IMPACT STUDIES IN LANGUAGE AND SOCIETY 25

Variation in Indigenous Minority Languages

EDITED BY

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JOHN BENJAMINS PUBLISHING COMPANY

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IMPACT: Studies in Language and Society

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Volume 25

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John Benjamins Publishing Company
Amsterdam / Philadelphia

Library of Congress Cataloging-in-Publication Data

Variation in indigenous minority languages / edited by James N. Stanford, Dennis R. Preston.
p. cm. (IMPACT: Studies in Language and Society, ISSN 1385-7908 ; v. 25)
Includes bibliographical references and index.
1. Indigenous peoples--Language--Variation. 2. Minorities--Language--Variation. 3. Language and languages--Variation. 4. Linguistic change. 5. Linguistic minorities. 6. Sociolinguistics. I. Stanford, James N. II. Preston, Dennis Richard.
P120.I56V37 2009
417'.2--dc22 2008047583
ISBN 978 90 272 1864 3 (HB; alk. paper)
ISBN 978 90 272 8978 0 (EB)

John Benjamins Publishing Co. · P.O. Box 36224 · 1020 ME Amsterdam · The Netherlands
John Benjamins North America · P.O. Box 27519 · Philadelphia PA 19118-0519 · USA

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INTRODUCTION

The lure of a distant horizon

Variation in indigenous minority languages

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Studies of indigenous minority languages have led to invaluable new perspectives in grammatical theory, typology, descriptive linguistics, ethnographies of communication, and countless other facets of linguistics and anthropology. Yet such languages have received comparatively little attention in quantitative variationist sociolinguistics, i.e., the research of language variation and change that has grown out of the Labov tradition (e.g., Labov 1963, 1966, 1994, 2001). In an era of globalization and increasing cross-cultural contact, the time is ripe for more variationist sociolinguistic exploration of indigenous minority languages and the new insights they may bring.

After all, such underrepresented language communities provide meaningful contrasts and comparisons with more commonly studied language communities. For example, though models of socioeconomic stratification may be very effective in certain urban settings, the rural agrarian villages of some indigenous communities can be more homogeneous in terms of social class, so other factors such as clan (Stanford, this volume) or "covert hierarchies" (Clarke, this volume) may be more meaningful. Besides pointing out such contrasts, variationist research of such languages may also provide cross-linguistic and cross-cultural support for principles in existing sociolinguistic models. Therefore, in the same way that other subfields of linguistics have already gained crucial new perspectives by considering data from lesser-known languages, variationist sociolinguistics has much to gain as well.

This anthology, the first its kind, serves as a platform for side-by-side comparison of 21 fieldwork-based variationist studies of indigenous minority languages. With one or more contributions from each of the six populated continents (Figure 1), this volume offers a broad picture of current developments in the study of variation in indigenous minority languages across the world.

Figure 1. Approximate locations of the studies in the collection[1]

1. Map adapted from http://english.freemap.jp

Our topic of focus in comparison to other work

First, we should point out that this anthology is not primarily intended to be a collection of *ethnographies of communication* (Hymes 1962, 1964; Gumperz & Hymes 1964) among lesser studied languages. We recognize that a great deal of influential prior work has focused on ethnographies of communication and other related qualitative approaches (e.g., Jackson 1974; Basso 1972; Frake 1964; Irvine 1974 inter alia, and recent work such as Innes 2006; Aikhenvald 2003 and others). Such research plays a fundamentally important role in the understanding of language in diverse settings. Naturally, the studies in this volume contain ethnographic components, and such perspectives and insights are often crucial to the variation analysis. But ethnographies of communication and other related qualitative, anthropological linguistic approaches are not our primary focus.

Secondly, many studies of indigenous languages touch on the pressing issues of language endangerment, death, and revitalization, and such issues arise in this volume as well. However, we do not view this topic as the primary focus of our anthology. After all, other work addresses these issues more directly, e.g., Fishman (1991, 2001), Hale et al. (1992), Grenoble & Whaley (1998, 2006), Nettle & Romaine (2000), Hinton & Hale (2001), and others. Likewise, we are mindful of the important work being done in language description and documentation, where many researchers are striving to engage with as many indigenous languages as possible before they vanish. Many of the authors in this volume depend upon such work for background information, and some provide a considerable amount of description and documentation in their own work (see Nagy, this volume). Nonetheless, language description and documentation is not the primary focus of the collection.

Instead, our primary focus is a topic that we consider to be a significant lacuna in linguistics: quantitative variationist sociolinguistic research of indigenous minority languages. Sankoff showed the value of a quantitative variationist approach in Papua New Guinea (see Sankoff 1980, especially Chapter 3), an approach also found in Eckert's work on Gascon (1980). Foley produced an early quantitative variationist study of Cherokee (1980), and other studies have appeared as well (e.g., Di Paolo 2007; Haddican 2005 inter alia). Yet in comparison to other areas of linguistics, this topic has received far less attention. Hymes (1980) recognizes the importance of a quantitative, variationist component to understanding language in sociocultural context: "Clearly any adequate analysis of such questions will have to make use of the quantitative approach to linguistic change across cultures, as does Sankoff" (p. xiv). Hymes foresees that "an adequate analysis of the social life of language" will require "technical linguistics, quantitative and mathematical technique, ethnographic inquiry, ethnohistorical prespective" (see also Bauman & Sherzer 1989: 17). We believe, therefore, that the present collection of

studies of variation and change in underrepresented languages is timely and valuable to the "broad church" (Coupland 2007a: 4) of sociolinguistics in general as well as to variationist sociolinguistics in particular.

Most linguists agree that language endangerment is a critical issue due to the rapid onslaught of modern social forces. However, long before a language has reached a point of noticeable moribundity, the sociolinguistic setting of the community has usually been drastically changing, making it difficult to gauge features of language variation and change that may have been present when the language was healthier. While we subscribe to a dynamic, interactive view of culture as a process, i.e., that change, contact, and hybridity are constantly present even in so-called isolated societies,[2] we nonetheless observe that when indigenous cultures come into extensive contact with dominant, culturally divergent groups, the dominated group often undergoes dramatic changes. When an indigenous language dies and its visible community vanishes, we lose opportunities for grammatical knowledge and ethnographic, anthropological linguistic understanding. But for variationist sociolinguistics, we also lose invaluable opportunities to observe language variation and change in situations that are starkly different from those more commonly studied. It may be that certain culturally dependent types of variation or other important evidence about sociolinguistic principles and patterns are disappearing forever along with these cultures; it is undoubtedly the case that these communities can give us a deeper and more balanced perspective on language variation and change.

What is an "indigenous minority language"?

One possible view of a prototypical "indigenous minority language" would be a language spoken by a fully endogenous, numerical minority group which is indigenous to the local region and which experiences a maximally distinct linguistic/cultural contrast with the majority group around it. Languages that may approach such a prototype include the Dene Sųłiné speakers of Canada (Thiering, this volume), the Northern Paiute speakers of the United States (Babel, this volume), the Warlpiri speakers of Australia (O'Shannessy, this volume), and others. Yet when one examines the term *indigenous minority language* closely, it is not as straightforward as it might seem, and even the languages mentioned above may diverge from the prototype in significant ways. Therefore, although we find

2. I.e., following Barth (1969, 1981, cited in Coupland 2007a: 106) and Wolf's "sense of the fluidity and permeability of cultural sets" rather than culture as "fixed, unitary, and bounded" (Wolf 1982: 387; quoted in Tapp 2003: 110; cf. Gupta & Ferguson 1992; Street 1991).

indigenous minority language useful to define the area of study, we view this term in relation to a prototype rather than a rigid feature-based definition. The language communities selected for this collection share certain similar experiences and characteristics, yet they cluster around the prototype from slightly different ranges and angles in a way that we hope will contribute toward meaningful perspectives on language variation and change.

First, we recognize that *indigenou*s is relative when applied to human communities. After all, most groups have migrated at some point in history, and the forebears of a current group may have migrated from elsewhere in earlier times. Furthermore, the socially constructed notions that distinguish one group from another are constantly evolving. Even if all members of a community were to agree that one particular, contemporary group represents the first group that occupied a region historically, that group's own historical integrity and uniqueness is a negotiable social reality subject to shift and reinterpretation over time (cf. Berger & Luckman 1966; Street 1991; Gupta & Ferguson 1992; Wolf 1982: 387; quoted in Tapp 2003: 110 inter alia). Nonetheless, many communities have well-accepted, socially meaningful narratives asserting that certain groups in their region were established considerably earlier than other groups, a sense of precedence that is expressed in terms of centuries, millennia, or longer. Therefore, our use of *indigenous* encompasses these senses in a practical, meaningful way that focuses our area of study while also avoiding egocentric terms like "exotic." Finally, we also note that *indigenous* has often been used to differentiate pre-colonial groups in a given region from those established in that region during or after the colonial era; our usage is consistent with this sense as well.

Secondly, we consider *minority* status in terms of relationships with other groups, not just as a simple numerical minority. Language communities in this collection share commonalities due to their minority stances with respect to social, political, and/or economic relationships with other groups in their regions. Although such relationships often occur when a language community is a numerical minority, a group may also be found to have a minority stance for other reasons. For example, Ewe is used by a large population in Togo (see Noglo, this volume), yet in many senses French has higher status in that country.

Thirdly, as for *language*, we do not attempt to navigate the shadowy border between language and dialect. We recognize that what one person considers a dialect might be considered a language by someone with a different sociopolitical or sociolinguistic viewpoint. While the "prototypical" indigenous minority language may have maximal linguistic distance from nearby majority languages, in practice we find that many minority communities share significant linguistic features with majority communities. Yet such minority communities often maintain their own distinct language ideology and group identity. Moreover, contact

with a majority language is a fact of life for many minority language communities. Therefore, when studying language variation and change in indigenous minority communities, issues of language attrition and death and other topics of language contact naturally arise. In a rapidly changing, globalizing world, many indigenous minority languages are experiencing acute contact issues, and this collection includes studies to reflect that reality.

Variation in indigenous minority languages: The story so far

In this section, we survey recent variationist studies of indigenous minority languages, drawing both from this volume and other publications, in order to outline initial insights and paths for future research. As we have seen, "indigenous minority language" can apply to a diverse set, a wide range of cultures and settings. We do not attempt to develop general principles of variation in indigenous minority languages. Rather, we present some of the perspectives that these language communities may provide. After all, many of these communities do share some important traits, especially when viewed in contrast to more commonly studied communities. In particular, given the influential role of Labovian methodology and principles of language variation and change (e.g., Labov 1994, 2001; Trudgill 1972 inter alia), we suggest some of the ways that underrepresented language communities may support and challenge classic variationist perspectives.

In this section, then, we compare indigenous minority results against classic variationist principles and approaches, which seems to be an appropriate initial heuristic. Naturally, future analyses and fieldwork can further our understanding by integrating (see Holmes & Meyerhoff 2003: 15) practice-based, interactional, discourse-centered approaches and microanalytic methods.[3] For the present study, we outline results from quantitative variationist studies with respect to social class, clan, lack of a standard, network analysis, exogamy, gender roles, contact with majority languages, age, and internal linguistic factors.

Social class

When applying a variationist sociolinguistic approach to indigenous minority languages, one of the first observations one makes is that many such languages

3. Cf. Johnstone & Kiesling (2008), Johnstone (2004), Eckert (2005), Coupland (2007a–b, 2001), Bell (2007), Mendoza-Denton (2002), Gumperz & Cook-Gumperz (2007), Bucholtz (1999) inter alia.

do not have clear socioeconomic class distinctions or that distinctions emerge in different ways. Social class has had a fundamental place in variationist analyses of majority languages (e.g., Labov 1966, 1972, 2001; Trudgill 1974 inter alia). Yet many indigenous minority language communities, especially those in rural areas like the Sui people of China (Stanford, this volume, 2007), do not have such clearly demarcated socioeconomic categories. Other examples include Kaluli of Western Samoa and Papua New Guinea (Ochs & Schieffelin 1984), Nganhcara of Australia (Smith & Johnson 1986), and the Vaupes region of the Amazon (e.g., Jackson 1983: 164).

Where identifiable hierarchical contrasts do exist, they may not fall along the traditional class lines frequently assumed for majority languages in urban societies. For example, Clarke (this volume) finds that for the "relatively egalitarian" indigenous Innu community of Sheshatshiu, Labrador, "a classification scheme grounded in socioeconomic stratification, as per urban variationist studies…was almost totally irrelevant." Instead, she finds that the community is best described as having a "covert" hierarchy based on territorial groups. In other indigenous North American communities, Molly Babel (p.c.) observes that social hierarchies related to tribal leadership status may have sociolinguistic reflexes as well.

Other perspectives include Romero's (this volume) analysis of egalitarian dialects of K'iche', and Rau, Chang, & Dong (this volume), who describe the Yami people of Orchid Island, Taiwan as emically egalitarian with respect to social class. In a study of Ewe in Togo, Noglo (this volume) cautions that Western-oriented sociolinguistic approaches rely "too heavily on social class as a primary independent research variable." Likewise, for Garifuna speakers in Belize, Maya Ravindranath (p.c.) notes the difficulty of quantifying socioeconomic status with traditional measures like income; a Garifuna speaker's income level may be closely related to the number of relatives living in the United States, rather than traditional social class measures.

Clan

In rural indigenous communities where traditional socioeconomic class categories are indistinct, clan-level distinctions are often highly important, as discussed in detail in Stanford (this volume). In Smith & Johnson's (1986) study of Nganhcara, Bowern's (2008) study of clans in Arnhem Land, Australia, and in Sui communities (Stanford, this volume), clan is a crucial level of social organization. Clan-level linguistic variation often marks key aspects of social identity that go beyond age, socioeconomic class, or other such factors. In this way, clan may be a fundamental sociolinguistic variable for many indigenous minority languages.

Lack of a standard

Variationist studies of indigenous minority languages often face the challenge of the lack of an established standard variety and orthography. Clarke (this volume) notes this challenge in Sheshatshiu, Labrador:

> The current context…does not represent the usual Labovian focus of study: in Sheshatshiu, not only are speakers often not literate in their first language, they also lack a clearly-defined linguistic standard, encoded via a standardized orthography.

Therefore, to define their objects of study, some researchers have turned to a diasystem framework, e.g., Léonard & Sucuc for Mayan (this volume), or to a "sociogrammar," as suggested by Nagy for Faetar (this volume). Unlike studies of relatively homogeneous speech communities, many indigenous languages exist in situations of extensive multidialectal or multilingual contact with ambiguous boundaries and no established single standard for the researcher to use as a reference point. Nagy sees such situations from a positive angle, suggesting that a lack of "agreed-on stigmatized forms" in such language communities can change the "lens through which the linguist examines the language." Thus, the challenge that researchers face by the absence of a standard variety may have the positive result of an escape from the sometimes staid influences of a "standard ideology." Nagy quotes Cheshire's observation that "variationists have worked almost exclusively on languages that have been heavily standardized, so the potential influence of the standard ideology on the selection of variables for analysis has been high" (Cheshire 2005: 87, quoted in Nagy, this volume).

The dense and multiplex village: A single community of practice?

Indigenous minority language communities can also differ from majority language communities in the terms of social networks. Analyses of social networks (Milroy 1982, 1987) and communities of practice (Lave & Wenger 1991; Wenger 1998, 2000; Eckert 1988; Eckert & McConnell-Ginet 1992, 2003; Holmes & Meyerhoff 1999; Meyerhoff 2002) have played important roles in variationist research and will likely be valuable in many indigenous language communities as well. However, in some close-knit village-oriented communities, the entire village might be viewed as functioning as the only significant community of practice, and social networking may be too dense to easily evaluate. For Sheshatshiu Innu, Clarke (this volume) observes the following:

> An approach in terms of social networks – though originally envisaged as fruitful – proved too difficult to implement in any systematic fashion. In Sheshatshiu, as in other Innu communities, almost every resident has ties (often dense and multiplex) with almost every other resident, through such factors as kinship, marriage, adoption, and co-participation in a range of activities, both within the community and outside.

Likewise, in most small Sui communities (Stanford 2007), the village appears to function as a tightly knit community based on close family relationships – an extremely dense and multiplex network. While there is surely some degree of social division and individual differences in network strength among village residents of such communities, the differences may be subtle enough that dense and multiplex daily community interactions override other individual distinctions, reducing network-related variability. However, beyond the level of the small village, such analytic techniques may be useful. For example, analysis of inter-village or inter-clan networks may provide meaningful sociolinguistic insights.

Exogamy

Exogamy is another sociolinguistic issue that is often prominent in small indigenous minority communities. When exogamy and associated in-migration patterns occur between close-knit communities, certain linguistic markers may be crucial as in-marrying spouses determine how to index their identities. Such sociolinguistic reflexes of exogamy are found among the Sui people (Stanford, this volume), Australian communities such as Nganhcara (Smith & Johnson 1986) and Arnhem Land (Bowern 2008), and among Hmong Daw/Mong Leng mixed marriages in the U.S. (Stanford 2008). Similar effects of exogamy are presumably at work in many other communities around the world as well.

Gender and sex

Quantitative variationist sociolinguistic research of indigenous minority languages also gives new insights into issues of gender, sex, and language. Classic principles (e.g., Labov 2001: 266, 275, 292; cf. Labov 1972, 1990; Trudgill 1972) may find support in some indigenous communities or be challenged in others, and other issues may be uncovered. Of course, gender roles are highly sensitive to (and constitutive of) differences in culture, so this is naturally an area of interest for variationist research of underrepresented communities. The following sketch of results serves as an initial comparison to those classic principles that have had an influential role in the variationist tradition. A fuller treatment on gender and

sex is far beyond the scope of this chapter, and countless other perspectives remain to be examined (cf. Holmes & Meyerhoff 2003).

A number of studies of indigenous languages support the notion that women are frequently leaders in changes from above and below, and that, in situations of stable variation, they have higher rates of prestige variants and less stigmatized variants than men (Labov 2001: 266, 275, 292). For example, in a study of negation marking in K'iche' of Guatemala, Romero (2008) shows that women are leading a change from below. Among Garifuna speakers of Belize, Ravindranath (forthcoming) finds that women are innovators in an increase in r-deletion. Clarke (this volume) reports that "like their counterparts elsewhere, Sheshatshiu women seem more attuned than men to the social symbolism encoded by linguistic features." A study of the Yami people of Taiwan (Rau, Chang, & Dong, this volume) finds that young Yami women are currently involved in vowel raising more than men, a feature which has become indexed with "positive social meaning."

However, results from other studies suggest more nuanced, culturally dependent effects. Among the Eastern Cham people of Vietnam, Brunelle (this volume) describes a situation where women's access to prestige is limited. Therefore, "since linguistic prestige is almost out of reach regardless of the efforts made, [Cham] women make little attempt to use H features in their Formal L speech." Romero's (this volume) study of K'iche' fricativization of intervocalic /l/ illustrates another case where lack of access has a significant effect. K'iche' women use a stigmatized variant more than men; K'iche' men use the stigmatized variant less frequently since they have had greater access to outside communities which have a negative view of that speech characteristic. In addition, Haddican (2003) reports a case where Basque men appear to be leading a change toward prestige forms. Such examples from understudied language communities illustrate the value of analyzing in "highly local terms" (Meyerhoff 1999: 233–234) for a particular society.

Majority language contact and age

In many indigenous language communities, intense contact with a majority language is a constant fact of life. Of course, contact has always been a key issue in the study of majority languages as well, but since many indigenous communities are politically and socially dominated by a nearby majority language, intrusive language contact issues are often acute. While some variationist studies of majority languages may be able to (heuristically) define a fairly homogeneous speech community for analysis within the bounds of a single language, language contact is often an unavoidable aspect of research in indigenous minority languages. Issues of contact with a majority language play a prominent role in the

studies in this volume of Mansi (Bíró & Sipőcz), Dene (Thiering), Frisian (van Bezooijen), Catalan (Carrera-Sabaté, Montoya-Abat), Chichimeco Jonaz (Lastra), Warlpiri (O'Shannessy), Peruvian Quechua (Pasquale), Northern Paiute (Babel), and Māori (Harlow et al.). Some of these studies also find a related age contrast; younger speakers are more influenced by the majority language, thus suggesting possible change in progress (e.g., Thiering, Lastra, O'Shannessy, and Brunelle). For example, Brunelle (this volume) finds that young Eastern Cham men are more likely to acquire prestige through the Vietnamese community while older men are more likely to use features of the H variety of Eastern Cham to achieve prestige. However, Brunelle's study also shows how a fine-grained quantitative variationist approach can challenge generalized assumptions about the influence of dominant languages; he determines that monosyllabization in Eastern Cham is primarily a matter of stable Cham-internal diglossia, rather than a change in progress due to direct influence of dominant Vietnamese.

While the issue of the influences of a majority language is commonly addressed in studies of language death and attrition (cf. Crystal 2000), many variationist sociolinguistic studies of majority languages have been able to view a speech community as an idealized, relatively isolated object with negligible contact effects from intrusive languages (e.g., classic studies such as Labov 1966; Trudgill 1974). Even when variationist research focuses specifically on language change, e.g., regional changes/vowel shifts in English, such research can often make the reasonable assumption that no dominant outside language is imposing catastrophic changes due to contact.[4] By contrast, variationist studies of indigenous minorities are more often than not faced with dramatic influences from socio-economically, politically, and/or culturally powerful majority languages in direct, intrusive contact with the language of study (e.g., indigenous minorities in North America). In many of the studies listed above, contact with a majority language is therefore a key factor to investigate with respect to language variation and change, thus showing another way that variationist research of indigenous minorities often differs from majority language research.

Internal linguistic factors

In addition to the social factors and language contact issues described above, indigenous minority languages may have further perspectives to provide due to the

4. External factors are often included as possible original sources, of course, and many studies also specifically look at the influence of contact with other varieties, such as the influence of African American English on other varieties of American English and vice versa.

structure of the languages themselves. Just as postvocalic /r/, *-in/-iŋ, -t/d* deletion, and other well-known sociolinguistic variables have played important roles in understanding how languages vary and change, less commonly studied variables of indigenous minority languages can be compared and contrasted with other languages. For example, fricativization of /l/ is not commonly investigated as a sociolinguistic variable, yet Romero (this volume) finds it to be a key social marker in K'iche'. O'Shannessy (this volume) finds ergative case-marking and word order to be significant variables in Warlpiri, and Brunelle (this volume) examines monosyllabization as a variable in Eastern Cham. Satyanath & Laskar (this volume) make use of variation in clitics and classifier marking to uncover issues of language and identity in Bishnupriya Manipuri.

On the other hand, some variables found in indigenous minority languages are similar to those of other variationist studies and can therefore be used for comparison. For example, Rau, Chang, & Dong's (this volume) study of the nuclei of (ay) and (aw) in Yami of Taiwan may be compared with Labov's study of similar diphthongs on Martha's Vineyard (1963). The vowel shifts investigated in Quichean Mayan (Léonard & Sucuc, this volume), Māori (Harlow, Keegan, King, Maclagan, & Watson, this volume), and Shoshoni (Di Paolo 2007; Di Paolo, James, & Sykes 2008), r-deletion in Garifuna (Ravindranath, forthcoming), and word-final deletion in Faetar (Nagy & Reynolds 1997) can also be considered in light of comparable processes in majority languages.

The studies in this collection

The chapters in the volume are organized around two general themes. In Part I we present articles that have a central focus on variation in phonetics and phonology. The studies in Part II include variation in syntax, morphology, and morphophonology.

Part I: Variation in phonetics and phonology

In Chapter 1, Molly Babel presents a study of intergenerational variation in sibilants and stop consonants in Northern Paiute (Western United States). She conducts two phonetic experiments on speakers of this highly endangered language, exploring categorical and gradient effects of sound change. Her sociophonetic analysis of three generations of speakers shows how obsolescing languages can undergo sound change both through substitution and through expansion of phonological categories.

Marc Brunelle investigates monosyllabization in Eastern Cham of Vietnam in Chapter 2. Rather than a change in progress due to the direct influence of Vietnamese, the presence of monosyllabized words is a case of stable variation among (quasi-)diglossic varieties of Eastern Cham: H, L, and a compromise variety, Formal L.

In Chapter 3, Josefina Carrera-Sabaté investigates Lleidatà, a western dialect of Catalan (Spain). Post-alveolar sibilants are realized variably in Catalan, with more affricates in western dialects than eastern. Using both production and perception data, Carrera-Sabaté determines that Lleidatà speakers are adjusting their pronunciation of sibilants toward the overt prestige of the written language and eastern dialects.

Sandra Clarke describes her research of the Innu settlement of Sheshatshiu, Labrador, Canada in Chapter 4. Through a study of phonological variation, Clarke determines that partial dialect convergence is occurring as Innu speakers from different regions interact in the new community, and she reports stratification and prestige differences. However, instead of socioeconomic stratification, Clarke finds a "covert hierarchy" organized according to territorial groups. Upward mobility with respect to territorial group membership is played out linguistically.

Māori (New Zealand) sound change is explored in Chapter 5 by Ray Harlow, Peter Keegan, Jeanette King, Margaret Maclagan, and Catherine Watson. The study examines Māori vowels, diphthongs, stops and /f/ across a 100-year timespan. Finding parallels with New Zealand English vowels and stops, the authors suggest that Māori vowel shifts and changes in stop aspiration are related to external influences from English as well as language-internal changes.

In Chapter 6, Yolanda Lastra investigates Jonaz Chichimec of Mexico, reporting on four changes in progress (merger of /ü/ and /i/, /g-/ > ø, /z-/ > /s-/, and /-cʔ/ > /-s/). She also analyzes a change in the classifier system; a classifier is changing from an earlier generic usage to a more specialized usage in younger generations and is now being substituted by another classifier.

The Quichean language Kaqchikel (Guatemala) is the topic of Chapter 7, where Jean Léo Léonard and Cecilio Tuyuc Sucuc describe variation and change through an acoustic sociophonetic study of tense/lax vowel contrasts. The authors model the Kaqchikel diasystem by means of the vowel shifts observed in the different individuals of their survey.

Brauli Montoya-Abat provides a study of Alicante Catalan (Spain) in Chapter 8. On the basis of reductions in the vowel system, reintroduction of /-ɾ/, and reductions in syllable codas, Montoya-Abat suggests that the dying language, Alicante Catalan, is converging with the dominant language, Spanish.

Chapter 9 brings us to Togo, West Africa, where Kossi Noglo researches Ewe as an example of language urbanization in an African setting. Noglo finds

language change and simplification among urban Ewe speakers with respect to bilabial fricatives, alveolar affricates, and reduplication. Significant independent variables include ethnicity, community (urban versus rural), and gender.

In Chapter 10, Michael Pasquale examines shifts in /ɪ/ and /ʊ/ in Peruvian Quechua. He finds raising of /ɪ/ and /ʊ/, especially among Spanish-dominant bilinguals, and suggests that the ongoing Quechua sound changes are due to contact between the two linguistic systems of Quechua and Spanish and also due to the social role of Spanish.

Following the tradition of Martha's Vineyard (Labov 1963), Chapter 11 is an island-based study of /ay/ and /aw/ conducted among the Yami people of Orchid Island, Taiwan by D. Victoria Rau, Hui-Huan Ann Chang, and Maa-Neu Dong. The authors determine that Yami diphthong raising has become a positive social marker on the island. Women are found to be leading this sound change, a situation which the authors link to changing social roles and opportunities for Yami women.

Sergio Romero presents a study of K'iche' (Western Guatemala) in Chapter 12, exploring the intervocalic fricativization of /l/ as a regional stereotype associated with Santa Maria Chiquimula township. Unlike other studies of stable sociolinguistic variation where women have been observed to avoid stigmatized forms (Labov 2001: 266), the men of this township use the stigmatized feature less than women. Romero suggests that the men are more sensitive to the stigmatization of this feature since they have more contact with other dialects.

In Chapter 13, Renée van Bezooijen brings us to Holland for a study of alveolar realizations of /r/ among West Frisian speakers. This alveolar variant of /r/ persists despite contact with the Dutch uvular and approximant variants of /r/. However, the author finds a uvular variant in Town Frisian, and she traces this variant to contact between elite urban speakers in the early 20th century.

Part II: Variation in syntax, morphology, and morphophonology

We begin this section with a visit to Russia in Chapter 14, where Bernadett Bíró and Katalin Sipőcz conduct a real-time study of Mansi language shift. The authors compare a corpus of 19th century texts with modern texts in order to trace grammatical changes in the passive and dual as well as lexical changes. They find evidence of significant changes in the passive and the lexicon, and smaller changes in the use of the dual.

Chapter 15 is a study of morphophonological variation in Scottish Gaelic. Using data from the Linguistic Survey of Scotland (approx. 1949–1960), Anna Bosch and James Scobbie investigate variation in nasal mutation. The study un-

covers new perspectives on Scottish Gaelic variation and illustrates both the value and challenges of applying prior fieldwork data to modern variationist research.

In Chapter 16, Miriam Meyerhoff examines corpora of Bislama and Tamambo (Vanuatu, South Pacific) to determine the influence of animacy in the variable presence/absence of a pronominal subject in a clause, the form of 3p agreement, and the presence/absence of pronominal objects. She uses the results to evaluate the role of substrate transfer (Tamambo to Bislama) and illlustrate the value of multivariate, quantitative analyses in such contact situations.

Naomi Nagy (Chapter 17) then explores the challenges of field research in less commonly studied languages and shows how a variationist approach can provide solutions. Drawing on her experiences with Faetar (Italy), she discusses five specific challenges and also develops the notion of a "sociogrammar," a way for the linguist to describe a language with as much attention to variability as possible.

Carmel O'Shannessy studies a Warlpiri community of northern Australia in Chapter 18, investigating different generations of speakers of Lajamanu Warlpiri and a newly emerging language, Light Warlpiri. O'Shannessy finds evidence of an ongoing, intergenerational shift in ergative marking in this complex language community.

We turn to India in Chapter 19, where Shobha Satyanath and Nazrin Laskar present a study of classifier clitic marking in Bishnupriya Manipuri. Analyzing variable NP structure in Bishnupriya, the authors conclude that post-nominal word order and pronominal clitics are used by Bishnupriyas as distinctive markers of linguistic and ethnic identity.

In Chapter 20, James Stanford presents a case study of clan dialects in Sui (China) in order to explore the significance of clan as a sociolinguistic variable among the Sui people and other clan-based societies. His chapter illustrates how clan can play a key role in the full range of contemporary variationist research objectives.

We conclude the collection with Martin Thiering's study of Dene Sųłiné (Chipewyan) of Canada in Chapter 21. Thiering investigates an ongoing loss of topological spatial relations in Dene Sųłiné, finding that the morphology of younger speakers includes only a restricted set of spatial morphemes compared to older speakers' more complex morphosyntax and semantic patterns.

Before moving on to the articles themselves, we would like to express our appreciation to the authors who generously provided the studies in this volume and other scholars who gave helpful insights or helped connect us to researchers as we developed the project, as well as comments on the manuscript given by students in James Stanford's spring 2008 course on "Sociolinguistics of Lesser Studied Languages" at Rice University, and other suggestions from Kevin Heffernan and Jonathan Evans.

Although a volume like this can only provide an introduction to the research being conducted around the world, we believe that the studies given here are representative of current trends in variationist research of indigenous minorities. This volume can then serve as a stimulus for increasing variationist attention to less commonly studied languages. We consider each study of an indigenous minority language to be a priceless gem. After all, though very rewarding, research on language variation and change in such communities can be challenging. For example, with only 15 remaining speakers, Mono Lake Northern Paiute (Babel, this volume) illustrates one of the practical challenges: lack of speakers. Even in more robust languages, research access is often limited due to sociopolitical sensitivities and, unfortunately, a long history of oppression by majority groups. Similarly, many close-knit, isolated communities require nurturing of extensive personal relationships before research is welcomed. Such circumstances, and the different means that researchers find to address them, make studies like those presented in this volume all the more valuable. Beyond gains in linguistic knowledge, we also find that the cross-cultural interaction implicit in such research can leave the researcher and the researched both deeply enriched.

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PART I

Variation in phonetics and phonology

CHAPTER 1

The phonetic and phonological effects of obsolescence in Northern Paiute[1]

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Structural changes in a language are considered nearly inevitable consequences of language death (Campbell & Muntzel 1989; Wolfram 2002). The literature on sound change in endangered languages has focused on whether the changes are internally or externally motivated and, therefore, the difference between categorical sound shifts and gradient phonetic effects has been overlooked. This paper discusses sound change in Northern Paiute through two experiments that investigate the difference between categorical changes in the phonological inventory and subphonemic variation within a category. The paper argues that sound change in obsolescing languages may take one of two predictable paths: substitution or approximation/expansion of phonological categories in the moribund language.

1. Introduction

The literature on sound change in endangered languages has largely focused on whether the changes are internally or externally motivated (cf. Campbell & Muntzel 1989; Woolard 1989; Dorian 1993; among others). This has left the differences between categorical phonological shifts (e.g., /p^h/ shifting to /f/) and gradient phonetic effects (e.g., the expansion of the category aspirated voiceless bilabial stop to include productions with increasingly shorter voice onset times) largely overlooked. The distinction between the two paths of sound change is critical as

1. Thank you to Grace Dick, Leona Dick, Morris Jack, Elaine Lundy, Edith McCann, and Madeline Stevens for sharing your language with me. I am also appreciative of Andrew Garrett, Leanne Hinton, Keith Johnson, Anne Pycha, Reiko Kataoka, and Charles Chang who have provided me with helpful comments that have improved this paper immeasurably. My gratitude also goes out to my fellow Western Numicists: Michael Houser, Maziar Toosarvandani, and Timothy Thornes. This research was supported by funds from The Survey of California and Other Indian Languages from UC Berkeley.

categorical shifts can obliterate phonological contrasts that are present in the traditional, pre-contact varieties of obsolescing languages. Gradient phonetic effects, however, may have minimal impact on the native structure of the language. In a recent paper, Yu (2008) demonstrated that subphonemic changes occur in Washo, a moribund language, without neutralizing any phonological contrasts. Yu compared the quantity alternation patterns of Washo speakers recorded in the 1950s and 1960s to individuals who are in their seventies today. He measured the tonic vowels and post-tonic consonants to examine whether the pattern had atrophied along with the community's language loss. While he concludes that the young generation has maintained the pattern found in the older speakers, Yu found that the contemporary generation of speakers had a less distinct category boundary between short and long consonants, and that overall the younger generation had shorter post-tonic consonant closure durations than the older generation.

There is little doubt that moribund languages experience changes of a type or at a pace unlike more viable languages (Campbell & Muntzel 1989; Wolfram 2002). Obsolescing languages are in contact with other more dominant languages, and community shifts to a dominant language can have devastating effects on the linguistic structures of the language. This observation stands in contrast to traditional views of sound change which often consider it a gradual internal process where the phonetic realization of a phonological category is subtly altered until it enters new phonological space.

The purpose of this paper is to determine the relationship between the subphonemic and phonological inventory effects of moribundity on Northern Paiute, a Western Numic language. I examine the maintenance of a three-way lenis/fortis contrast in the consonant inventory using acoustic data from three generations of Northern Paiute speakers. A change in place of articulation of the coronal sibilant is investigated using production data from two generations. I argue that these two sound changes are taking distinctly different paths of approximation/expansion through subphonemic variation and transfer through a categorical shift in place of articulation, respectively.

The paper is structured as follows. Section 2 provides previous descriptions of sound change in endangered languages along with background to the traditional internally- versus externally-motivated dichotomy these authors originally presented. I argue that while this distinction is important, it is also interesting to examine sound changes in terms of subphonemic variation and categorical changes. The Northern Paiute communities, the speakers, and their socio-cultural dynamic are presented in Section 3. The experiments investigating the lenis/fortis contrast and sibilant change are reported in Sections 4 and 5, respectively. The paper concludes with a broader prediction of the paths toward sound change in moribund languages.

2. Sound change and language loss

The number of investigations describing sound change in endangered languages is rather limited. Moreover, the descriptions are primarily phonological in nature, which means they inherently cover categorical changes. Andersen (1982) makes predictions about the types of phonological reduction expected in speakers who are undergoing linguistic attrition compared to the speech of a monolingual or dominant speaker of the same language. Speakers of an obsolescing language are expected to make fewer phonological distinctions, yet maintain phonological distinctions in the endangered language that also exist in the dominant language; phonological distinctions with a low functional load are to be lost prior to those with a high functional load (p. 95). Thus, according to Anderson, phonological distinctions will be maintained if identical patterns exist in the dominant language or if the distinctions carry a high functional load.

Campbell & Muntzel (1989: 186–188) cite Andersen's predictions and claim that few linguists would disagree with them, providing several examples from Campbell's own work to support Andersen's predictions. For example, they recount the loss of vowel length contrasts, the merger of /ts/ and /s/, and the elimination of voiceless continuants in dialects of Pipil (Southern Uto-Aztecan) that are highly endangered (Campbell & Muntzel 1989: 186–187; citing Campbell 1985). Similarly, Tuxtla Chico Mam (Mamean; Mayan), a language described as being nearly extinct, has merged /q/ with /k/ (Campbell & Muntzel 1989: 186; citing Campbell 1988).

As mentioned above, the debate within this literature has often been centered on the motivations for these sound changes. Campbell & Muntzel argue that Andersen's use of the word 'distinctions' leaves the burden of changes in an obsolescing language on external motivations. They prefer the term 'unmarked,' arguing that the structural changes pervasive in obsolescing languages include the "overgeneralization of unmarked features." Using markedness as the selectional criteria crucially keeps language change in obsolescing languages as an internal process (Campbell & Muntzel 1989: 188). The authors present several cases of the overgeneralization of marked features in attriting languages. In these cases phonological features present in the obsolescing language that are absent in the dominant language are amplified. For example, Jumaytepeque Xinca (a linguistic isolate) has glottalized consonants in certain morphological environments; however, one of the last speakers produced every consonant with glottalization. Speakers of Guazacapan Xinca (a linguistic isolate) are also noted to have glottalized in excess (Campbell & Muntzel 1989: 189). In Teotepeque Pipil devoiced /l/s have been overgeneralized to occur in all positions, not just word-finally (Campbell & Muntzel 1989: 189; citing Campbell 1985). These patterns, argue Campbell and

Muntzel, are internal and arise from "imperfect learning of the moribund language and have nothing to do with Spanish" (p. 198).

Cook (1989) and Miller (1971) have also argued for more internal motivations for sound change in obsolescing languages. Phonological variation in two indigenous languages of Canada is described by Cook. He presents evidence for categorical sound changes in Chipewyan and Sarcee (both Athabaskan languages) that are not regular across the speech community. Rather than interpreting this sound change as an incomplete transfer process, he says the changes cannot be "attributable to a particular age group, community, or style." Miller (1971) examined the effect of language atrophy on phonological changes in Shoshoni. Shoshoni is a Central Numic language closely related to Northern Paiute spoken in the Great Basin. Miller reports that the linguistic differences between the younger and older speakers are vast, illustrating changes in both vowels and consonants. For example, four processes can affect Shoshoni medial consonants: spirantization, gemination, preaspiration, and prenasalization. Younger speakers tend to substitute one process for another, or spirantization is simply adopted as the default since it is the most frequent process in Shoshoni (Miller 1971: 119).

On the other hand, Woolard (1989) argues against Campbell & Muntzel's view of change in moribund languages as internally motivated. Woolard claims that the hyper-glottalized consonants in Xinca described in Campbell & Muntzel (1989) are, in fact, externally motivated. The fact that Spanish does not have glottalized consonants in its inventory has motivated the overgeneralization of the feature in Xinca (p. 363). Descriptions of the changes in Dyirbal and K^{w}ak$^{\hat{r}w}$ala discussed below are also presented as externally motivated changes by Schmidt (1985) and Goodfellow (2005), respectively. Schmidt describes language change across generations in Dyirbal (Pama-Nyungan) as a function of proficiency in the dominant language of the area, Australian English. She describes the modifications made to the grammar of Dyirbal by younger speakers who have increased usage of English compared to older generations. Schmidt (1985: 191) assumes that "instances of phonological interference in [Young Dyirbal] pronunciation" are the result of "differences between English and [Traditional Dyirbal] sound systems." In other words, they are externally motivated.

A more recent description of the effects of language obsolescence on a moribund language is given by Goodfellow (2005). Goodfellow's investigation of the K^{w}ak$^{\hat{r}w}$ala-speaking (Wakashan) people of British Columbia explores the changes in the language as a result of influence from English (p. 3). Goodfellow considers the changes attributable to K^{w}ak$^{\hat{r}w}$ala contact with English in comparison to internally driven phenomena. She describes the youngest speaking generation as using fewer phonological distinctions and "bas[ing] more consonants on the English distinctions" (2005: 134). These phonological changes all affect consonants that are

not present in the English phonemic inventory. Changes include loss of word-medial glottal stop and the frequent loss of glottalization in consonants resulting in phonological neutralization in all but the eldest generation (p. 135). One particularly interesting loss for the youngest generation is that of the uvular series. Most young speakers substitute a velar for the uvular sound, merging two series of dorsal stops. Yet, the young generation remains mindful of the palatalization rule, whereby a velar palatalizes when preceding a vowel. Young speakers still follow this rule, but only when the velar is an underlying velar and not the velar used in place of a uvular (p. 135–136). This suggests there has been no degradation to their abstract knowledge of phonological rules in even the youngest K^{w}ak^{ʔw}ala speakers.

Dorian (1993: 135) expresses doubts over the distinction between internally and externally motivated changes in a situation of language contact. She warns that changes converging toward a dominant language are not always due to external factors and divergent changes are not always internal. In her description of East Sutherland Gaelic, an endangered language spoken in Scotland, Dorian (1978: 35) claims that while English lexical borrowings are commonplace, the language "retains its structural integrity for the most part, and the amount of interference in the individual bilingual's speech is only small to moderate, although varying to be sure from individual to individual and setting to setting." Still, Dorian documents two sound changes – a subphonemic change and a categorical change – across young and old generations of speakers. She reports that young speakers do not nasalize phonemically nasalized vowels as strongly as older speakers, although no speakers are said to have lost the contrast altogether (p. 58). Also, Dorian describes young speakers as "probably" showing influence from English when they replace /ɲ/ with [ŋ] and /ç/ with [x] (the latter is a feature of Scottish varieties of English). Younger speakers also often substitute [ɹ] or [l] for /ɬ/ (p. 174).

It has been difficult for researchers to conclusively determine whether convergent or divergent changes in obsolescing languages have been due to exclusively internal or external motivations. It is clear, however, that categorical changes, the loss of allophones, and subphonemic variation are all characteristics of sound change in obsolescing languages. Moreover, Andersen's predictions are not always successful; for example, word-initial /ŋ/ in Young Dyirbal is retained (Schmidt 1985) and abstract phonological knowledge is maintained. However, categorical changes involving the transfer of a dominant language phoneme for an obsolescing language phoneme are particularly common, and in many cases (e.g., K^{w}ak^{ʔw}ala) the transfer is not complete and sounds are able to surface in a variety of distinct forms. The extent to which similar phonological changes have occurred in Northern Paiute are considered through instrumental phonetic investigations below.

The literature on dialect contact and dialect change can inform our understanding of changes in obsolescing languages. For example, expansion is a term used by Labov (1994: 321–323) to describe the increased category size of a sound. Under expansion, a sound can encroach on the phonetic space of another phoneme or it can increase its own phonetic space to intensify a difference between two given sounds. Similarly, Trudgill & Foxcroft (1978) introduce approximation and transfer as two paths toward sound change to account for two different types of vowel mergers. Approximation occurs when two phonologically distinct vowels shift in the direction of each other until they are acoustically indistinct. Sound changes involving approximation are comprised of imperceptible subphonemic changes prior to the completion of the change. A phonological category is transferred when one phonological category is adopted and implemented into a lexical item as a form of lexical diffusion until it completely replaces the previously existing category. Approximation and expansion share an underlying path of gradient, subphonemic variation. They can, therefore, be classified together into a single sound change route. Conversely, transfer assumes that the sound change was a categorical shift or an articulatory leap. In the language contact literature, transfer is analogous to substitution where a phoneme from one language replaces a phoneme in another either in one phonological environment or all together (Weinreich 1953; Thomason & Kaufman 1988). Both transfer and approximation/expansion affect the phonological profile of a language, but in very different ways. Approximation can result in the formation or loss of phonological categories. One sound can gradually approximate another such that only one phonological slot is vacated while the other joins a phonological category, or two sounds can come to reside in a novel acoustic space leaving the two original phonological spaces empty. Transfer can potentially involve an articulatory leap within a phonological system whereby one sound suddenly shares an acoustic space and category boundary with another, thereby obliterating a contrast. This terminology will be adopted below in the discussion of sound change in Northern Paiute.

