.

- Schooling, S.J. 1990. Language maintenance in Melanesia: *Sociolinguistics and social networks in New Caledonia*. Summer Institute of Linguistics and the University of Texas at Arlington Publications in Linguistics, 91.
- Shaw, Ines Senna. 1986. *Vowel nasality in Brazilian Portuguese: An experimental approach with focus on derivational and inflectional alternations*. Lawrence: University of Kansas dissertation.
- Tagliamonte, Sally. 2006. *Analyzing sociolinguistic variation*. Cambridge, UK; New York: Cambridge University Press.
- Tagliamonte, Sally. 2002. Comparative sociolinguistics. In Chambers et al. 2002, 729-63.
- Trudgill, Peter. 1974. *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.
- Vandresen, Paulino. 1975. O vocalismo Português: Implicações teóricas. *Revista Brasileira de Lingüística* 2.80-103.
- Violin, Anne. 2001. *Variation in southeastern French nasal vowels and optimality theory*. Indiana: Purdue University dissertation.
- Waltermire, Mark. 2006. *Social and linguistic correlates of Spanish-Portuguese bilingualism on the Uruguayan-Brazilian border*. Albuquerque: University of New Mexico dissertation.
- Weinreich, Uriel; William Labov; and Marvin Herzog. 1968. *Empirical foundations for a theory of language change*. Austin: University of Texas Press.
- Wetzels, Leo. 1997. The lexical representation of nasality in Brazilian Portuguese. *Probus* 9.202-32.
- Wolfram, Walt. 1969. *A sociolinguistic description of Detroit negro speech*. Washington DC: Center for Applied Linguistics.
- Wolfram, Walt. 1993. Identifying and interpreting variables. *American dialect research*, ed. by Dennis Preston, 193-221. Amsterdam and Philadelphia: John Benjamins.
- Wolfram, Walt; Kirk Hazen; and Natalie Schilling-Estes. 1999. *Dialect change and maintenance on the outer banks*. Tuscaloosa : University of Alabama Press.
- Young, Robert, and Robert Bayley. 1996. VARBRUL analysis for second language acquisition research. *Second language acquisition and linguistic variation*, ed. by Robert Bayley and Dennis R. Preston, Amsterdam: John Benjamins.

BIOGRAPHICAL SKETCH

Rosa María Castañeda-Molla was born in Lima, Peru. She received a BA in education from the Women University of the Sacred Heart in Lima. She taught high school history, before moving to London, where she volunteered at the World Association of Girl Guides and Girl Scouts. In London, she taught at Chelsea and Westminster Hospital School. She received an MA in applied linguistics from Florida Atlantic University. In 2011, she received a Ph.D. from the University of Florida. Rosa-María holds a tenure-track position at Fort Hays State University.