3. Northern Paiute

Northern Paiute territory extends from eastern Oregon across into the western corner of Idaho, south in western Nevada and into pockets of the Sierra Nevada along the spine of eastern California. Data from two communities are used in the investigations to follow: Mono Lake Northern Paiute (MLNP) and Carson Desert Northern Paiute (CDNP). MLNP and CDNP are members of the southern dialect category of Northern Paiute (Liljeblad 1966; Nichols 1974). These two dialects are not identical, but, crucially, they share a feature that distinguishes the southern

dialects of Northern Paiute from the northern dialects: the three-way contrast in consonant type. This feature is discussed in more detail in Section 4.

MLNP is a severely endangered dialect of Northern Paiute with 15 or fewer speakers (author's field notes). All of the remaining speakers are middle-aged and beyond. MLNP has been undergoing what Campbell & Muntzel (1989: 185) term "gradual language death." Such cases of language death are characterized by a generational shift to the dominant language that is accompanied by a period of bilingualism. This type of language obsolescence situation is typified by a proficiency continuum that correlates primarily with age.

CDNP is a dialect of Northern Paiute originally spoken east of Reno, Nevada in the Carson Desert. The language data from CDNP come from archived field recordings made in the early 1950s (Steve & Wheat 1950–1952). It has been estimated that up to 25 speakers of this dialect still exist; the proficiency of these speakers is said to vary considerably (Fowler, personal communication).

3.1 Consultants

Autobiographies of MLNP speakers shared during fieldwork sessions suggest the shift to English is quite recent. Table 1 presents the birth years of the consultants who participated in the experiments. All of the consultants are women. MLNP consultants B2 and B3 were monolingual until they began attending school. The eldest MLNP consultant, B1, learned English early in her youth along with MLNP from an English-speaking relative. C1 is the youngest MLNP speaker. Older siblings introduced English into C1's home by the time she was born. MLNP was C1's first language, but schooling and the cultural climate have dictated that English has been her dominant language through life.

The last remaining individual, A1, was a consultant in the early 1950s for Margaret Wheat. The Berkeley Language Center was able to provide high-quality digital recordings collected by Steve and Wheat (1950–1952). These recordings

Table 1. Subjects. The subjects' initials appear in the Subject column; Date of birth refers to the year the speaker was born; Dialect refers to the dialect of Northern Paiute the subject spoke or speaks.

Subject	Date of birth	Dialect
A1	1876	Carson Desert Northern Paiute
B1	1921	Mono Lake Northern Paiute
B2	1925	Mono Lake Northern Paiute
B3	1932	Mono Lake Northern Paiute
C1	1953	Mono Lake Northern Paiute

provide the earliest recordings of Northern Paiute from the area. A1 was a speaker of CDNP. She lived in the areas of Fallon and Stillwater, Nevada in the Carson Desert for the course of her life.

The consultants in Table 1 can be easily divided into three generations based on date of birth: Generation A consisting of A1; Generation B composed of B1, B2, and B3; and, Generation C which is limited to C1. With these three generations, I will compare how the language has changed in terms of the phonetic realizations of the lenis/fortis contrast as reliance on English has increased in the lives of Northern Paiutes. The investigation of sibilant place of articulation is relegated to the two extant generations of speakers.

4. Investigation 1: Lenis/fortis contrast

MLNP and CDNP make a three-way contrast within stops and affricates. Oral obstruents are contrasted as lenis, voiced fortis, and fortis, while nasal obstruents are distinguished by lenis and fortis categories. Table 2 illustrates the consonant inventory of MLNP and CDNP with the community orthography designed for MLNP. For the nasals, double consonants indicate a fortis consonant, while the single consonants are lenis. In the stop series, a single voiceless stop represents the fortis category, a doubled voiced consonant indicates the voiced fortis category, and a single voiced stop marks the lenis category. What differentiates these categories acoustically is discussed below. The three-way contrast is manifested word-medially and at conditioned morpheme boundaries; in word-initial position, contrasts are neutralized to fortis.

In Western Numic, Nichols describes careful speech as preserving a greater distinction between the lenis and fortis categories. He notes, nonetheless, that the auditory differences between the lenis and fortis categories are minimal (Nichols 1974: 31–32). Thornes (2003) differentiates the lenis and fortis contrast of Oregon Northern Paiute in terms of the strength of articulation. Fortis consonants

Table 2. Consonant inventory of MLNP and CDNP.*

	Bilabial	Alveolar	Post-alveolar	Velar	Labiovelar	Glottal
Plosive	p bb b	t dd d		k gg g	kw ggw gw	ʻ
Nasal	mm m	nn n		*ŋŋ ŋ*		
Fricative			s			h
Affricate		ts ddz dz				
Glide			j		w	

* Those consonants in italics are sounds found only in CDNP.

are produced with a "full and forceful occlusion" of the articulators, whereas in the production of lenis consonants, the articulators are slack (Thornes 2003:28). These impressionistic claims about the fortis and lenis categories have been made by Nichols and Thornes without the benefit of investigating acoustic phonetic data. The current investigation will help determine the phonetic realizations of the phonemic differences between these categories and the clarity of their category boundaries. The next section outlines the investigation I conducted to determine the robustness of the phonetic cues of the lenis/fortis contrast in MLNP and to examine how the contrast has fared in contact with English across three generations of speakers.

4.1 The meaning of the labels lenis and fortis

Lenis and fortis are poorly defined descriptive terms that are often misapplied to contrasts. According to Ladefoged & Maddieson (1997:95–98), fortis can refer to the increase of respiratory energy or to the increase of articulatory energy. Lenis means a decrease in the amount of energy exuded by the speaker. The increased output of energy associated with a fortis consonant can correlate with increased oral pressure and increased closure duration. They also report that lenis consonants have more variation in closure type, which explains the large number of fricative allophones that are paired with the lenis oral stops in Northern Paiute. In order to determine the best acoustic correlates of the contrast and to explore the potential generational differences, several acoustic measurements were taken, as described in the methods section below.

4.2 Methodology

A wordlist containing the lenis, voiced fortis, fortis stop consonant types at all places of articulation was compiled. Also included in the wordlist were the lenis and fortis nasal sets. A minimum of five words from each phoneme category was included in the list. The wordlist for the MLNP speakers was elicited in a single fieldwork session. Present at the session were B1, B2, B3, and C1. Upon their turn, speakers were instructed to say the word three times. The recordings were made on a Marantz PMD670 solid-state recorder using a dynamic Shure microphone. The microphone was held by a fieldworker approximately four inches from the speaker's mouth. The words used from A1 were not as systematic as those from Generations B and C. The A1 data are from archived field recordings, elicited over half a century ago. Some of the lexical items differed from those of MLNP for dialectal reasons.

Initial impressions of the MLNP recordings showed that some tokens, particularly members of the voiced fortis series, had both significant voicing throughout the closure and a burst release. It was determined that three measurements would be taken: consonant closure, release, and percent of the closure that had visible vocal fold pulses (percent voiced). Closure duration was defined as the offset of a high amplitude vowel portion until the burst release or the onset of the following vowel. In the cases where the lenis consonant was lenited to the point of frication, the closure duration was measured as the offset of the preceding vowel to the onset of the following vowel. For tokens with a visible release in the MLNP data, the feature was measured from the burst of the stop release to the commencement of vocal fold vibration for the following vowel. Quality was an issue with the CDNP recordings due to background noise and poor recording equipment. It was determined that the only reliable method of examining the contrast in CDNP was to label the consonants in a single total duration, combining the closure and release durations into one label.

All vowels and intervocalic consonants were labeled in Wavesurfer (Sjölander & Beskow 2005) by the author. Duration values were extracted from the label files and statistical analyses were executed on those values. Nasal durations and vowel formants were also labeled and extracted, but they are not discussed in this paper. A number of outliers were removed from the A1 labels. These were likely due to human error in the labeling process.

4.3 Analysis and results

Since a generation variable would be conflated with speaker in a repeated measures ANOVA with the entire data set, separate analyses were conducted for each speaker for each of the acoustic measurements. A1's data set was only included in the analysis for total duration for the reasons specified above.

Total duration. The first round of ANOVAs for the stop series included total consonant duration (closure duration + release duration) as the dependent variable to create a set of comparisons to Generation A. Consonant category (fortis, voiced fortis, and lenis) was the independent factor for each speaker's ANOVA. All speakers showed a significant effect of consonant category on total consonant duration: A1 ($F[2, 241] = 471$, $p < 0.001$); B1 ($F[2, 204] = 480$, $p < 0.001$); B2 ($F[2, 208] = 365$, $p < 0.001$); B3 ($F[2, 183] = 283$, $p < 0.001$); and C1 ($F[2, 209] = 281$, $p < 0.001$). Post-hoc Tukey's tests revealed that all speakers distinguished between each category when paired with another ($p < 0.001$). Mean total duration values are shown in Figure 1.

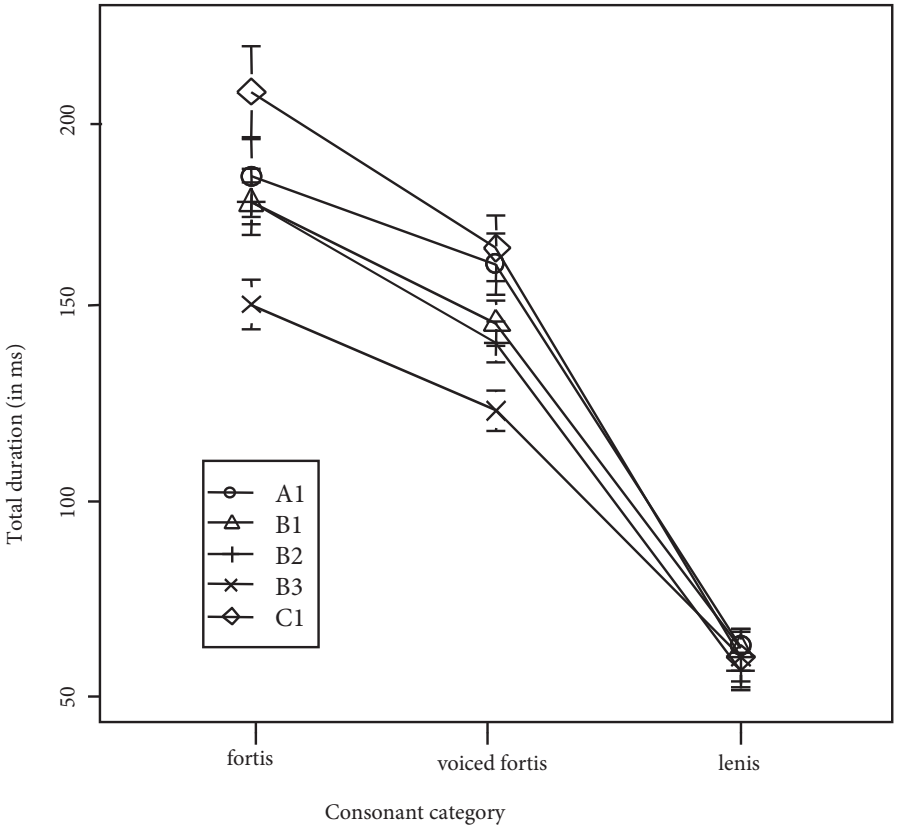

Figure 1. Mean total duration (closure + release) of stop consonants for Generations A, B, and C. The error bars represent a 95% confidence interval.

Closure duration. A second series of ANOVAs was implemented for the analysis using closure duration as the dependent variable. Speakers B1, B2, and C1 had effects of consonant category: B1 (F[2, 204] = 288, $p < 0.001$); B2 (F[2, 208] = 284, $p < 0.001$); and C1 (F[2, 209] = 165, $p < 0.001$). Post-hoc tests found differences between all three categories for these speakers ($p < 0.001$). B3 also had an effect of consonant category (F[2, 183] = 136, $p < 0.001$). Post-hoc testing revealed that while significant differences were made between lenis/fortis and lenis/voiced fortis pairs (p <0.001), the difference between fortis/voiced fortis pairs was just beyond the level of significance (p=0.07) for B3. Speakers' mean closure duration values are presented in Figure 2.

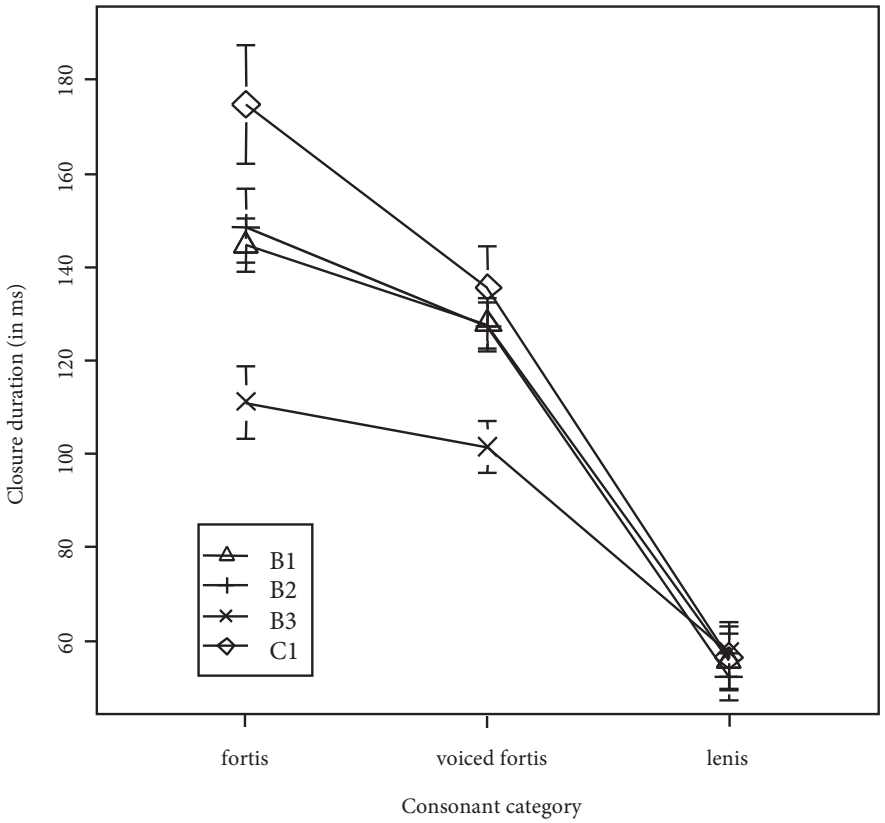

Figure 2. Mean closure duration of stop consonants for Generations B and C. The error bars represent a 95% confidence interval

Release. ANOVAs were submitted with the release duration as the dependent variable and the consonant categories as the independent variable. Main effects were found for all of the speakers: B1 (F[2, 205] = 92, $p < 0.001$); B2 (F[2, 208] = 122, $p < 0.001$); B3 (F[2, 183] = 134, $p < 0.001$); and C1 (F[2, 209] = 85, $p < 0.001$). All speakers in Generation B reliably differentiated the consonant categories with release duration ($p < 0.001$). C1 distinguished lenis/voiced fortis and lenis/fortis (p <0.001), but had insignificant results for fortis/voiced fortis pairs. Mean release duration values are plotted in Figure 3.

Percent voiced. The final series of ANOVAs was submitted with the percent voiced data as the dependent variable. B1 and C1 had main effects of percent voiced (B1: F[2, 204] = 92, p <0.001; C1 F[2, 209] = 173, $p < 0.001$) and produced reliable differences between all category comparisons ($p < 0.001$). While B2 also had an effect of percent voiced (F[2, 208] = 322, p <0.001), and she voiced lenis/fortis

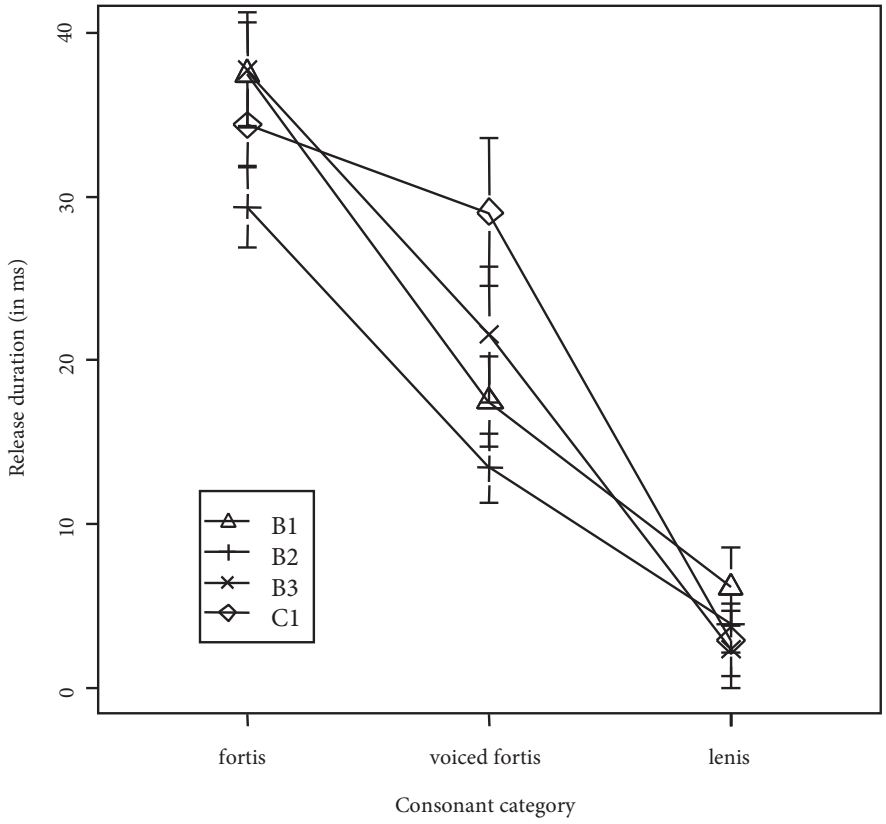

Figure 3. Mean release duration of stop consonants for Generations B and C. The error bars represent a 95% confidence interval

and fortis/voiced fortis pairs differently ($p < 0.001$), there was no difference in her degree of voicing lenis and voiced fortis stops. B3's ANOVA returned significant ($F[2, 183] = 391$, $p < 0.001$); she voiced lenis/fortis and fortis/voiced fortis pairs significantly differently ($p < 0.001$), as well as lenis/voiced fortis categories ($p < 0.05$). Figure 4 presents the mean percent voiced values for the speakers.

Standard deviations were calculated for closure duration, release duration, and percent voiced. A high standard deviation implies that a speaker did not produce a consonantal category with consistent closure duration. Standard deviation values for the release and percent voiced data did not vary much across speakers. Closure duration standard deviations, however, illustrated that the productions of C1 were much more variable, as indicated in Table 3.

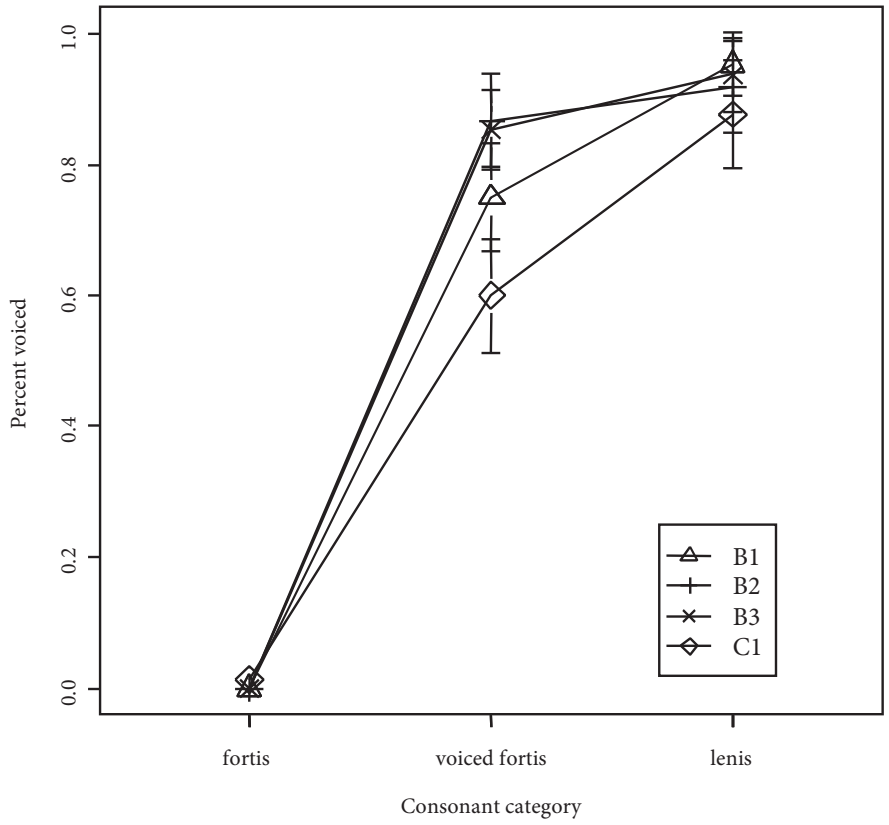

Figure 4. Mean percent voiced value of stop consonants for Generations B and C. The error bars represent a 95% confidence interval

Table 3. Standard deviations of closure duration for speakers in Generations B and C

Closure duration standard deviations (in milliseconds)	
B1	44
B2	47
B3	36
C1	63

4.4 Discussion

The data set presented above illustrates that all speakers of MLNP in Generations B and C are maintaining the contrasts between the lenis, voiced fortis, and fortis categories using a combination of phonetic features. Closure and release duration

cue the difference between lenis and the fortis categories, while voicing distinguishes the fortis from the voiced fortis category. The contrast for Generation A appears to be distinguishable based on the total duration measure.

For C1, three additional facts need to be noted. Despite the overall maintenance of her consonant categories, there is a general increase in closure duration that distances her average value from that of other speakers, perhaps as an attempt to increase its distinctiveness compared to American English voiceless stops. Second, this expansion of the closure duration feature is accompanied by increased variation in production. Lastly, there is also the possible interpretation of both fortis categories as aspirated American English stops; the release duration values of C1's fortis and voiced fortis categories both lie above the threshold for the English voicing contrast. The distribution of the data does not indicate a categorical shift to the American English category, but rather suggests the approximation of the release gestures for the fortis and voiced fortis categories. These findings support the assertion made in Campbell & Muntzel (1989) in which the authors predict that variability in production increases as a function of the level of language obsolescence. C1, as the youngest speaker, has used MLNP less than other speakers of earlier generations. Yu (2008) had similar results with his data from Washo. The extant speakers maintain the phonological patterns of the deceased generation, but the categories were less distinct for the extant speakers. This trend suggests that, perhaps, ultimate generations of speakers of obsolescing languages may not necessarily lose contrasts, but exhibit increased subphonemic variation, causing the category boundaries to become less discrete due to decreased usage frequency.

This experiment illustrated the robustness of the categories for the three-way consonant contrast in MLNP and CDNP. While increased variation in consonant closure durations, expansion of the fortis closure duration, and approximation of fortis and voiced fortis release durations was found in the youngest speaker of the language, the categories remained distinct. This finding along with Yu (2008) suggests that increased subphonemic variation without neutralizing phonological contrasts is a symptom of language atrophy.

The next experiment investigates a change in the place of articulation for the sibilant in Generations B and C. I argue that this sibilant sound change is following a different path.

5. Investigation 2: Sibilants

All dialects of Northern Paiute have a coronal sibilant. The place of articulation for this sibilant has been described in a variety of ways. Thornes (2003: 31) states that the place of articulation for the coronal sibilant in Oregon Northern Paiute

is between the alveolum and the alveo-palatal region. He also describes a phonological rule in Northern Paiute, whereby the fricative palatalizes in the context of [i], that reveals some variation between generations of speakers. For example, older speakers typically use what Thornes transcribes as retroflexed sibilant [piṣa] 'good, well', whereas younger speakers pronounce the same word [piʃa] (Thornes 2003: 39). According to Thornes, this division between younger and older speakers lies between the ages of 65 and 70 years.

Following Liljeblad (1966: 4), the sibilant can be articulated in several places by different parts of the tongue, ranging from apico-dental, apico-supra-dental, apico-alveo-dental, and lamino-pre-palatal. The apico-dental and apico-supra-dental tokens are recorded, however, only from bilingual Paiute-English speakers who use English as their everyday form of communication. Liljeblad continues to state that there is "no lamino-alveolar articulation in Northern Paiute as spoken by monolingual or, on the whole, elderly persons. Thus, there is an approximation but no strict phonetic equivalent to English [š]" (Liljeblad 1966: 5).

Interestingly, both linguists describe younger, bilingual speakers as producing the sibilant in ways that distinguish their production from older generations of speakers with younger speakers approximating English categories. Experiment 2 has two goals: the first goal is to determine the generational differences in the production of the sibilant, and the second goal is to understand the variable nature of the palatalization rule.

5.1 Methodology

Since the question at hand was articulatory in nature, the appropriate method of investigation was static palatography and linguagrams.[2]

The words used for this investigation are shown in (1)–(3). Speakers from Generation B produced each word once for the palatograms. The speaker from Generation C produced each word twice, as both linguagrams and palatograms were attained from her. These particular words were selected so as to determine the reflex of the sibilant palatalization rule discussed above; (1) and (3) evaluate this rule, and (2) was selected as a means of determining the default place of articulation in MLNP.

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2. The palatograms and linguagrams were taken by creating a mixture of four parts carbon powder to one part cocoa powder and enough olive oil to create a thick paint-like substance. The mixture was applied to either the tongue or the palate using a small brush. After the production of each word, a picture was taken and the consultant washed out her mouth to prepare herself for the next token.

(1) *pisa* 'good, well'
(2) *saa* 'fry, cook'
(3) *sii* a variety of wild onion

Three consultants participated in this experiment: two individuals from Generation B (B1 and B2) and the single individual from Generation C (C1).

5.2 Results and analysis

The palatography results for C1 illustrate that her default place of articulation for the MLNP sibilant is laminal dental, as shown in her production of *saa* in the bottom row of Figure 6. The laminal part of her tongue is making contact with the central incisor and the apex of the tongue is, presumably, braced against the bottom teeth. This is a common production of the American English /s/ (Shadle 1991; Dart 1991; Ladefoged & Maddieson 1997). It appears that she palatalizes her MLNP sibilant variably in the general environment of /i/. In the palatograms (Figure 6) for *pisa* the tongue contacts the palate near the lateral incisor and curves inward. The production for *sii* looks more like that of *saa*. However, for the linguagrams in Figure 5, *sii* and *pisa* are produced with more similar articulations. The linguagrams here illustrate that in the two palatalized contexts the tongue is deeply grooved. This is apparent from the strip down the middle of the tongue where there is no paint, typical of the production for American English /ʃ/ (Ladefoged & Maddieson 1997: 148–149).

For B2 we see the same articulation pattern for *saa* and *sii*, as shown in Figure 6, top row. In these productions the tongue remains in contact with the palate until the canine. The tongue appears to curl in behind the alveolar ridge, but we see no evidence of apical lingual contact. We only find palatalization in *pisa*, and here we see lingual contact terminating at the first bicuspid. In the production of *pisa*, the width of contact is also greater.

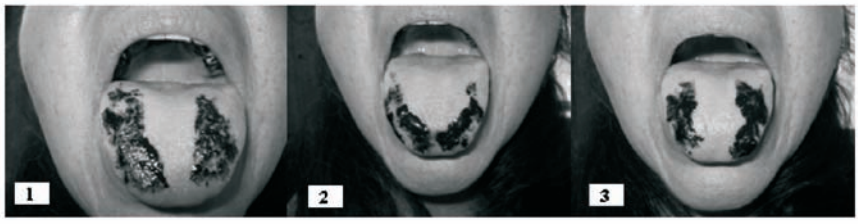

Figure 5. C1's linguagram for pisa (1), saa (2), and sii (3). The black substance on her tongue shows the part of the tongue that contacted her palate

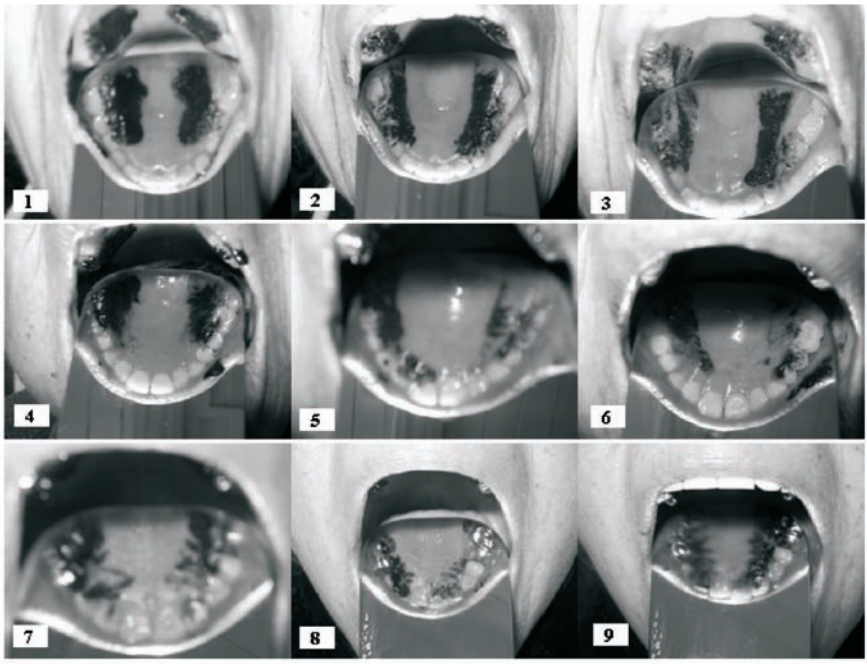

Figure 6. Palatograms. Top row: B2 pisa (1), saa (2), and sii (3); Middle row: B1 pisa (4), *saa* (5), and *sii* (6); and, Bottom row: C1 *pisa* (7), *saa* (8), and *sii* (9). The black substance on their palates demonstrates what part was contacted by their tongues. A mirror has been inserted to reflect the view of the palate in each case

In the palatograms attained from B1 (Figure 6, middle row), lingual contact generally ends on the vicinity of the canine. This pattern holds for both *saa* and *sii*. On the left side of the image it appears the tongue made slight contact on the central incisor. In the palatalized environment, B1 creates lingual contact until the bicuspid. Also, as in the production of *pisa* for B2, the tongue contact is wider.

5.3 Discussion

Articulatory descriptions of the productions of the sibilant by the older generation following the palatograms closely follows Liljeblad's description of the sound as a laminal pre-palatal. This place of articulation for the sibilants in Generation B is a palatalized alveolo-palatal fricative, akin to the Mandarin Chinese and Polish fricatives symbolized by the IPA symbol /ɕ/, but with a retroflexed tongue position. The palatalized version of this sound in MLNP following the high front vowel /i/ is a version of /ɕ/ with increased lingual contact and an articulation that

is placed further back in the mouth. Conversely, C1's sibilants appear to be articulated as typical American English productions of /s/ and /ʃ/. Following Thornes (2003) and Liljeblad (1966), this is predicted for a speaker her age. As mentioned above, both Thornes and Liljeblad report younger speakers producing the sibilant in a place different from the place where it is produced by elders.

Hamann (2003: 94–106) describes a tendency for languages to avoid retroflexed consonants after /i/ for a combination of perceptual and production reasons. Acoustic cues for retroflexion are stronger in a VC sequence than in an CV sequence, but these stronger cues are masked by the difficulty in producing a high front vowel before a retroflexed segment. Retroflexion is articulatorily defined as a backed, bunched tongue, an articulatory position that results in an extremely low F2. A principal characteristic of the high front vowel is its extremely high F2. In order to facilitate articulation, the retroflex loses its bunched tongue position and palatalizes, approximating an articulatory position that will much more readily produce the high F2 of /i/. This common pattern motivates the palatalization of /ɕ/ in B1 and B2. Because C1 has shifted the sibilant place of articulation, these phonetic motivations no longer underlie her phonological rule. Instead, she is free to palatalize her sibilant in any /i/ environment. She does so variably in the static palatography and linguagraphy data presented here. Moreover, after consulting field recordings, it is clear that C1's sibilant productions after /i/ are not always palatalized. This falls nicely in line with data from her peer-group of Oregon Northern Paiute speakers. Thornes (personal communication) describes younger speakers who use Anglicized fricatives *occasionally* palatalizing in pre-/i/ environments.

It is important to note that this change causes no ill effect for the intelligibility of the language as no phonological contrast is neutralized. Such a change is rather common in contact-induced changes and is included in the Thomason and Kaufman's (1988: 75) typology of contact induced structural effects. In cases of intense contact, phonological borrowing includes the phonemicization of allophonic alternations. C1 appears to be doing something similar; in her shift from /ɕ/ to /s/, she has adopted a phoneme from English to serve as her MLNP sibilant, and she has further recruited the phoneme /ʃ/ from English to serve as the MLNP allophone. The maintenance of abstract phonological knowledge in the obsolescing language shown here with C1's allophony and Goodfellow's (2005) speakers' adherence to phonological rules applying to velars that have merged with underlying uvulars both strongly contradict theories stating that last generations of speakers lose linguistic competence. It can be acknowledged, however, that C1's allophony may be "incompetent" from a traditional point of view.

More importantly, what has been the path of this sound change? The conclusion must be speculative because of the lack of longitudinal data from C1, but it is

conceivable that the American English sibilant was substituted for the Northern Paiute sibilant. It is highly implausible that this sound change occurred as the result of gradual approximation from the traditional sibilant to the Americanized /s/. A more likely path to the change involves transfer, where /s/ was incorporated into her MLNP system during a period of heavy English use or, perhaps during her concurrent acquisition of the two languages as a child.

A strikingly similar place of articulation shift is described in Young (2007) for two Taiwanese Mandarin speakers. These two speakers are first generation Taiwanese-Americans who spoke little English until entering school. Young reports that the series of alveolo-palatals /tɕʰ/, /tɕ/, and /ɕ/ have shifted to /tʃʰ/, /tʃ/, and /ʃ/ in their speech, despite their exposure to the native Taiwanese Mandarin of their parents. The nearly identical findings reported in this paper suggest that fricatives, or at least palatalized fricatives, are particularly susceptible to intergenerational place of articulation shifts.

6. Conclusions

This paper has examined sound change in Northern Paiute, a moribund indigenous language of North America. Experiment 1 investigated a three-way lenis/fortis contrast across three generations of Northern Paiute speakers. While the contrast was maintained within the phonological systems of each individual, it was found that C1, the youngest speaker of the language, had increased subphonemic variation as compared to older speakers. Namely, her system exhibited longer and more variable closure durations and the release duration of her voiced fortis stops approximated that of her fortis stops.

The second experiment examined a shift in the place of articulation for the language's sibilant from a palatalized alveolo-palatal sibilant /ɕ/ to an American English alveolar fricative /s/ for the youngest speaker. In addition, a more palatalized allophone of the traditional sibilant was also lost by the youngest speaker and replaced with the American English /ʃ/. The articulatory leap from /ɕ/ to /s/ is analyzed as a categorical sound change as opposed to a change that occurred via a series of subtle imperceptible shifts. A sudden categorical shift in sibilants suggests that not all sound changes in obsolescing languages are the consummation of subphonemic variation resulting in the approximation of two sounds. The path a particular sound change takes may depend on the phonological system of the contact language. American English /s/ is minimally different from the Northern Paiute sibilant, making a categorical shift in place of articulation possible. The descriptions of the substitution patterns for rhotics in Young Dyirbal (Schmidt 1985) and /ɲ/, /ç/, /ɬ/ in East Sutherland Gaelic (Dorian 1978) include the application of

perceptually and articulatorily similar phonological categories from the local varieties of English to the obsolescing language. From the descriptions seen here, it can be generalized that when phonological categories in moribund and dominant languages are similar, they may experience transfer-like sound changes.

Gradient sound changes do not follow the pattern described for transfer. In Northern Paiute, the unique three-way lenis/fortis contrast does not have an equal phonological counterpart in American English, perhaps deterring transfer from taking place. The three-way contrast can be viewed as a three-way distinction in the timing of the closure duration and vocal fold vibration. Subtle changes in these timing relationships result in the gradient expansion of the phonetic space the fortis category occupies for Generation C and the approximation of release duration in the fortis and voiced fortis categories. The looser category boundaries in singleton and geminate consonants in Washo reported by Yu (2008) and the decreased nasalization of phonemically nasalized vowels in East Sutherland Gaelic described by Dorian (1978) are also gradient changes caused by alternations in timing relationships. Changes in singleton and geminate consonant categories relate to closure duration timing like that of Northern Paiute. Modifications to the timing of the lowering of the velum in phonemically nasalized vowels result in vowels that are less nasalized. In these languages, changes in timing cause gradient subphonemic effects. It can be predicted that phonological categories in obsolescing languages that rely on specific timing relationships will experience approximation-like sound changes, not phoneme substitution.

Subsequent research will show how far the predictions about phonological similarity and timing relationships and their implications for sound change in moribund languages will go. Several questions regarding these predictions remain to be addressed. For example, how similar must the sounds in the moribund and dominant languages be in order to qualify for transfer of a phonological category? It is clear from the Northern Paiute data that in moribund languages, gradient phonetic changes are not always precursors to categorical changes but are changes of a different type. Given the proper time course, the paths of these changes may, nevertheless, end with the same result: the merger of two phonological categories.

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CHAPTER 2

Diglossia and monosyllabization in Eastern Cham

A sociolinguistic study[1]

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In Eastern Cham, the modern reflexes of Classical Cham disyllables exhibit variation between sesquisyllabic and monosyllabic word shapes, which suggests that the language is becoming increasingly monosyllabic. This apparent change in progress has been attributed to contact with monosyllabic Vietnamese, but a variationist study of formal colloquial speech based on interviews conducted with 42 native speakers sheds doubt on this claim. I propose that the variation in word shapes is actually due to the quasi-diglossia found in Eastern Cham communities. It seems that the variation in word shapes can be explained by the subjects' attitudes towards the two varieties of their own language and that these attitudes are in turn shaped by the relative prestige of Cham and Vietnamese languages and cultures.

Introduction

Eastern Cham, a language that belongs to the Malayo-Chamic branch of Austronesian, is spoken by 60,000 to 100,000 speakers in the provinces of Ninh Thuận and Bình Thuận in south-central Vietnam. The Cham communities scattered throughout these two provinces are the last remnants of a much larger Cham polity that controlled central Vietnam from the 2nd to the 17th century and maintained some political autonomy until the 19th century (Po 1987). Since most Eastern Cham villages are currently surrounded by Vietnamese settlements and since Vietnamese is the language of administration and of government, the

1. I would like to thank Abigail Cohn and John Wolff for their comments on early versions of this paper, Joe Roy for his help with the statistical model and, most of all, the Cham who generously agreed to work with me. All errors are mine.

overwhelming majority of Cham are bilingual. In fact, most Cham have native or near-native abilities in Vietnamese.

Over the centuries, Eastern Cham has become typologically similar to other Mainland Southeast Asian languages in many respects. Perhaps the most striking example is that while Malayo-Chamic was largely disyllabic, Modern Eastern Cham has now become mostly monosyllabic. This process, which will be discussed in detail in this paper, took place in two stages. First, the disyllables of Proto-Malayo-Chamic were reduced to *sesquisyllables*, a type of iambic word shape composed of a stressed final syllable preceded by an unstressed and phonologically reduced *presyllable*. The second step, which is not fully completed, consists in a further reduction or deletion of the presyllable, leading to the prevalence of monosyllabic forms. Since these two steps seem to coincide with periods of intensive contact with Bahnaric languages (Mon-Khmer) and Vietnamese, which are respectively sesquisyllabic and monosyllabic, they have been attributed to language contact (Alieva 1984, 1986, 1994; Thurgood 1996, 1999). Thurgood, for instance, claims quite explicitly that "the subsequent reduction to monosyllables seems to be due in large part to subsequent Phan Rang Cham contact with the monosyllabic Vietnamese…" (Thurgood 1999: p. 66).

Although most authors recognize that there is a significant amount of variation between sesquisyllabic and monosyllabic forms in Eastern Cham, the issue has never been explored quantitatively. This paper addresses this variation and shows how it sheds light on the related question of contact-induced change. In Section 1, I claim that the Eastern Cham community is diglossic, at least at a symbolic level, and that the coexistence of two language varieties is an important factor in explaining the variation between sesquisyllables and monosyllables. In Section 2, I briefly review the diachronic processes that have led to the emergence of the current situation, and I try to establish their chronology based on French colonial sources. In Section 3, I then demonstrate through a quantitative study of the formal variety of Eastern Cham spoken in Ninh Thuận province that the current variation cannot be objectively attributed to contact with Vietnamese, but that cultural and linguistic attitudes are important factors. Finally, in Section 4, I show how language attitudes, bilingualism and diglossia interact to shape the sociolinguistic landscape of Eastern Cham communities, which in turn affects monosyllabization.

1. Diglossia and monosyllabization

Previous researchers have long observed that Eastern Cham sesquisyllables tend to be realized as monosyllables (Alieva 1986, 1991, 1994; Aymonier 1889; Blood

1962; Bùi 1996; Lee 1966; Thurgood 1999). Recently, Blood and Alieva have noted that scholars and speakers who know the written language use a larger proportion of sesquisyllables. The most interesting description of this phenomenon comes from a publication of the Cham Cultural Center:

> Xưa kia người Chàm nói đầy-đủ cả hai vần trong mỗi tiếng, nhưng ngày nay thường bớt vần-phụ mà chỉ nói vần-chính, khiến nhiều khi sinh ra sự lẫn nghĩa. Vì không được nói đến, vần-phụ thường bị quên hay bị nói sai đi.
>
> (Trung-tâm Văn-hoá Chàm, p. 10)[2]
>
> In the past, the Cham pronounced both syllables of each word, but nowadays, they reduce the presyllables and only pronounce the main syllable, which often causes semantic confusion. Because they are not pronounced, presyllables are usually omitted or rendered incorrectly. (My translation)

The variation described in this quote ("usually omitted or rendered incorrectly") can be better understood if we first look at the sociolinguistic situation of Eastern Cham speech communities. In addition to bilingualism, Eastern Cham itself has two language varieties: a colloquial variety, which has very little prestige but is the normal code within the community, and a formal variety, mostly written but also used in religious ceremonies and very solemn circumstances, which reflects more or less accurately the language of 19th century manuscripts. This coexistence of two language varieties may be an instance of *diglossia* as proposed by Ferguson (1959):

> DIGLOSSIA is a relatively stable language situation in which, in addition to the primary dialects of the language (which may include a standard or regional standards), there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any section of the community for ordinary conversation.

Although the Eastern Cham situation conforms to Ferguson's definition reasonably well, some qualifications have to be made. First, while it is clear that the Eastern Cham H is *the vehicle of a respected body of written literature*, consisting mostly of stone inscriptions, manuscripts, religious texts and epics, it could hardly be considered *large*. However, if we consider that there at most 100,000 Eastern

2. Leaflet published by the Cham cultural center in the early 1970's for which no exact year of publication is available. The document is available at the Cornell University Library (and listed without a date in the catalog).

Cham speakers, this body of literature is of a respectable size relative to the Cham population, and there is no doubt that all Cham speakers have been exposed to it, at least in its oral form. Another important difference with the cases described in Ferguson's paper is that literature is no longer produced in Cham, with the exception of some poetry. The only modern Cham writer, Inrasara, lives in Hồ Chí Minh City and has to write in Vietnamese in order to see his work published and read.

The *very divergent* character of Cham H is unquestionable, but its *highly codified* nature is less obvious. While L is largely monosyllabic, has no affixation and has undergone major syntactic restructuring under Vietnamese influence, H has polysyllables, derivational prefixes and infixes and a syntax that is much closer to other Western-Malayo-Polynesian languages than the syntax of L. This is not to say that speakers actually realize all these characteristics when they attempt to speak H. As we will see shortly, polysyllabic and sesquisyllabic forms are used to some extent, but only language specialists attempt to use affixation, and syntax is always strongly influenced by Vietnamese. The poor knowledge of H grammar has in turn an impact on *codification*: The absence of fluent users of H prevents the emergence of a well-defined standard. However, there are received ideas about what constitutes proper H, and the Committee for the Standardization of Books in the Cham Script (Ban Biên Soạn Sách Chữ Chăm) is making serious efforts to standardize not only the traditional script but also its orthography, which reflects a state of the language even more conservative than the spoken H. For example, most of the diphthongs of written Cham are realized as monophthongs in spoken H, and a small number of onsets that contrast in the script have merged in that variety.

The main goal of the standardization of written Cham is to develop language programs in primary and middle schools in order to teach H to children. Formal instruction is the primary way in which H is passed along to younger generations, although they also imitate the imperfect H of their elders. This is consistent with Ferguson's criterion that H be *learned largely by formal education*. Traditionally, H was taught to children by learned relatives or in classes organized at the village level. A number of older speakers learned it this way, more or less successfully. A few elderly men also mentioned a short-lived trilingual program (French-Vietnamese-Cham) in French schools during the colonial period, and middle-aged men have referred to a few unsuccessful attempts to teach Cham in primary schools under the pro-American South Vietnamese regime in the late 1960s and early 1970s. The common denominator of all these programs seems to be their non-systematic and improvised nature, the small number of enrolled pupils, and the fact that they were only attended by boys. In contrast, the current program has gradually been implemented for 20 years and reaches all pupils enrolled in

primary and middle schools in Cham villages where there are trained teachers. Unfortunately, this program also has serious limitations. Pupils only study Cham two hours a week, and teaching materials are scarce. Furthermore, most teachers have a very limited knowledge of H and the standard one-week teacher training program cannot remedy this problem. Perhaps because of this, Cham language education focuses mostly on *akhăr thrah*, the Indic script, and on the numerous phonological discrepancies between it and modern Eastern Cham (both H and L). However, since there are no printed materials in Cham script besides a few textbooks, the overwhelming majority of children quickly forget *akhăr thrah* as soon as they graduate from middle school. As a consequence, the real written medium in the community is Vietnamese, even in personal mail and electronic communications. Therefore, even if we can say that H *is not used by any section of the community for ordinary conversation,* we cannot claim that H is *used for most written and formal spoken purpose*. Besides the fact that Cham is not used for most written purposes, there are relatively few situations requiring formal speech in the community.

Even if its use in the community is very restricted, the script has a capital importance in the Cham social construction of ethnicity (Blood 1980). In the native language ideology it is not dissociable from H. Besides *akhăr thrah, akhăr ꞑani*, an Arabic-based script, is used by the *ꞑani*, the followers of a syncretic version of Islam, for religious purposes. However, this script is restricted to religious functions and does not have the same prestigious status as *akhăr thrah*, even among *ꞑani.* Further, it seems that texts written in *akhăr ꞑani* are learned and recited by rote rather than read. In any case, even if very few people manage to master the traditional scripts, they are nevertheless largely preferred to any romanization. Since the independence of Vietnam, there have been various attempts to romanize the Cham script by the South Vietnamese Department of Education, American missionaries (Blood 1977), and Vietnamese linguists (Hoàng 1987). These attempts have all been faced with open hostility by the Cham, and the mere mention of a Latin-based transcription (*akhăr rumi*) is considered suspicious. Some Cham intellectuals were very critical of my transcriptions and field notes in IPA.

A final qualification about Eastern Cham diglossia has to be made: Is the Cham linguistic situation *relatively stable*? The very definition of stability is problematic. It has been proposed that diglossia is stable if it is maintained over at least three generations (Fishman 1980), but by this criterion, the question cannot be answered definitely in the case of Eastern Cham, for lack of evidence. We hardly know how and when the two varieties became different enough to satisfy Ferguson's definition of diglossia, although, as we will see below, we do have evidence that the monosyllabization of L had at the very least started in the late 19th century (Aymonier 1889). As for the possibility of survival of H in the near future,

it largely depends on the ability of the Cham to develop and maintain an adequate language program in village schools, to mobilize their youth and to develop Cham mass media. There are currently limited radio and television broadcasts in H (one hour a week and two hours a month, respectively), but they are limited to news and are severely controlled and censored by provincial authorities. Moreover, the monthly two hours of Cham news on Ninh Thuận TV have all their captions and subtitles written in a romanized script.

Other cases where the H has an objectively limited role in daily interactions are discussed in the literature. The fact that H is in many ways a symbolic target rather than a variety commonly used in the Eastern Cham community is reminiscent of the status of Mandarin in Malaysia (Platt 1977). Platt argues that among Malaysian Chinese, Mandarin and, to some extent, Amoy Hokkien, are "dummy H's," or varieties "of which some members have a certain knowledge, and which are given prestige ratings by the speakers and are even recognized by government authorities, media, or prestige groups within the speech community, but which are not in fact utilized extensively in any domain." Eastern Cham H conforms to this definition very well; although few speakers know it well, it has high prestige, and it is taught in schools and used in news. However, it is not "utilized extensively in any domain." In fact, a variety of the language which I will call 'Formal L' is used in formal situations. It is a form of L to which many H features have been incorporated, but that is still very close to colloquial L and is mutually intelligible with it. Platt (1977) uses the label M to describe this type of 'compromise' variety.

To sum up, the only element of Ferguson's definition of diglossia that Eastern Cham does not satisfy is the use of H for most written and formal purposes. This condition is not fulfilled because of the parallel existence of bilingualism and diglossia, a complex sociolinguistic situation that is typically found in immigrant communities, like the Old Order Amish and Hassidic communities of the United States[3] (Fishman 1980). Like these two groups, the Cham are a minority even in the area where they are concentrated and have a lower social status than the majority group with which they are in contact. Further, because the Eastern Cham population is small and relatively scattered, almost all written communications and most formal spoken interactions involve ethnic Vietnamese and are conducted in Vietnamese. In practice, H is almost only used for religious and educational purposes. While H is clearly the intended target in these situations, it is not spoken fluently; speakers typically produce the hybrid Formal L mentioned above. Therefore, Eastern Cham is not a canonical case of diglossia. The role of H

3. Note that, since Yiddish and Hebrew are unrelated, Hassidic communities can be considered diglossic only if we accept Fishman's extension of diglossia to genetically unrelated varieties.

in language ideology and the social functions of H in society are similar enough to treat it as such, but the combination of bilingualism and the small size of the community confine H to the limited, quasi-symbolic role of a 'dummy H.'

Now, how does diglossia interact with monosyllabization? The H variety closely mirrors the written language and, for this reason, largely preserves its sesquisyllables (and a handful of polysyllables). On the other hand, in the colloquial L variety, sesquisyllables are almost never found, with the exception of occasional cases of learned and religious vocabulary and of sesquisyllables preserved to avoid homophony. A good example of homophony avoidance is the contrast between *ṭalipăn* [ṭapăn] 'eight' and *t*^{h}*alipăn* [t^{h}ampăn] 'nine', which would both be realized as [păn] if they were monosyllabized. Nevertheless, there are still a very high number of homophones in L, and many of them are contextually ambiguous. The words *p̥lăj* [p̥lĕj] 'buy' and *pap̥lăj* [p̥lĕj] 'sell', for instance, have become homophonous, which can be seen in the following sentence, recorded during an interview:

(1) H /Ví dụ̆ t^{h}a t^{h}aŋ **paplăj** paṭaj t^{h}a juon maj **paplăj.**/
L /Ví dụ̆ ha t^{h}aŋ **p̥lĕj** pṭaj ha jun maj **p̥lĕj**./
For-ex. one house sell rice one Viet come buy
'For example, a family sells rice and a Vietnamese comes to buy some.'

To complicate this example further, the word *p̥rĕj* [p̥lĕj] 'give' has also become homophonous with 'sell' and 'buy' in the speech of most speakers, thus creating more potential ambiguity (Alieva 1994).

We therefore take the strong position that monosyllabization is already completed in the colloquial L variety and has not taken place at all in the H variety (or what speakers imagine it to be). A formal representation of word templates in H and L is given in (2):

(2) Word shapes in the H (a) and colloquial L (b) varieties
a. σ **σ**
(C)(V) **C (G) V (C)**
b. **σ**
(C) C (G) V (C)

Now, when working with linguists, Cham subjects often try to speak what they consider proper language, namely the H variety. However, since very few speakers master it, what is typically produced is the hybrid Formal L. Not surprisingly, the actual proportion of sesquisyllables used in Formal L varies from speaker to speaker, depending on factors such as their knowledge of H, the perceived formality of the situation and their desire to speak "proper" Cham. In short, the analysis developed here is based on the observation that there is little variation

in the two "pure" language varieties. By definition, the H variety contains sesquisyllables, while the L variety is almost completely monosyllabic. The locus of most variation is the Formal L variety. This model is admittedly a simplification of the actual sociolinguistic situation, in which varieties might be organized along a continuum (Paolillo 1997). However, since all the quantitative work presented in Section 3 is based on "formal" interviews during which all subjects can be assumed to have used a variant of Formal L, this approach is sufficient to capture basic patterns of variation.

2. Diachrony

The various sound changes through which Proto-Chamic became sesquisyllabic and Eastern Cham monosyllabic took place over two millennia. Therefore, it would be ill-advised to treat them as a unified process teleologically transforming Eastern Cham into a typologically Mainland Southeast Asian language. They are more likely to be a sequence of short term drifts with converging effects. For the sake of simplicity, I will divide them into two major groups: changes from Proto-Malayo-Chamic to Proto-Chamic (Section 2.1) and changes from Ancient Cham to Modern Eastern Cham (Section 2.2). Note that the diachronic processes described in this section are idealized and do not actually reflect the variation found in the modern language. The issue of variation will be addressed in Section 3.

2.1 From PMC to Proto-Chamic

The canonical word-shape of Proto-Malayo-Chamic (PMC) was the disyllable (Blood 1962; Thurgood 1996, 1999), which is consistent with the disyllabic templates widely attested in Austronesian. The stress pattern of PMC has not been investigated, but it is likely that it had not lost the Proto-Autronesian contrastive stress. By Proto-Chamic (PC), however, this contrast had been neutralized. PC settled on automatic iambic stress, possibly because of the influence of Mon-Khmer languages with which it was in early contact (Thurgood 1996, 1999). This new stress pattern was accompanied by phonological reduction in the unstressed nonfinal syllables, resulting in a sesquisyllabic canonical word-shape (see Pittayaporn 2005 for similar developments in Moken). As explained above, this means that the consonant and vowel inventory found in unstressed presyllables is a subset of the inventory found in main, stressed syllables and that these weak presyllables are subject to reduction (Blood 1967; Bùi 1996; Thurgood 1996, 1999). Since the

historical processes at play in this earlier stage are beyond the scope of this paper, we will focus on more recent changes in the next section.

2.2 From Ancient Cham to Modern Eastern Cham

The prevalence of monosyllabicity distinguishes Eastern Cham from its sister languages. While all other Chamic languages, including Western Cham, preserve their sesquisyllables to a large extent, Eastern Cham has lost them almost entirely in its colloquial L variety, becoming in the process typologically more similar to Vietnamese, a monosyllabic language. The first step in the gradual change towards monosyllabicity, sesquisyllabization, is difficult to date. A consequence of sesquisyllabization is the instability of the vowel of the presyllable already reflected in writing in the 19th century:

> …il faut tenir compte de l'état flottant de l'écriture, surtout en ce qui concerne la première syllabe des mots bisyllabiques. On peut écrire: akan ou ikan, poisson, akak ou ikak, lier, kumẽi ou kamẽi, fille… (Aymonier 1889)

> …we must take into account the floating state of writing, especially in the case of the first syllable of disyllabic words. One can write: akan or ikan, fish, akak or ikak, tie, kumẽi or kamẽi, girl… (my translation)

Another effect of sesquisyllabization is the reduction to schwa of the vowel of the presyllable (Alieva 1991; Bùi 1996; Thurgood 1999). This is illustrated in (3).

(3) V → ə / ___ ˈCV(C)

Written Cham	Gloss	Formal L
kubaw	'water buffalo'	[kəp̥aw]
jalan	'road'	[c̥əl̥an]
bani	'nativized Islam'	[p̥ən̥i]
bataw	'stone"	[p̥ətaw]
karăj	'different'	[kərɛ̆j]

Further, in the L variety, the vowel of the presyllable is often dropped altogether if this deletion results in a well-formed onset cluster, as shown in (4).

(4) V → ø / (C_1) ___ ˈCV(C_2)
Where C_1 is less sonorous than C_2.

Written Cham	Gloss	Formal L
palăj	'village'	[p̥lɛ̆j]
karăj	'other'	[krăj]
bani	'nativized Islam'	[p̥n̥i]

However, in colloquial L, the most common monosyllabization process is the complete deletion of the presyllable formalized in (5).

(5) $\sigma \rightarrow \emptyset$ / ___ ˈσ

This is not a recent change as it was already described in Aymonier (1889):

> Même lorsqu'il n'y a pas à craindre la confusion, non seulement la première syllabe varie, mais encore elle est supprimée. On peut lire dans certains cas, par exemple: kok pour akok, tête, rau pour arau, laver le linge, nēi pour moenēi, se baigner, vēi pour havēi, rotin, etc., etc. (p. 39)
>
> Even when there is no possible confusion, not only does the first syllable vary, but it is also deleted. We can read in some cases, for example: kok for akok, head, rau for arau, wash clothes, nēi for moenēi, bathe, vēi for havēi, rattan, etc.
>
> (my translation)

A few examples of presyllable deletion are given in (6).

(6)	Written Cham	Gloss	Colloquial L
	/ini/	'this, here'	/ni/
	/ꨔaṇi/	'nativized Islam'	/ṇi/
	/ʔula/	'snake'	/la/
	/ꨔila/	'ivory'	/l̥a/
	/talah/	'lost'	/lah/
	/t̥al̥ah/	'tongue'	/l̥ah/

The idealized diachronic scenario of Eastern Cham monosyllabization laid out in this section accounts for the current Colloquial L forms used by Eastern Cham speakers. However, as discussed in the previous section, the H variety has not undergone monosyllabization and the Formal L variety exhibits variation between the two types of word shapes. In the next section, we will explore inter-speaker variation in the latter variety and try to determine what sociolinguistic factors account for it.

3. Experiment

In order to explore the social and structural variation in the realization of monosyllabization, short interviews were conducted with Eastern Cham speakers. I used the corpus thus obtained to investigate the types of monosyllabization found in the Formal L variety and the sociolinguistic factors that determine their respective frequencies.

3.1 Methods

I conducted interviews on life stories, language use and language attitudes in and around Phan Rang, Ninh Thuận with 42 native speakers of Eastern Cham (22 males, 20 females).[4] Out of these, 41 were originally from Ninh Thuận province and one from Bình Thuận, although the latter subject actually lived most of her life in Phan Rang. The speaker sample shows a wide range of sociolinguistic variation. The interviews ranged from 15 to 30 minutes per subject,[5] and on two occasions, two subjects were interviewed simultaneously. Spectators were discouraged as much as possible, but family members and neighbors were sometimes present during the interviews, especially those conducted with younger women. Questions were asked mostly in Vietnamese, but the subjects were instructed to answer in Cham. This, and the fact that speakers were aware that my language skills are better in Vietnamese than in Cham, might have caused the proportion of Vietnamese words used by subjects to be higher than in daily interactions. Finally, most subjects perceived the interview to be a formal situation and felt they should speak accordingly. Even subjects who knew me before the recording session modified their speech perceptibly. It is therefore clear that the interviews do not reflect Colloquial L, but rather the 'best' language variety the subjects could speak, namely Formal L.

The interviews were transcribed in IPA and in a romanization of the H variety based on Moussay (1971)'s transcription. After completing fieldwork, I corrected all the transcriptions with Dr. Phú Văn Hẳn, a Cham linguist working for the Institute of Social Sciences of Hồ Chí Minh City. I then compared the H variety sesquisyllables with their realization in Formal L and counted the proportion of sesquisyllables used by each subject.

3.2 Results

The first type of information that can be extracted from the interviews is the array of phonological strategies through which H sesquisyllables are mapped to L monosyllables (Section 3.2.1). Ideally, it would be interesting to see the frequency of each strategy and the exact restrictions on their occurrence, but as the interviews are short, it is difficult to obtain statistically significant results from a

4. One additional interview was unusable because of a high level of background noise.

5. One subject decided to interrupt the interview after only two questions for fear of problems with local authorities. Her results are nevertheless included here because of their special significance.

quantitative investigation of this type. On the other hand, it is possible to consider the prevalence of monosyllables without getting into a more fine-grained analysis and to see how the variation among subjects correlates with their sociolinguistic characteristics (Section 3.2.2).

3.2.1 *Diachronic monosyllabization strategies*

The corpus reveals that there are three main types of correspondences between H sesquisyllables and L monosyllables. It is important to emphasize that these correspondences are not synchronic reduction processes through which sesquisyllables are reduced to monosyllables. It is rather likely that speakers have two lexical entries for each word, one for L and one for H, and make generalizations about the types of connections between their superficially similar forms. Since knowledge of H is highly variable in the community, this model entails that the correspondence strategies vary across speakers depending on the number of H forms that they actually know, and that speakers might occasionally overapply or misapply some of these strategies to coin H forms from familiar L forms. Evidence for this kind of hypercorrection was already attested in Alieva (1986) and will be further discussed in Section 3.2.2.

The most common correspondence strategy is the deletion or addition of the entire presyllable of the H form. This strategy is almost always available, except for H words in which the presyllable onset is a stop and the main syllable onset is a liquid. The L forms of these words always have an onset cluster, as shown in (7).

(7)

H variety	Gloss	L variety
/akʰăr/	'word, script'	/kʰăn/
/tapa/	'to cross'	/pa/
/rilo/	'many, a lot'	/lo/
But:		
/palăj/	'village'	/plɛ̆j/
/ɕaḷan/	'road'	/k̬lan/

However, complex onsets in L forms are not restricted to stop + liquid clusters. A second type of correspondence is the mapping of the presyllable of the H form with complex onset clusters in the L form. This strategy is available provided that the L cluster does not violate the sonority hierarchy – i.e., as long as the sonority of their individual elements increases towards the nucleus (Clements 1990). In Table 1, shaded boxes represent the logical possibilities that were not found in the interviews. They would all be cases of clusters with an increasing or equal sonority.

Table 1. Types of complex clusters found in the interviews

		Presyllable onset			
		– Sonority +			
		Stops	Fricatives	Nasals	Liquids
Main syllable onset + Sonority –	Stops	ᴴkate ~ ᴸkte[6] 'New year festival'			
	Laryngeals	ᴴtaha ~ ᴸtʰa 'old'			
	Nasals	ᴴp̥aṇi ~ ᴸp̥ṇi 'local Islam'	ᴴsanɨŋ ~ ᴸsnɨŋ 'think'	ᴴmanuc ~ ᴸmnɨjʔ 'person'	
	Liquids	ᴴpalăj ~ ᴸplĕj 'village'	ᴴharăj ~ ᴸhrăj 'day'	ᴴmɨlăm ~ ᴸmlăm 'night'	

There is one type of cluster that systematically violates sonority sequencing. Its first member is a /m/ while its second member is the onset of the original main syllable. The possibility that this /m/ is vocalic and constitutes a presyllable has to be considered, but in the absence of non-distributional evidence, I will leave this question open. In any case, a /m/ in the onset of a H presyllable is often preserved in its L correspondent:

(8)

H variety	Gloss	L variety
/mɨta/	'eye'	/mta/
/mɨʔĩn/	'to play'	/mʔin/

Moreover, the entire presyllable of a H word is often mapped to a nasal in L. In such cases, it typically assimilates to the following consonant.

(9)

H variety	Gloss	L variety
/rip̪ăw/	'thousand'	/mp̪ɔ̆w/
/likăj/	'man, male'	/ŋkĕj/
/palăj/	'village'	/mlĕj/

The third and last type of correspondence strategy is the association of the presyllable of the H variety with a partially or totally assimilated onset cluster.

(10)

H variety	Gloss	L variety
/p̪iṇ̥aj/	'female animal'	/m̥ṇ̥aj/
/take/	'horn'	/kke/
/kamăj/	'woman, female'	/mmĕj/

6. As in many languages, there is often a very short epenthetic schwa in stop+stop clusters, which could actually be a transition between two consonantal gestures (Gafos 2002).

Finally, function words and high-frequency words are often monosyllabized according to their own idiosyncratic patterns.

(11)	H variety	Gloss	L variety
	/rilo/	'much, a lot'	/klo/
	/harăj/	'day'	/sĕj/

Interestingly, a word can have several forms corresponding to different correspondence strategies, a fact already noted by Alieva (1994). For example, the adjective used to designate the syncretic variety of Islam, /p̪a̤n̪i/ can be realized as [p̪n̪i], [m̤n̤i] or [n̪i]. Generally, an individual tends to use only one of these forms, but there is good evidence that the use of clusters is a marker of formality (if we exclude stop + liquid clusters that are used systematically even in very colloquial L). In other words, there would be a formality scale going from sesquisyllables to monosyllables with complex onsets, and finally, to monosyllables with simple onsets. A systematic variationist study of these phenomena is necessary to fully grasp the structural as well as social factors that underlie the related diachronic processes of monosyllabization and cluster simplification.

3.2.2 *Sociolinguistic variation*

3.2.2.1 *Methodology.* As was just mentioned, a sociolinguistic study of the variability of word shapes has two possible levels. The first level of analysis is to consider words as either monosyllables or sesquisyllables, regardless of the type of onset they have. This level is quite straightforward. It results in two categories of outcomes and can be carried out with a relatively small corpus. At this level of analysis, the various possible realizations of the word /p̪a̤n̪i/ 'nativized Islam' are counted as disyllabic if their presyllable contains a vowel (^{H}/p̪a̤n̪i/, ^{H}/p̪i̤n̪i/, ^{H}/p̪ə̤n̪i/), but monosyllabic if it does not (^{L}/p̪n̪i/, ^{L}/m̤n̤i/, ^{L}/n̪i/). The second level of analysis goes further, by distinguishing the various types of onsets found in monosyllables. Forms like ^{L}/p̪n̪i/, ^{L}/m̤n̤i/ and ^{L}/n̪i/ would be categorized as different and possibly regarded as gradient variants along a continuum. While the second level would allow us to capture a probable hierarchy in formality between the various types of onsets, it would require a much larger corpus. As some onset clusters seem to have undergone simplification more readily than others because of structural constraints, different types of onsets would have to be tallied independently. For example, /kate/ 'new year' is less likely to be reduced to /kte/ than to /te/, but /p̪a̤n̪i/ is more likely to be realized as /p̪n̪i/, with a cluster, than as /n̪i/. Therefore, to achieve reproducible results, the corpus would have to include a relatively high number of tokens in each onset category and for each subject. Since the recordings at our disposal are

too short (average of 1211 words per speaker; an average of 1422 for men and 979 for women) to have such a high number of repetitions, the more categorical first option was chosen for methodological reasons, even if it fails to address facts that would enable us to understand the process of language change in its entirety.

For every subject, the proportion of sesquisyllables in the interviews was determined by comparing the realization of every word with its corresponding written form. Obviously, words that are monosyllabic in Written Cham were excluded from the count. Written Cham reflects an earlier state of the language and cannot be equated with the H variety in every respect, but when it comes to word shapes, they are almost identical. The proportion of sesquisyllables used in interviews was then correlated with sociolinguistic variables. In order to determine the role of social factors in variation, the subjects were grouped according to the following factors:

- *Age*: All subjects were born between 1924 and 1980.
- *Sex*: Interviews were conducted with 20 women and 22 men.
- *Religion*: The sample includes 15 followers of the local form of Hinduism (bàlamon), 26 followers of syncretic Islam (ꨧaṇi), and 1 Sunni Muslim. This is not a representative distribution. Although there are no reliable statistics on religion among the Cham, ꨧaṇi are probably overrepresented and Sunni Muslims might be slightly underrepresented.
- *Place of Birth*: Most subjects come from the two large villages of Palăj ꨨirăw (Phước Nhơn – 26 subjects) and Hamu Tanrăn (Hữu Đức – 11 subjects), but five subjects were born in other villages.
- *Place of Residence*: Most subjects live in Palăj ꨨirăw (Phướ c Nhơn – 26 subjects) or in other villages near Phan Rang (12). Four subjects live in the Vietnamese-speaking town of Phan Rang itself.
- *Knowledge of the Cham script*: Subjects were asked if they have any knowledge of the Cham script. A positive answer does not actually mean that they are literate in Cham, but rather that they have studied the script at some point, regardless of their actual ability to use it (no one is fully literate in Cham).
- *Culture-related occupation*: All employees of the Cham Cultural Center and of the Committee for the Standardization of the Cham Script were considered culture specialists, except support personnel (technicians, secretaries and accountants). All other speakers are non-specialists.
- *Frequency of use of Vietnamese*: Determined through the answers given by subjects but adjusted through my own personal observations. The scale is the following: 0 = almost never uses Vietnamese, 1 = speaks Vietnamese with a few Vietnamese acquaintances, occasionally uses Vietnamese at work,

2 = speaks Vietnamese with Vietnamese friends and often speaks Vietnamese at work, 3 = works in Vietnamese only, many Vietnamese friends.

- *Highest level of schooling*: Subjects were asked about the highest level of schooling they attained. This variable raises two problems: (1) Due to changes in political regimes, answers can either reflect the French colonial school system or the pre-1975 and post-1975 Vietnamese systems. The quality of the education provided in these three school systems is not comparable. (2) The number of years of schooling does not necessarily reflect attendance (especially problematic among farmers). The scale is the following: 0 = no formal schooling, 1 = primary school, 2 = middle school, 3 = high school, technical high school, French primary, 4 = college and university.
- *Occupation*: Subjects were asked about the various occupations they held in their lifetime. They were ranked according to the best position they ever occupied on the following scale: 0 = no occupation, 1 = housework, farming, 2 = manual work, petty trade, priests,[7] 3 = technicians, white collars, 4 = researchers, intellectuals.
- *Time spent outside Cham-speaking areas*: The following scale was used: 0 = never left the area, 1 = short trips for travel or trade, 2 = 0–5 years, 3 = 5–10 years, and so forth with 5-year increments.
- *Proportion of Vietnamese words used in the interview*: Although this variable is quantitative, it does not necessarily reflect the proportion of Vietnamese words used by the subject in other contexts. It is as likely to reflect a desire to accommodate the interviewer (I speak Vietnamese much better than Cham) than the fact that Cham is not typically used with outsiders

The data was analyzed by means of a classification tree generated with R 2.3.1. The proportion of Classical Cham sesquisyllables realized as sesquisyllables was used as the dependent variable and all the sociolinguistic variables listed above were listed as covariates or factors. The classification tree method was chosen over a regression because of the small and unbalanced sample, which did not allow us to evaluate interactions between variables, and because of the high correlation between many of the variables (sex, education, occupation, use of Vietnamese, etc.). In this study, the tree method finds the factor that can divide the subject sample into two groups that are maximally different in their proportion of sesquisyllables and operates a first branching split. It then operates similar splits in each

7. The only priest in the sample is lumped together with manual workers and peddlers because he makes a living off farming. He does have certain level of specialized knowledge, so I did not group him with farmers. However, since he has no formal education, I did not group him with technicians and white collars.

of the two sub-groups and proceeds recursively until each branch is composed of a homogeneous sub-sample that has an apparently random variation and thus cannot be further divided. Limitations of the classification tree model include the fact that it only operates binary splits and that it tends to overestimate the weight of high-ranking splits, but since it deals with the data in transparent way (i.e. allow us to retrieve the identity of the subjects dominated by any given branch), the validity of each split will be discussed as we go.

3.2.2.2 *Proportion of sesquisyllables.* The results suggest that of all the sociolinguistic variables just listed, only occupation (culture-related or not), age and sex explain some of the variation in the proportion of sesquisyllables used by speakers with any statistical significance. The relatively small size of the corpus might blur the role of some factors, but it is nevertheless important to emphasize that the variables that reflect familiarity with or frequent use of Vietnamese

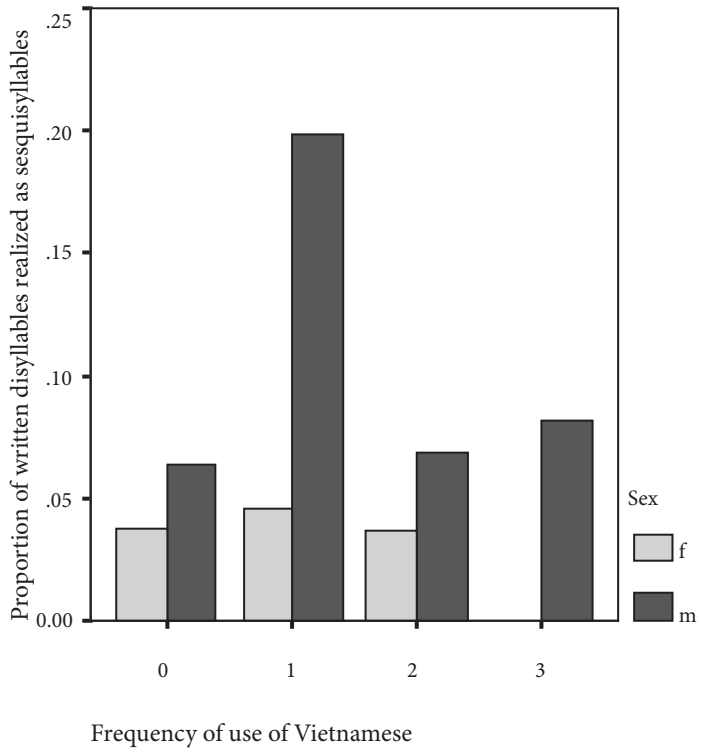

Figure 1. Average proportion of written disyllables realized as sesquisyllables (by frequency of use of Vietnamese – scale described in Section 3.2.2.1)

(frequency of use of Vietnamese, highest level of schooling, time spent outside Cham-speaking areas, proportion of Vietnamese words used in interview) do not significantly account for any of the variation, contrary to what we would expect if language contact with Vietnamese had a direct effect on monosyllabization. As an illustration, Figure 1 gives the average proportion of written Cham disyllables realized as sesquisyllables in the interviews relative to the frequency of use of Vietnamese, for subjects who are not language or culture specialists. The high proportion of sesquisyllables among men who have basic exposure to Vietnamese will be explained below. As the interaction of factors other than occupation has not been filtered out yet, Figure 1 is only meant to show that there is no obvious correlation between the two variables.

Now that it is established that variables measuring contact with the Vietnamese language and society can be discarded, let us turn to the factors that do account for some of variability in the use of sesquisyllables. These variables are illustrated in the classification tree given in Figure 2. They are, in order, occupation (culture-related or not), year of birth and sex.

The most important factor is occupation. The subjects can be divided between culture and language specialists, who use a high proportion of sesquisyllables (mean: 24.3%) and all other speakers (mean: 6.3%). Individual results are reported in Figure 3, but this figure has an illustrative purpose only; it has no statistical relevance as it only takes into account a few interesting variables. An important point that is not apparent in Figures 2 and 3 is that the sample of language and culture specialists only includes one woman, who happens to be the subject with the highest proportion of sesquisyllables in the entire sample. Her behavior will be discussed in more detail below.

The classification tree yielded no further significant split among language and culture specialists. Among non-specialists, however, there is a positive correlation

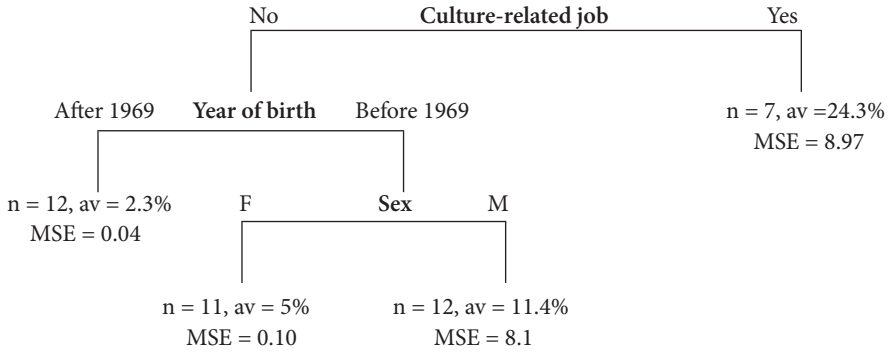

Figure 2. Classification tree for factors predicting the proportion of written disyllables realized as sesquisyllables in the interviews

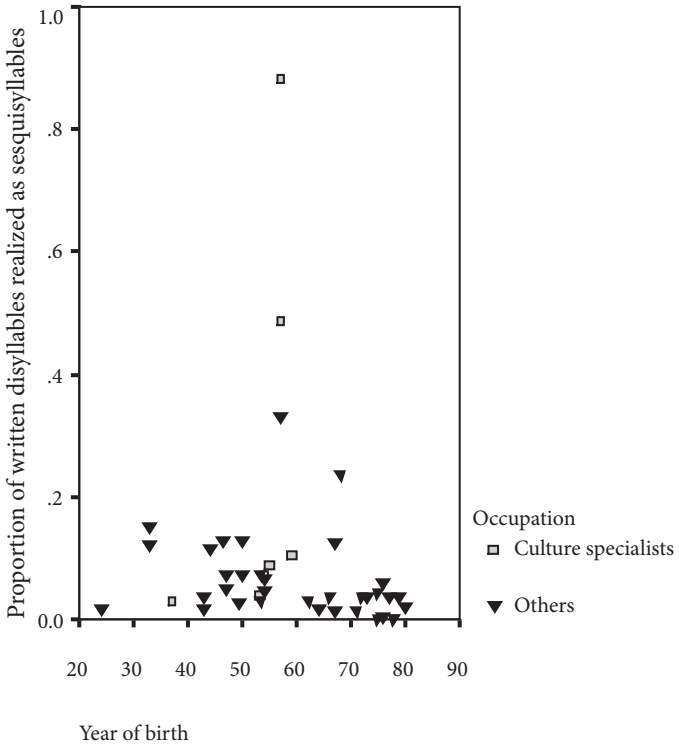

Figure 3. Proportion of written disyllables realized as sesquisyllables (by occupation and year of birth)

between age and the proportion of written disyllables realized as sesquisyllables. According to the classification tree in Figure 2, the best way to divide the non-specialists into two maximally distinct sub-samples is to separate them between a group of subjects born after 1969 (1969.5 to be more precise), who use an average of 2.3% of sesquisyllables, and a group of subjects born before 1969, who use an average of 8.4% of sesquisyllables. Results for individual non-specialists are reported in Figure 4, where we can see that age seems to play a role, but also that young men and women have comparable behaviours, in contrast to their elders, among which men have a higher proportion of sesquisyllables. However, an important point must be made here; the cut-off point automatically chosen for the classification tree (1969.5) passes to the right of the two subjects with the highest values in Figure 4, and lumps in the process the subjects born between 1960 and 1970 with their elders. If the two subjects with the highest values were treated as outliers or if their weight was moderated by a larger sample, the boundary between younger and older subjects could shift significantly. Therefore, while age definitely seems to be an important factor here, perhaps it should be treated as

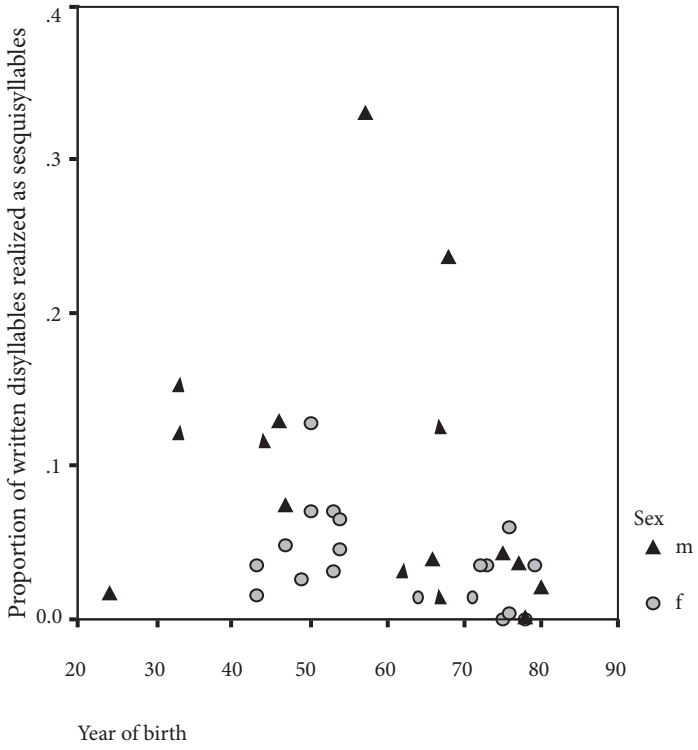

Figure 4. Proportion of written disyllables realized as sesquisyllables by speakers who are not culture specialists (by gender and year of birth)

a continuous variable rather than being divided into two bins. This is clearly a disadvantage of the classification tree method. As for the two outliers who use more than 20% of sesquisyllables, a possible explanation for their behaviour will be proposed at the end of this section.

The last split in the classification tree, which can also been seen in Figure 4, is the division of older non-specialists by sex. Older men use sesquisyllables for 11.4% of written disyllables, while older women have a significantly lower 5%. Note that once again, the two outliers might increase the effect of the split.

3.2.2.3 *Hypercorrection.* At this point, it is tempting to propose that a high proportion of sesquisyllables is a conservative feature of middle-aged and older men. Out of seven language specialists, six are male, and among non-specialists, men born after 1969 clearly stand out. We could thus claim that there is a change in progress that started with women and spread to younger men, a sequence of events that is common in variationist studies. However, an additional observation

shows that such a conclusion is premature: the relatively high prevalence of hypercorrection among male elders. It became clear to me while I was making recordings (especially while recording wordlists, a very formal task that is not reported here) that some subjects coin forms that they believe to be formal, but that do not correspond to real H forms. This type of hypercorrection is also reported in the literature, in Alieva (1986, 1994) and in Cham sources: "Vì không được nói đến, vần-phụ thường bị quên hay bị nói sai đi." "Because they are not pronounced, presyllables are usually omitted or pronounced incorrectly" (Trung-tâm Văn-hoá Chàm, p.10). In the interviews, two types of coinage could be considered hypercorrection. The first one consists of the use of the wrong presyllable for a word that is usually realized as a monosyllable. For example, the word /kamăj/ 'women,' normally pronounced /măj/ in Colloquial L is sometimes realized as [lamɛ̆j] in Formal L. The second type, which is rarer in interviews, but common in wordlist reading, is the addition of a presyllable to a word that is monosyllabic even in the H variety or the addition of an extra syllable to a word that is already polysyllabic. In an interview, the word /riça/ 'festival' is produced as [ri̯ci̯ça].

In the rest of this section, I will discuss the proportion of hypercorrect words (hypercorrect words / total number of Cham words) found in the interviews. However, since the interviews were relatively short, ranging from a few hundred to a few thousand words, most speakers exhibit no hypercorrection at all and the raw number of hypercorrect forms never exceeded 5 in individual interviews. Results will therefore be tabulated and presented in figures as in the previous section, but no statistics will be provided, due to the low number of hypercorrect forms.

The proportion of hypercorrect words for every speaker is shown in Figure 5. A first observation we can make is that language and culture specialists seem to hypercorrect less other speakers (0.055%. vs. 0.113%). This is not surprising, as one could expect these speakers to know the language well and to be relatively secure linguistically. What is more puzzling is that older speakers seem to hypercorrect much more than younger speakers. If older speakers have retained a higher proportion of sesquisyllables than other speakers because they are less affected by a monosyllabization in progress, why would they hypercorrect more?

The data presented in Figure 5 have been broken down further to try to answer this question. Once again, since there is a single female specialist, I will only give the results for non-specialists. They are plotted in Figure 6. We see in that figure that there is an apparent correlation between age and hypercorrection among men, even though the clear majority of subjects, including men, do not show hypercorrection at all (25 out of 35).

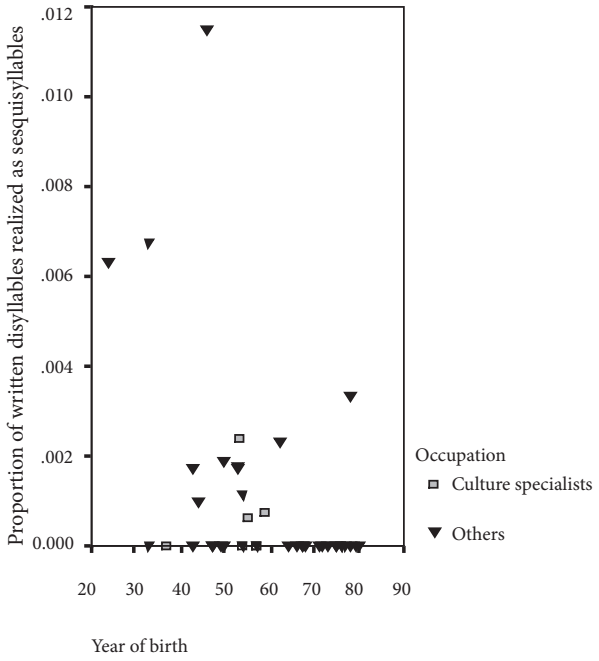

Figure 5. Proportion of hypercorrect forms (by occupation and year of birth)

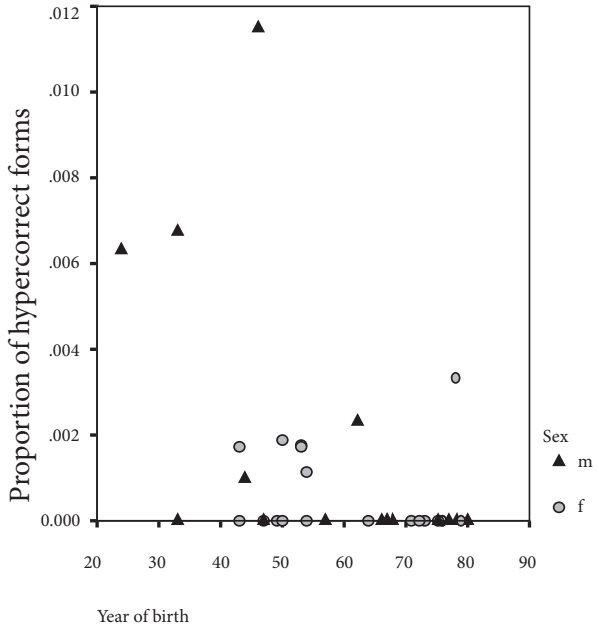

Figure 6. Proportion of hypercorrect forms produced by speakers who are not culture specialists (by gender and year of birth)

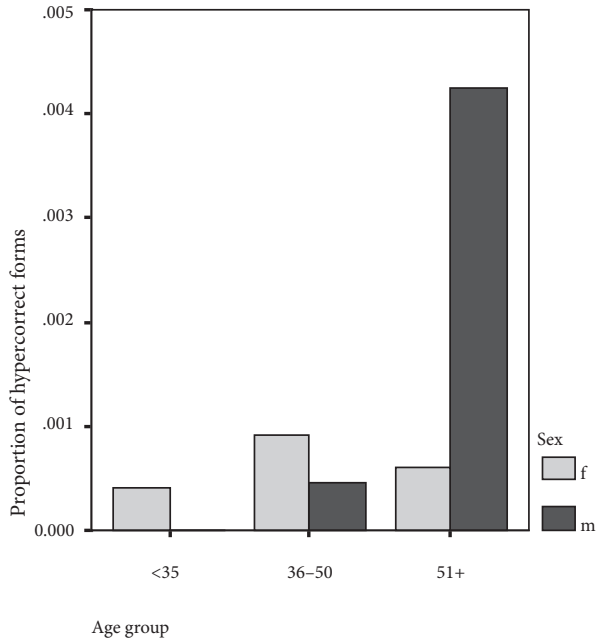

Figure 7. Proportion of hypercorrect forms produced by speakers who are not culture specialists (by gender and year of birth)

For the sake of readability, the data plotted in Figure 6 has been translated into Figure 7. The subjects have been divided into three age groups: younger speakers (35 and less), middle-aged (36–50) and older (51 and above). We can see, albeit impressionistically, that hypercorrection seems to be a feature of older men who are not language-specialists.

Older men therefore seem to behave differently from the rest of the community. In fact, the entire quantitative study yields only two crucial observations: 1) middle-aged and old non-specialist men use a high proportion of sesquisyllables and 2) old non-specialist men are subject to hypercorrection. Why are older men speaking differently from other Eastern Cham speakers? In the next section, I will show that the use of sesquisyllables and hypercorrection can both be explained by language attitudes.

3.2.2.4 *Discussion.* If we look exclusively at the proportion of written disyllables still realized as sesquisyllables in the interviews (8.7% in the whole corpus), monosyllabization seems to be a diachronic change in its final stage. If we assume the apparent time hypothesis (Labov 1963, 1966), the difference in use of sesquisyllables between older subjects and all other groups looks like an

instance of a change in progress. However, the data on hypercorrection show us that there is probably a more adequate explanation. Older men who are not language-specialists not only use a relatively high proportion of sesquisyllables, they also use a suspiciously high proportion of hypercorrect forms. In other words, as already pointed out by Alieva (1986), they try to sound "educated" by using many sesquisyllables, which is a characteristic of the H variety, but as the use of these features is rather artificial and restricted to rare and formal language situations, they overdo it, turning into sesquisyllables words that are monosyllabic even in the H variety. This contrasts with the linguistic behavior of older culture specialists, who have an actual knowledge of the H variety and therefore use a relatively high proportion of sesquisyllables in formal contexts, while showing little hypercorrection. The difference between older subjects who are not culture specialists and other groups would be due to language attitudes and insecurity, not to an actual change in progress. This is an appealing hypothesis, but it raises a serious question: Why do older men (non-specialists) try to use more H features than other speakers? The answer lies in the Cham's conception of their ethnic identity.

The Eastern Cham ethnic identity is essentially constructed around the glorious past of the kingdom of Champa (Nakamura 1999). What is left of this past includes religion and rituals, historical monuments and inscriptions, tales and manuscripts and, even more importantly, the Cham language and its script, associated with each other in Cham cultural ideology.[8] Within the community, even a sketchy knowledge of these cultural elements brings prestige, and conversations and arguments about the details of a ritual or of a myth are commonplace (although probably more so in the presence of a foreign researcher). Besides this culture-internal prestige, there is another type of prestige associated with the outside world. It is typically related to the Vietnamese world and derives from such things as education in Vietnamese schools and universities, high incomes, prestigious jobs and political positions (including Communist Party membership). Ties with foreign countries, such as knowledge of French or English, time spent abroad and relatives in the United States, France or Malaysia, are even more prestigious, but much less common.

Another essential feature of Cham society is that different age and gender groups do not have the same access to these two types of prestige. The first central divide is between genders. There is strong gender segregation in Cham society, and women have little access to social prestige or recognition, although this seems to be changing among intellectuals and Sunni Muslims. Traditionally, the best

8. This is certainly a cause of the Cham's rejection of Latin-based scripts (Blood 1980).

positions women could hope for were schoolteacher and nurse, but even then, they were normally expected to become housewives after marriage. They had almost no public role in society (no community-internal prestige) and because of a limited access to Vietnamese education, they rarely had any way of gaining community-external prestige. My personal impression is that even nowadays, the few women who manage to achieve some professional success are not given the same consideration as their male counterparts. Therefore, since linguistic prestige is almost out of reach regardless of the efforts made, women make little attempt to use H features in their Formal L speech. This contrasts with previous studies which indicate that women, even those in discriminated positions, will use prestige variants more than men.

While women are not encouraged to take part in the "prestige race," it is a very important male activity. Knowledge of cultural symbols reinforces men's status, as attested by the fact that myths and stories about a vaguely-defined past (be it the 16th century or the French colonial period), rare words, long forgotten infixes and knowledge of religious symbols and rituals are highly valued. Since the conception of the past is relatively shallow and distorted, elders are usually assumed and expected to have a good knowledge of these cultural elements. Many stories and words are actually made up, but these spurious elements seem to be readily validated as long as the forgers are old enough and have enough accumulated prestige to back up their claims. During the interviews, when I asked about speech differences between old and young people, consultants systematically answered that older speakers use more sesquisyllables, distinguish more codas and pronounce their onsets in a more conservative way. These differences turn out to be largely imagined, but they are part of a discourse about language according to which elders preserve a less degraded form of the language. On the one hand, some older speakers make use of this discourse to pose as language experts, but on the other hand, a few old men are ridiculed by their peers for not mastering the H variety or for using too many Vietnamese loanwords.[9] For older men, linguistic prestige and linguistic insecurity are therefore two sides of the same coin.

As age confers an almost inherent prestige to the speech of older men, the speech of younger men (and women) is worthless by definition, an opinion that is paradoxically shared by young speakers. It is also assumed that younger men have a deficient knowledge of other cultural domains, regardless of what they actually know. However, contrary to women, young men have relatively good access to Vietnamese education and, through it, to other forms of community-external

9. The best example is that of an old man who had a perfect knowledge of the L but only a limited command of the H because he had spent most of his youth in Vietnamese-speaking areas.

prestige. This might explain why they also use a relatively low proportion of prestigious H variety features in their Formal L speech (in interviews at least). Since their efforts to gain community-internal prestige are not recognized by the community anyway, they choose to look for prestige outside it.

The argument that the use of disyllables and hypercorrection are manifestations of linguistic attitudes is further supported by the individual characteristics of the subjects who use the highest proportion of sesquisyllables. The four subjects who have the highest ratios of sesquisyllables in Figure 2 are the only female culture specialist in the entire Cham community (88%), a male culture specialist (49%), and two men, an accountant (33%) and a computer technician (23%), who work for the Committee for the Standardization of the Cham script. They are all working in institutions that are community-oriented and, to the exception of the second subject, they are in positions of severe linguistic insecurity. The female culture specialist has to prove that she is as linguistically-competent as her male colleagues, while the accountant and the computer technician have to show that they can speak as well as their colleagues who are language specialists. Interestingly, they do it so well that they actually use a higher proportion of sesquisyllables than the people with whom they want to compete. In fact, the female language specialist, who utters an astonishing 88% of written disyllables as sesquisyllables, is almost *speaking* the H variety. Note that these four speakers do not exhibit hypercorrection at all in their interviews. Since they are exposed to the H variety at work, they usually choose the correct presyllable.

4. Social factors and Vietnamese influence

We have seen in Section 3.2.2 that the variables that reflect Vietnamization have no direct effect on the variation in the use of sesquisyllables across subjects. Furthermore, women, who are much less in contact with Vietnamese culture and in many cases seldom leave their village, tend to use a lesser proportion of sesquisyllables than men. It is therefore safe to conclude that there is no direct linguistic influence of Vietnamese on monosyllabization. However, this is not to say that there is no indirect influence. Contact with the Vietnamese affects Cham indirectly, through culture and its effect on language attitudes, and through the interaction of these attitudes with the quasi-diglossic situation. Within the community, older male speakers have easy access to prestige. For them, using H features translates directly into social recognition. By contrast, younger speakers and women are not considered 'worthy' of community-internal prestige. Even if they master the

H variety to some extent, their status in the community will not improve significantly (although it is occasionally said of a young man that he is making serious efforts to learn about traditional culture and proper language). As a result, young speakers look for prestige outside the community, in the Vietnamese polity, and do not invest much effort in learning H. The relative ease with which community-external prestige is acquired makes it comparatively much more interesting to young men than a community-internal prestige that they are almost systematically denied because of their age. If community-external prestige were not available, it is likely that young men would content themselves with the little status they get from learning the H variety and would maintain a higher proportion of H forms, hoping to slowly establish their position in the community as they grow older. Through this interaction of language attitudes and socio-cultural contact, it is Vietnamese culture as a whole, rather than the Vietnamese language, that shapes the linguistic landscape of Eastern Cham communities.

If this model is correct, the following predictions should be verified in the future. If young men are collectively successful in the Vietnamese polity and manage to acquire social status through the prestige they derive from outside sources, they will have little motivation to use H features in their Formal L speech and the remnants of the H variety are likely to further weaken and possibly disappear. We would then have a simple bilingual situation where a very colloquial form of L is used in the community, and Vietnamese is used elsewhere. Alternatively, if young men are not collectively successful in the Vietnamese world or if they cannot transfer their externally-acquired status into the community, they could decide to emulate their elders and start to import H features or what they perceive to be H features in their Formal L. In this case, the symbolic and functional role of quasi-diglossia would be maintained, although its structure could be modified. Of course, it is also possible to imagine a variety of intermediate scenarios, in which some youngsters are successful and drop H features, while others are not and maintain them. What has to be emphasized here is that the loss of the H variety would not necessarily be a symptom of language decay or result in language death. Even if young speakers abandon the H variety as a source of prestige, they would not necessarily replace the community-internal functions of the H variety with Vietnamese. It is likely that the domain of the L variety would expand to include formal discourse and perhaps some religious functions, while Vietnamese would remain the language of education and the government without encroaching on the domain of Cham. If the Cham were to accept a reform of their script or even its romanization, the use of the L variety as the medium of native instruction could even favor literacy in Cham and play an important role in language maintenance.

5. Conclusion

There is little evidence that Eastern Cham is undergoing monosyllabization and that the current variation is symptomatic of a contact-induced change in progress. Rather, it seems that Eastern Cham is in a situation of relatively stable diglossia, where the conservative H variety is largely sesquisyllabic and the Colloquial L variety is almost entirely monosyllabic. Variation in word shapes is only found in the Formal L variety of the language, a type of L register in which speakers introduce more or less H forms, depending on their knowledge of the H variety and their desire to acquire community-internal prestige by displaying this knowledge.

However, the growing integration of the Cham into the Vietnamese polity could affect the current balance between Cham language varieties and Vietnamese. As more and more young Cham derive social status from Vietnamese education and jobs in the Vietnamese world, they could abandon the H variety and other cultural icons which were until recently the only ways of acquiring prestige. The loss of their formal code of communication could then lead the Cham to rely increasingly on Vietnamese for formal purposes even inside the community, unsettling the current equilibrium and perhaps even jeopardizing the language. On the other hand, the social functions of H could also be taken over by an easier to acquire Formal L, with positive effects on language maintenance.

Obviously, an important question remains. Was the original motivation for the monosyllabization of the L variety of Eastern Cham contact-induced or language-internal? Unfortunately, in the absence of reliable historical evidence and of a well-established chronology of diachronic changes, this question is likely to remain unanswered.

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CHAPTER 3

Affricates in Lleidatà

A sociophonetic case study[1]

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The aim of this paper is to explore the variability between voiced and voiceless affricates and fricatives in initial and post-consonantal position in a western dialect of Catalan: Lleidatà. The eastern Catalan dialects are more prestigious than the western dialects, and the former have less affricates than the latter. The data obtained can be summed up in the following way: (1) there is a loss of alveolopalatal affricates only in words containing voiceless affricates and when they are pronounced by readers (in news programs); (2) the voiceless fricatives and affricates in initial and post-consonantal position are better discriminated than the voiced ones, and the fricatives are starting to be considered the "correct" pronunciation by some speakers who have a secondary level of education.

1. Introduction

The phonetic system of a language is based on its speakers' production and perception, which are directly interconnected. This interconnection, nevertheless, is molded by communicative and social factors, since the members of a speech community share a linguistic norm that exerts influence on that variety's phonetic and cognitive models (see Hume & Johnson 2001).

When it comes to studying variation in a language, one of the most important aspects is the analysis of how this variation is connected to social structures, and it is precisely the concept of social signification that can allow one to understand the flexibility of a language. The observation of speakers' perception and subjectivity concerning a certain variable phenomenon, together with other external factors, can allow one to gain a fairly complete view of the reasons why speakers use a specific linguistic form. And it is knowledge of the listeners' beliefs and

1. I would like to thank James McCullough for discussion. This research was supported by HUM2007–65531/FILO.

expectations that allows speakers to construct and modify their language in order to achieve their proposed objectives with the greatest effectiveness.

The present study aims to explain, from a global perspective, a variable phenomenon within a speech community belonging to a minority language: Catalan.[2] More specifically, it aims to analyze the linguistic and social organization of voiced and voiceless alveolopalatal[3] fricatives and affricates in the production and perception of some speakers of the Lleida dialect of Catalan and to give an account of the social components involved in this variable organization. To achieve this dual objective, this work is organized into two large blocks: (1) a section focusing on the study of voiced and voiceless fricatives and affricates (based on a corpus collected from 30 speakers who produced 60 lexical items that are susceptible to phonetic variation, and a study of variable utterances obtained from different Lleida television programs); (2) another section focusing on the perception of variability in affricates and fricatives and, more concretely, on the observation of the degree of acceptance and the connotations of these variants in the speech community under study.

2. Location and sociolinguistic situation of Catalan

Catalonia is a region of 6,995,206 inhabitants located in 32,091 square kilometers of territory in northeastern Spain.[4] A bilingual situation exists in this area, as Catalan and Spanish are co-official languages, with the latter most present in urban areas. From the 1940s until the present day, Catalan has had changes in its status, going from a language prohibited in public affairs but spoken in interpersonal relationships to becoming a language taught in schools and reaching the status of being the vehicle of education. However, the evolution of Catalan has not been evenly balanced; on the one hand, the population's written-language abilities have grown (a development which can be expected because nowadays Catalan

2. Catalan is a Romance language spoken by some seven million inhabitants of Spain, distributed throughout Catalonia, Valencia, part of Aragon and the Balearic Islands. It is also spoken in Andorra, Rousillon (France) and L'Alguer (Sardinia). Catalan has two major dialectal regions: that of eastern dialects (including central Catalan (with cities like Barcelona), Balearic, Roussillonese and Alguerese) and that of western dialects (containing northwestern dialects and Valencian). These two dialectal groups have phonological and phonetic differences, with the eastern dialects being more innovative than the western ones.

3. Recasens & Espinosa (2007).

4. This is equivalent to 15.85% of the Spanish population, 44,108,530 people. It also represents 6.342% of the Spanish geographic territory, 505,997 km^2 (INE 2006).

is taught in schools), but on the other hand, the use of Catalan has not grown in parallel with the increase in people's knowledge of the language; not all of the population speaks Catalan, especially residents of towns (see Vila 2004). Moreover, this increase in knowledge of the written language, and also the importance which has been given to this aspect of the language (see Segarra 1985), has lead to a clear influence of the written language in speech.

Apart from this, the eastern dialects of Catalan are more prestigious than the western dialects because the reference point for the eastern dialects is Barcelona, the capital of Catalonia, a metropolis of 1,593,075 million inhabitants (Idescat 2006) from which many cultural and social innovations spread. The eastern dialects also have higher population density than the western ones, which, furthermore, are more separated from the metropolis and are closer to exclusively Spanish-speaking regions. These factors cause the western dialects to be subject to various internal and external factors: the eastern dialects, the Spanish language, and, as mentioned above, the influence of written Catalan forms, the latter especially in schooling and local news broadcasts.

This study centers on the northeastern sector of the Iberian Peninsula: Catalonia (see Figure 1). Specifically, the study focuses on Alguaire, a rural locality of 2,800 inhabitants; Alguaire is near Lleida, a city with 120,000 inhabitants which is the cultural, and therefore linguistic, center for all the surrounding villages. In Alguaire, Lleidatà, a variety of western Catalan, is spoken. Western Catalan differs from the eastern variety in its unstressed vowel system and in its distribution of some consonants, among other aspects. Lleidatà has six unstressed vowels /i e ɛ a o u/ whereas the eastern variety only has three /i ə u/ (Veny 1982: 129–131, Recasens [1991]1996: 59–151). Lleidatà also has more alveolopalatal affricates in initial and post-consonantal position than eastern dialects, which have more fricatives (see Veny 1982). In addition, at the lexical level, most of the eastern dialects have a more limited distribution of affricate phonemes, because in initial position they only appear in loan words (see Bonet & Lloret 1998).

3. The phenomenon studied

As I have just described, the realization of alveolopalatal sibilants as fricatives or affricates in initial or post-consonantal position is one of the traits which, in a general way, have been presented as distinguishing the eastern and western dialects of Catalan (see Veny 1982). However, this division represents a more complex situation. In the first place, according to Pradilla (2002: 303), the fricative/affricate contrast is a reflection of a language change that, diachronically, is called deaffrication. In accordance with this view, the dialects that maintain

Figure 1. Location of the study

the affricate variant are more conservative than those that do not. As Recasens ([1991]1996: 284) explains,

> The dialectal contrast between the affricate and fricative realizations obeys different factors. Whereas the affricate realization must have been fairly general in Old Catalan, the fricative variant is more modern and has originated by virtue of a process of deaffrication; in consequence, the western dialects have proven to be more conservative than the eastern ones. It could be thought that these dialectal differences have a certain relationship to differences of degree of palatality or articulatory "tension" between some ways of speaking and others; according to this reasoning, the affricate realization would have been maintained in the

> dialects where the degree of palatality of the palatal consonants is high or where explosive affricates are uttered with strong "tension."

With regard to Lleidatà, the realization of fricatives or affricates in the absolute initial position of a word and a phrase has been explained in different ways. The [t͡ʃ] is characteristic of this dialect (see, for example, Gili i Gaya 1931; and Recasens [1991]1996: 284). As for the voiced variant ([d͡ʒ] ~ [ʒ]), Gili i Gaya (1931) and Martí (1970) assert that the most usual pronunciation is [ʒ]. Recasens ([1991]1996: 285) adds that, along with [ʒ], the [d͡ʒ] variant appears in emphatic pronunciation. In this sense, Casanovas & Creus (1999) do not consider [d͡ʒ] to be an idiosyncratic trait of the phonetics of Lleidatà, and they qualify it as a case of free variation that could be related to speakers' rate of speech. In post-consonantal position after any consonant, [t͡ʃ] appears (Recasens [1991]1996: 296). As for its voiced counterpart, the observations made indicate that following a vibrant, [ʒ] tends to appear, and after a plosive, a nasal or a lateral, [d͡ʒ] appears (see Gili i Gaya 1931, Alcover and Moll 1980, and Recasens [1991]1996: 296–297). The sociolinguistic explorations of Solans (1996) corroborate these results; in post-consonantal position, the appearance of voiceless affricates is almost 100%, and that of voiced affricates is over 75%. Currently, in initial position as well as in post-consonantal position, one observes, in situations influenced especially by the written language, a tendency to utter voiceless affricates as fricatives. This tendency has its origins in the belief that the fricatives of the eastern dialects are the "correct" pronunciations, which must be used and which are used by those who know Catalan.

Apart from these sociolinguistic considerations, one of the first acoustic descriptions of the affricates in Lleidatà comes from Gili i Gaya (1931), who specifies that, contrary to what occurs with the affricates of the Barcelona dialect, in the voiceless affricates, the plosive and fricative elements are almost inseparable. He also adds that the voiceless alveolopalatal affricate of Lleidatà resembles that of Spanish more than that of the Barcelona dialect, because it has a shorter fricative element than the Barcelona dialect. In the case of the voiced affricate, the acoustic analysis by Alamon (1985) demonstrates the existence of a partial devoicing of the friction, which leads him to predict a process of devoicing of the voiced variant.[5]

Finally, phonetic variation in Catalan has been well studied in the framework of sociolinguistic variation. In this sense, there are different studies which focus on the production of several phenomena: Colomina (1985), Mier (1986), Montoya (1989, 1995), Alturo & Turell (1990), Escrivà (1993), Pradilla (1993, 1995), Pla (1995), Plaza (1995), and Segura (2003). Apart from studying production,

5. In the voiced affricate, a long occlusion has been observed in different areas of northwestern Catalan (see Arqués 1910; Schädel 1909).

Montoya (1989), Pons (1992), Escrivà (1993), Pradilla (1993), and Carrera-Sabaté (2006) incorporate a complementary analysis of speakers' subjectivity, with Pons (1992) constituting the basis for the present study.

4. Methodology

4.1 The social variables used

The phonetic variation I am studying only affects speakers who have Catalan as an L1. Hence, taking into account the relativity of the concept 'native' that Trudgill (1983), among others, points out, I decided to establish a far more restrictive constraint regarding the choice of informants: the informants and their parents had to have been born in Alguaire, thereby being speakers of Lleidatà. The 30 speakers analyzed were chosen based on the census data for Alguaire and constitute l.146% of the population born in that municipality or in the surrounding countryside.[6]

The social variables I considered at the beginning of the analysis were as follows: age, education, knowledge of written Catalan, gender, and social status. As age is a crucial variable for the development of individual language, I took speakers aged 4 as a starting point in order to properly analyze different phases before the acquisition of writing. At this age, the essentials of the language structure have been acquired (Gesell 1940), and it seems that younger children are more oriented toward parental norms of variation than are older children (Kerswill & Williams 2000). At this stage, it is possible to study the speakers' natural language because they have not yet been influenced by instruction and reflect the sociocultural situation of their families (as pointed out by Labov 1989; Guy & Boyd 1990; Roberts & Labov 1995; and Roberts 2002). Furthermore, as Spence, Rollins, & Jerger (2002) show, children from 3 to 5 years of age can use indexical information to identify cartoon characters by their voice, and "by the time the child is four to five years old, adult-like language specific perceptual patterns appear to be well learned and perhaps automatic, although there are questions remaining about the malleability of such processes in the preadolescent years and beyond" (Ryalls [1996]1997: 23).

Speakers aged 70 are the endpoint of my analysis of the speech community; I only study the "young-old" elderly age-group (see Coupland, Coupland & Giles 1991: 7) because speakers older than 70 have different patterns of producing sounds and are more tolerant than younger speakers of regional accents (see Paltridge & Giles 1980: 79).

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6. Labov (1966) considers that 0.025% of the population is enough if the selection of informants is well stratified.

The Alguaire sample was segmented into eight age groups, as follows:

a. 61–70 years old (born between 1933–1942)
b. 51–60 yrs. (b. 1943–1952)
c. 41–50 yrs. (b. 1953–1962)
d. 31–40 yrs. (b. 1963–1972)
e. 30–21 yrs. (b. 1973 –1982)
f. 12–20 yrs. (b. 1983–1990)
g. 6–11 yrs. (b. 1991–1997)
h. 4–5 yrs. (b. 1998–1999)

Even though the number of interviewees was the same in each group, the generation groups were not evenly segmented, nor were they sized in proportion to the segment of the population they represent. Thus, with regard to the younger groups (those from 4 to 31 years of age), the criterion for dividing up the population had to do with educational level and the fact that these are the first generations to receive schooling in Catalan. While I am aware that this division by ages is quite different from those applied to the middle-aged and older age groups, I think this is necessary if we want to observe the effect of Catalan-medium education and how different states of language development are related to the adopting of new language habits and practices.

4.2 The analysis

The work presented here is based on the comparison of two surveys, a production survey and a perception survey, performed statistically through the programs Goldvarb 2001 and Statgraphics Plus.

With regard to the production survey, taking into account the Labovian classification of speech registers or styles (Labov 1972) and the need to approach dialectal studies from a functional angle, an investigation into the phonetic production of the voiced and voiceless alveolopalatal fricatives and affricates through a one-answer-only question set was used to determine consonant variation in initial and post-consonantal position in 60 lexical items. I used a closed-answer questionnaire in order to collect the same words in all of the interviews. I only aimed to obtain 30 words from children between 4 and 11 years of age, through an image elicitation questionnaire.[7]

7. These words were obtained through a closed-answer questionnaire because obtaining the different lexical manifestations in which the affricate can appear is quite a difficult task, and, despite the development of "high-quality battery-operated tape recorders" (see Labov 1994), it is not easy to obtain segments that are not frequent in speech.

The words collected present formal differences such as the voicing of the fricatives or affricates, number of syllables, adjacent phonetic context, the stressed vowel, and etymology. The 60 words analyzed are:

voiced post-consonantal fricative or affricate		**voiceless post-consonantal fricative or affricate**		**voiced initial fricative or affricate**	
algebra	'algebra'	*anxova*	'anchovy'	*gelats*	'ice cream'
algerià	'Algerian'	*arxiu*	'archive'	*joier*	'jeweler'
angel	'angel'	*carxofa*	'artichoke'	*jove*	'young'
banjo	'banjo'	*clenxa*	'part'	*jubilada*	'retired'
capgirat	'changed'	*desxifrar*	'decode'	*julivert*	'parsley'
congelador	'freezer'	*enganxar*	'to hook'		
conserge	'caretaker'	*escorxador*	'slaughterhouse'		
detergents	'detergents'	*guerxo*	'blind in one eye'		
diumenge	'Sunday'	*manxar*	'to blow up'		
enjoiat	'bejewelled'	*marxa*	's/he goes'	voiceless initial fricative or affricate	
esbarjo	'playtime'	*orxata*	'tiger nut milk'		
esponja	'sponge'	*panxa*	'stomach'	*xarxa*	'net'
estranger	'foreign'	*parxis*	a board game	*xifra*	'number'
granja	'farm'	*planxa*	'iron'	*xinesos*	'Chinese'
immenjable	'inedible'	*planxar*	'ironing'	*xufla*	'tiger nut'
injust	'unfair'	*porxo*	'porch'		
menjador	'dining room'	*punxes*	'thorns'		
monja	'nun'	*ranxeres*	a folk song		
objecte	'object'	*ranxo*	'communal meal'		
penjolls	'pedant'	*rodanxes*	'slice'		
subjuntiu	'subjunctive'	*xampú*	'shampoo'		
submergir	'to dip'	*xarxa*	'net'		
targeta	'card'	*xiclet*	'chewing gum'		
taronger	'orange tree'				
taronja	'orange'				
Urgell	place name				
urgent	'urgent'				
verge	'virgin'				

Once the elicited words were obtained, I acoustically analyzed the voiceless and voiced segments in initial and post-consonantal position of 14 speakers, who represented groups differentiated by age and by gender. The Speech Analyzer 2.7 program was used to obtain the duration of the plosive and fricative segments of the 900 affricate and fricative sounds analyzed and also to determine the voiced/voiceless ratio in the plosive and fricative segments of the voiced affricates.

The second part of the first survey was an analysis of the uttering of voiced and voiceless alveolopalatal fricatives and affricates on Lleida television programs on the basis of two different levels of formality. Altogether, I analyzed 22 hours of

television programs, 12 of which correspond to the category of news broadcasts, and 10 of which were debates. Half of the words collected were also analyzed spectrographically, and the voiced/voiceless ratio and duration of the plosive and fricative segments of 77 voiced affricates were measured.

In relation to the second part of the study, the perception survey, due to the fact that the analysis of speakers' perceptual competence has followed different methods since Labov (1966), my analysis of the subjects' own perception focuses on two parts: (1) their subjective judgments related to the acceptance of voiced alveolopalatal affricates ([d͡ʒ]) and voiceless alveolopalatal fricatives ([ʃ]); and (2) discrimination between voiced and voiceless fricatives and affricates and judgments concerning which consonant is correct and which is their own pronunciation.[8]

The first part dealt with the acceptance of voiced alveolopalatal affricates ([d͡ʒ]) contained in five words (*menjador, taronges, urgent, targeta, jove*)[9] and the acceptance of voiceless alveolopalatal fricatives ([ʃ]) contained in six words (*rodanxes, planxa, carxofa, orxata, xampú, xiclets*).[10] All of them were uttered in six sentences and phrases:

1. *Deixa les taronges al menjador* [Leave the oranges in the dining room.]
2. *És urgent que portis la targeta* [It is urgent that you bring the card.]
3. *Joier una mica jove* [Jeweler a little young]
4. *Posa les rodanxes de lluç a la planxa* [Put the slices of hake into the grilling pan.]
5. *No li agrada ni la carxofa ni l'orxata* [He/she does not like artichokes nor tiger nut milk.]
6. *De xampú no en compra, compra xiclets* [Don't buy any shampoo; buy gum.].

The sequences that the subjects heard were pronounced by the same person: a male speaker of the Lleidatà dialect with knowledge of linguistics and phonetics. A single speaker was chosen to prevent a change in voice from causing the sequences to be associated with different nuances determined by social, dialectal or functional aspects. Moreover, the subjects were not given any information on the dialect group of the person who pronounced the sequences, in order to avoid any kind of influence on the subsequent evaluations (for a detailed analysis of these and other aspects, see Nagy 2006).

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8. The analysis of speakers' perceptual competence in explaining variation has been done through different methods such as attitude judgments, matched-guise techniques, accent imitation and caricature, matching, identification and categorization tasks, discrimination, etc. (see Clopper and Pisoni 2005: 315).

9. In the majority of cases, these words were uttered with [ʒ].

10. These words are always uttered with [t͡ʃ].

The phrases were recorded and subsequently manipulated in the following way. The Lleidatà speaker was instructed to pronounce the sequences above with the underlined consonants realized as affricates, while being as faithful as possible to the Lleidatà dialect. Later, in the case of the sequences that had to contain voiceless affricates (*Posa les rodanxes de lluç a la planxa / No li agrada ni la carxofa ni l'orxata / De xampú no en compra, compra xiclets*), the affricates were modified into fricatives (see Figure 2) with Praat 4.3.29 by eliminating the stop closure and the burst prior to the fricative (if there was one) from the waveform, and then lengthening the fricative segment (i.e., manipulating the duration of the fricative).

In addition, the position of sounds in the sentences was based on an observation taken from another perception study (Cole 1981: 107–108) showing a gradation from higher to lower probability of discrimination according to whether sounds occur in initial, final or medial position in a sequence.

After listening to each utterance, the informants answered the question: "Did you hear any unusual pronunciation in this sentence?" The goal of this part was to analyze the informants' capacity to consider [d͡ʒ] and [ʃ] as a strange pronunciation and to confirm how they are perceived and also whether they are considered a common or foreign form in their dialect. This subjective analysis also helps to determine a given speech community's level of tolerance for certain phonetic variants and to better understand the speakers' attempts "to accommodate to or acquire higher status speech forms" (Trudgill 2003: 81).

As for the second part of the perception survey, the informants' capacity to discriminate voiced and voiceless alveolopalatal fricatives and affricates and also their subjective judgments of these sounds were analyzed on the basis of eight lexical items, listened to twice without any semantic context. The choice of these words was based on the results of the elicited one-answer-only question set and on the linguistic characteristics of the 60 lexical forms taken from the production corpus, i.e., voicing of the affricate or fricative, position (word initial or postconsonantal) of the affricate or fricative, and the preceding consonantal context. The words analyzed were (with the symbol in parenthesis indicating the results of voiced or voiceless affricates obtained):

conserge	87% (27) tokens produced as [d͡ʒ]	N=31
esponja	100% (30) tokens produced as [d͡ʒ]	N=30
marxar	96% (31) tokens produced as [t͡ʃ]	N=32
clenxa	96% (31) tokens produced as [t͡ʃ]	N=32
xampú	93% (30) tokens produced as [t͡ʃ]	N=32
xarxa (initial position)	45% (14) tokens produced as [t͡ʃ]	N=31
xarxa (postconsonantal position)	48% (15) tokens produced as [t͡ʃ]	N=31
gelats	87% (27) tokens produced as [d͡ʒ]	N=31
Julivert	75% (21) tokens produced as [d͡ʒ]	N=28

Figure 2. Modification of an affricate into a fricative, in the case of 'compra xiclet' [e t͡ʃi'kɬet] > [e ʃi'kɬet] by Praat 4.3.29

These words, which formed part of the second perception test, were uttered by the same Lleidatà speaker who had pronounced the previously discussed sequences. The procedure for obtaining the utterances of the words with affricates and fricatives was also to ask the speaker to pronounce the words with affricates, and then once the words were recorded and acoustically analyzed, the fricatives were obtained by eliminating the stop closure and the burst (if there was one) of the affricate.

The informants were asked to discriminate possible phonetic differences in the isolated words. If they did well, they were asked which consonant they considered to be the most appropriate, which was their own consonant, and which was the consonant used in their speech community. The specific questions put to the interviewees who achieved phonetic differentiation were:

1. "Which consonant do you consider to be appropriate in each word and in your speech community?" (i.e., the "good" consonant)[11]
2. "Which is the consonant you yourself use in each word?" (i.e., their own consonant)
3. "Which is the consonant used in your speech community in each word?" (i.e., the autochthonous consonant)

The goal of this second perception experiment was, first of all, to determine the subjects' ability to identify manner-of-articulation contrast in initial position and post-consonantal position in these words. Secondly, it helped to determine the connotations of both pronunciations for the subjects and what was in accordance with the generally accepted use of each form within their speech community.

Comparing the results of the two tests allowed us to determine the subjects' index of *linguistic insecurity* by noting the differences between how they pronounced the palatal sibilants and what they considered to be the "correct" way (see López Morales 1989), and by noting the differences between what consonant they considered their own in initial and post-consonantal position and which one they considered to be "correct" (see Labov 1966; Marcellesi and Gardin 1974; Macaulay 1975; and Gadet 1989).

5. Results and discussion

5.1 Production results

5.1.1 *Acoustic description*

Following the acoustic analysis of the voiced and voiceless alveolopalatal affricates uttered in word-initial and post-consonantal position, it is observed that, in parallel with the observations of Arqués (1910), Schädel (1909), Gili i Gaya (1931), and Recasens & Espinosa (2007), the duration of the stop closure in relation to the total duration of the affricate sound is significantly higher when the

11. In this study, the term "good solution" is synonymous with "correct" and also "normal." This follows Coseriu's ([1952] 1973) concept of "norm," through which the habitual and correct aspects of a language are defined.

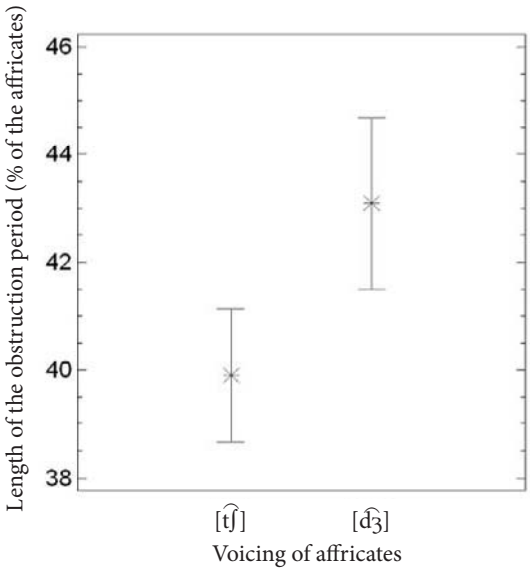


Figure 3. Length of the stop closure in the affricates (p = 0.0016)

affricate is voiced than when it is voiceless (see Figure 3). And it seems that this longer duration of the stop closure is not always determined by linguistic factors like the position of the affricate within the word, the adjacent context, word stress, or quantity of syllables.

The spectrographic analyses stemming from the closed-answer questionnaire and the utterances collected from the news programs on Lleida television reveal that, contrary to the observations of Alamon (1985), the fricative part of the affricates do not undergo considerable devoicing. By contrast, in the data from the news programs, a lower amount of voicing is detected than in the data from the questionnaire (in Figures 4 and 5 we can see that the fricative part has a higher percentage of voicing (from 76% to 100%) when the results come from the questionnaire than when they come from Lleida television data). It must be said, in this sense, that the data is in line with other experimental contrastive studies of affricate consonants (see Fernández, Carrera, & Pradilla 2003).

The variation in the amount of voicing of the voiced fricatives and affricates is related to the accentual position of the fricative or affricate consonant within the word; one observes a higher tendency to maintain the voicing when the affricate or fricative is found in a stressed position than when it is in another accentual position. This observation can be related to the fact that the stressed position brings with it a greater articulatory force or tension and intensity that must maintain the vibration of the vocal cords to higher degree (see Table 1). It must be borne in

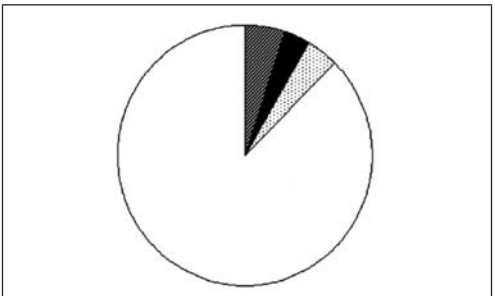


Figure 4. Results from the questionnaire

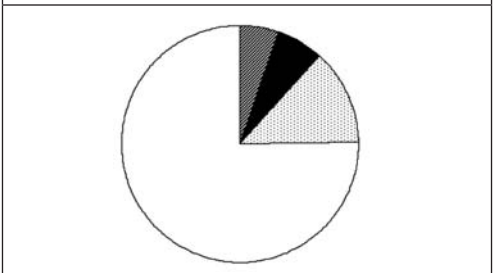
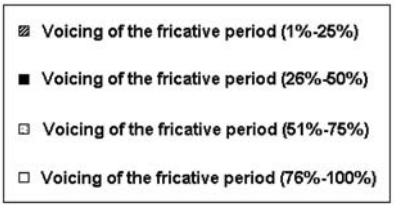


Figure 5. Results from TeleLleida



Figures 4 and **5.** Voicing of the fricative part of affricates, depending on context of utterance ($p = 0.0290$)

mind, moreover, that the amount of voicing of the fricative segment does not vary if it belongs to an affricate or fricative consonant.

In his acoustic description of the affricates of Lleidatà, Alamon (1985: 102) explains that the voiced affricates that are preceded by a consonant sound present a burst at the beginning of the friction. In my analyses, I have also detected a burst very close to the fricative part of the affricate. This kind of release, nevertheless, has appeared both in voiced and voiceless fricatives. The main characteristic of the release is brevity. The affricates affected by this burst do not reach 10% (79) of the total computed (830), and nearly half of the affricates which contain the burst are voiceless.

Table 1. Amount of voicing of the fricative part in voiced affricates and in fricatives (p = 0.0120)

Accentual position				
	Voiced part of fricative between 1% and 25% of total duration of fricative		Voiced part of fricative between 26% and 50% of total duration of fricative	
	Rate	Tokens	Rate	Tokens
Prestressed	2.6%	11	1.6%	7
Stressed	0.7%	3	1.2%	5
Poststressed	1.6%	7	0.7%	3

	Voiced part of fricative between 51% and 75% of total duration of fricative		Voiced part of fricative between 76% and 100% of total duration of fricative	
	Rate	Tokens	Rate	Tokens
Prestressed	0.9%	4	23.4%	100
Stressed	0.7%	3	35.5%	152
Poststressed	2.3%	10	28.7%	123

5.1.2 *Results of the closed-answer survey*

5.1.2.1 *Voiceless affricate/fricative.* Consonants pronounced as affricates when the consonant in question is voiceless are clearly a majority among all of the subjects (close to 90% of the utterances are affricates). Further, there is no linguistic variable that significantly influences the frequency of the affricates except the case of lexical exceptions such as *xifra*[12] and *desxifrar*, words pronounced with a voiceless alveolopalatal fricative, [ˈʃifrɛ] and [deʃiˈfra], and also with a voiceless alveolar fricative, [ˈsifrɛ] and [desiˈfra]; this second pronunciation comes as a result of the adaptation of the Spanish phoneme [θ], which does not exist in Catalan, into [s].[13]

As for the influence of social variables, it is interesting to observe the small but statistically significant influences of knowledge of written Catalan; knowledge of written Catalan fosters the fricative pronunciation somewhat, especially in speakers who have received more instruction and in those who were currently in school (see Table 2). It must be borne in mind that the affricate pronunciation of the initial and post-consonantal alveolopalatal is characteristic of Lleidatà and that its speakers know that in the eastern dialects these consonants are not so frequent. The

12. From the Arab work *ṣifr* (Coromines 1991).

13. It must be borne in mind that many of the informants received their schooling in the Spanish language, and their more specialized vocabulary was acquired in school in that language. So, in pronouncing this word, the Spanish phonetic form is adopted into Catalan.

Table 2. Percentages of the use of the voiceless affricate according to subjects' education and knowledge of Catalan (p = 0.023)

Knowledge of written Catalan:				
	Without education		Elementary education	
	Rate	Tokens	Rate	Tokens
Yes	–	–	87%	55
No	96%	44	97%	76
	Secondary education		Higher education	
	Rate	Tokens	Rate	Tokens
Yes	91%	231	91%	231
No	97%	76	97%	76

Table 3. Probabilities of uttering voiceless affricates according to preceding context (p = 0.0005)

Context preceding the palatal consonant	**Probability of uttering affricates**
Post-alveolar nasal	0.89
Vibrant	0.02
Plosive	0.91
Post-alveolar lateral	0.85
Absence of consonant or vowel	0.85

entry of Catalan into the schools and also the influence of the media in Catalan, in which the majority dialect has been and still is eastern Catalan, have caused certain sectors of society with knowledge of written Catalan to take up the norms of the more prestigious (eastern) dialects, and the fricative pronunciation is beginning to be heard.

5.1.2.2 *Voiced affricate/fricative.* The analysis of the utterances of the voiced consonant allows one to observe a general tendency to utter voiced palatal consonants as affricates (the overall probability is 0.67). The context preceding the consonants is, in some cases, the determining factor, since the only palatals that are never pronounced as affricates are those that follow the consonant [r] (see the probabilities in Table 3).

With regard to social variables, the differences between the utterances of fricatives and affricates are not very important between the speakers of different ages, although it is observed that the subjects of a higher age (from 51 to 70 years old, born between 1933 and 1952) present a tendency to pronounce more voiced fricatives than affricates (see Figure 6).

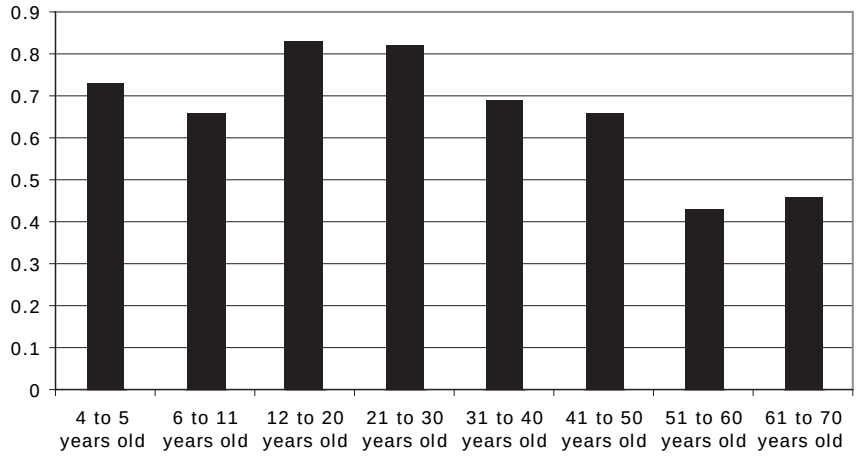


Figure 6. Probabilities of uttering voiced affricates, by age of informants (p = 0.0005)

Table 4. Probabilities of uttering voiced affricates according to subjects' knowledge of written Catalan (p = 0.0005)

Subjects' knowledge of written Catalan	Probability of uttering affricates
Yes	0.57
No	0.76

As for the variable of knowledge of written Catalan, it can be seen, in general terms, that the subjects without notions of written Catalan present a greater tendency to pronounce the voiced palatal consonants as affricates. Among the subjects with more knowledge of written Catalan, the tendency to pronounce affricates alternates with fricatives and is a little higher than that of fricatives (see Table 4). Looking at Figure 6 and Table 4 together, we can infer that the subjects between 51 and 70 years of age who do not have knowledge of written Catalan probably utter voiced affricate consonants in percentages a little higher than those who do have this knowledge.

5.1.3 *Results of the data obtained from Lleida television*

5.1.3.1 *Voiceless affricates and fricatives*. The analyses stemming from the data from Lleida television allows one to see a predominance of the affricate variant [t͡ʃ] in debates (86% [t͡ʃ] vs. 14% [ʃ]). On the other hand, in news programs the fricative allophone is clearly imposed, which is closer to the variant in eastern dialects (62% [ʃ] vs. 38% [t͡ʃ], p = 0.0190) (see Figure 7). Social variables do not turn out to be significant in establishing differences in these pronunciations.

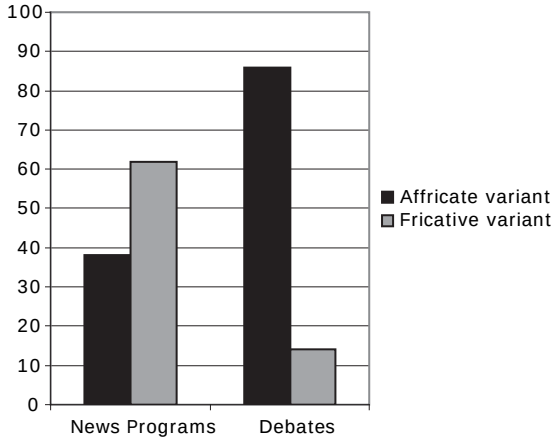


Figure 7. Voiceless affricates and fricatives in initial and post-consonantal position (p = 0.0190)

The data obtained from Lleida television confirms that the most relevant differences among informants appear when one compares two different discourses according to medium (speech and spoken writing) and participation (dialogue and monologue) (see Crystal and Davy 1969: 71). Thus, it is observed that in the news programs there are speakers who utter the affricate sound both in the Lleida way and in the manner of the eastern dialects, but in the debates the tendency is to maintain the variants of the Lleidatà dialect, that is: [t͡ʃ].

5.1.3.2 *Voiced affricates and fricatives.* As for the voiced affricates and fricatives, we cannot establish the same division found in the case of the voiceless phones; the reason is that one can observe a variation that is not linguistically determined and that is related to each lexical unit and each speaker (the affricate is non-existent in syllable-initial position and when following a vowel).

5.2 Perception results

The results obtained from the analysis of perception will be presented through a grouping of words according to their voicing and the production of affricates and fricatives observed in the analysis of the responses to the closed-answer questionnaire. Thus, the groups established are: (1) words uttered with voiceless affricates over 90% of the time (*rodanxes, planxa, carxofa, orxata, xampú, xiclets, clenxa, xampú,* and *xarxa*); (2) words uttered with voiced affricates in percentages ranging from 75% to 95% (*joier, jove, taronges, penja-robes, esponja, gelats,* and *julivert*); (3) words almost always uttered with voiced fricatives (*urgent, targeta,* and *conserge*).

5.2.1 *Oddness of* [ʃ], [ʒ], *and* [d͡ʒ]

The informants made the evaluations described below after hearing the following sentences: (1) *Posa les rodanxes de lluç al la planxa;* (2) *No li agrada ni la carxofa ni l'orxata;* (3) *De xampú no en compra, compra xiclets* (with words pronounced with [ʃ]); (4) *Joier una mica jove;* (5) *Deixa les taronges al menjador* (with words pronounced with [ʒ]); (6) *És urgent que portis la targeta* (with words pronounced with [d͡ʒ]).

1. When the words *rodanxes, planxa, carxofa, orxata, xampú,* and *xiclets* were heard with the fricative allophone, they were considered odd in percentages ranging from 28% to 53% of the evaluations.
2. On the other hand, the fricative allophone was perceived as being odd by very few speakers in *joier, jove, taronges,* and *menjador*.
3. Finally, the affricate allophone was seen as being quite a bit odder in *urgent* and *targeta* (see Table 5).

In view of these results, the first thing which must be borne in mind is that the substitution of the voiceless affricate [t͡ʃ] by the fricative [ʃ] is not tolerated in over 40% of the cases, above all if the consonant is pronounced after a vowel or vibrant. The substitution of the voiced affricate [d͡ʒ] by the voiced fricative [ʒ] goes almost completely unnoticed. Finally the replacement of the voiced fricative [ʒ] with the voiced affricate [d͡ʒ] following a vowel is considered less odd than in the case of the voiceless ones. Most likely the factors that explain these differences have to do with the production of each allophone, the ease of perceiving the voiceless and voiced fricatives and affricates, the articulatory characteristics of these sounds, and also the value placed on one variant or another in a given speech community.

For the first point (the production of the different variants), in the analysis of the questionnaire results, it is observed that the affricate allophone is almost the only one uttered when the palatal sounds are voiceless. On the other hand, we have seen variation in the voiced palatal consonants. This variation is most likely what causes the differences in the voiced consonants to go more unnoticed than in the case of the voiceless ones.

As for the second point (the ease of perceiving certain sounds), it is easier to perceive the characteristics and modifications of a voiceless affricate than those of a voiced one, since the former are produced with more articulatory tension and present a greater intensity than the latter (see Raphael 2005). In this sense, the comparison of the duration of the plosive element of voiceless affricates and that of voiced affricates strengthens this idea, since the plosive parts in voiced affricates present a longer duration than in the voiceless affricates, in order to be more evident to the ears of the receivers (see Cole 1975). Apart from this, the presence of

Table 5. Percentages of oddness of [ʃ], [ʒ], and [d͡ʒ] (p = 0.0000)

	Oddness in evaluations of [ʃ]:		Use of [t͡ʃ] (questionnaire):	
	Rate	**Tokens**	**Rate**	**Tokens**
carxofa	53%	17	96%	31
xampú	50%	12	96%	31
orxata	46%	15	92%	26
xiclets	43%	10	96%	31
planxa	31%	10	93%	30
rodanxes	28%	9	100%	26
	Oddness in evaluations of [ʒ]:		**Use of [d͡ʒ] (questionnaire):**	
	Rate	**Tokens**	**Rate**	**Tokens**
joier	4%	1	95%	23
jove	0%	0	75%	24
menjador	0%	0	84%	27
taronges	0%	0	93%	30
	Oddness in evaluations of [d͡ʒ]:		**Use of [ʒ] (questionnaire):**	
	Rate	**Tokens**	**Rate**	**Tokens**
urgent	21%	7	100%	24
targeta	31%	10	95%	21

a vibrant or a vowel in front of the palatal segment favors easier recognition of an infrequent pronunciation (the nasal sounds present an oral occlusion that can be confused with the plosive part of the affricate; in addition, when they are produced, the nasal murmur spreads to surrounding segments (see Raphael 2005: 195)).

With respect to the third point, the articulatory and acoustic characteristics of vibrants are much more differentiated than those of affricates and fricatives; for this reason, the index of perceptibility of fricatives and affricates is higher when they come after a vibrant than in contact with other consonant contexts like nasals.

Finally, as for the fourth point, the awareness speakers have is that voiceless affricates are characteristic of Lleidatà and not of eastern dialects. In accordance with this, when they hear a voiceless fricative instead of a voiceless affricate, there is a tendency to attribute it to eastern areas, and more specifically to the area of Barcelona, a point of reference in terms of fashion, new tendencies, ideologies, and language for the people of Lleida.

Most likely, psychological and biological factors will allow one to explain the perception differences among words and speakers since there are differentiated results in the perception of segments that are determined by the position of the

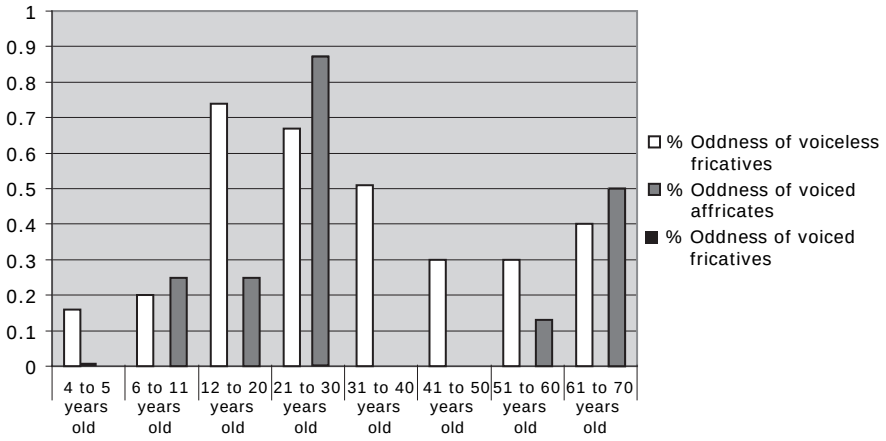


Figure 8. Probability of perceiving fricatives and affricates as being odd (p = 0.0360)

sound within the word (initial, medial, or final) (see Cole 1981). Apart from this, the perception of voiceless fricatives and voiced affricates can be connected to the variable of age; in the voiceless fricatives, it is observed that the speakers who are between 12 and 40 years old, and, in a more obvious way, those between 12 and 30, are the ones who are most susceptible to perceiving oddness (see Figure 8). As for the voiced fricatives following a consonant or in initial position, practically no one perceives them as being odd; the voiced affricates following a vibrant have a 0.41 overall probability of being perceived as odd, and the subjects most susceptible to perceiving them in this way are between 21 and 30 years of age, without the type of word significantly influencing perception.

5.2.2 *Discrimination between* [t͡ʃ] *and* [ʃ] *and between* [d͡ʒ] *and* [ʒ]

The probability of discriminating voiceless fricative and affricate allophones in the words *marxa, clenxa, xampú,* and *xarxa* is very high (0.80), and it is modified by the variables of age, level of education, and knowledge of Catalan. The probability of discriminating voiced fricative and affricate variants in *esponja, gelats,* and *julivert* is much lower (0.28) and is modified by the variables of age and level of education. Finally, the probability of discriminating voiced affricates and fricatives in the word *conserge* is the same as not discriminating them (0.5) and it is also modified by the variables of age and level of education. These probabilities are in harmony with the results of the first phase of the perception test in that the informants are much more aware of the variation between voiceless fricatives and affricates than between voiced ones; within this latter group, they are more aware of variation in the voiced ones that are preceded by a vibrant. On the other hand, the perceptive acuity of the informants increases in the middle of the social spec-

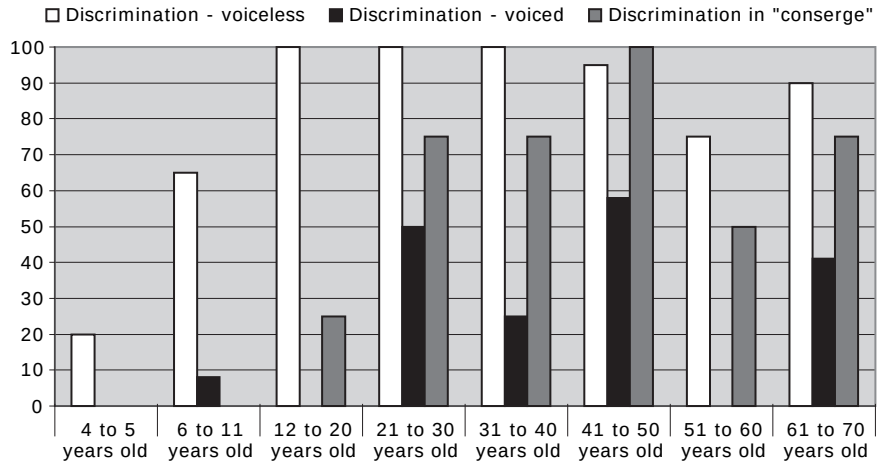


Figure 9. Discrimination of fricatives and affricates (p = 0.0000; p = 0.0106; p = 0.0012)

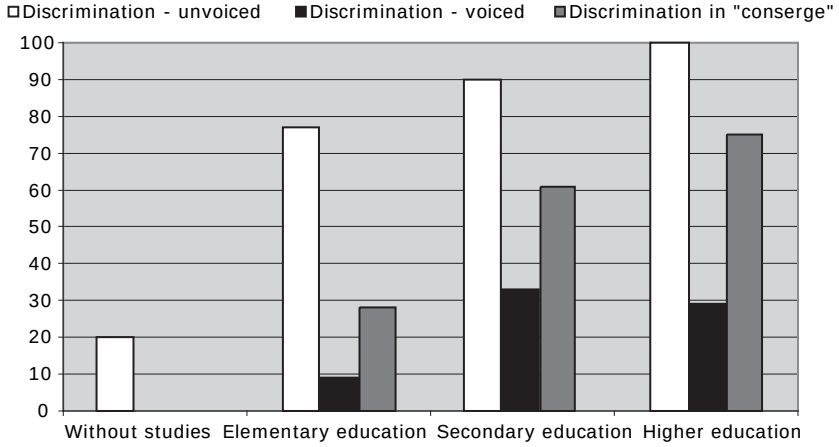


Figure 10. Discrimination of fricatives and affricates according to informants' level of education (p = 0.0000; p = 0.0340; p = 0.0465)

trum (21 to 50 years of age), as can be observed in Figure 9, which must be related to the fact that the youngest speakers need more acoustic information than the adults in processing messages (see Walley 2005).

In addition, level of instruction (education and knowledge of written Catalan) plays an essential role in the ability to discriminate between words uttered with affricate and fricative consonants (see Figures 10 and 11). Knowledge of the letters in the words seems to be the determining factor for describing this ability. It must be borne in mind, however, that the significance of these analyses is

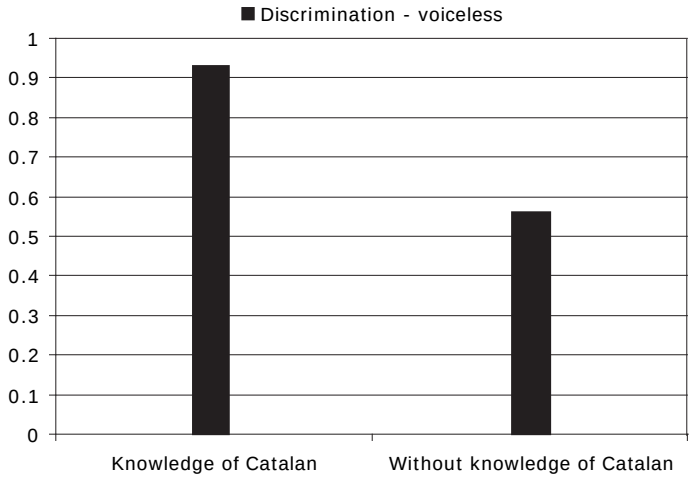


Figure 11. Probabilities of discriminating fricatives and affricates according to informants' knowledge of Catalan (p = 0.0000)

very high in the case of the voiceless consonants and quite a bit lower or non-existent in relation to the voiced ones. Again, one must be able to connect these differences with the greater perceptibility that the voiceless consonants have with regard to the voiced ones.

The low significance in the discrimination of voiced affricates and fricatives, together with the fact that these consonants have not generated a perception of oddness as clearly as in the case of the voiceless ones, lead me to quantitatively consider only the speakers' subjective evaluations regarding the voiceless affricates.

5.2.3 *The* [t͡ʃ] *or* [ʃ] *variant evaluated as being "good"*

Between the voiceless fricative and affricate pronunciations, the variant considered "good" by the informants who were able to discriminate between them was the affricate, with a percentage higher than 60%. In relation to the social variables that were found to be significant, it was observed that the informants without education or with elementary school education were the ones who gave the highest percentages of good ratings to the affricate allophone, [t͡ʃ]. The informants with secondary and higher education levels yielded lower percentages of good ratings to the allophone [t͡ʃ] (see Figure 12). These informants with more instruction also accepted a variant different from the traditional one in the dialect, [ʃ], as being good. Given this, it seems logical to think that the pronunciation of the voiceless fricative, [ʃ], observed in the local news broadcasts is beginning to be accepted.

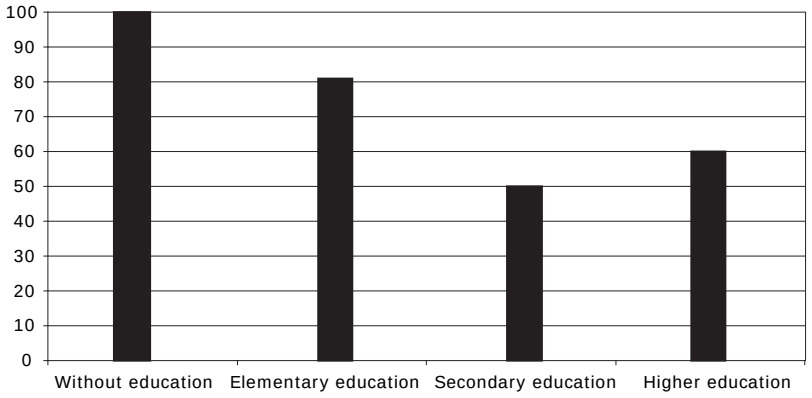


Figure 12. Assessment of the [t͡ʃ] variant as being good, according to informants' level of education (p = 0.0192)

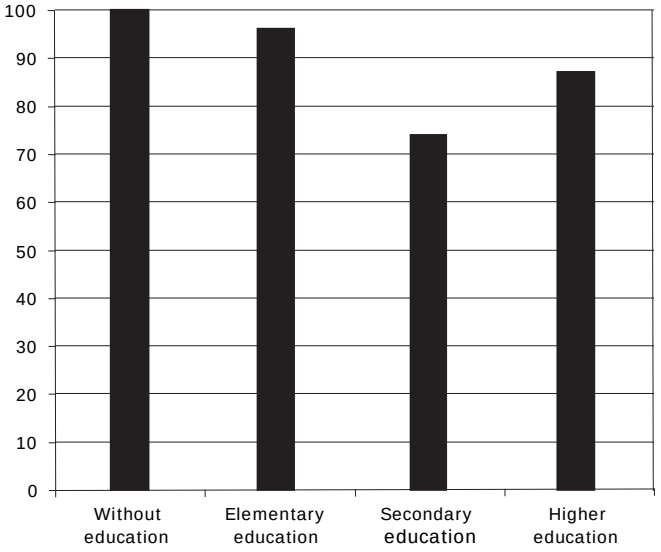


Figure 13. Assessment of the [t͡ʃ] variant as being one's own, according to informants' level of education (p = 0.0023)

5.2.4 *The* [t͡ʃ] *or* [ʃ] *variant evaluated as being one's own*

The informants that discriminated between voiceless fricatives and affricates believed that they pronounce the voiceless affricate in over 80% of the cases. Apart from this, level of instruction was the only variable that was significant in determining differences in the assessment of [t͡ʃ] or [ʃ] as forms that are used. Thus, the informants with a secondary level of education were the ones who yielded the lowest percentages in regard to the belief that [t͡ʃ] is what they use (see Figure 13).

5.2.5 [t͡ʃ] *or* [ʃ] *evaluated as being native to one's speech community*
The informants who discriminated between [t͡ʃ] and [ʃ] believe, in over 90% of the cases, that the consonant used in Alguaire is [t͡ʃ]. This observation corresponds fairly well with the results obtained from the closed-answer questionnaire (see Section 5.1.2).

5.2.6 *Language insecurity*
As mentioned in the methodology section, the results concerning the speakers' language insecurity will be presented from two perspectives: (1) one that compares the evaluations of the "good" variant with the results obtained from the closed-answer questionnaire (henceforth, unconscious language insecurity, see Carrera-Sabaté 2003); and (2) one that compares the evaluations of the "good" variant with what the speakers believe they pronounce (henceforth, conscious language insecurity, see Carrera-Sabaté 2003).

5.2.6.1 *Unconscious language insecurity.* If we compare the informants' evaluation of the allophone they consider to be good with the data obtained in the closed-answer questionnaire, we observe that, in general terms, there is a direct relationship between the informants' production and evaluation (see Figure 14).

An initial look at Figure 14 allows us to detect that unconscious language insecurity is scant, since the lack of correspondence between the variants that the informants pronounced in the closed-answer questionnaire and those that they consider to be good is not statistically significant. Indeed, the probability that the informants are insecure is very low (0.3). Nevertheless, in relation to social variables, we observe that the most insecure informants are male and have a secondary level of education (see Figure 15).

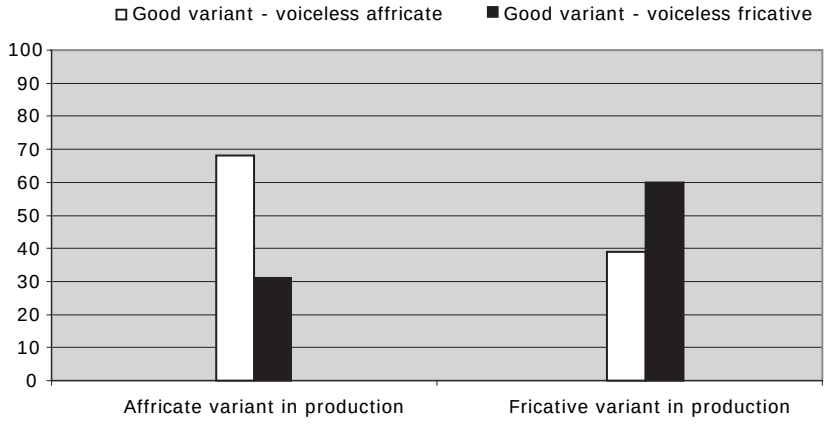


Figure 14. Percentage of unconscious language insecurity (p = 0.0092)

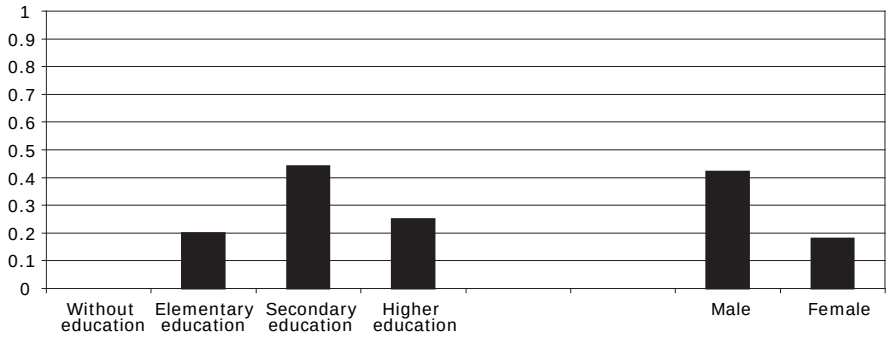


Figure 15. Probabilistic index of unconscious language insecurity, by informants' level of education and gender (p = 0.0390)

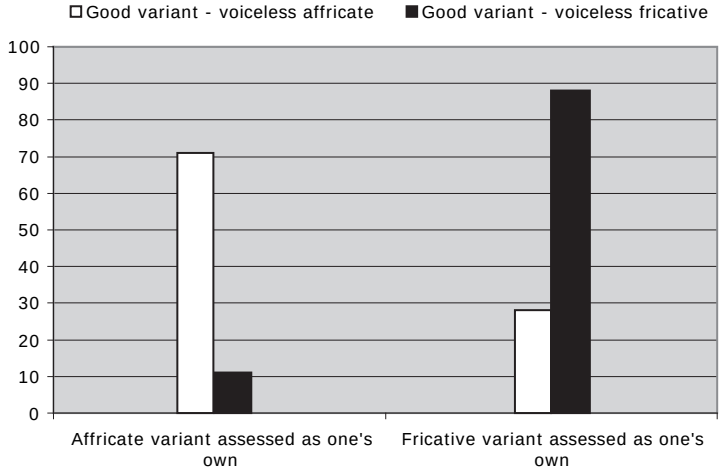


Figure 16. Percentage of conscious language insecurity (p = 0.0000)

5.2.6.2 *Conscious language insecurity.* If we compare the informants' assessments with the data obtained in the closed-answer questionnaire, we observe that, in general terms, the subjects who believe that they pronounce [t͡ʃ] also consider this to be the "good" one, and those who believe that they pronounce [ʃ] also believe that the [ʃ] variant is the "good" one (see Figure 16).

The results that can be derived from this graph do not allow us to speak of conscious language insecurity among the informants who have evaluated the fricative and affricate allophones, and no social variable was found that was significantly differentiated from this tendency.

6. General considerations

Lleidatà is influenced by two important factors: the force of the written language and the prestige of the eastern dialects. Within this situation, the people of Lleida consciously accommodate their pronunciation toward these norms of overt prestige, which undoubtedly must give them a higher status within the speech community.

The pronunciation of voiceless and voiced affricates in initial and post-consonantal position does not escape this tendency. The analyses of the production and perception of 30 speakers from Alguaire allow one to postulate, in regard to the voiceless affricates and fricatives, that despite the fact that speakers generally pronounce [t͡ʃ], a slight tendency is observed that leads to a reduction of articulatory gestures and the pronunciation of [ʃ], which is connected to some informants' level of study and knowledge of Catalan. In addition, the people of Lleida are exposed to hearing the fricative sound [ʃ] when they watch news programs on the local television channel, among other situations. This pronunciation ([ʃ]), which in many cases corresponds with the forms of the eastern dialects, is also fostered in some schools and is beginning to be considered the correct pronunciation, to the detriment of [t͡ʃ]. This new attitude is found especially in some of the male subjects who have a secondary level of education. Moreover, in terms of the perception component, the test of oddness reveals that [ʃ] is tolerated to a fair degree when it comes after a nasal sound, and it is evaluated as being foreign to the dialect when it is the most perceptible: after a vibrant or a vowel. This, added to the fact that the variation between voiceless fricatives and affricates is fairly noticeable, as demonstrated in the results of the discrimination tests, strengthens the idea that we are looking at a variable phenomenon that is quite perceptible and that is connected to certain prestige forms.

The variation between voiced fricatives and affricates is linguistically delimited by the adjacent context when it is preceded by the [r] or [ɾ] sound, where the fricatives and affricates are generally realized as [ʒ]. In other contexts we observe free variation that does not depend on spoken registers but which can be influenced by the informants' age and knowledge of Catalan. At the level of perception, it is quite a bit less detectable than the voiceless difference, and the affricate is only more evident to speakers when it is heard in the context in which it is never uttered: following an [r] or [ɾ].

This account allows one to determine that the alternation between voiced and voiceless alveolopalatal fricatives and affricates is found on two different levels; while the voiceless ones are distinguished both articulatorily and perceptively, the voiced fricatives and affricates are only distinguished articulatorily and, in certain contextual positions, perceptively. This division has a direct influence on

phonetic variation and on a possible later phonetic change; the voiced consonants will hardly tend to change and will most likely maintain the allophony described in this text. The voiceless ones could be simplified in a deliberate way, following "the conscious application of a rule to prove in-group membership and loyalty" (Householder 1983: 9) or being the result of adapting to the linguistic marketplace of the speech community (see Bourdieu [1984]1992). In this sense, the influence of the mass media, together with the model that is promoted in the schools, could turn out to be decisive for the subsequent choice the speakers may make.

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CHAPTER 4

Sociolinguistic stratification and new dialect formation in a Canadian aboriginal community

Not so different after all?[1]

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This paper documents a case of new dialect formation in the Canadian aboriginal community of Sheshatshiu, Labrador, established as a permanent settlement in 1959. It examines the applicability of a quantitative variationist approach to the investigation of language change and cross-generational linguistic focusing in a context characterized by the absence of an overt status hierarchy. Results indicate partial dialect convergence among first generation residents of the new settlement. Despite the community's relatively egalitarian socioeconomic profile, phonological change leading to dialect convergence is shown to be linked to a covert status hierarchy based on territorial group membership, with upward social mobility playing an important role.

1. Introduction

In recent years, variationist linguists have turned their attention to new dialect formation, that is, the emergence of distinct varieties in newly-settled communities that bring together speakers of different, though closely related, speech varieties

1. This paper, and the project on which it is based, would not have been possible without the hard work and dedication of my co-researchers José Mailhot, Marguerite MacKenzie and Adrian Tanner. My debt to them is beyond measure. I am also indebted to the many people of Sheshatshiu who participated in and contributed to this study; special acknowledgement must be made of Elizabeth Penashue, our inside interviewer. A number of Memorial University students contributed extensively to this project, in particular John Porter. The project was made possible by funding from the Institute for Social and Economic Research (ISER) of Memorial University and a Social Science and Research Council of Canada (SSHRC) postdoctoral fellowship to Marguerite MacKenzie. Thanks to Marguerite MacKenzie for permission to use Fig. 1.

(e.g. Trudgill 1986; Mæhlum 1992 & 2000; Kerswill & Williams 2000; Lane 2000; Kerswill 2002). In the Americas, new indigenous dialect contact situations have arisen in the post-European period, often the result of settlement imposed from without. This phenomenon has rarely been reported on. Yet new dialect formation in indigenous communities is all the more interesting in that variationist models of language change (e.g. Labov 2001), are clearly Eurocentric, and may not reflect indigenous social realities. One obvious area of difference involves the lack of applicability of Western status hierarchies, which – though an integral part of sociolinguistic approaches to language change – are typically grounded in socioeconomic factors which may have little relevance to aboriginal contexts.

This paper examines a case of new dialect emergence in a Canadian aboriginal community: the Innu village of Sheshatshiu, Labrador, established as a permanent settlement only in 1959. Using a quantitative variationist framework, the study investigates the direction and degree of cross-generational linguistic focusing in a community characterized by absence of an overt status hierarchy. This new community brought together on a permanent basis a number of different nomadic Innu groups which previously had had continual, though sporadic, contact with one another – yet a degree of interaction sufficient to aid in the diffusion of linguistic innovations well outside the regions in which they had originated (see MacKenzie 1980). Indeed, the vast Innu-speaking area of eastern Quebec and Labrador has been the site of considerable phonological and grammatical change since at least the mid-17th century, the earliest period of interaction with Europeans.

The dialect contact literature suggests that, in new communities, dialect focusing among mutually intelligible varieties (i.e., koineization) requires two or three generations (Trudgill 1986); however, at least partial focusing may occur in a single generation (Kerswill & Williams 2000; Kerswill 2002). Trudgill's model of new dialect formation is a deterministic one in which, overall, the proportions of variants in the emerging dialect mix reflect the proportions of input variants in a fairly probabilistic manner. In other words, demographically majority variants will win out over minority variants, unless they are linguistically marked, or phonologically complex (see Trudgill 1986; Kerswill & Williams 2000). For Trudgill at least, the need to forge a common local identity plays little role in new dialect formation.

The Sheshatshiu study offers the opportunity to examine Trudgill's dialect contact model in a non-Indo-European language setting. It also provides a unique context – one not economically stratified and, superficially at least, relatively egalitarian – in which to investigate the extent to which a variationist approach can account for the social correlates of language usage, as well as the social diffusion of language change.

2. Social identity in the community of Sheshatshiu

2.1 The community: Background

The Canadian aboriginal community of Sheshatshiu (also known as Sheshatshit) lies in the Upper Lake Melville area of southern Labrador, some 40 kilometers northeast of the town of Happy Valley-Goose Bay (see Figure 1). Though estimates vary, the current population of the village is approximately 1400, one-third of which is under the age of 16. Most residents are fluent speakers of Innu-aimun, a variety of Algonquian which forms a linguistic continuum with the Cree varieties spoken to the west, from the Quebec-Ontario border to Alberta. Sheshatshiu Innu-aimun is closely related to the (mutually intelligible) Innu-aimun varieties found in a dozen other small aboriginal communities in eastern Quebec and Labrador – that is, to those varieties formerly referred to as either "Montagnais" or "Naskapi." While middle-aged and younger residents of Sheshatshiu are competent in English to at least some degree (schooling being almost exclusively in English), community elders tend to be monolingual speakers of Innu-aimun. Though the latter remains the dominant language of the community, its long-term future is uncertain, given the increasing threat posed by the majority language (cf. Thorburn 2006).

Prior to the mid-20th century, the Innu were largely nomadic; during the winter, they hunted caribou in the interior, but spent considerable parts of the year nearer the coastline. The 20th century incursion of settlers of European and Metis (i.e., mixed aboriginal-European) origin into the Lake Melville region, the development of a forestry industry in Innu land areas, the decline in caribou herds, and increasing pressure from the Newfoundland provincial government for permanent settlement in order to provide basic services (notably, schooling) are among the factors that led to the development of a permanent community at Sheshatshiu, which from 1743 on had served as a seasonal trading post (see Mailhot 1997; Tanner 1999). Though the Innu have never entirely abandoned hunting and trapping in the interior, their separation from the land and the traditional way of life has had dramatic consequences. Not only did it interfere with the transmission of Innu culture to younger generations, it also resulted in the destruction of the Innu social fabric, and the emergence of excessive drinking, violence and child neglect. Moreover, through lack of employment possibilities in the community, most residents came to rely exclusively on government assistance, living in abject poverty and what Tanner (1999) describes as "slum housing conditions." In recent years, however, there has been some social and economic turnaround, owing largely to the emerging political power of the Innu Nation, the organization that represents the two Innu communities of Labrador. Currently, the Sheshatshiu Innu are at-

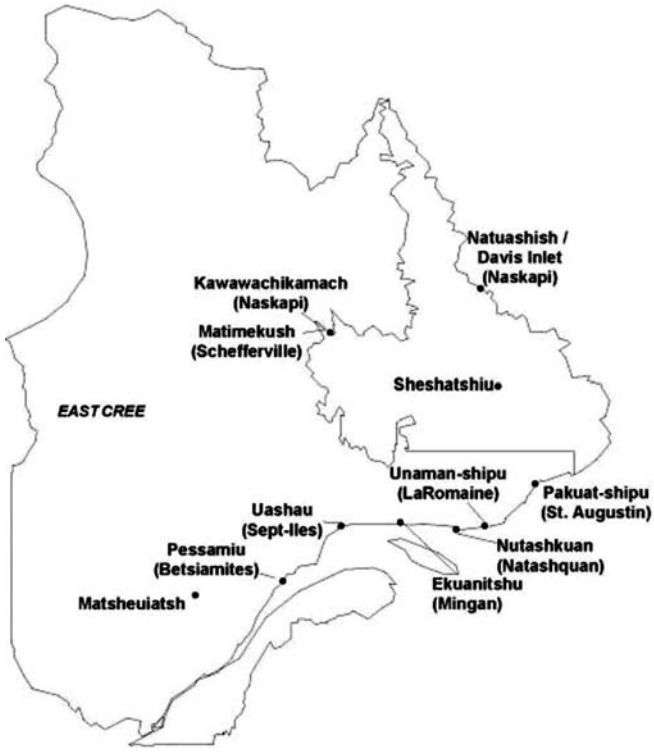

Figure 1. Innu communities in Quebec-Labrador (courtesy of Marguerite MacKenzie and the Innu-aimun website (www.innu.aimun.ca))

tempting to negotiate both reserve status and a greater degree of autonomy, and to settle their long-standing land claims.

Historically and linguistically, Sheshatshiu represents a complex community, since its population derives from a number of the previously nomadic Innu groups affiliated with different portions of the vast eastern section of the Quebec-Labrador peninsula. At the time of the research reported on in this paper (the early 1980s), the community was characterized by considerable linguistic variability – particularly among older residents, whose speech closely reflected that of the geographical regions with which they were aligned. Yet there was a good deal of awareness within the community of the existence of intergenerational linguistic change. It was not uncommon for teenage speakers, when queried, to remark that they could not understand the "old-fashioned" speech of community elders, and for elders to bemoan the quality of the language used by community youth.

2.2 Understanding the social organization of the community

The research reported on here (the Sheshatshiu Sociolinguistic Variability Project, or SSVP) was undertaken by an interdisciplinary research team consisting of two linguists, an ethnographer and an anthropologist.[2] Fieldwork took place over a four-month period in 1982 – that is, some quarter-century, or just over one generation, after the establishment of the permanent community.

The major problem encountered by the research team was the determination of social categories (other than age and sex) in terms of which such issues as sociolinguistic patterning and language change could profitably be addressed. In a context such as Sheshatshiu, a classification scheme grounded in socioeconomic stratification, as per urban variationist studies (e.g., Labov 1966), was almost totally irrelevant. An approach in terms of social networks – though originally envisaged as fruitful – proved too difficult to implement in any systematic fashion. In Sheshatshiu, as in other Innu communities, almost every resident has ties (often dense and multiplex) with almost every other resident, through such factors as kinship, marriage, adoption, and co-participation in a range of activities, both within the community and outside. And perhaps not surprisingly, in view of the nomadic history of the Innu, close ties are also maintained on an intercommunity basis, extending throughout the villages of the Quebec-Labrador peninsula (see Mailhot 1997: 31–36).

Given the high degree of regionally based variation in the speech of older Sheshatshiu residents, an approach involving classification into traditional regional hunting groups was also explored by the research team, following the suggestion of Tanner (1978) that the new community had brought together six such groupings. However, both interviews and archival searches revealed that this categorization scheme had little socio-symbolic value for the Sheshatshiu Innu. Rather, the picture that emerged was that traditional hunting group membership had always been subject to a high degree of variability. Though these groups had typically been structured around consanguineal or affinal kinship relations, their configurations tended to vary, resulting in alliances that, linguistically, might involve contact from

2. Both linguists (Marguerite MacKenzie and the present author), along with the anthropologist Adrian Tanner, were affiliated with Memorial University of Newfoundland; the ethnographer, José Mailhot, was based in Quebec. All four team members had considerable expertise in the language and/or culture of the Innu of Quebec and Labrador. The fieldwork was carried out by Mailhot and MacKenzie; the former was fluent in a very similar dialect of Innu-aimun spoken in Quebec (and represented in the speech of a number of residents of Sheshatshiu), while the latter spoke a related variety, East Cree, associated with the James Bay region to the west.

season to season with groups aligned with somewhat different regional dialect areas within the peninsula.

Through extensive interviewing and ethnographic fieldwork (see Mailhot 1997), the research team became aware of the existence of an ideological framework that was highly salient to community members. It was grounded in identity with, and membership in, three broad territorial groupings, all of which had had connections with the Upper Lake Melville area well before the foundation of the permanent community. During the 19th century, the Innu who visited the Sheshatshiu post frequently travelled south to the Quebec Lower North Shore region on the Gulf of St. Lawrence (the region of the present day communities of St. Augustin to Mingan; see Mailhot 1997: 17–19, as well as Figure 1). This southern (or Maskuanu) connection established the essentially "southern" linguistic foundation of the regional speech of the Lake Melville area Innu. During the first half of the 20th century, closer connections were established with the Innu further to the southwest, around the area of Sept-Isles in Quebec (the Uashau group). A third and more northerly connection, with the Mushuau group that became associated with the Davis Inlet area on the northern Labrador coast, came somewhat later. As exogamous marriage – along with remarriage of widows and widowers – is the norm in Innu society (Mailhot 1997: 117ff.), these interconnections would have ensured a high degree of territorial group mixing.

It came as somewhat of a surprise to the research team to discover that the relatively egalitarian Innu displayed a covert social hierarchy; members of the three territorial groups did not enjoy the same status and privileges within the community. At the top of the scale are members of the southwestern or Uashau group (and, in particular, a subgroup of the Uashau labelled the McKenzie, because of their descent from a Métis with the surname McKenzie who in the 19th century served as a post manager with the Hudson's Bay Company; see Mailhot 1997: 65). The intermediate level is occupied by community residents with links to the southern or Maskuanu group. And at the lower periphery of the status hierarchy are community residents whose identity is northern or Mushuau – a group whose dialect is often disparaged by other community members, who view the Mushuau as "backward" or in some way inferior. According to Mailhot (1997: 68), "Sheshatshit does indeed have a local élite endowed with prestige and power... But the members of this élite are recruited according to family and territorial, rather than economic, criteria. Individuals do not rise in the hierarchy by acquiring wealth or a better education: they do so by joining a social group through marriage or adoption. Moreover, economic privileges are obtained through political power rather than the reverse."

The existence of a status hierarchy within the community emerged first and foremost from a number of ethnographic observations. One important piece of

evidence derives from exogamous marriage patterns. As Mailhot (1997: 52ff.) points out, the incidence of northern (Mushuau) group members marrying into the southwestern (Uashau) group rose from 10% in 1963 to 18% some 20 years later; this demonstrates upward social mobility on the part of the northern group, which constitutes only a quarter of the adult population of the community. Yet northern group members had not yet married into the McKenzie group – the group displaying the highest status within the community – with any frequency at all. The McKenzie group, however, is the segment of the community that exhibits by far the greatest degree of interethnic intermarriage with Euro-Canadians. A second type of evidence relates to membership on the band council, the governing body of the community. In the period between 1976 and 1987, the proportional representation of McKenzie and Uashau band council members exceeded their numbers in the community; the opposite was true for councillors representing the southern and northern groups (Mailhot 1997: 57).

A status hierarchy was also suggested by the differing linguistic behaviors of community residents who, from their territorial group classification, should have exhibited highly similar linguistic profiles. By way of example, contrast the speech of two males from the northern/Mushuau group, both in their 40s at the time of project fieldwork. One was generally recognized as continuing to sound very "northern," or Mushuau-like; the other's speech was not remarked upon, since it conformed considerably more to community norms. The only real social difference between the two involved marriage patterns: the former had married into the more prestigious southwestern group, while the latter had married endogamously, within the northern group. For the latter, the social symbolism and potential gain in status associated with the loss of northern linguistic features appear to have constituted a powerful motivating force towards phonological change.

It turns out that the territorial group status hierarchy found in Sheshatshiu is by no means unique to this community. According to Drapeau (1986), it occurs throughout the Quebec-Labrador peninsula, and its roots lie in degree of acculturation; the Innu at the top of the hierarchy – namely, the southwestern group based in the area around Sept-Iles – are those with the longest and greatest degree of European contact. As Mailhot (1997: 66) puts it, "throughout the whole Innu area a group's social position is directly proportional to its degree of acculturation and intermarriage with Europeans, as well as to the closeness of its contacts with the colonizing power and the dominant culture." Drapeau also suggests that this hierarchy underlies the general direction of linguistic change within the peninsula; change among other Innu groups is driven by adoption of variants associated with the southwestern area, the area in which the greatest amount of phonological innovation has occurred.

3. Methodology

3.1 The sample

The SSVP utilized a stratified quota sampling approach; speakers aged 14 and over were selected to provide a representative cross-section of the community, according to the three sampling parameters of territorial group membership, age and sex. Though the aim was to obtain equal numbers of male and female participants from each of the three territorial groups, at each age level, the final sample was of necessity constrained by participant availability. However, relative to the size of the community, and to urban sociolinguistic studies in general (e.g. Labov's classic 1966 New York City study), the final 87-member sample represents a very high proportion of the 14+ population of the village – almost 30% of the 305 speakers available during the fieldwork period.

Given the complex interrelationships displayed by many community members (notably, differences in territorial group affiliations among natural parents, step-parents, adoptive parents, maternal and paternal grandparents, spouse(s), and affinal relations), self-categorization as to membership in one of the three territorial groups was not always an easy task. This task was aided, however, by extensive interviews with each sample member, the aim of which was to obtain as complete a life history and genealogy as possible, including details on migration patterns and associations in the days prior to permanent settlement. These interviews (which provided a substantial portion of the "casual speech" data investigated in the study) were supplemented with information deriving from early archival records, as well as 19th and 20th century records of births, marriages and deaths. Indeed, an important spinoff of the SSVP was the construction of a computerized bank of genealogies comprising six generations, along with information on Innu land use and place names from previous centuries – in short, a wealth of information on topics other than linguistic.

Sample details are provided in Table 1. Territorial group represents the Innu classification system of membership in one of the southwestern (Uashau), southern (Maskuanu) or northern (Mushuau) groups, as discussed above. For ease of statistical analysis, the age variable was divided into three levels: teenagers, younger adults, and older adults (the vast majority of this last group being 50 and over, and the oldest, 87).[3] This three-way division reflects differences in speakers' lifestyle, experiences, level of education, and knowledge of English. The oldest

3. Age was originally divided into four levels: teenagers, young adults, mature adults, and old people (elders) aged 62 and above. However, the availability of only 15 speakers aged 62 or more made it impossible to obtain adequate representation for the "elder" group within each of

Table 1. The 87-speaker Sheshatshiu sample, by territorial group, age, and sex

Territorial Group	Teenagers (14–19)	Younger adults (21–44)	Older adults (46 +)
Southwestern (Uashau)	Female: 2	Female: 4	Female: 6
(n= 21)	Male: 1	Male: 4	Male: 4
Southwestern (McKenzie)	Female: 3	Female: 4	Female: 4
(21)	Male: 5	Male: 3	Male: 2
Southern (Maskuanu)	Female: 2	Female: 4	Female: 3
(17)	Male: 1	Male: 3	Male: 4
Northern (Mushuau)	Female: 4	Female: 6	Female: 3
(28)	Male: 4	Male: 8	Male: 3
Total (87)	22	36	29

group was characterized by lack of fluency in English (many being monolingual Innu speakers) and lack of formal education; all members of this age group had been brought up within the traditional nomadic subsistence lifestyle, and had a "land" rather than "community" orientation. The teenagers, on the contrary, had all received formal English-medium schooling, and were bilingual. All had been born after the establishment of Sheshatshiu as a permanent community, had grown up largely within the community, and viewed themselves as speaking a "Sheshatshiu" dialect rather than a variety affiliated with a particular territorial group. The intermediate group comprised younger adults who had some degree of competence in English, along with some (though often minimal) schooling; their orientation was typically mixed, in that at least part of their formative years had been spent on the land rather than in the community.

3.2 The linguistic variables

Prior research into Innu-aimun (e.g. Cowan 1976; MacKenzie 1980) had revealed a number of linguistic features, other than lexical, that either differed categorically among the Innu communities of eastern Quebec-Labrador, or – more typically, given the relative recency of permanent settlement – represented innovations that had diffused across the peninsula to varying degrees.

Eighteen phonological variables were selected for analysis, along with four grammatical features. Because of space constraints, this paper will report only on the social stratification of a subset of representative phonological features (as listed in Section 4.2 below).

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the categories of territorial group and sex, as a number of cells would have consisted of only a single speaker.

3.3 Stylistic manipulation

Within the traditional Labovian framework, the elicitation of both formal and casual styles yields insights not only into the relative prestige associated with linguistic features within a community, but also into the direction and social diffusion of language change. The current context, however, does not represent the usual Labovian focus of study; in Sheshatshiu, not only are speakers often not literate in their first language, they also lack a clearly-defined linguistic standard, encoded via a standardized orthography.[4]

Previous research (e.g., Cowan 1976) had suggested that for at least some features the repertoire of Innu speakers encompassed a stylistic range. To attempt to tap this range, and to investigate whether a Labovian-based approach might throw light on the social meanings indexed by features associated with the different territorial groups represented in the community, two types of interviews were conducted with each sample member. The primary interview, an hour or two in duration, aimed to elicit fairly casual speech style. It was conducted by the SSVP ethnographer, fluent in the southwestern dialect of Innu-aimun, and focused on the life histories of speakers and their kin; it also solicited participants' opinions on a number of issues relating to language use. The second interview was carried out by the SSVP linguist fluent in a related variety, East Cree, with the assistance of an inside interviewer, an Innu-speaking community member trained in interview methodology. This, the formal interview, was structured around lexical elicitation, in the guise of a "dialect matching" task whereby the interviewer obtained some 200 lexical items by presenting, orally, cognate lexical items in East Cree, along with their meanings. Both sets of interviews were recorded on Sony TC-142 analog cassette machines.

3.4 Analysis

The initial step in data analysis was the construction of a casual-style corpus, by transcription of a selected segment of the primary interview in the emerging standard Innu orthograpy (see Note 4). Transcription was carried out by trained native speakers and, once checked, was entered into the SIL database program

4. The years subsequent to this project saw the codification of a standard orthography for all the Innu communities of Quebec-Labrador; see M. MacKenzie's English translation of the *Guide pratique d'orthographe montagnaise* (L. Drapeau and J. Mailhot 1989), available from www.innu-aimun.ca. However, this orthography awaits general acceptance.

Shoebox.[5] Interlinear English translations, along with grammatical glosses, were also entered into this database. Via its filtering function, the Shoebox program was used to produce concordances for each of the linguistic variables under investigation; the linguistic tokens generated for the phonological variables were then transcribed via a fine phonetic system. As to formal style data – which consisted of a common set of words across speakers, each of which incorporated one or more of the phonological variables under study – these were likewise transcribed in fine phonetic detail.

In light of the considerable degree of variation in the community, anywhere from two to eight different phonetic variants were initially identified for each of the phonological variables; upon close scrutiny of their frequency and apparent social profiles, a number of highly similar variants were collapsed. For each variant remaining, a ratio of usage was calculated per speaker by dividing the number of tokens of the variant by the speaker's total number of tokens of all variants of the linguistic variable in question. These usage ratios formed the input to the statistical analysis: a three-way analysis of variance (Anova), using the computerized statistical package SPSS. The three social factors of territorial group membership, age and sex constituted the independent variables; separate Anovas were run for each of the linguistic variants (values) of interest, which constituted the dependent variables. Analysis of variance was selected – as opposed to the more common variable rule or Varbrul approach – because of its greater efficiency in dealing with a primary concern of the study: the interactions among the three social variables.

4. Results: Language change and dialect focusing in the community of Sheshatshiu

For the 18 phonological features examined, the variable of age proved to be the most important social correlate of linguistic variation in the community; in only one case did it not yield significant or near-significant main effects for either casual or formal style. This finding in apparent time is strongly indicative of considerable ongoing change in Sheshatshiu Innu-aimun. Territorial group membership, however, proved a close second, confirming the importance of group identity in the linguistic repertoires of community residents. In addition, the many significant interactions between the variables of age and territorial group membership suggest more subtle sociolinguistic patterning. As to speaker sex, while this variable also displayed a number of significant interactions with the other social variables, it did

5. The Shoebox program is available from www.sil.org/computing/shoebox/Software.html.

not prove as important a correlate of linguistic variation within the community, as it produced fewer significant main effects than either age or territorial group.

Drawing on some half dozen illustrative variables, Section 4.2 below reports on the direction of phonological change within the community, as well as the social patterns via which change is accelerated and diffused. This is followed (Section 4.3) by a discussion of the degree to which the emerging community-wide variety in Sheshatshiu conforms to existing models of new dialect formation. Prior to this, however, Section 4.1 briefly outlines the stylistic findings from the SSVP study.

4.1 Style shifting in Sheshatshiu Innu-aimun

Overall, only four of the 18 phonological variables displayed a substantial degree of style-shifting (here defined as more than a 20% difference in variant use between casual and formal style). Figure 2 presents overall percentage use of innovative variants (as listed in Table 2, Section 4.2 below) for two of these features: deletion of initial short /a/, and the weakening or retraction of historical non-preconsonantal /š/ to a voiceless glottal [h] or velar [x]-like variant.

Despite the high degree of ongoing linguistic change in the community, the relatively flat stylistic profiles which emerged for the majority of features tend to suggest that few of the phonological variables in the process of change are sufficiently salient to undergo stylistic manipulation on the part of community residents. This may in part be attributable to the absence in Sheshatshiu Innu-aimun of the constraint mentioned in Section 3.3 above, namely, a recognized prestige standard codified via a standardized orthographical norm. Why some features, such as those represented in Figure 2, should be more subject to style shifting is not fully clear. Initial short /a/ deletion represents a process that is recoverable, since the short vowel is restored when a prefix is added to a word; yet a

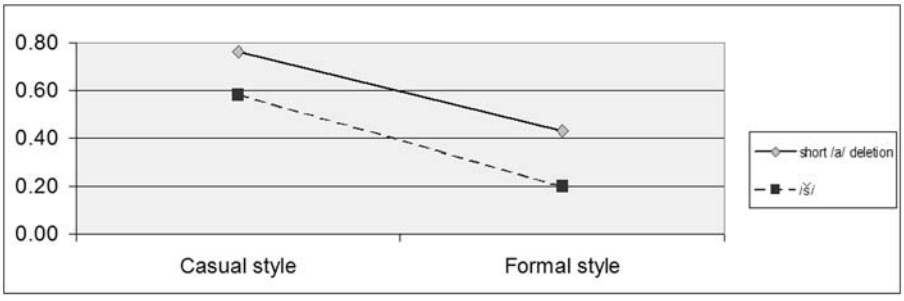

Figure 2. Style shifting for two phonological variables: initial short /a/ deletion; non-preconsonantal /š/ as a glottal or velar fricative

parallel process (the deletion of the syllable *-ka-* in, for example, nouns ending in *-ahikan*, resulting in pronunciation of the noun final as *a:n*) shows the reverse: an increase as opposed to a decrease in deletion in formal style.

In light of the general absence of stylistic effects, the sections that follow report only on casual speech style.

4.2 Phonological change: Its direction and social profile

4.2.1 *The direction of change*

As noted above, virtually all the phonological features investigated in this study displayed significant age stratification. The study also revealed an obvious direction of phonological innovation: in the majority of cases, the tendency is towards greater adoption of variants that are associated with the southwestern or Uashau variety – the variety that, as seen, commands prestige not only within the community, but within the entire Quebec-Labrador peninsula. This trend is apparent for all of the illustrative phonological features listed in Table 2 below.[6]

By way of example, consider the first of these variables: the deletion of word-initial non-rounded short vowels, whether /a/ or /i/. Short vowel procope, which originated in the southwestern dialect region, is advancing in apparent time in the community of Sheshatshiu (see Figure 3). A competing variant, vowel tensing – associated with the southern (Maskuanu) region – is, on the contrary, receding, as shown in Figure 4.

Likewise, variable #4 in Table 2 (the cluster /šč/) exhibits a cross-generational increase in adoption of the assimilated southwestern [ss] variant, as displayed in Figure 5.

4.2.2 *The advancement of linguistic change: Social patterning*

While the significant overall effects of age or generation, as reported above, might suggest that the adoption of southwestern (Uashau) phonological variants is advancing fairly evenly, if gradually, across age groups within the community, such is not the case. Rather, among younger speakers, the degree of adoption or use of southwestern variants is clearly linked to territorial group membership. However, instead of being most in evidence among younger members of the southwestern

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6. In Table 2, the final column represents the regional group with which the innovation in question is associated primarily, but by no means exclusively, since few categorical purely phonological differences can be found across the peninsula. The transcription system used for Innu lexical items for the most part derives from the system referred to in Note 4. Phonetic transcriptions are to be regarded as approximations, and do not represent such features as the typical casual speech reduction of unrounded short vowels to a centralized schwa-like variant.

Table 2. Illustrative phonological variables in Sheshatshiu Innu-aimun

Phonological Variable	Innovative Variant	Example	Territorial Group Affiliation/Origin of Innovative Variant (MacKenzie 1980)
1. Word-initial short /a/; word-initial short /i/	i) Procope/ deletion	*aku(h)p* 'coat' pronounced *ku(h)p* [go(:)p]; *iskueu* 'woman' pron. *skueu* [škwew]	Southwestern (Uashau)
	ii) Tensing/ Lengthening	*aua:ss* 'child' pron. [aːˈwaːs]; *iskuteu* 'fire' pron. [iːšgoˈtew]	Southern (Maskuanu)
2. Pre-aspirated stop clusters /hp, ht, hc, hk, hk^{w}/	i) Loss of pre-aspiration, i.e., articulation as simple stop	*akuhp* 'coat' pronounced [aku(:)p]	Southwestern (Uashau) [Also in Southwestern (Maskuanu) in other than absolute final position]
	ii) Fricativization (e.g. hp > [f], hk > [x])	*atihk^{u}* 'caribou' pron. [aˈtiːx^{w}]	Northern (Mushuau)
3. Word-final /č/ (e.g. in animate plural morpheme)	Reduction to simple stop [t]	*nameshač* 'fish' (pl.) pron. *nameshat*	Especially Southwestern (Uashau) [Conservative affricated [ts] pronunciation most evident in Northern (Mushuau)]
4. /šč/ consonant cluster	Assimilation to [ss]	*aščі* 'earth' pron. *assi*	Southwestern (Uashau) [Conservative affricated variant most evident in Northern (Mushuau)]
5. /š/ (non-pre-consonantal)	Weakening to [h], and possible deletion	*pineshi:sh* 'bird' pron. [pineˈhiːš] or [pineˈhiː(h)]	Most advanced in Southern (Maskuanu) [though rapid spread to Southwestern]

group, Uashau-linked features often occur most frequently in the speech of teenagers whose group membership is other than southwestern.

This tendency is illustrated by the phonological variables represented in Figures 6 through 8. Figure 6 graphs the southwestern-affiliated trend towards deletion of word-initial short /a/, in terms of both age and territorial group.

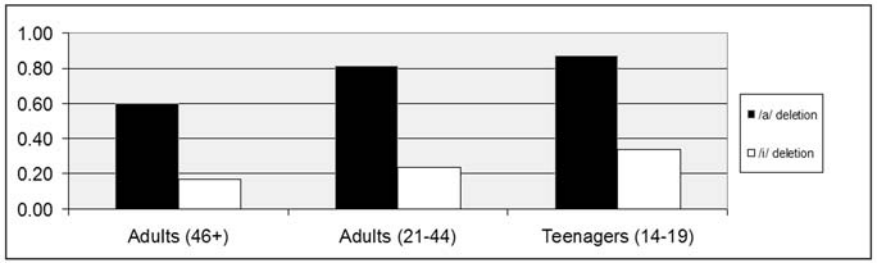

Figure 3. Word-initial short /a/ and short /i/ deletion in casual style (for /a/, F = 16.53, p < 0.001, df = 2/69, N = 1036; for /i/, p = 0.14 (non-significant), N = 736)

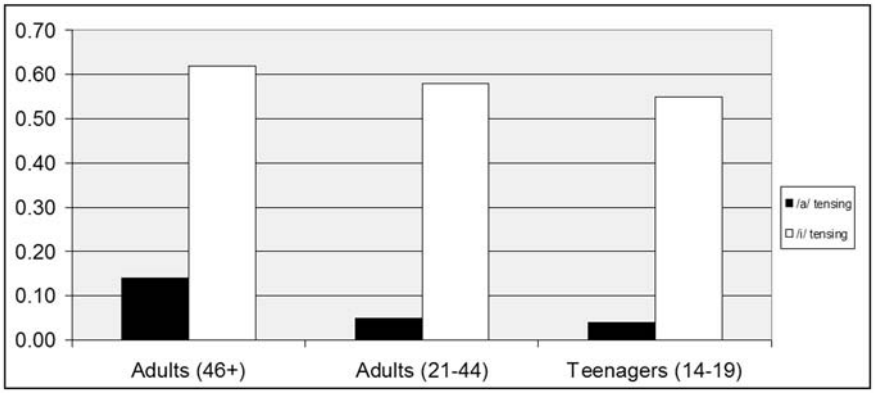

Figure 4. Word-initial short /a/ and short /i/ tensing in casual style (for /a/, F = 9.82, p < 0.001, df = 2/69; /i/ results non-significant)

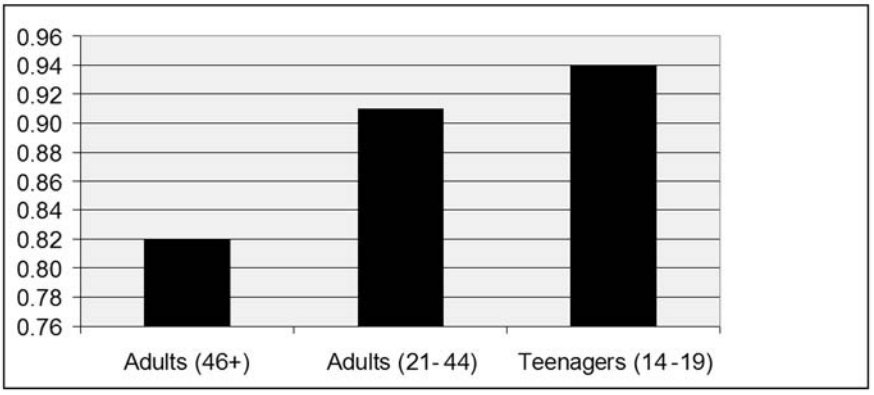

Figure 5. /šč/ as [ss], by age group, in casual style (F = 11.82, p < 0.001, df = 2/69, N = 2437)

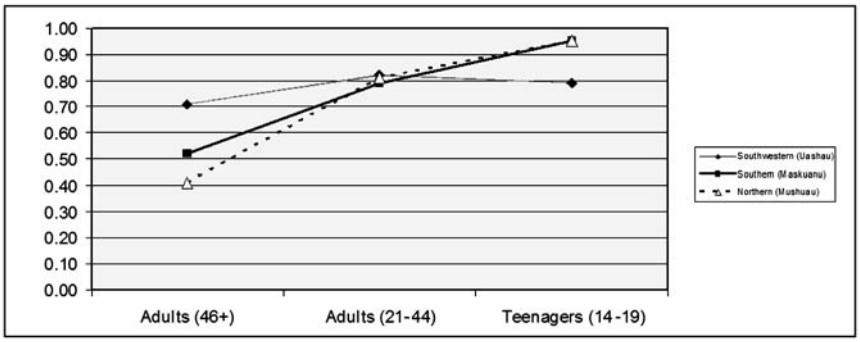

Figure 6. Short /a/ deletion as a function of age and territorial group ($F = 3.82$, $p < 0.01$, $df = 4/69$, $N = 1036$)

Though the deletion rule is on the increase cross-generationally (see Figure 3 above), its adoption as the dominant community-wide variant is most accelerated by the teenage members of the southern and northern groups, who – by exceeding the frequency of use of this feature by their southwestern teenage counterparts – exhibit a crossover-like pattern, generally interpreted as a sign of linguistic insecurity (e.g. Labov 1966).

Figures 7 and 8 illustrate the same phenomenon from a slightly different perspective: the avoidance of features identified as "northern" on the part of younger members of the northern group – the group which, it will be recalled, stands at the bottom of the status hierarchy. Figure 7 documents the retention of affricated pronunciations of historical /č/, while Figure 8 shows maintenance of pre-aspiration in the sequence /ht/. As both figures illustrate, while these conservative variants are strongly associated with the oldest group of northern (Mushuau) speakers, northern members of the two younger age cohorts display a sharp fall-off in their use, resulting in their total disappearance among northern-group teenagers. The net effect among younger speakers is a more homogeneous variety that displays a greater degree of similarity to the dialects spoken in the Quebec communities to the southwest. In short, within the community of Sheshatshiu, while the general direction of change is toward adoption of variants associated with the territorial group that enjoys the highest status within the community, this tendency seems particularly driven by the younger members of territorial groups of lower social standing.

What of the role of women in the diffusion of these southwestern-linked phonological features within the community? As noted earlier, speaker sex proved the least important of the three social factors examined in this study. Nonetheless, results of the SSVP show that, like their counterparts elsewhere, Sheshatshiu women seem more attuned than men to the social symbolism encoded by lin-

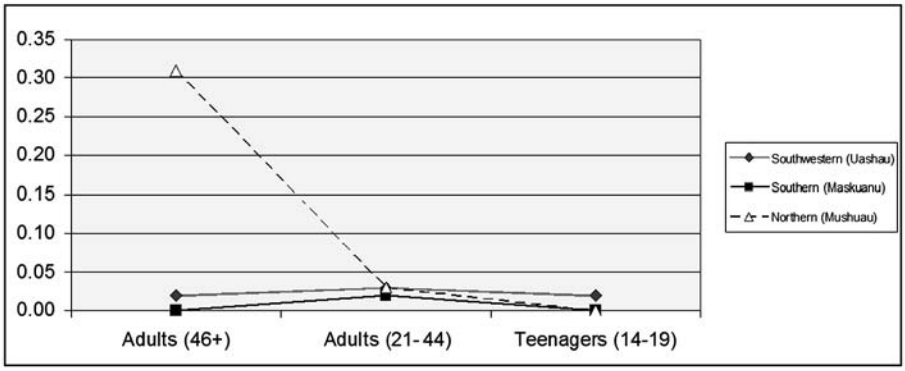

Figure 7. /č/ as the conservative variant [č] (F = 9.66, p < 0.001, df = 4/26, N = 1179)

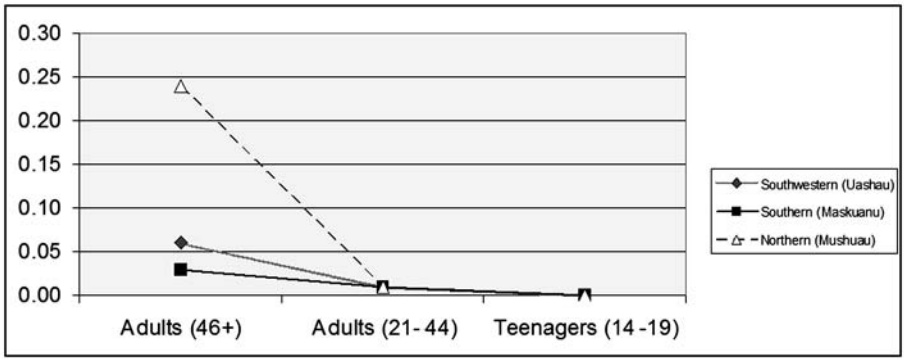

Figure 8. Maintenance of pre-aspiration in the sequence /ht/ (F = 8.84, p < 0.01, df = 4/26, N = 1720)

guistic features. For the three phonological variables just examined (southwestern-affiliated loss of initial short /a/, and northern-like maintenance of affricated variants of final /č/, along with preaspiration), women resemble the teenagers of the Maskuanu and Mushuau groups, in that they lead men both in the active advancement of southwestern-linked features, and in the abandonment of phonological features that characterize those groups that command lower status.

4.3 Dialect convergence in the community of Sheshatshiu

As noted earlier, the dialect contact literature suggests that dialect focusing or koineization in new communities – though typically requiring two or three generations (Trudgill 1986) – may be at least partially in evidence among the offspring of the

original settlers (Kerswill and Williams 2000). Within the Sheshatshiu sample, interviewed in 1982, this last group would consist almost exclusively of teenagers, along with several "young adult" speakers in their early 20s.[7] The SSVP study suggests a relatively high degree of dialect leveling in the space of a single generation, though far from total convergence among the youngest members of the sample. Variants which serve to mark territorial group affiliation among the older adults no longer do so among the teenagers, who have clearly opted in favor of one of the competing regional variants available to them. Thus the emerging community-wide variety is characterized by such features as loss of pre-aspirated consonant clusters (see Figure 8 above), replacement of final /č/ by [t] (Figure 7), loss of word initial short /a/ in casual style at least (Figure 3) and increasing use of the [ss] variant for the sequence /šč/ (Figure 5). In most of these cases, the overall degree of difference in casual style usage ratios between the oldest and youngest members of the sample is small; nowhere does it exceed 27% (the case of short /a/ deletion).

The Sheshatshiu situation suggests a more subtle picture of dialect accommodation and convergence than a number of the situations documented in the literature. Recall that prior to permanent settlement, many linguistic innovations that had originated in particular regions, among particular nomadic Innu groups, would have diffused to other areas of the Quebec-Labrador peninsula. Thus the various territorial groups who officially came together to form the community in 1959 would not have been differentiated as much by categorical linguistic differences (at least, apart from lexicon and, to some degree, morphosyntax, both of which lie outside the scope of this paper), as by the degree to which they had adopted a range of phonological innovations. Consequently, a feature such as the northern-linked conservative retention of affricated variants of final /č/ in effect constitutes a minority or marked variant even among the oldest northern (Mushuau) sample members (see Figure 7). As such, it does not survive cross-generational transmission.

In Sheshatshiu, in short, the dominant pattern is one of a gradual progression in apparent time towards leveling of competing variants. There is no evidence of the type of reallocation (i.e., retention of more than one variant with functional specialization) noted by Trudgill (1986); though for a small handful of features the case might be made for stylistic reallocation (see Figure 2), the similar patterning of these features in other parts of the peninsula suggests that their stylistic strati-

7. Note however that even some teenagers would have experienced life outside the village (and presumably the dialect mixing that this entailed), since for decades after the official establishment of a permanent community in 1959, many families would have maintained the practice of living off the land for part of the year.

fication was not simply an outcome of dialect contact within the new community of Sheshatshiu.

This paper has shown that the general direction of dialect convergence in the community is towards adoption of features that are most characteristic of the southwestern or Uashau group. According to Trudgill (1986, 2006), the outcome of dialect leveling should reflect in a fairly mechanical way the relative proportions of variants in the input mix. Though it did not constitute the "founder" population – since during the 19th century those groups with closest associations with the area now occupied by the settlement spoke a southern rather than southwestern variety – it is the southwestern or Uashau group that has been numerically dominant since the establishment of the permanent settlement, comprising approximately half its population (Mailhot 1997: 49). The Uashau group also happens to be the group that commands the greatest status throughout the Quebec-Labrador peninsula, by virtue of its long-standing links with Europeans. For Trudgill, such factors as "identity" play little role in dialect convergence. The SSVP study, however, suggests that social status may work in tandem with population demographics in forging linguistic outcomes in dialect contact situations.

5. Conclusions

As this paper has confirmed, sociolinguistic stratification and language change can be profitably investigated from a variationist perspective in communities in which there appear to be few if any economically-based class differences. In the small aboriginal community of Sheshatshiu, ethnographic investigation revealed a covert status hierarchy that carried important socio-symbolic value for residents, and was central to the social organization of the community. This hierarchy, grounded in territorial group membership, also proved central in clarifying language change.

The community-oriented rather than territorial-group identity found among teenagers in the Sheshatshiu sample is echoed by the emergence of a fairly homogeneous speech variety among this age group. Teenagers stand in marked contrast to their parents and grandparents, whose speech is characterized by considerable regionally-based variation. As in at least some of the socioeconomically-stratified contexts which constitute the typical focus of variationist research, the factor of upward social mobility appears to be a driving force behind language change. Thus the general direction of phonological change is towards the variety associated with the most prestigious group within the community, and change is most advanced in younger members of groups that are lower in the status hierarchy.

In Sheshatshiu, a relatively high degree of dialect convergence is evident within the first generation born within the community. Since the territorial group that

enjoys the highest status also constitutes the numerical majority, this study offers no clear confirmation of Trudgill's (1986, 2006) hypothesis that dialect convergence is essentially deterministic, and favours the selection of majority features in the input varieties.

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CHAPTER 5

The changing sound of the Māori language[1]

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Māori is the indigenous language of New Zealand. Its increasingly close contact with English over the last 150 years led to its endangerment, though it is now subject to active revitalization efforts. This chapter reports on some results from the MAONZE (Māori and New Zealand English) Research Project, which is studying aspects of the mutual influence of Māori and English in the area of pronunciation. Three groups of male speakers are analyzed, with birth dates ranging over 100 years (1880s to 1980s). Acoustic analyses of vowels and diphthongs are presented together with analyses of the stop consonants and /f/ (<wh>). The results show that there has been considerable change in all the analyzed aspects of Māori pronunciation. Some changes could reflect language-internal change, but since they relate closely to similar changes that have taken place in New Zealand English over the same time period, they probably also represent external influence.

1. Introduction

Māori is the indigenous language of New Zealand and is the most southerly of the Polynesian languages, a sub-group of the very widespread Austronesian language family (Harlow 2007). Although presently spoken by perhaps some tens of thousands of people, its position is recognized as endangered as a result of increasingly intense symbiosis with English. As a result, Māori is the subject of a range of revitalization efforts. In this chapter we present some results from the MAONZE (Māori and New Zealand English) Research Project, which is studying aspects of the mutual influence of Māori and English in the area of pronunciation. The existence of seven historical recordings of Māori speakers enables a combination of real and apparent-time analyses covering 100 years.

1. Author names are in alphabetical order.

2. Historical background

The ancestors of the Māori came to New Zealand 800 to 1000 years ago bringing with them the language which has developed into the Māori language of today (Sutton 1994). The first interaction between Māori and English occurred in the late eighteenth century when, following Cook's explorations, whalers and sealers based themselves in New Zealand during hunting expeditions. In the early nineteenth century, Christian missionaries were instrumental in producing an orthography for the Māori language (see, for example, Kendall & Lee 1820; Colenso 1888; Parkinson 2001a, 2001b, 2003, 2004). In 1840 the Treaty of Waitangi established British sovereignty in New Zealand and following this, immigration of English speaking colonists increased greatly (see King 2003 for a general history of New Zealand). As the settler population increased, the Māori population decreased, reaching a low of only 42,000 in 1896. By 2006, the numbers of Māori had risen to 565,329 or 14.6% of the New Zealand population (http://www.stats.govt.nz/census. See Pool 1991 for a discussion of Māori population changes). The early missionaries taught Māori to read in their own language, but by the end of the nineteenth century, most Māori were receiving schooling in English. In spite of this, most Māori were still fluent in the Māori language well into the first half of the twentieth century, with many bilingual in Māori and English. Between 1950 and 1980, there was a dramatic shift to English, at least in part as many Māori moved into the cities from the country, and by 1980, most young Māori spoke only English (see Fishman 1991; Benton & Benton 2001 for summaries of the situation). Surveys carried out during the 1970s found that the number of fluent Māori speakers had declined to approximately 60,000, most of whom were middle-aged or elderly and with few children being raised as speakers of the language (Benton 1991a: 187; see Benton 1991b for more details).

These findings helped to stimulate a massive revitalization effort since the 1980s, with a particular focus on producing a new younger generation of speakers. Māori-generated initiatives included the establishment of *kōhanga reo* (language nests), *kura kaupapa Māori* (Māori immersion elementary schools) and Māori language immersion units in mainstream schools. Adult learning programs such as *Te Ataarangi* (see Benton and Benton 1999 for details of all these initiatives) and *wānanga reo* (immersion courses for adults) were also developed throughout the country with the result that, although the older generation of fluent speakers is indeed disappearing, the number of speakers of Māori, including L2 speakers, is increasing (Te Puni Kokiri 2003: 25). In 1987 Māori was made an official language of New Zealand. Today the amount of spoken Māori varies around the country, with considerably more being heard in the North Island than in the South Island. The language is kept in the public awareness through radio

and television programs, together with bilingual road signs and lexical items such as *marae* (meeting place), *hui* (meeting), *kaupapa* (agenda), *pōwhiri* (welcome ceremony), and *tangi* (funeral ceremony), borrowed from Māori and commonly used without translation in newspapers (Davies & Maclagan 2006).

In addition, the most prominent variety of New Zealand English, and the fastest growing, is an ethnic variety usually called Māori English. Māori English is not spoken by all or only ethnic Māori. It is heard most frequently in areas of high Māori population, such as the far north of the North Island or the East Cape (also in the North Island) and in occupations like the armed forces. Some of its features, such as a greater degree of syllable timing in its rhythm, represent influence from the Māori language. One often noted characteristic is less aspiration in stop consonants (see Bell 2000; Holmes 1997, 2005) a feature which is referred to below.[2]

Given this history, it is to be anticipated that the language, especially in recent decades, has been subject to factors that could well produce fundamental changes in all its aspects, especially from the influence of English. The research that this chapter reports is concerned with identifying and analyzing such changes in the area of Māori phonology and phonetics.

3. The phonology of Māori

Māori segmental phonology is fairly simple and straightforward (for details see Bauer 1993). There are ten consonant phonemes: /p, t, k, m, n, ŋ, f, w, r, h/.[3] From among these, the pronunciation of the voiceless stops and of /f/ are part of what we report below. /r/ is most frequently realized as a flap, though approximant articulations do occur, and /h/, always a voiceless fricative, ranges in place of articulation from laryngeal to palatal.

The Māori vowel system is usually analyzed in terms of five short vowels, /i, e, a, o, u/. These may occur alone as syllable peaks, but also occur in sequences. Within morphemes, and to a variable extent across morpheme and even word boundaries, sequences of like vowels are realized as a single phonemically long vowel, and many sequences of unlike vowels, especially any of a lower vowel followed by a higher vowel, are realized as diphthongs. Some sequences of two like vowels followed by a higher vowel are pronounced as long diphthongs, e.g.

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2. For more information on Māori English, see Bell (2000); Benton (1991a); Holmes (1997, 2005).

3. In two regions of NZ, only nine distinctions are made, as a result of historical mergers. In the (now virtually extinct) main dialect of the South Island, *k and *ŋ have merged to /k/, and in parts of the eastern Bay of Plenty in the North Island, *n and *ŋ have merged to /n/.

/maao.ri/ *Māori*, /poou.ri/ *pōuri* 'dark, sad'. Much of what follows in this paper will be concerned with the quality of the five short monophthongs, the five long monophthongs, and five of the short diphthongs. In keeping with the convention for the naming of English vowels devised by Wells (1982), we will be naming the Māori short and long vowels and diphthongs in this chapter: PIKI, /i/, KETE, /e/, WAKA, /a/, MOKO, /o/, TUKU, /u/, PĪ, / iː/, KĒ, / eː/, WĀ, /aː/, MŌ, /oː/, TŪ, /uː/, MAI, /ai/, WAE, /ae/, RAU, /au/, HOU, /ou/, and PAO /ao/ respectively to represent both the relevant phoneme and the set of words that contain that phoneme.

Māori syllable structure is straightforward; all syllables are open, onsets are empty or consist of any one of the consonants, and peaks are any of the monophthongs or diphthongs mentioned above, (C)V(V(V)). There are a couple of historical co-occurrence restrictions which are still reflected at least in inherited vocabulary: /w/ and /f/ do not occur before /o/ or /u/. Stress is not phonemic in Māori, though the rules which predict its placement are complicated, and refer to position in a sentence, which particles, if any, accompany the lexical material, and length of vowels. All five vowel qualities remain distinct in unstressed syllables.

Māori rhythm is usually described as mora timed (Bauer 1981), with a mora being defined as a short vowel plus any preceding consonant. Morae clearly play a grammatical role, but their role in stress and rhythm is somewhat less clear. This is an area which will not be further discussed in the current paper.

4. Method

The MAONZE project analyzes the pronunciation of three groups of speakers. The first group, called the Mobile Unit (MU) speakers, were born in the late 1800s and were recorded by the Mobile Disc Recording Unit of the New Zealand Broadcasting Service between 1946–1948 (see Gordon et al. 2004 for details).[4] The four speakers analyzed here are all male and are from two different areas of the North Island. Most were recorded speaking in both Māori and English. Interviews are of varying length (10 to 90 minutes), tend to consist of historical narrative, genealogy and legends, and were intended for radio broadcast. All of these speakers are first-language (L1) speakers of Māori. Pronunciation and grammatical features of their English indicate that they are all second-language (L2) speakers of English. The other two groups of speakers, who were recorded from 2001 to 2006, were selected to match the MU speakers as closely as possible. They are all male, come

4. The original Mobile Unit recordings are held in Radio New Zealand's archives, Sound Archives Ngā Taonga Kōrero, in Christchurch.

from a range of dialect areas,[5] including those of the MU speakers, and were recorded for approximately an hour in each of Māori and English. Although less formal than the MU recordings, these are interview-style recordings rather than casual conversations. The second group, the *kaumātua* (elder) group, consists of eight speakers born in the 1920s and 1930s and is referred to as the K group. All are L1 speakers of Māori who grew up in Māori speaking environments learning English after they started school. The third group of eight speakers, the younger (Y) group, were born in the 1970s and 1980s; five are L1 speakers of Māori, and three are L2 speakers, though we do not address potential effects of this factor in the present chapter (however see Watson et al. 2006). Despite language revitalization efforts, there are very few younger L1 speakers of Māori and those interviewed for this project all have a strong background of Māori language exposure, both from older speakers in their home and through their educational environment, even though none of them received direct transmission of the language from their parents. However in contrast to the L1 kaumātua, younger L1 speakers were subject to considerably greater exposure to English from their earliest years. The younger L2 speakers are relatively fluent speakers of Māori, all having learned Māori from their teenage years onwards.

5. Data

5.1 Vowels

For all speakers, the short and long monophthongs and five diphthongs in their Māori speech were analyzed and the formant frequencies and length were recorded. The target, largely achieved, was to analyze approximately 30 tokens for each vowel and diphthong for each speaker. The tokens were all extracted from contextual speech. Because Māori does not have marked vowel reduction in unstressed syllables, it was often possible to analyze more than one vowel within a word. Vowels were analyzed if they were fully voiced and, especially for the younger speakers, did not seem reduced on auditory analysis. In order to accurately analyze vowel length, vowels were only chosen in CVC environments (where the following consonant was the onset of the next syllable). Phrase final vowels or vowels

5. We have not yet analyzed possible dialect differences within the groups of speakers. The major differences are lexical and involve consonants rather than vowels (see Note 3). Where possible, we have avoided using words with known dialect variation (such as *tātau/tātou*, 1st person plural pronoun inclusive) and have been very careful if we have had to include words such as *tīpuna/tūpuna* (ancestor) within the analysis.

followed by any sort of hesitation were excluded. Where possible, no more than five tokens of any individual word were analyzed. Because of the variation in the amount of speech recorded for each speaker, it was not always possible to find 30 appropriately stressed tokens for each vowel for each speaker. In particular, it was often difficult to find sufficient tokens of PĪ, TŪ, PAO and HOU. In these cases, we took more than five tokens of a word, and vowels or diphthongs with following pauses were analyzed for formant frequency but not for length.

5.2 Consonants

In addition some analysis of consonants has been carried out. In particular, the details of the pronunciation of /f/ were studied auditorily for one representative speaker from each of the three groups MU, K, and Y. Similarly, both acoustic and auditory analysis of the aspiration of /p, t, k/ has been carried out on the same three speakers.

6. Analysis

6.1 Acoustic analysis

Acoustic analysis of the vowels was carried out using Praat version 4.125 and later (Boersma and Weenink http://www.fon.hum.uva.nl/praat/). For the MU speakers the data is bandlimited to 5 kHz because of the limited frequency response of the original recording equipment, which was used by the New Zealand army during the Second World War. The MU recordings were digitized for analysis at 16,000 Hz (16 bit) and the modern recordings at 20,000 Hz (16 bit). Formants were calculated using the default Praat settings (25 ms analysis frame, gaussian window, 10 pole LPC filter). The formant positions were visually checked and corrections made to the analysis parameters as necessary. Measurements were taken during the steady state portion of the vowel. If there was no steady state, formant readings were taken at the F2 maximum (and F1 minimum) for front vowels, the F1 maximum (and F2 minimum) for central vowels and the F2 minimum (and F1 minimum) for back vowels. Two target measurements were taken for the diphthongs. Length measurements were calculated from wide-band spectrograms together with the waveforms. Consonant transitions were included within vowel length measurements so long as vowel formants could be seen (i.e., so long as there was voicing). Māori does not have syllable final consonants and, with the exception of /r/, anticipatory transitions into the initial consonant of the following syllable

were not common, especially for the older speakers. Any anticipatory transitions that did occur were included in the vowel length if there was no break before the initial consonant of the following word. Further formant analysis was carried out in Emu/R (http://emu.sourceforge.net). The VOT analysis for /p, t, k/ was carried out in Soundscope/16 (GW Instruments), an acoustic analysis program for Macintosh computers.

6.2 Auditory analysis

Two of the authors carried out the auditory analyses. They carried out separate analyses and achieved over 90% agreement. Where there was disagreement, they listened to the tokens again until agreement was reached.

7. Results

7.1 Vowels

7.1.1 *Monophthongs*

Figure 1 shows the mean values in Hz of F1 and F2 for the three speaker groups with the long and short vowels plotted separately. Figure 2 shows ellipse plots of both the long and the short vowels plotted by speaker group. With two exceptions the quality of the phonemically long monophthongs shows little change over the period under investigation. As can be seen in Figure 1, WĀ, MŌ, and PĪ occupy very similar areas in the vowel space, with perhaps slight peripheralization of MŌ

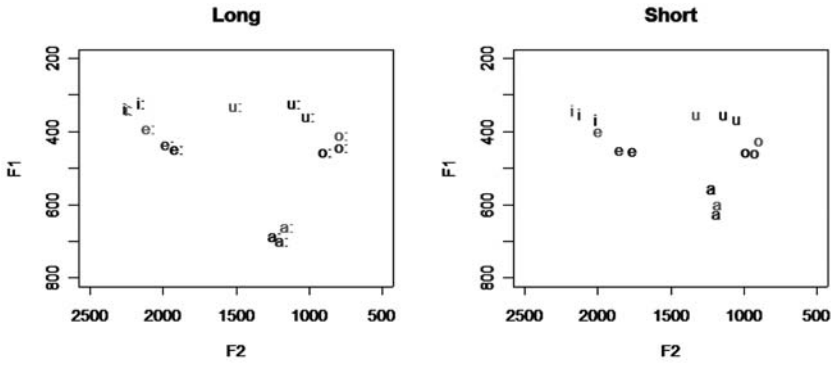

Figure 1. Mean values for long versus short vowels in Hz for the three groups of speakers. MU speakers are printed in black, K speakers in dark grey, and Y speakers in light grey.

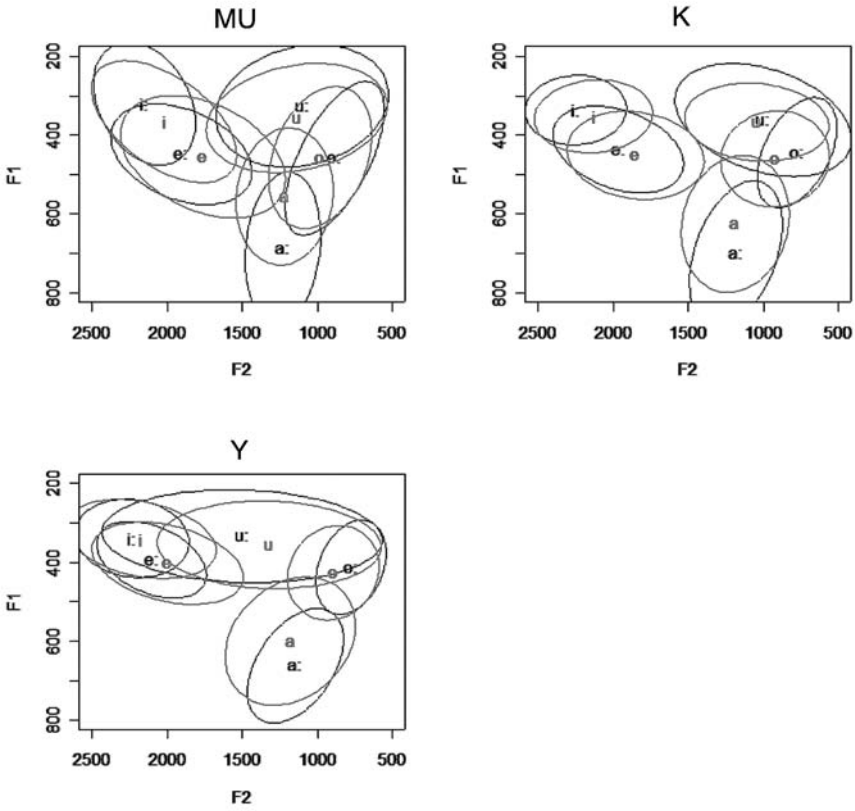

Figure 2. Ellipse plots in Hz of long and short vowels for each speaker group. Long vowels black, short vowels grey. The ellipses contain 95% of the data points.

between the MU and K groups. In contrast, KĒ shows progressive fronting and raising across the three groups, increasingly approaching PĪ. More strikingly, TŪ has undergone marked fronting in the time between the K and Y groups (see discussion below on consonantal effects on this vowel).

The short vowels, on the other hand, exhibit rather greater movement; PIKI, KETE, and WAKA all become progressively peripheral, so that the qualitative distinction between these and the corresponding long vowels is lessened. This progressive lessening of the qualitative distinction can be seen in Table 1 which presents the Euclidean Distances (ED) in Hz between the long and short vowel pairs for each speaker group. MOKO moves progressively back and somewhat increases its ED from MŌ. In parallel with TŪ, TUKU exhibits considerable fronting between the K and Y speakers, though, as seen in Table 1, which shows an increase in the Euclidean distance, less fronting than TŪ.

Table 1. Euclidean Distances in Hz between long and short vowel pairs for each speaker group

	PĪ/PIKI	KĒ/KETE	WĀ/WAKA	MŌ/MOKO	TŪ/TUKU
MU	138	143	131	95	47
K	117	116	75	146	43
Y	55	106	72	118	181

From Figure 1, it is possible that the movements of PIKI and KETE may be a chain shift led by PIKI, since the K and Y pronunciations of PIKI are similar, while in the case of KETE, greater movement is observed between the K and Y groups. Figure 3 plots the mean F1 value of KETE against the mean F1 value of PIKI (left) and the mean F1 value of KĒ against the mean F1 value of PĪ (right) for each speaker. The line is a non-parametric scatter plot smoother that represents the best fit through the data. There is a significant correlation between the first formants of PIKI and KETE (rho = 0.610, $p < 0.003$). Figure 3 shows that speakers who have low F1 values for PIKI also have low F1 values for KETE, and thus have both vowels raised, whereas speakers who have high F1 values for PIKI have similarly high values for KETE and thus have lower versions of both vowels.

It can be seen that most of the young speakers are towards the bottom left of the figure (with relatively raised vowels) whereas most of the MU speakers and the K are towards the top right with relatively open vowels. This relationship, together with the pattern seen in Figure 1, where PIKI raises for the K speakers but KETE does not raise till the Y speakers, supports the suggestion that the movement of both vowels is a chain shift led by PIKI. The movement will be facilitated by the lessening in the length distinction between the long and short vowel pairs, especially PĪ and PIKI, which is discussed below. Although there is a tendency for the F1 values of PĪ and KĒ to be related, this tendency is not statistically significant (rho = 0.358, $p = 0.102$). From Figure 1 it can be seen that, although PĪ and KĒ both front, PĪ lowers while KĒ raises, so that any suggestion of a chain shift is much less convincing.

Particularly for the younger speakers, the ellipses for TŪ and TUKU spread across the whole of the top of the vowel space in Figure 2. Even for the MU and K speakers, observation indicated that tokens following alveolar consonants were usually produced farther forward than tokens following other consonants (see Maclagan et al. 2005 for a discussion of this phenomenon in one MU speaker and Stevens and House 1963 for discussion of front articulation of /u/ after alveolar consonants). Table 2 presents the mean F2 values in Hz for each speaker group for TŪ and TUKU with tokens separated according to the preceding consonant. Tokens following alveolars are produced farther forward than tokens following

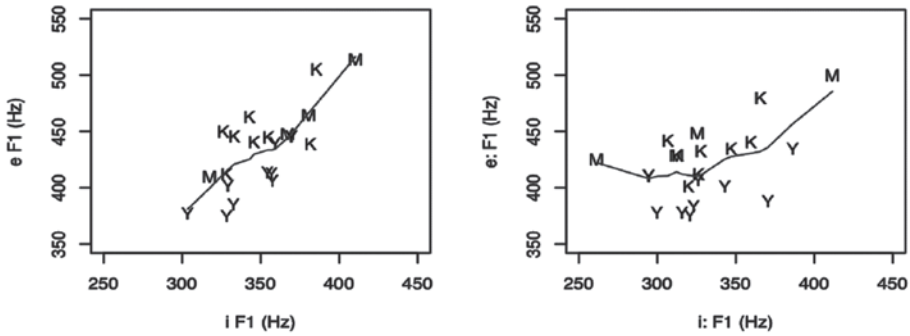

Figure 3. Correlation between the mean first formant values of PIKI (x-axis) and KETE (y-axis) on the left and between the mean first formant values of PĪ (x-axis) and KĒ (y-axis) on the right for all speakers. Formant values are in Hz. For PIKI and KETE, Spearman's correlation rho = 0.610, p < .0003; for PĪ and KĒ, Spearman's correlation rho = 0.358, p = 0.102. (The line represents a non-parametric scatter plotter smoother, representing the best fit through the data.)

other consonants for each vowel for all speaker groups and also for each individual speaker. ANOVA analysis with post-hoc Tukey tests show that, for TŪ, the MU and K speaker groups are not significantly different from each other, but that both groups are significantly different from the Y group (p < .01). The same is true for TUKU after alveolars. Overall and after non-alveolar consonants for TUKU, all three groups are significantly different from each other. However these differences for TUKU arise because the K group produced tokens that are even farther back than the MU speakers. The most relevant comparison for TUKU, therefore, as for TŪ, is between the MU and K speakers and the Y speakers. While tokens are spread across the whole space included in the ellipses, for many of the speakers TŪ and TUKU present a bimodal distribution rather than a simple spread round a central point. Producing one mean value for these two vowels, as in Figures 1 and 2, is therefore somewhat misleading. However, as Table 2 shows, both the more front realizations of TŪ and TUKU after alveolars and the farther back realizations after non-alveolars have clearly fronted between the MU speakers and the Y speakers. This analysis has thus separated out fronting due to vowel change from fronting due to phonetic context.

The quantitative distinction between the phonemically long and short monophthongs shows shifts analogous to the qualitative movements (see Figure 4). The lines in the centers of the boxes in Figure 4 represent the median duration values in ms, the boxes enclose from the upper to the lower quartiles and the circles represent the 95th and 5th percentiles. Overall, there appears to be a reduction in the length of the long vowels relative to the corresponding short

Table 2. Mean second formant frequencies in Hz for each speaker group for TŪ and TUKU overall and for tokens after alveolar and non-alveolar consonants

		All consonants	Alveolar consonants	Non-alveolar consonants
		TŪ	TŪ	TŪ
MU	Mean	1103*	1205*	888*
	sd	234	193	154
	N	115	78	37
K	Mean	1033*	1145*	845*
	sd	227	204	107
	N	199	125	74
Y	Mean	1506*	1655*	1177*
	sd	378	331	243
	N	243	167	76
		TUKU	TUKU	TUKU
MU	Mean	1139**	1220*	1067**
	sd	245	289	170
	N	138	65	73
K	Mean	1046**	1206*	965**
	sd	196	205	131
	N	274	92	182
Y	Mean	1326**	1499*	1229**
	sd	303	329	239
	N	270	97	173

* The MU and the K speakers are significantly different from the Y speakers ($p < 0.01$).

** All three groups are significantly different ($p < 0.01$).

ones. This is most marked in the case of PĪ ~ PIKI and TŪ ~ TUKU, while in the lower vowels, especially WĀ ~ WAKA, the quantitative distinction is retained more consistently. All four MU speakers keep all pairs of vowels distinct in length. Two of the K speakers make no distinction between PĪ and PIKI (i.e., there is no significant difference in the duration means), and three of the young speakers make no distinction between PĪ and PIKI, with one of these speakers also making no distinction between TŪ and TUKU.

The retention of the quantitative distinction between WĀ and WAKA in contrast to the other vowels, especially PĪ/PIKI and TŪ/TUKU, may be related to the much greater functional load borne by the former distinction. Table 3 (from Harlow 2007:68) reports the relative text frequencies of the five short and five long monophthongs in written text. It will be seen that WĀ is in fact far more frequent than the other long vowels. It is also far easier to find minimal word pairs for WĀ /WAKA than for the other vowel pairs (see Bauer 1993:536–537 for discussion). It may also be relevant that START and STRUT, which are in the same area

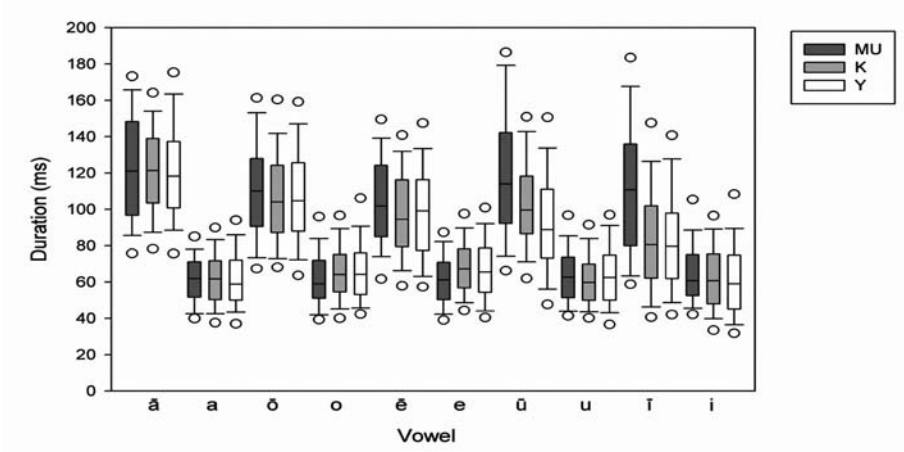

Figure 4. Duration in ms of the long and short vowels for each speaker group. The lines represent the median values, the boxes enclose from the upper to the lower quartile and the circles represent the 95th and 5th percentiles

Table 3. Distribution of Māori vowel phonemes in a written text of over 500,000 characters (Pōtatau 1991) (from Harlow 2007: 68)

Phoneme	Percentage of all phonemes	Phoneme	Percentage of all phonemes
a	18	ā:	4.6
e	8.7	ē:	0.8
i	11.3	ī:	0.3
o	5.7	ō:	1.5
u	6.1	ū:	0.4

of the vowel space, are distinguished primarily by length in New Zealand English (NZE). This distinction may support the continued length separation of WĀ and WAKA for the K and Y speakers.

Similarly, the shortening of especially PĪ and TŪ is striking in the light of the observation that high vowels in English are shorter than their lower counterparts (Peterson and Lehiste 1960; Wells 1962). The relatively greater shortening of the non-low vowels in Māori over the relevant period has the effect of making the younger speakers' pronunciations more closely parallel to contemporary English in this respect.

7.1.2 *Diphthongs*

As mentioned above, Māori has a number of diphthongs, essentially any combination of a lower plus higher vowel can be realized as a phonemically distinct

diphthong, as well as /oe/. The following are thus all distinct words in Māori: *tai* 'sea', *tae* 'arrive', *toi* 'art', *toe* 'remain', *pou* 'post', *pau* 'be exhausted, used up', and so on. In this research, five of these diphthongs have been analyzed over the three speaker groups, those designated MAI, WAE, RAU, HOU, PAO. These were selected for study for three reasons: they are the most frequent diphthongs in written text;[6] informal observation suggests that merger is occurring in modern Māori between MAI ~ WAE and RAU ~ HOU; and there are only three diphthongs in the analogous vowel space in English, PRICE, GOAT, MOUTH, using Wells' (1982) nomenclature. Given the increasing exposure to English over the three speaker groups, we expected to find possible influence of English on Māori in the pronunciation of their diphthongs.

Figure 5 plots the first and second values in Hz for the five diphthongs for all three speaker groups against the ellipses for their short monophthongs. The diphthongs are plotted in F1/F2 space. The arrows indicate the direction of the movement, with the head being by the second target. Both targets of all five diphthongs are clearly quite distinct for the MU speakers. They are still distinct for the K speakers, though the second elements of MAI and WAE are no longer inside the ellipses of PIKI and KETE, and the second targets of HOU and RAU are much closer together. The major change is for the Y speakers, where the first targets for HOU and RAU and for MAI and WAE are dramatically closer together. The first target of PAO has moved into the same area as the first targets of MAI and WAE, but because of its different trajectory, PAO is still clearly distinct from the other diphthongs.

What can be observed overall is the relationship between the development of the diphthongs and that of the short monophthongs. In particular, increasing lowering of WAKA brings the first target of MAI ever closer to that of WAE; the second targets of both HOU and RAU move forward in parallel to the same movement in TUKU; as KETE fronts and rises, the second target of WAE approaches that of MAI. On the other hand, the second target of MAI does not follow PIKI in moving further forward and up, so that for the youngest group of speakers the second target of MAI does not even reach the edges of the ellipse for PIKI. The shortening of the glides for MAI and PAE parallels the similar glide weakening (Wells 1982) for NZE FACE and PRICE, the second targets of which no longer reach FLEECE, but are between DRESS and TRAP (Gordon et al. 2004: 27; Watson, Harrington and Evans 1998: 197).

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6. At this stage, this assessment is based on experience of the Māori language. In the absence of appropriately marked up text, it would currently be extremely difficult to do an accurate count of diphthong occurrences (similar to Table 3 for the monophthongs), because of the different ways vowels form diphthongs across word and morpheme boundaries.

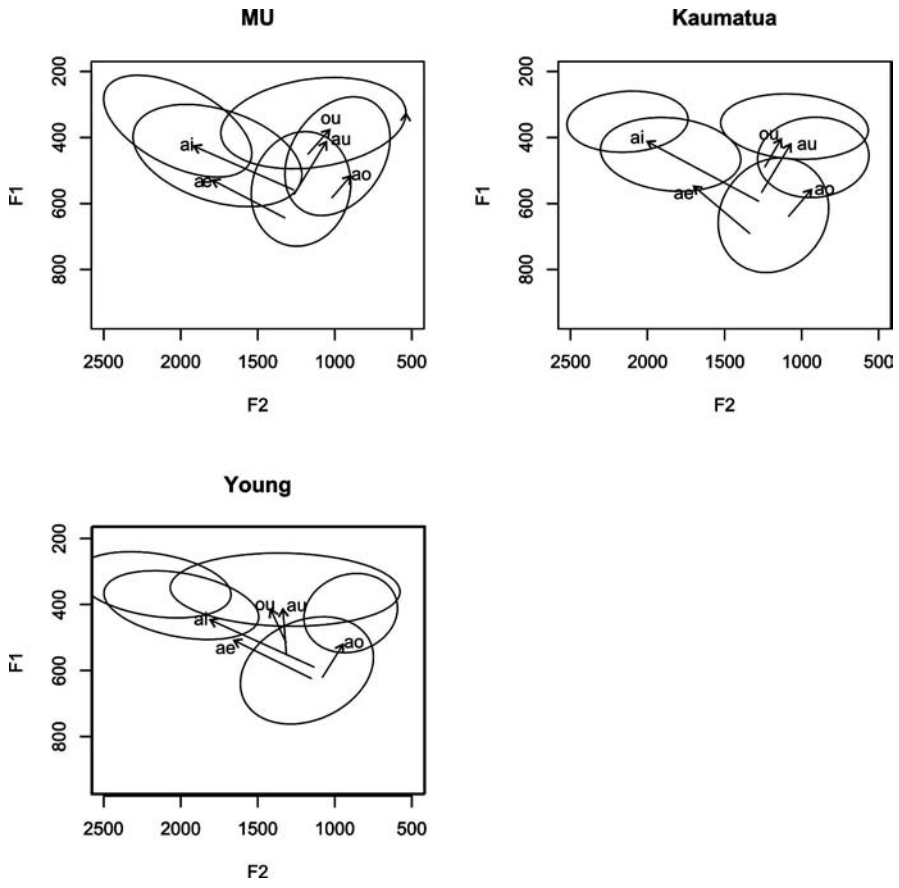

Figure 5. Diphthong trajectories for all three groups of speakers in Hz plotted against the ellipses for their short monophthongs

For many young speakers of Māori, HOU and RAU have basically merged. While the MU speakers have a clear difference in pronunciation between these vowels, they are indistinguishable in the speech of many young people. Table 4 presents F1 and F2 values in Hz for the first targets of HOU and RAU for the three speaker groups. From Figure 5, it can be seen that the major change for these diphthongs is the lowering of the first target, which is reflected in the F1 values. The MU speakers keep both F1 and F2 significantly different for the two diphthongs ($p < .01$) with the first target of HOU produced higher and farther back than RAU. The other two groups make a distinction in F1 only. All four MU speakers and all eight K speakers keep the F1s of the two diphthongs significantly distinct. Although the Y speakers as a group keep them distinct, for four of them the difference in F1 value is no longer statistically significant, and for all of the Y speakers HOU and RAU are usually no longer audibly distinct.

Table 4. Formant frequencies in Hz for the first targets of HOU and RAU for all speaker groups

			F1		F2	
		N	**Mean**	**sd**	**Mean**	**sd**
HOU	MU	116	440*	59	1168*	252
RAU	MU	135	572*	70	1263*	139
HOU	K	252	489*	69	1238	219
RAU	K	262	566*	60	1259	171
HOU	Y	219	515*	63	1318	227
RAU	Y	268	551*	53	1314	147

*The formant values for HOU and RAU are significantly different ($p < .01$).

MAI and WAE are similarly approximating, and for young speakers, the diphthongs that end in /i/ are very similar to the corresponding diphthongs that end in /e/ so that *tai* and *tae* or *toi* and *toe* are increasingly difficult to tell apart in their speech. Fortunately, context will usually disambiguate the meaning for most of these potential mergers.

7.2 Consonants

7.2.1 *The /f/ (<wh>) phoneme*

The realizations of /f/ (spelled <wh>) for one speaker from each of the three speaker groups were analyzed. A typical MU, K, and Y L2 speaker were chosen for this analysis. All realizations of /f/ over the hour recording for the young L2 speaker were [f]. During an hour's recording, the kaumātua speaker produced one token as [ʍ] and 219 tokens as [f]. By contrast, the MU speaker used five different realizations of /f/: in order of frequency, [ɸ], [ʍ], [h] followed by a rounded vowel, [f] and [h] followed by an unrounded vowel (Maclagan & King 2002) (see Figure 6). /f/ is not very common, with only 143 tokens occurring in 35 minutes of speech for the MU speaker. In inherited words in Māori, /f/ only occurs before /i/, /e/, and /a/. [ɸ], [ʍ], and [f] are used before all three vowels, but [h] only appears before /a/, usually appearing in the causative prefix *whaka*. In this case, it often appears with the following /a/ vowel rounded to [ʊ] and is described as [h] followed by a rounded vowel. <wh> is one sound that has different regional pronunciations in modern Māori, being sometimes realized as [h] in the far north of the country and [ʔw] in the Taranaki region (Bauer 1993: 531–532). [ʍ] is sometimes still heard, but [ɸ] never is, and modern speakers show much less variation than the MU speaker analyzed here. The Y speaker, in particular, is typical of other Y speakers whose vowel systems we have analyzed.

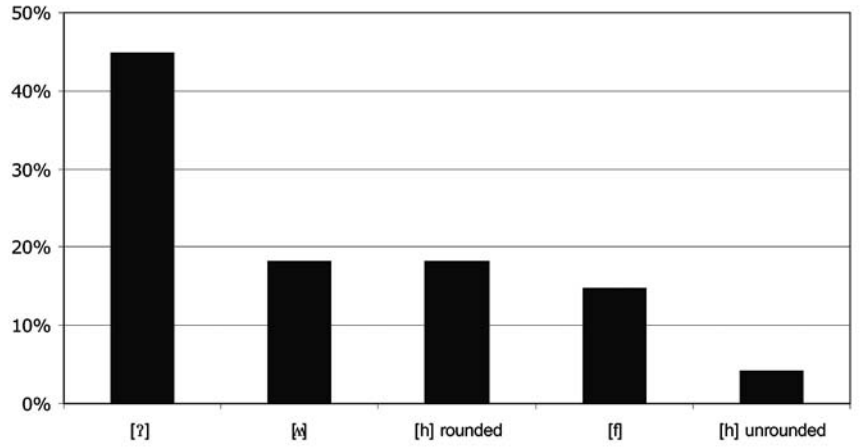

Figure 6. Realizations of the /f/ phoneme by one MU speaker (based on Maclagan & King 2002)

7.2.2 *Aspiration of plosives*

As in other Polynesian languages, plosives in Māori are typically described as unaspirated (Krupa 1982: 21). An auditory analysis of over 8000 tokens of /p, t, k/ was carried out for the same three speakers as for the /f/ analysis. This analysis compared their pronunciations in Māori and in English, and the results are shown in Figure 7. The percentage of consonants aspirated increased steadily from the oldest to the youngest speaker, for both languages (see Maclagan & King 2007 for details). The MU speaker only aspirated 6% of his stop consonants when he was speaking in Māori, but 65% when speaking in English. The K speaker aspirated 48% of his consonants in Māori and 86% in English and the young L2 speaker aspirated 88% of his consonants in both languages.[7] All three speakers realize some English /t/ tokens as flaps. A flap, [ɾ], is the usual realization for /r/ in Māori, and none of the speakers use it to realize /t/ in Māori.

A VOT analysis was also carried out on 800 representative tokens, selected on a random basis. The mean VOT for Māori stop consonants increased significantly from 25 ms (sd 10 ms) for the MU speaker, to 41 ms (sd 18 ms) for the K speaker, and 57 ms (sd 22 ms) for the young L2 speaker. The mean VOT values for their

7. The increase in aspirated plosives in Māori between the MU speaker and the kaumātua is significant ($\chi^2 = 583$, df = 1, $p < 0.001$), as is the increase between the kaumātua and the young L2 speaker ($\chi^2 = 596$, df = 1, $p < 0.001$). The increase in aspirated plosives in English between the MU speaker and the kaumātua is significant ($\chi^2 = 153$, df = 1, $p < 0.001$), but the increase between the kaumātua and the young L2 speaker is not significant ($\chi^2 = 0.361$, df = 1, $p = 0.548$) (see Maclagan & King 2007).

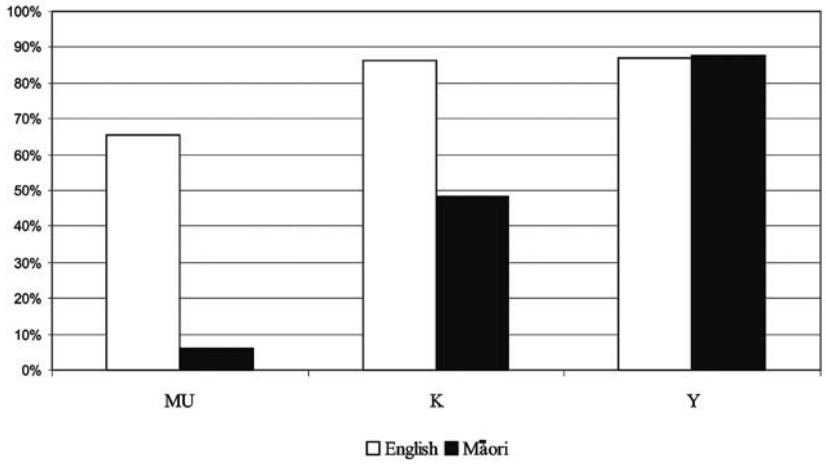

Figure 7. Percent aspiration for /p, t, k/ for one speaker from each group when speaking in English and in Māori (based on Maclagan & King 2007)

English stops increased significantly from 43 ms (sd 16) for the MU speaker to 66 ms (sd 18 ms) for the K speaker, and non-significantly to 68 ms (sd 21 ms) for the young L2 speaker.[8] Since the young speaker is an L1 speaker of NZE with no trace of a Māori English accent in these recordings, it is likely that this figure represents a typical VOT value for voiceless stops in NZE. The K speaker's English stops have very similar VOT values, but the MU speaker's English stops have significantly shorter VOT values. Many of the tokens for the MU speaker fall within the VOT range for voiced stops for English, or else within the boundary range between voiced and voiceless stops (Kent and Read 1992: 108). Early spellings of Māori words reflect this and often had voiced consonants where voiceless ones are now expected (*biddy-biddy* for a prickle that is now spelled *piripiri*, or *Otago* for the South Island province that is now spelled *Ōtākou* in Māori).

The MU speaker aspirated very few of his Māori plosives and the young L2 speaker aspirated most of them, but the auditory analysis indicated that the K speaker aspirated /t/ more strongly before PĪ~PIKI and TŪ~TUKU than before the other vowels. This was confirmed by the VOT analysis. Greater aspiration of /t/ before PĪ, PIKI, TŪ and TUKU is now extremely common in Māori, with the aspiration lengthening to affrication for many tokens.

8. The differences between Māori and English VOT values were significant for each speaker at $p < .01$ using analyses of variance and post hoc Tukey tests (see Maclagan & King 2007).

8. Discussion and conclusion

The research reported in this chapter shows that there have indeed been considerable shifts in aspects of the pronunciation of Māori over the period represented by the three groups of speakers: the abandonment in very large part of the range of allophones used for /f/; increasing aspiration of the three voiceless stops; decreasing distinction in both quantity and quality between the phonemically distinct long and short vowels; the shifts, apparently towards merger, of some of the diphthongs studied to date. The question arises now as to what to make of them.

Polynesian languages generally, and Māori in particular, have been extremely conservative in their vowel systems, at least at the phonemic level, since the time of Proto-Polynesian some 2500 years ago (Krupa 1982: 2, 15). They all have similar five-vowel systems with phonemic length distinctions and the same range of diphthongs as exemplified in Māori. Descriptions of Polynesian languages with much in the way of fine phonetic detail are difficult to find; most restrict themselves to the statements that there are five vowels and distinctive vowel length. However, those few which do contain some comment on phonetic detail (e.g., Kuki 1970 for Tuamotuan, Elbert and Pukui 1979 for Hawaiian, Shibata 1988 for Mangaian in the Southern Cook Islands) provide nothing which would indicate that the pronunciation of the vowels by the MU speakers is anything other than the system in place since at least the breakup of Central Eastern Polynesian languages, the subgroup to which all the languages just named as well as Māori belong (Biggs 1978: 697; Krupa 1982: 2–3).

If this is so, then the shifts and changes observed over the last century in the three groups of speakers studied here have the character of 'catastrophic' changes in the sense of Labov (1994: 24), that is changes which proceed relatively quickly, and are due to external factors, in contrast to more gradual ones due to purely language-internal processes.

That this may be the case is reinforced by a comparison of the observed vowel shifts with the principles enunciated by Labov (1994), which are assumed to constrain shifts due to internal factors. In this influential work, Labov identifies four principles which constrain chain-shifts in vowel systems (1994: 116):

Principle I
In chain shifts, long vowels rise.

Principle II
In chain shifts, short vowels fall.

Principle IIa
In chain shifts, the nuclei of upgliding diphthongs fall.

Principle III
In chain shifts, back vowels move to the front.

Labov himself (*loc. cit.*) calls these three generalizations "principles" and numbers them as above because the nuclei of upgliding diphthongs referred to in IIa are regarded as instances of short vowels.

The only possible case of chain-shifting in our data is the raising and fronting of both piki and kete (see the figures above). These shifts appear to be a pull-chain in that piki moved first, raising and fronting between the MU and K groups, while kete shows greater movement in this direction between the K and Y groups. This movement quite plainly would be a counterexample to Labov's principle II. In fact, Labov himself concedes that this is the most weakly supported of his principles, and strikingly NZE provides a good counterexample as well (1994: 138). Labov concludes that it is possible that there are no constraints on the movement of short vowels.

The fronting of both tū and tuku over the relevant period is certainly in accord with Labov's Principle III, but it is not clear that this is part of a chain shift; mō and moko do rise between the K and Y groups, however since the K speakers analyzed have tū and tuku farther back than the MU speakers, the rise for mō and moko is unlikely to be due to a chain shift. Further, as Labov himself points out on the basis of earlier studies, Principle III fronting of /u/ is always preceded by the development of four contrasting levels of height in the back vowels (Labov 1994: 118); this is clearly not so in the case of Māori.

Nonetheless, the historical fronting of tuku and tū may still have a "natural" explanation. It seems that in the earliest group of speakers, as well as at least some of the K group, this change is led by these vowels following alveolars (Maclagan et al. 2004: 23; Maclagan et al. 2005). Plausibly, the front tongue position in the stop attracts the following vowel forward (see Stevens & House 1963: 119, 120). Labov (1994: 139) refers to a parallel shift in Parisian vernacular French, in which /u/ is fronted after dentals (e.g. *tout* 'all').

The lowering of waka likewise superficially accords with one of Labov's principles. In later chapters, Labov (1994: 280) introduces further principles, of which one is Principle IV:

Principle IV:
The Lower Exit Principle
In chain shifting, low nonperipheral vowels become peripheral.

However, yet again, it is not clear that the movement in Māori is part of a chain shift. Neither is there any sign that WAKA is becoming 'tense', a change which is contained in Labov's principle. On the contrary, of all the long ~ short pairs in Māori, it is WAKA ~ WĀ which remain most clearly distinct in both quality and length, while the others, especially the high vowel pairs, show progressive reduction of these distinctions. In the case of the shifts in the diphthongs reported above, it is not clear that these do otherwise than (partly) follow the shifts of their components.

If, as suggested above, at least much of what has been changing represents relatively rapid and radical changes to a system which had shown very considerable stability over centuries, it seems sensible to look for an external trigger. As indicated above in Section 2, Māori and English have been in ever increasing contact over the last two hundred years. Two languages in such contact can scarcely avoid mutual influence, and indeed each language shows considerable lexical borrowing from the other (Duval 1995 for Māori loans from English; Macalister 2005 for NZE loans from Māori). In the case of phonology and sound change, it is more difficult to be so definite in the attribution of causation; however, the following observations make the influence of English a plausible driving force behind at least most of the observed shifts in Māori pronunciation.

Firstly in the consonants, it is quite clear that the increasing aspiration of stops has led to their being pronounced by Y speakers virtually identically with the NZE voiceless stops.[9] Similarly, the selection of [f] as the principal realization of /f/ has the effect of making the Māori pronunciation of this phoneme by many speakers identical to the similar sound in NZE. In both these respects, most kaumātua and all young speakers use usual NZE pronunciation in their English consonants. That is, without having carried out a full auditory or acoustic analysis, there is no obvious evidence that their Māori has influenced these speakers' pronunciation of English consonants, though Māori has clearly affected the MU speakers' English consonants.

The same is generally true for the vowels as well, especially in the K and Y groups, whose vowels are relatively like those of contemporary monolingual speakers of NZE. When compared with contemporary monolinguals, the MU group, for whom English was a second language, show farther back variants of STRUT and START which are much closer to their WAKA and WĀ vowels (Maclagan et al. 2004). Similarly, their FLEECE vowel is much more like their own PĪ than that of their L1 English contemporaries' FLEECE.

9. The situation within New Zealand is complicated by the existence of Māori English, which is described briefly above. It is often said to have relatively unaspirated stop consonants. See Bell (2000); Holmes (1997, 2005).

When one looks at the shifts in the Māori vocalic systems, it is striking how many of these parallel simultaneous developments in NZE. This is particularly so of the raising of KETE which tracks the raising in NZE of the DRESS vowel. Likewise, the fronting of TUKU and TŪ parallels fronting of GOOSE. On the other hand, there is no trace of a centralization of PIKI to parallel that of KIT in modern NZE (Bell 1997; Maclagan et al. 2004), nor of any diphthong shifting (Wells 1982) in PĪ or TŪ as has occurred in NZE and also Australian English, whereby GOOSE and FLEECE develop on-glides and are realized as [əi] and [əu] or [ʊu] (Watson, Harrington, & Evans 1998). However if the apparent trends towards merger of the pairs MAI~WAE and HOU~RAU continue, then this area of the Māori diphthong system will very closely parallel NZE.

In this chapter we have covered the segmental phonemes of Māori and suggested that change over the last one hundred or so years may reflect some language internal change, but most probably reflects external influence from English. We have not covered prosodic aspects of Māori. The mora-timed rhythm of Māori is one of its most distinctive features, and is also apparently being influenced by English. This is a whole new study, and one we hope to undertake in the future. During the twentieth century, Māori was under threat of extinction in favor of the dominant community language English. Revitalization efforts and greater awareness of the language during the last quarter of the twentieth century have pulled it back so that young L2 speakers are now raising children who are bilingual in Māori and English. While the future viability of the Māori language is not yet secure, its outlook is much more positive than it was 30 years ago, and it will be fascinating to see how the language develops over the next 30 years.

Acknowledgements

This research was supported by a grant from the Marsden Fund (UOC309) and the University of Canterbury (Research Grant 6480). We wish to thank the speakers without whom we could not have done the analysis, and the following research assistants who helped with data collection, transcription and analysis: Pariya Behnami, Alison Bruce, Siobhan Buckingham, Anna Catherall, Hannah Chacko, Jo Clough, Carleen Cordes, Cherie George, Virginia Good, Charmain Gudmanz, Irfon Jones, Te Ingo Ngaia, Katene Aupouri Paenga, Elizabeth Quinn, Adele Sissons, Kate Sutherland, Hannah van Tuill, Hēmi Whaanga, and Kirsten Wulff.

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CHAPTER 6

Toward a study of language variation and change in Jonaz Chichimec

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Jonaz Chichimec is an endangered Otopamean language spoken in Misión de Chichimecas adjacent to the city of San Luis de la Paz in Guanajuato, Mexico. Four ongoing phonological changes are described with respect to the age of the speakers. The restructuring of the system of classifiers used for possession is also examined.

Introduction

From the published materials of Angulo (1932), Romero (1957–1958, 1966), Lastra (1984), and my own data gathered intermittently (1958, 1969, and 1980), it is possible to trace certain ongoing changes in Chichimec. In this chapter the fusion of the high-rounded front vowel /ü/ with the unrounded one /i/, the deletion of the initial voiced velar fricative /g-/, the devoicing of the initial voiced alveolar fricative /z-/, and the change in final position of the consonant cluster voiceless dental affricate+glottal stop /-cʔ/ to /-s/ are examined.[1] Two other possible changes considered are the loss of a vowel in syllables with a glottal stop between like vowels or a post-velar voiceless fricative occurring between like vowels, but no clear pattern emerges for those two latter possibilities. In addition, certain changes in the possessives are studied; some alienable nouns are being assigned to the former classifier for food.

Chichimec is a language of the Otopamean family (in the Otomanguean stock) spoken in Misión de Chichimecas, a community located immediately to the east of San Luis de la Paz, which is the county seat in the state of Guanajuato, Mexico. According to the 2000 Census there were 1,641 speakers, but that figure

1. Americanist phonetic symbols are used in this article. See Tables 4–5 for definitions.

may be too high because children who no longer speak the language were counted as speakers.

The language was first described by Jaime de Angulo in a monograph which appeared in the *International Journal of American Linguistics* in 1932. Soustelle added interesting historical information in his 1937 book, but he notes that as far as the linguistic aspects of Chichimec are concerned, he has not much new to add to Angulo's work. Romero (1957–1958) is a phonology, and his 1966 chapter presents a vocabulary list. In 1984 I published a grammatical sketch updating Angulo's work. Since 2003 I have gone back to the study of Chichimec and hope to prepare a modest pilot vocabulary (Lastra 2007) to be followed by a dictionary, a grammar, and texts.

Brief summary of Angulo and Romero's work

Angulo visited the Misión in the summer of 1930 and worked with the man who is called Joel here: a respected political and religious leader of his community. Joel became the informant for Soustelle, Romero, and myself in 1958. Angulo elicited materials for a grammatical sketch which has proved very useful. Its data contributed to the reconstruction of Otopamean (Bartholomew 1965).

Romero wrote a master's thesis (1957–1958) interviewing Joel and his wife, whose pseudonym here is Clementina, and subsequently published a vocabulary list (1966).

Angulo does not give an inventory of the phonemes of the language. He makes certain observations about pronunciation, noticing, for instance, the great frequency of whispered vowels. From his study, it is possible to list the oral vowels /i e æ ü a u o/ and the nasalized vowels /ũ ẽ ã/. The consonants he lists are basically the same as those I consider phonemic (see below), except that he did not record the contrast between lenis and fortis nasals.

Angulo's insight into the alternations of possessed alienable nouns and verb stems in different conjugations is remarkable. He classifies base forms of nominal and verbal stems according to the first three persons and third person plural, calling them A, B, C, D respectively. The dual, plural, inclusive and exclusive can be formed from the base form. Possessed nouns which involve alternation are listed with their A, B, C, D forms in Table 1.

In Table 2 we quote one of his fairly complex nominal paradigms. Next we quote his listing of the verb 'want' in the singular, including eight tenses (Table 3).

Romero's phonology is fairly detailed. He lists basically the same phonemes Angulo recognized, but adds two lenis nasals, considering the fortis ones geminate. Romero's vocabulary of approximately 600 words has two sections: Chi-

Table 1. Examples of inalienable nouns as described by Angulo

A	B	C	D	Gloss
koʔós	útos	utʔís	urʔós	house
nakú	éku	egú	ekhú	foot
túndᵉn	kirᵉ́n	nirᵉ́n	úren	money
tátã	úngwe	éme	búpe	father

Table 2. Paradigm for 'field' according to Angulo

'field'	SING	DUAL	PLURAL
1 INCL	kunú	kunús	kunú
1 EXCL	–	kunúmp	kunhú
2	kínu	kínus	kínun
3	kinú	kinús	kinhú
'two fields'			
1 INCL	kunús	kunúses	kunúsín
1 EXCL	–	kunúvós	kunhún
2	kínus	kínuses	kínusín
3	kinús	kinúses	kinhús
'fields' PL			
1 INCL	kunúr	kunúres	kunúrin
1 EXCL	–	kunúrúmp	kunúrhṹ
2	kínur	kínures	kínurin
3	kinúr	kinúres	kinhúr

Table 3. The verb 'want' according to Angulo

	AP	RP	IP	PRES	FUT	POT	CON	NEG
A	túʔi	kúʔi	úʔi	éʔi	gáʔi	nuʔí	ráʔi	súʔi
B	kití	kití	ití	kíʔi	kití	mití	gití	sití
C	undí	kundí	zúʔí	éʔi	gandí	muʔí	rúʔi	súʔi
D	urʔí	kúʔrí	zurʔí	erʔí	garʔí	murʔí	rurʔí	surʔí

Note: AP=anterior past; RP=recent past; IP=immediate past; PRES=present; FUT=future; POT= potential; CON=contemporaneous; NEG=negative.

chimec-Spanish and Spanish-Chichimec. He lists nouns and verbs without noting any alternations, *nambá*, for instance, is glossed as 'my hat' in the first section, and 'hat' is given as *upʔá*, which is correct since it is the citation form, but it is also the third person plural and there is no indication of the relationship between both forms. Verbs are listed in different persons and tenses without any indication of the alternations they undergo.

Table 4. Oral vowels

Unrounded front	Rounded front	Central	Back
i	ü		u
e			o
æ			
		a	

Table 5. Consonants

Voiceless stops	p	t		k	ʔ
Affricates		c	č		
Voiced stops	b	d		g	
Voiceless Fricatives		s			h
Voiced Fricative		z			
Fortis nasals	m	n			
Lenis nasals	m̲	n̲			
Lateral		l			
Vibrant		r			
Semi consonant	w				

Introductory phonological and grammatical notes

In the speech of older speakers, there are seven oral vowels (Table 4). They all can occur nasalized, but the most frequent ones are /ĩ ã ũ/.

There are two tones, high and low. High tone is marked by a stress and low tone is not written.

Consonants are shown in Table 5. The phonetic realization of some of the consonants is as follows: /g/ is a voiceless velar fricative with labial release in final position: [ikáx^{w}] 'I'; [g] initially and after /n/: [ganhá] 'they will eat', [kúŋgwe] 'rainbow'; voiced velar fricative [ɣ] elsewhere: [ikáɣós] 'we' (dual inclusive). /r/ is a flap in initial position and intervocalically, a voiced trill when followed by a glottal stop and a voiceless trill before /h/ and in final position: [ɾithṹ] 'fish', [uɾá] 'his face'; [urʔós] 'their house'; [u̥hḁ] 'pulque', [ípe̥r̥] 'fire-crackers'. /m̲/ is a bilabial approximant similar to a voiced bilabial fricative, but strongly nasalized. /n̲/ is a nasal flap. These consonants are in phonemic contrast with /m/ and /n/ on the one hand and with /b/ and /r/ on the other, as in (1).

(1) *sím̲ãs* 'your mat' *nímã* 'only'
kúm̲á 'he said' *ubǎʔ* 'day'
máṉe 'soon' *maréʔ* 'old'
uṉí 'his tongue' *uní* 'his fire'

Chichimec is head-marking where the head of a VP is the verbal root and the subject and object are the person prefix and the object suffix respectively:

(2) *u- nú- g*
3AP-see-1OBJ
'He sees me'
ga- só-kʔ
1FUT- tie-2OBJ
'I will tie you'

NPs show dependent-marking, for instance in:

(3) *námbihi nagúhun*
1CLAS4 mirror (CLAS4 = Classifier 4. See Table 11)
'My mirror'

There are more suffixes than prefixes per word; typically there is only one prefix, but it is possible to find more than one suffix in the same word. There is fusion in the verbal prefixes which express both person and tense-aspect or mood.

The language is SOV (AOV, SV) with no prepositions and no cases.

There is no grammatical category of gender. Number in both nouns and verbs can be singular, dual or plural. Distinction between inclusive and exclusive is made for the first person dual and plural. Number is marked in similar ways in both verbs and nouns. Personal pronouns can occur in both a NP and a VP. Their number marking is similar to that of possessed nouns (Table 6).

The dual and plural of the inclusive and the second person show a similar pattern, but the third person plural is different, a contrast also commonly found in nouns and verbs in this language.

Table 6. Personal pronouns

Person	Singular	Dual	Plural
1	ikág	ikág-umʔ (EXCL)	ikág-hŭʔ (EXCL)
1		ikág-ós (INCL)	ikág-un (INCL)
2	ihékʔ	ihékʔ-ós	ihékʔ-un
3	íṉoʔ	íṉoʔ-s	ígoʔ-r

Chichimec has six conjugations defined by which prefixes are attached to verb roots. There are six tense-aspects: present, anterior past, recent past, immediate past, and future, as well as the following moods: negative, two subjunctives, imperative, and negative imperative. In addition, although some verb stems have only one form to which affixes are attached, many have a different form for the third person plural; other verb stems may have as many as six forms.

Historical background

At the time of the Spanish Conquest in the central part of what is now Mexico, there were a large number of small states. Two or three of these were governed independently, but most paid tribute to the Triple Alliance, the three city-states of Tenochtitlan, Texcoco, and Tlacopan. Many languages were spoken in this area; tribute collectors and other government officials all spoke Nahuatl and were bilingual in the local language. Mexico-Tenochtitlan was the most important city, but Tetzcoco had held the court of the poet-king Nezahualcoyotl. This king and his descendants claimed to be *chichimeca tecuhtli* 'lord of the Chichimecs'. It was proudly claimed that his people were Chichimecs. The meaning of the term Chichimec otherwise was 'northerner', people who inhabited Teotlalpan 'land of the gods', the semi-desert territory to the north of the Aztec-controlled region.

In the 16th century there were several Chichimec tribes of hunters and gatherers. We know their names but very little about their languages. They apparently belonged to two different stocks, Uto-Aztecan and Otopamean.

Around 1550 silver was discovered in Zacatecas. In order to mine it, export it to Spain, and supply the mines, the Spaniards had to build roads and towns along the way. The Chichimecs immediately defended their territory, looted the carriages, stole the horses, and so on. The Spanish chroniclers describe them as fierce savages in order to justify their own attacks. In Spanish the term *chichimeco* was generic and synonymous with barbarian. The expansion of the territory controlled by New Spain meant the beginning of the Chichimec war that lasted 40 years and ended only after the Viceroy promised to give the Chichimecs clothing and meat periodically. Gradually they were settled and Christianized; Otomís, Tarascans, and some Nahuas were sent to live among them to "civilize" them and make them agriculturalists.

In the 18th century we hear of a group of people called *jonaces* (unknown etymology) who lived in the area of Tolimán (in the present-day state of Querétaro) and in the rough terrain of the Sierra Gorda. They were practically exterminated, but some survived in what is now Misión de Chichimecas. Their history is hard to reconstruct. We don't know when they first settled in San Luis de la Paz; the Span-

ish town was founded approximately in 1552. According to their oral tradition, they have always been in the area, but the *mestizos* drove them out of the best land (Lastra & Terrazas 2006; Nieto Ramírez 1982; Soriano ms).

Language situation

Spanish is the official language, although recently (March 13, 2003) indigenous languages of Mexico were declared to be national languages together with Spanish. Governments, both federal and local, are supposed to protect indigenous languages, including requesting governmental services and information. At the same time, the Instituto Nacional de Lenguas Indígenas was founded with the purpose of promoting the use of the languages by researching linguistic diversity, establishing training programs, producing grammars, standardizing writing systems, and advising government institutions. It is too early to tell how far-reaching an effect the new Institute will have in the marginal indigenous communities of Mexico which have thus far been neglected in most political and social aspects, but the existence of the languages and the rights of their speakers have been officially recognized, at least on paper (Lastra 2004a).

The Misión de Chichimecas consists of roughly two parts: the land held in common and used for agriculture and the section where people live, which is cold, dry, and dreary; this latter part is in turn divided by a paved road built in the 1970s, roughly running east to west. The territory closest to San Luis de la Paz, where Spanish-speakers live, is called Misión de Abajo, and the territory on the other side of the road is known as Misión de Arriba. It is in this latter part that most speakers of Chichimec live. They are all more or less bilingual, and the native language is losing ground because of the negative attitude of Spanish speakers, and the lack of land and local jobs, which results in young men seeking jobs outside the community in nearby agricultural enterprises or cities, as well as some temporary emigration to the United States.

Chichimecs are economically disadvantaged. There is electricity, and consequently radio and television, but running-water is supplied only about three days a week. As a result, water has to be stored in large tin or plastic containers. There is no drainage or pavement – usually only crooked dirt roads. Some houses are brick, others adobe; most have tin or cardboard roofs, dirt floors, an attached kitchen where wood or dry agave leaves are used for cooking, and a tree in the yard where most day-time activity takes place.

Fairly good government clinics are found in the city. There used to be only one primary school, but nowadays there is one primary school and one kindergarten in each of the two sections, one tele-secondary school and one *video bachillerato*

(higher level secondary school). In addition, there is a very small one-teacher primary school in a remote area where all the children speak the language, but the teacher is a Spanish-dominant bilingual. Chichimec teaching is done by four bilingual teachers in the larger schools. No subjects such as history are taught in the language. A very short amount of time is allotted to the language classes; teachers have had very little training and complain about the lack of adequate teaching materials. Parents are ambivalent about the teaching of the language and some would prefer English to be taught instead of Chichimec. No systematic study of education or indeed of the sociolinguistic situation in the Misión or San Luis de la Paz has been carried out.

When I first worked in the village in 1958, everyone spoke Chichimec at home, but not in public. Children were shy and would run away thinking I would give them some kind of vaccine or shot. Extremely few people had attended a couple of years of primary school; illiteracy was the norm. Today most children are enrolled in schools and consequently learn the standard subjects taught in Mexico, but a large number leave school early on because they have to earn a living.

The impact of Spanish on Chichimec began in the 1970s and 80s. Before that, the village was isolated and the only Spanish contact was with government officials or shop owners. Schools began changing the picture by forcing Spanish contact, and later on, health clinics, radio, and television increased the contact. Furthermore, the use of Chichimec is diminishing partly because older people address young people in Spanish.

Ongoing changes in Chichimec

Phonological changes

It is hard to decide if the ongoing phonological changes so far detected are due to the influence of the dominant language or not. We will examine four phonological changes which are certainly taking place (/ü/>/i/, /g-/>Ø, /z-/>/s-/, /-cʔ/>/-s/) and also a variation which may turn out to be a change in progress: in syllables with a glottal stop or a post-velar voiceless fricative occurring between like vowels, one of the vowels tends to be lost.

First we will deal with the merger of the high front rounded vowel /ü/ with the unrounded vowel /i/. In what follows, I will try to show the progression of the change. I have data from nine speakers born before 1935. They all have /ü/, although two of the speakers, Clementina and Valerio, have an occasional [i] alternating with [ü]. Clementina pronounced 'again' as [kíki] instead of [úküke], and Valerio usually said [iʔücʔ] for 'always', but sometimes produced [iʔícʔ]. I counted

a total of 164 tokens of [ü] in María's 6 texts; 73 tokens for Joel's 6 texts; 51 tokens for Clementina's two texts, and 100 tokens for Valerio's 5 texts.

The count did not include syllables with intervocalic /ʔ/ or /h/, that is to say, in words like /úzühü/ 'maize', only one [ü] was counted. A few examples follow:

(4) María (b. 1885)
[masüs] 'stinking', [umʔá nínthü] 'moon', [níhühü] 'inside'

(5) Joel (b. 1888)
[kúrihü] 'Mexico', [ričür] 'paper', [úndür] 'they went'

(6) Clementina (b. 1903)
[ričür] 'paper', [úzühü] 'maize', [etücʔ] 'candle'

(7) Valerio (b. 1927)
[satü] 'new', [kum̱ür] 'spider', [ukhü] 'he returned'

The change seems to have begun with speakers born around 1940. I have data (most of it gathered in 2005) for eleven such speakers. For seven of them, I have free speech samples since elicited lists were obtained from all of them (16 tokens each). All of these speakers produced [i] for words which formerly had [ü], sometimes in alternation with [ü] and sometimes as the preferred pronunciation.

Table 7 shows the percentage of occurrences of [i] as well as the date of birth of the informant. The percentage was only calculated for elicited lists. It is understood that the older informants (María, Joel, Clementina and Valerio, all now deceased) had not merged /ü/ and /i/.

From Table 7 it is easy to see that the non-occurrence of [ü] is correlated with age. Even if we had no data previous to that collected between 2003 and 2005,

Table 7. Percentage of occurrences of [i] rather than [ü]

Pseudonym	Date of birth	Percentage of occurrences of [i]	Number of tokens of [i]
Tiburcio	1941	11%	2
Teofila	1942	22%	4
Juvencia	1944	18%	3
Galo	1956	33%	6
Fernanda	1956	26%	4
Salvador	1966	68%	11
Carla	1970	50%	8
Caruti	1979	68%	11
José	1978	100%	16
Memo	1978	100%	16
Lena	1980	100%	16

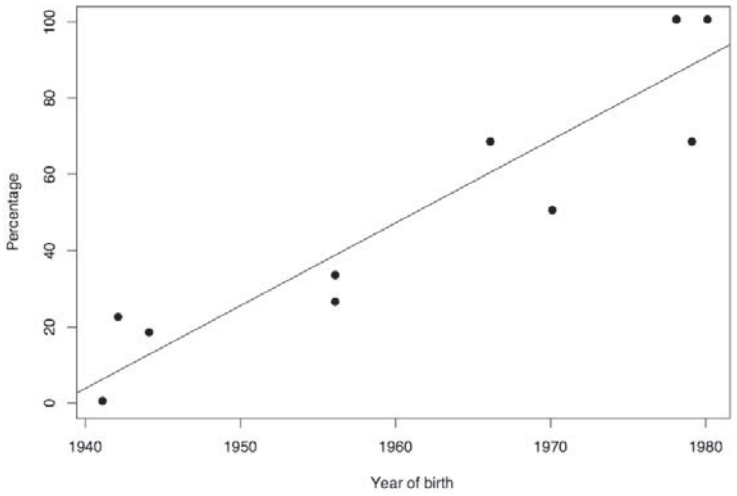

Figure 1. Regression: Percentage of occurrences of [i] rather than [ü], as a function of age. $R^2 = 0.86$, $F = 59$, $p < 0.001$.

from apparent time we could posit the ongoing change and surmise that it started gathering momentum in the 1960's. The data gathered by Angulo in the 1930s, Romero in the 1950s and 1960s and myself in 1958, 1969, and 1980, confirm the direction of the change. This is further substantiated by the regression depicted in Figure 1, which shows the scatter plot of occurrences of [i] and [ü] against the year of birth of the person and the corresponding regression line. The simple bivariate model shows a very high fit. 86% of the variation in the percentage of occurrences of [i] are explained by age, all else being equal.

Next we will take up the deletion of initial /g/. An interesting fact is that this phoneme occurred and still occurs medially and finally, but formerly it only appeared in verbal prefixes. I could find no instance of nouns beginning with this phoneme. Its most frequent former occurrence was in the first and third person future of the first conjugation:

(8) *ga-kén* 'I will pull' *ga-gén* 'he will pull' *ga-khén* 'they will pull'
ga-tácʔ 'I will rub' *ga-rácʔ* 'he will rub' *ga-rhácʔ* 'they will rub'

It not only occurred in prefixes of the form *ga-*, but also in the forms *gu-* (first person future of the second, third, and fourth conjugations), and *gi-* (second person subjunctive of the first, second, and third conjugations). I first noticed the absence of initial /g-/ in the speech of one of the young bilingual teachers two years ago and then went on to discover that the change had almost been completed.

Table 8. Non-occurrences of initial /g-/

Pseudonym	Date of birth	Percentage of non-occurrence	Possible occurrences	Occurrences
Joel	1888	0%	68	68
Toño	1909	0%	31	31
Valerio	1927	0%	52	52
Tiburcio	1941	39%	51	20
Juvencia	1948	30%	13	4
Galo	1956	100%	18	none
Luis	1957	100%	9	none
Tránsito	1965	100%	12	none
Jes	1977	100%	12	none
Memo	1978	81%	48	39
Caruti	1979	100%	72	72
Lena	1980	100%	12	none
Antonio	1991	100%	9	none

The data shown in Table 8 is taken from my texts obtained in 1958 (Joel), 1969 (Toño), 2003 (Valerio), 2005–2007 (Tiburcio), 2005 (Juvencia); verb conjugations obtained in 2005 (Galo, Memo, and Caruti); illustrative utterances in 2007 (Luis and Antonio); and elicited forms (Tránsito, Chucha, Lena).

Table 8 shows the percentages of non-occurrence of initial /g-/, number of possible occurrences, and actual occurrences correlated with the date of birth of the informant. Speakers born after 1940 seem to have started the deletion of initial /g-/ and younger speakers have lost it altogether, except for Memo; the presence of the initial voiced velar consonant in his speech needs to be accounted for. This young man intends to study linguistics, and he has prepared teaching materials and interviewed older speakers. Perhaps his interest in the language could explain his conservatism.

Figure 2 shows the scatter plot of non-occurrences of initial /g-/ against the year of birth of the person and the corresponding regression line. The simple bivariate model shows quite a strong fit. 78% of the variation in the percentage of non-occurrences of initial /g-/ are explained by age, all else being equal.

Next, let us consider the devoicing of initial /z-/ in words which seem to be mainly adjectives beginning with a fossilized prefix /zi-/ or else verbs of the first, second, or third conjugations with the prefix /zu-/, which signaled the third person immediate.

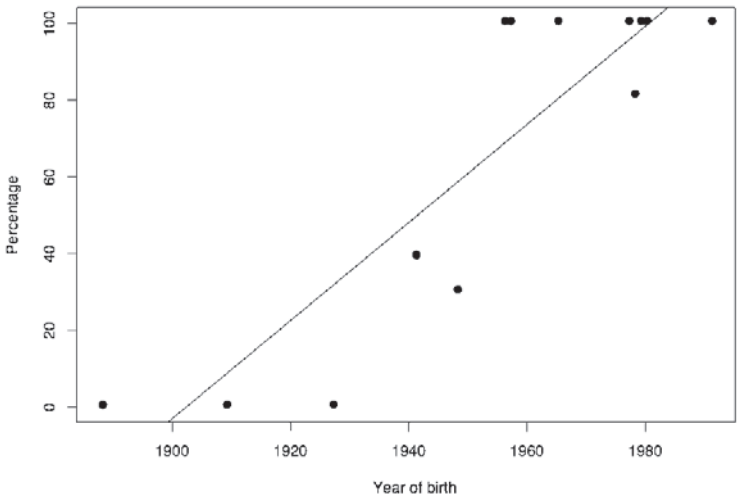

Figure 2. Regression: Percentage of non-occurrences of initial /g-/, as a function of age. $R^2 = 0.78$, $F = 39.9$, $p < 0.001$.

(9) *zíngaʔan* 'wet' *zímboʔo* 'dark' *zibér* 'straight'

(10) *zú-zī* 'he just filled it' *zúcūʔū-g* 'it just bit me'

This phoneme is coalescing with its voiceless counterpart in initial position, although it is voiced medially as in:

(11) *kuzḗʔ* 'pig' *kuzúhr* 'mosquito' *názã* 'mi tongue'

The data shown in Table 9 is taken from my texts obtained in 2003 (Valerio), 2005–2007 (Tiburcio); verb conjugations plus a few elicited forms 2005 (Galo, Memo, and Caruti); illustrative utterances 2007 (Luis and Antonio); elicited forms 2007 (Juvencia,Tránsito, and Jes).

From Table 9, it is possible to see that speakers born after 1940 began devoicing initial /z-/. However, the change does not seem to be complete since the youngest informant (Antonio) has [z-] in [zíndaʔr] 'yellow'. He doesn't attend school because his father cannot afford the expenses involved; his apparent lack of association with his peers may help explain the occurrence of [z-] in this word, but it would be necessary to obtain free speech from all of the informants.

Figure 3 shows the scatter plot of percentage of devoiced forms against the year of birth of the person and the corresponding regression line. The bivariate model does not show a strong correlation as in the previous two cases; however, the fit of the model is still moderately strong. 55% of the variation in the percentage of

Table 9. Percentage of devoiced forms ([s-] for /z-/).

Pseudonym	Date of birth	Percentage of devoiced forms	Possible occurrences	Occurrences of [z-]
Valerio	1927	0%	23	23
Tiburcio	1941	18%	19	16
Juvencia	1948	87%	8	1
Galo	1956	100%	6	0
Luis	1957	100%	7	0
Tránsito	1965	100%	10	0
Jes	1977	100%	5	0
Memo	1978	100%	24	0
Caruti	1979	100%	20	0
Antonio	1991	87%	8	1

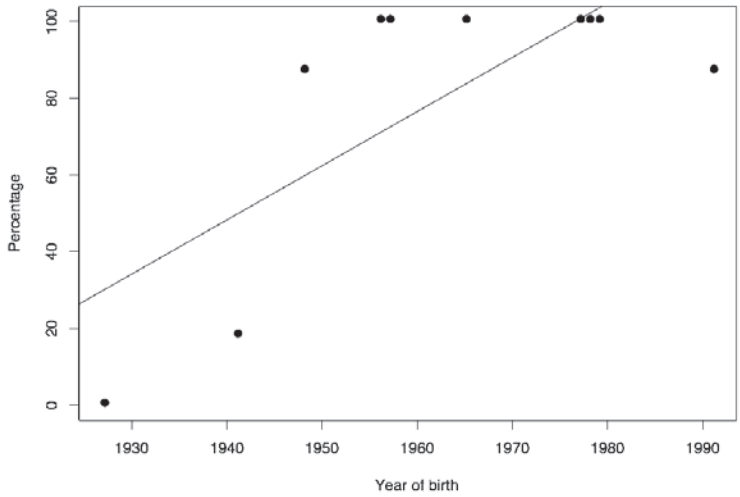

Figure 3. Regression: Percentage of devoiced forms (/z-/ > /s-/), as a function of age. $R^2 = 0.55$, $F = 9.9$, $p = 0.01$.

devoiced forms are explained by age. The fit of the model would increase using a logistic function; however, for simplicity, only simple linear regression is used.

Next we will point out the seemingly ongoing change of the consonant cluster consisting of a devoiced dental affricate and a glottal stop /-cʔ/ to [-s] in final position. The cluster remains medially in such common words as:

(12) *rácʔoro* 'ten' *úcʔe* 'jug'

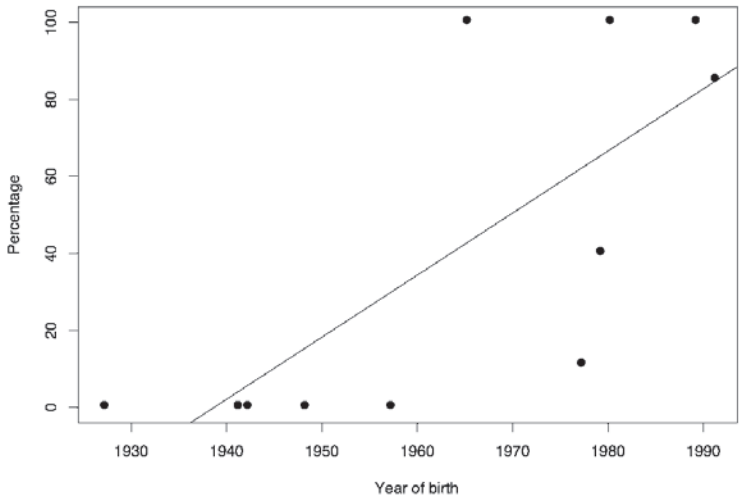

Figure 4. Regression: Percentage of final [-s] for /-cʔ/, as a function of age. $R^2 = 0.56$, $F = 11.5$, $p = 0.007$.

Examples of forms with the final cluster are:

(13) *siṃ́cʔ* 'trash' *māhā̃cʔ* 'tall' *épaʔacʔ* 'they wash (clothes)'

Figure 4 shows the scatter plot of percentage of final [-s] against the year of birth of the person and the corresponding regression line. The bivariate model shows a moderately strong fit. 56% of the variation in the percentage of occurrences of final [-s] are explained by age.

This change seems to have started later than the other three studied and has not been fully completed even in younger speakers; Antonio, my youngest informant, still has occurrences of the cluster. Table 10 shows the percentage of occurrence of final [-s]. It will be necessary to study the possible occurrence of the cluster and of final [-s] in both elicited words and running text in middle-aged and younger speakers.

I also observed variation in syllables with a glottal stop or a post-velar voiceless fricative occurring between like vowels as in:

(14) *nákuʔu* 'my way' *étuʔu* 'I walk'

(15) *táṇehe* 'I danced' *máʔihir* 'difficult' *-méhe* (negative suffix)

As it turned out, in the case of syllables with a glottal stop, sometimes the first vowel disappears and sometimes the second; in the case of the post-velar fricative, the first vowel is lost or the /h/ is lost, but no definite pattern emerges except for the fact that the negative suffix is now *-mé* for all speakers.

Table 10. Percentage of final [-s] for /-cʔ/

Pseudonym	Date of birth	Number of possible occurrences	Occurrences of final [-s]	Percentage of final /-s/
Valerio	1927	24	0	0%
Tiburcio	1941	30	0	0%
Teófila	1942	6	0	0%
Juvencia	1948	3	3	0%
Luis	1957	4	4	0%
Tránsito	1965	6	6	100%
Jes	1977	9	1	11%
Caruti	1979	5	3	40%
Lena	1980	9	9	100%
Servando	1989	6	6	100%
Antonio	1991	7	6	85%

Ongoing changes in the use of classifiers

Noun possession in Chichimec makes a distinction between alienable and inalienable nouns. The first class shows considerable morphophonemic alternation, as illustrated by the following example:

(16) *nambá* 'my hat' *úngwa* 'your hat' *uṃ́á* 'his hat' *upʔá* 'their hat'

The second class occurs with classifiers.

Soustelle (1937) based on Angulo (1932) claimed there were five classifiers: for plants, food, clothing, animals, and things. When I started research on the language, I concluded that there was no classifier for plants; the alternate words listed meant 'twig'. There may have been a change between the 1930s and late 1950s, or else there may have been a wrong interpretation. At any rate, there are currently four classifiers which follow the pattern of personal pronouns given above. The forms of the four existing classifiers are shown in Table 11. Examples of their uses are given in (17).

(17) Classifier 1: *nantʔe ríkhúr* 'my tortilla'
Classifier 2: *nuntʔü rípan* 'my rebozo'
Classifier 3: *námbæʔæ símaʔan* 'my dog'
Classifier 4: *námbihi nábí* 'my saint'

A full paradigm for the word for 'rock' *kúroho* is given in Table 12.

As illustrated in Table 12, *námbihi, úngwihi, úṃihi,* and *úpʔihi* are the forms of the classifier for nouns that are not food, clothes, or animals (Classifier 4 in

Table 11. Classifiers

	1st p. sing.	2nd p. sing.	3rd p. sing.	3rd p. plural
Classifier 1: Food	*nantʔé*	*útʔe*	*utʔé*	*úcʔaʔ*
Classifier 2: Clothes	*nuntʔü*	*nírʔü*	*nintʔü*	*urʔü*
Classifier 3: Animals	*námbæʔæ*	*ungwǽʔæ*	*úm̲æʔæ*	*úbæʔæ*
Classifier 4: Other	*námbihi*	*úngwihi*	*úm̲ĩhĩ*	*úpʔihi*

Table 12. Paradigm for 'rock'

Singular	Dual	Plural
1 *námbihi kuroho*	*námbihi kúroho-mʔ* (excl)	*námbihi kúroho-hŭʔ* (excl)
1	*námbihi kúroho-s* (incl)	*námbihi kúroho-n* (incl)
2 *úngwihi kúroho*	*úngwihi kúroho-s*	*úngwihi kúroho-n*
3 *úm̲ihi kúroho*	*úm̲ihi kúroho-s*	*úpʔihi kúroho*

Table 11). In 1969 I was told it served to possess 'things'. Later, I interpreted it as the default classifier, noting that the word for 'god' or 'saint' occurred with this classifier. In 2003 it became clear that this classifier was losing ground and that the so-called classifier for food (Classifier 1) was substituting it. For instance, Valerio (b. 1927) would say *úngwihi kúcʔeʔ* 'your basket' whereas Lena (b. 1980), his daughter-in-law, says *útʔe kúcʔeʔ*. Further research confirmed this hypothesis, but Classifier 4 (*námbihi, úngwihi, úm̲ihi,* and *úpʔihi*) still exists in the speech of middle-aged and younger speakers. In 1958 and 1969 all four of the classifiers in Table 11 were used according to their usual semantic classification (Angulo 1932; Lastra 2004b). Valerio and María Luisa, born before 1940, continued to use them the same way in 2004, but Teofila, born in 1942, used Classifier 1 for those items that used to have Classifier 4. However, Teofila continues to use Classifier 4 for a sacred arch that is put up during certain religious celebrations, as well as for her statue of the Virgin of Guadalupe and for those of saints.

Tiburcio (b. 1941) has a similar pattern of usage. In addition, he produced both *ntʔé* and *námbihi* for 'flute' but added that if *námbihi* is used, the owner may be a woman.

His slightly younger wife, Juvencia (b. 1948), also used the classifier for food (Classifier 1) for 'things' but kept *námbihi* (Classifier 4) for 'saint' and 'Virgin'. She used *nuntʔé*, which I think is a blend of *nuntʔü* (1st person classifier for clothes) and *nantʔé* (1st person classifier for food) for 'bag' and 'sac' and *naʔá* for 'wood' (see (18)).

Younger speakers (Luis, Tránsito, Jes, Memo, Caruti, Lena and Antonio) did not know the word *rithŭ* 'fish' used with the classifier for animals by older speakers, but used the Spanish loan *peskado* with the classifier for food. They used

nantʔé (1st person classifier for food) with 'handkerchief' instead of the classifier for clothes. Luis offered *nuntʔí swéter* 'my sweater' and *urʔí ikʔén* 'their sweater' (lit., 'it stretches'). They use *nantʔé* instead of *námbihi* (Classifier 4) for things including the sacred arch, but they continue to use Classifier 4 with statues of the Virgin and for 'affair' (*námbihi rinhĩ*).

One of these speakers, Memo (b. 1978), gave me all the persons for the apparently new classifier used with *rigű* 'wood.' They are listed in (18):

(18) *naʔá úʔna unʔá urʔá*

He uses *námbihi* for some things such as 'basket,' and also for the following words which I did not elicit from the rest of the speakers: 'week,' 'altar,' 'year,' 'day'.

Lena, a young speaker (b. 1980), had no instances of *námbihi*. She had a curious use of *nantʔé* with *nábó* 'their chair'. In Chichimec if one wants to refer to a non-possessed inalienable noun, the use of a third person plural or singular is required. For instance, 'money' in general is *úrehenʔ*, which otherwise means 'their money'. 'Stool' was:

(19)

tápoho	*kipóho*	*tápoho*	*náboho*
'my stool'	'your stool'	'his stool'	'their stool'

By semantic extension, any chair is also *náboho*. So 'my chair', instead of *tápoho*, is now *nantʔé nábó*, and it has become alienable.

Conclusion

Chichimec Jonaz is an endangered language with very few children learning it; those who do learn it quickly forget or refuse to speak it. The so-called bilingual teaching is pitifully inadequate (Lastra 2004a). Among Chichimec speakers there are different degrees of language dominance, but all are bilingual to a certain extent or monolingual in Spanish, perhaps with a certain degree of passive bilingualism. As already mentioned, the use of the language is diminishing partly because older people address young people in Spanish. There are variant pronunciations for many words whose use and sociolinguistic distribution has not been studied. In addition to the phonological changes examined here (merger of /ü/ and /i/, /g-/ > ø, /z-/ > /s-/, and /-cʔ/ > /-s/) and the apparent specialization of the classifier which was formerly used for 'things' to be used for 'sacred objects' before its complete disappearance (except perhaps in the case of 'affair' which seems to be a fossilized usage), there are other ongoing changes, both phonological and grammatical. These other changes include loss of a vowel in syllables with a glottal

stop between like vowels or a post-velar voiceless fricative occurring between like vowels, and the deletion of the post-velar voiceless fricative in the negative suffix *-méhe*.

So far, I have only scratched the surface of what I consider a very interesting linguistic situation. An ethnography of speaking should be attempted, beginning with a detailed census of Chichimec speakers and a sample of the different degrees of bilingualism. This would pave the way toward an in-depth study of language contact in order to allow researchers to state that the language is converging towards Spanish (Sachdev & Giles 2002). At this point, it can only be surmised. The language of those children who are still learning Chichimec in a relatively remote area within the Misión should be carefully examined in order to see whether or not the ongoing changes discussed in this chapter have been completed by them or not. Furthermore, the syntax of the language remains to be described, not to mention discourse and code-switching phenomena. All of these aspects must be considered in the very near future, since the language is definitely endangered.

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CHAPTER 7

A sociolinguistic sketch of vowel shifts in Kaqchikel

ATR-RTR parameters and redundancy markedness of syllabic nuclei in an Eastern Mayan language[1]

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Kaqchikel, a Quichean language of the Guatemalan Highlands, is well known for its Tense/Lax Vowel Contrast (TLVC) and the wide range of dialect variation of its vowel system, but the acoustic properties of its vocoids have never been scrutinized. A preliminary survey of the speech of ten informants from four sub-dialect areas, with a focus on San Juan Comalapa, shows regular patterns of variation according to degree of tongue-root fronting or backing (ATR and RTR), along with unexpected clues of a lingering Proto-Mayan length correlation. Emerging vowel shifts are described and traced to the Colonial era and to more recent social upheavals. A striking regularity of dialect patterns is observed when Kaqchikel is viewed as a diasystem.

Vine a Comala[pa] porque me dijeron que acá vivía mi padre, un tal Pedro Páramo. – Juan Rulfo, *Pedro Páramo*

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1. Cecilio Tuyuc, chairman of the Kaqchikel Academy of Mayan Languages of Guatemala (ALMG) in Chimaltenango and formerly in charge of language planning at the ALMG, made fieldwork possible, and he recorded five of the fifteen interviews. Jean Léo Léonard carried out fieldwork, with the most valuable help of Victor Hugo Roquel (alias "Jackie Chan" and SJC-HU-52) in August 2006, made phonetic and phonological analyses of the data and wrote the chapter. Thanks to Gilles Polian, Ciesas, México for technical help on digitalization, and to Cedric Gendrot (MR 7018, Paris) for his engineering and designing of vowel charts. The data was recorded at the informants' homes with a Sony Minidisc MZ-R37 and a tie pin Sony ECM-T140 microphone, digitized at 44,100 hz, 16 bits. Unfortunately, lack of time impeded us from analyzing all the data recorded during fieldwork; many interviews with the adults in Xenimakin or from K'iche' languages, recorded for comparison, could not be included in the sample on time. We hope to publish extensive results elsewhere in the future.

1. A trip to contemporary Iximche' suburbs: The Kaqchikel diasystemic network

1.1 Entering the Kaqchikel world

The vowel shifts taking place in four Kaqchikel varieties, which we shall endeavor to sketch in this paper, fit appropiately in a publication where Labovian sociolinguistics and quantitative linguistics are addressed. We view it more as a contribution for the benefit of linguistic research than an agora for a discussion on such terms as *covariation*, *social stratification*, *urban dialectology*, or *languages in contact*. Most of these questions will constantly haunt the following pages, but they will keep to the role of ghosts popping in on a friendly visit. We shall rather cling to diasystemic description and to quantitative empirical phonology based on experimental phonetics, and leave external factors for more expert scholars. What we mostly have to offer here are diasystemic syllabic categories (*nuclei*, i.e. *vowels*, their segmental and prosodic properties) and methodological glimpses of a topic which, up to now, has never been approached with experimental and quantitative methods: the Tense/Lax Vowel Contrast (TLVC) in a Quichean language: Kaqchikel (Eastern Mayan of the Mesoamerican highlands).

In fact, the Kaqchikel language qualifies as a good field for a covariation survey, too, since the Amerindians who speak it live mostly in urban centers of various sizes, surrounded by stunningly beautiful natural sites: a huge volcanic lake, Atitlán, in the Sololá and Panajachel region; the central valley of the southwestern Guatemalan highlands, south of the pre-Columbian archaelogical site Iximche' – presumably inhabited or ruled by Kaqchikels; a pericentric position to Kaminaljuyu'[2] – nowadays Ciudad de Guatemala, the economic and administrative center of Guatemala, and the later colonial town of Santiago de los Caballeros, i.e. Antigua. Any tourist coming from Europe or Northern America to study Spanish on holiday in the gorgeously pretty colonial town of Antigua actually enters the Kaqchikel world, a southwestern expansion of their contemporary neighbors, the K'iche's (over 1 million speakers nowadays).

We should bear in mind that Mesoamerican indigenous societies go far beyond the traditional clichés of blatant "ethnic" clothes, smiling women with dazzlingly colorful *huipiles* selling handicrafts to tourists, and hard working farmers busy in their *milpa*, the Mesoamerican maize crop, growing beans and chile in the shadow of corn stalks. In fact, Meso-Amerindian societies are swiftly adaptive

2. In contrast, Pre-Classic Kaminaljuyu – and part of the now Kaqchikel eastern fringe (Sacatepéquez) – was probably inhabited by Poqoms, with an Olmecan (i.e., mixe-xoque, in that case) or a mixed Olmeco-Cholan elite.

ones, involved in continuous evolution; over centuries, they have perfected the art of adapting to complex economic, ethnic, and political contexts. The Mayan people are mobile; they travel and migrate quite a lot in their own country and abroad to the north, exchanging craftsmanship and expertise easily, being converted into new forms of religion or faith, entering into complex networks of local government, and getting training in non-governmental organizations or at the university. They make up a part of modern Mesoamerica which depends strongly on dynamic Amerindian societies.

Mesoamerica is a funnel-shaped subtropical isthmus ridged with mountains, volcanoes, and rivers that links North and South America; it is here that one of the main cultural cores of the whole American continent emerged around 1500–900 B.C. (the Ajalpán subphase), with roots in the Coaxatlán phase (5200–3400 B.C.).[3] Ever since, these societies have been exploring and developing technologies and intricate political and social networks. They have coped with colonial power and dispossession of their land and sovereignty, and although they do still resist, culturally, the Conquista and postcolonial framework of their homeland, they adhere to modern Mesoamerican countries and to national citizenship. They sometimes even have a broader view than their mestizo fellow-countrymen, and they act as a consistent and progressive pressure group in international affairs in spite of overwhelming pressure for segregation according to the post-Conquista pattern of government.

Dehouve (2003) shows that even the agrarian question (i.e., the struggle for land ownership and the end of the dispossession of indigenous farmers) is no longer the major struggle for Mexican Amerindians; financing the engineering of a wide array of socioenomic projects takes precedence on land claims. The same could be said of rural and urban Mayan communities all over Guatemala. Clichés about agrarian, traditionalist, and monolingual marginalized communities living in refuge zones contrast with modern Mayan postindustrial, modern, bilingual or multilingual, integrative societies.

To a certain extent, we may even say that native Mesoamerican societies are more integrative themselves – according to a pluralistic integration model – than the dominant postcolonial societies which up to now have pretended to integrate them through assimilation. As early as 1974, a Catholic priest[4] published *Quiché Rebelde*, a meticulous survey of religious conversions in San Antonio Ilotenango (district of Quiché) between 1948–1970. He gives a vivid picture of a multiplex

3. Cf. Eiroa (2000: 292–294).

4. Ricardo Falla, who later became well known for his book *Masacres de la Selva* (1992), which denounced the slaughter organized by the Guatelaman army in Ixcán during the *Violencia* period.

and adaptive society experiencing continuous renewal of its ideological and political assets (Falla 1974).

Modern Mayan societies in Mexico and Guatemala are by no means traditionalist ghettos or reservations; a strong cultural and socioeconomic continuity prevails in Guatemala between Amerindian and mestizo settlements concerning architecture and standards of living, although most people live in poverty or have a low standard of living because of inequalities in the postcolonial economy. The differences lie mostly in language, some aspects of social organization, and women's garments (most men have given up their traditional garments, except in remote places like Todos Santos, in the Huehuetenango district). Nevertheless, hostility between *ladinos,*[5] mestizos, and Mayan people is by no means widespread (except in elite circles, as shown by Marta Elena Casaús Arzú (Arzú 1998)). Ethnic polarization is actually weaker than could be expected, in spite of historical hardship. Guatemala appears more as a "healing" society than a polarized one.

1.2 Kaqchikel diasystemic network

The so-called Eastern Mayan Languages (EML) sub-family appears as a compact segment of the Mayan phylum in Mesoamerica, with Mamean, Quichean, and Poqom languages as a cluster of three branching nodes. Mam-Awakatek, Ixil, and K'iche' (Minor Quichean) differ as much as Baltic from Slavic in the Indo-European linguistic phylum. K'iche', Poqom, and Qeqchi' differ as much as Romance languages, whereas K'iche', Kaqchikel, Tz'utujil, Sipakapek, Sakapultek, Uspantek, and Achi' are structurally as close to each other as Gallego and Spanish in modern Spain. The bulk of these languages make up approximately 60–65% of the population of Guatemala, a country with 12.5 million inhabitants and 20 Mayan languages.

For lack of space, we will not provide archeological or historical details in this empirical report on sociolinguistics in four types of Kaqchikel dialects. We shall only point out a few basic hypotheses on the impact of external factors on our object of enquiry: the Dialect Network (DN) on the one hand, and the diasystem (DiaSystem: DS) on the other hand. The macro-Mayan DN has been evolving for at least 3000–5000 years, whereas the Minor Quichean DN (K'iche'/Achi, Kaqchikel, Tz'utujil, Sipakapek, Sakaplutek, Uspantek), after separation and further colonization southwards from the compact former macro-Quichean complex

5. Ladino, a term coined initially as 'one who knows how to speak Spanish' in the colonies, means mestizo, 'half-blood', but also has negative connotations, such as 'robber'. We'll use it here as mestizo.

on the northwest (the Pacific coast and Cuchumatanes), has experienced expansive waves of colonization (of the Lake Atitlán and former periphery of the Xinca region) and cycles of cell-splitting processes of its DS. As the Minor Quichean DN has been expanding, shrinking or keeping stable cyclically for a few hundred years, the main phonological and grammatical patterns have remained constant.

In the 1970's, Lyle Campbell made a major contribution to Mayan historical linguistics with his essay on *Quichean Linguistic Prehistory*, in which he analyzed the Kaqchikel DN according to lexical diffusion factors in variables like DELAB.-m#, Pal-CL-#k, k', and UNVOIC-w#. (Uppercase W represents a devoiced labial glide.)

(1) Kaqchikel DN features, according to Campbell (1977):
   a. Final /m/ delabialization (DELAB.-m#): *poom* > *pon, pong*.
   b. Palatal coda licensing by uvular stops or velar stop onsets before a low vowel (Pal-CL.#k, k'): *kaq* > *kyaq* = 'red'. The palatal reflex of initial /k/ (#k-) is conditioned by a dissimilation from the uvular coda -q#.
   c. Devoicing of final labiovelar approximant /w/ (UNVOIC-w#): *tew* > *teW, tef*.

San Juan Comalapa (35,450 inhabitants in 2002[6]), where the Kaqchikel variety which we shall investigate is now spoken, was still a meadow or a patchwork of *milpas* in pre-Columbian times. It was built up recently during the era of colonial *Reducciones*.[7] The dialect variety we shall study in more detail in this paper is therefore the result of a new settlement which took place in colonial times. As far as TLVC (Tense/Lax Vowel Contrast) is concerned, people arrived from ATR, RTR,[8] and Neutral dialect areas, and the ATR parameter won the gambling and scrambling of phonological features: the best bargain which could be made between the very marked RTR pattern (as PatzHU48 and Tecp-HU30[9]) and the

6. See http://www.inforpressca.com/sanjuancomalapa/demografia.php for more details.

7. Martínez Pelaez (1994: 443–470) convincingly demonstrates that the idea of *Reducciones* (indigenous settlements in zones under the protection of clergymen committed to guaranteeing some respect of freedom from slavery) was a mere trick played on indigenous people to impede them from escaping colonial rule and the new kind of slavery implemented through the Encomiendas. See Garzón et al. (2000: 193–226) for more information on the sociolinguistic context of Kaqchikel in Comalapa.

8. See Section 3.4 for a definition of these terms.

9. Ten informants' speech from four varieties of Kaqchikel has been analyzed here: Patzicía (Patz-), Tecpán (Tec-), San Juan Comalapa (SJC) and a hamlet of 515 inhabitants in SJC rural zone: Xenimakin (Xenim-); Santiago Sacatepéquez (Sant-). Gender (M = Mujer 'female,' H = Hombre 'male'), Urban or Rural residence (U and R) and age are encoded as follows:

unmarked so-called Neutral TLVC (Sant-MU19). San Juan Comalapa belongs to the DS type as in (2): final *-m* is delabialized and further velarized (*-m* > *-n* > *-ŋ*); velars tend to palatalize rather freely before low vowels according to uvular coda-to-onset palatal dissimilation (*k* > *ky* /_____$V^{Low}Q$), from which the reader will find *iAq* (= *iäq*) in the vowel charts below (*kyäq* = 'red', dubbed the *iAq, iäq* variable in our sample encoding, with a Bartsch law giving a light diphthong, or branching nucleus), and final -w is always devoiced (*w* > *f* /_#).[10]

(2) Comalapa DS consonantal type: {- ŋ; -k, (ky); -w, -f}, i. e. {DELAB-VEL.-m#, Pal-CL.-#k, k' & UNVOIC-w#}.

It is now time to turn in (3) to Kaqchikel consonants (shared by most Minor Quichean languages, though Poqom and K'iche' proper also have a laryngeal fricative /h/), in order to give the reader an idea of what segments can work as syllable boundaries for a tense or a lax nucleus. These criteria will have a strong influence on the analysis of the data, as -VC-/# (or Nucleus-Coda) chains will provide the major variables in our phonological survey of vowel allomorphy, accounting for variation in lax vowels.

(3) Kaqchikel consonants: Broad phonetic transcription and orthographic correspondences.

	Labial	Dental	Alveopalatal	Velar	Uvular	Glottal
Stops	p	t, ts <tz>	č <ch>	k	q	
Ejectives	b'	ť, ts' <tz'>	č' <ch'>	k'	q'	'
Nasals	m	n		ŋ <nh>		
Fricatives			š <x>	x <j>		
Approximants	w	l, r	j <y>			

Campbell (1977) provides detailed tables of lexical diffusion of (a) sonorant delabialization (-m > n) with velarization (n > ŋ), (b) onset palatalizing uvular coda-to-onset palatal dissimilation (kaq > kyaq = 'red'), and (c) devoicing of final approximants (w > W, f) as in (4).

Patz-HU48 = a man from the urban center of Patzicía, aged 48; SJC-MU78 = a woman from SJC, aged 78, etc. Inhabitants in 2004: 22,245 (Patzicía), 61,500 (Tecpán): see http://www.mineco.gob.gt/mineco/analisis/departamentos/chimaltenango.

10. *Bartsch's Law* refers to palatalization of velar onsets by front low vowels, which happened early in Gallo-Romance languages. Also, see Sections 3.1–3.2 for further discussion of the symbols *ä* and *A*.

(4) Three main consonantal variables sensitive to lexical diffusion in the Kaqchikel DN according to Campbell (1977). The layout of the figure is intended to roughly represent the geographic relationships of the different speech communities.

<table>
<tr><td>Poaquil</td><td colspan="2" rowspan="2"></td><td>San Martín Jilotepeque</td></tr>
<tr><td>(void in data)
ky, (k)
v, w, f</td><td>n, ŋ
k
w, β, ɸ</td></tr>
<tr><td>Solola</td><td colspan="2">Tecpán</td><td rowspan="2"></td></tr>
<tr><td>ŋ
k
w, W</td><td colspan="2">n, ŋ
k, (ky)
w, (f)</td></tr>
<tr><td>Panajachel</td><td>Santa Catarina</td><td>Patzun</td><td>San Juan Comalapa</td></tr>
<tr><td>n, m
k, ky
w, W</td><td rowspan="2">ŋ
k, (ky)
w, (p)</td><td rowspan="2">m, (n)
k, (ky)
f, v</td><td>ŋ
k, (ky)
w, f</td></tr>
<tr><td rowspan="3"></td><td>Santa Maria de Jesus</td></tr>
<tr><td colspan="2">San Antonio Palopo</td><td>n
k
w, β, φ</td></tr>
<tr><td colspan="2">m
k, ky
w, (f)</td></tr>
</table>

The consonant sets included in (4) show the scattered and progressive diffusion of innovations from west (Poaquil) to east (San Martin J.). San Juan Comalapa (SJC) has a cumulative, mixed set of reflexes, (ŋ; k, (ky); w, f), with obvious free variation, but Proto-Mayan *-m# > -ŋ points to an innovative eastern type of mixed dialect – as does its selection of the ATR parameter in TLVC among other choices in the diasystem.

1.3 A chronological sketch of the Mayan phylum and dialect network

In explaining Martha's Vineyard diphthong laxing or intricate patterns of norm and variable shifts in Belfast or the BEV speakers network, the amount of common knowledge shared by an American or European scholar with his/her readership is enormous, though we too easily take it for granted. This is not the case when one endeavors to describe any sociolinguistic situation in the vastness of the Amerindian world. One cannot ignore – nor consider as obvious for everyone – pre-Columbian history and the long-scale continuity of human settlements

and forms of organization. It would simply be foolish to assume beforehand that the complexity of these patterns goes without saying, but it would be just as foolish to try to resolve this complexity in a few lines. We'll therefore cautiously start with the post-Classic era, before the European invasion of Mesoamerica. But one can assume that most of the network patterning relevant for the Tense-Lax Correlation in Mayan languages, especially for the Eastern branch of the Stammbaum, started earlier.[11]

- Post-Classic Era (1000–1450 A.D.) of intrusive Toltecan and Mexican elite dominance. Political fragmentation was high, and the internal complexity of the society increased with external pressures. The inner dialect network of Minor Quichean (Kaqchikel, Tz'utujil, K'iche') emerged out of complementarity of regional products in trade, craftsmanship and religion, with clear-cut political separation. In other words, a cooperative type of DN took place (specialization of marketplaces and small ceremonial centers), rather than an adversarial DN (through long-term separation by conflict or migration) or an intrusive dialectal layer (through language contact), although some conflicting political patterns between kingdoms and intrusive elites did interfere to a certain extent on local indigenous networks.
- Invasion of Central America by Europeans, conquest, genocide, and disintegration of the so-called "pre-Columbian societies." Since 1523, when Pedro de Alvarado invaded the Guatemalan highlands, the social network was ruthlessly reduced by colonial wars and diseases from Europe. A colonial *ultra marem* province incorporated into Spain emerged where Amerindians were marginalized and forced into concentrated areas (*reducciones*), to be converted into formal or informal slaves for the sake of colonial agricultural industry (the colonial plantation era), which was the major resource of this Mesoamerican province of imperial Spain. At this stage, the Minor Quichean dialect network was scrambled by the regime of *reducciones*, encomiendas,[12] haciendas, etc. New settlements flourished everywhere, dragging people to colonial plantations. San Juan Comalapa, the spot we studied the most, was one of these; it was artificially built up in no time during the Reducciones period.

11. See Blanton et al. (1993) for archaeological periods in Mesoamerica.

12. See B. Traven's novel, *The Rebellion of the Hanged* (1936), for a portrait of this kind of slavery disguised as farming.

- Independence of Guatemala in 1823, followed by the "Revolution" of 1871 by the Republic[13] of the dictator Justo Rufino Barrios.[14] Mayan populations were once more dispossessed of the few lands they had obtained in compensation for the *reducciones*.
- Since the beginning of the 19th century, authoritarian conservative regimes, most of the time ruled by military *juntas*, have controlled the country in the interests of a small national elite. These interests are keenly shared by Guatemala's northern neighbors and by multinational firms, such as the well known United Fruit Company. Throughout this period, the social networks of Mayan populations have been regularly blasted, either because of hardening conditions in land ownership and difficulties in providing enough resources for survival, or by overt conflict, as in the *Violencia* from 1960–1996 (cf. Barth 2000[15]).
- Violence and state terrorism culminated in psychotic aggression against civilian populations in the highlands during the 1980s within the framework of the *Contra* war, as in El Salvador and Nicaragua. Counterinsurgency had its specific ethnic features in Guatemala (see Shirmer 1999), as it hit the Mayans particularly hard. 250,000 people died or disappeared, and one million became refugees; over one million paramilitary troops became idle, frustrated, and unsteady after the conflict, as has been Latin America's lot since the last World War. From this last blow, the dialect network has not changed its configuration very much, but Mayan linguistic communities have entered an epoch of swift assimilation and acculturation (fostered by North American influence), conspicuous migration to the north to work in industry and services, and increased bilingualism with Spanish. Moreover, in 1973 the Guatemalan highlands were devastated by a tremendous earthquake, which erased most dwellings in Comalapa as well, further loosening local sociolinguistic networks.

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13. A power shift took place along with the emancipation of colonial countries from the European ruling centers, turning them into republics – from Mexico to the south of the American continent.

14. See Pendle (1980: 125–137).

15. See www.odhag.org.gt/INFREMHI for information on the project *Guatemala Nunca Más,* the most accurate report on state terrorism in Guatemala during those dark years of extremely intense repression, and http://www.odhag.org.gt (Human Rights Bureau of the Archdiocese of Guatemala which is coordinating the project). The U.N.'s annual reports on Guatemala since 1995 are available at http://www.amnestyusa.org/countries/guatemala/index.do, and http://hrw.org/doc/?t=americas&c=guatem gives current news on topics related to human rights in Guatemala and elsewhere in the world.

In the meantime, forms of contacts between Mayan and non-Mayan pre-Columbian languages have lessened in shape and intensity, as multilingualism is nowadays focused on Spanish and English. But still, we can say that nearly all speakers of a Quichean language are able and willing to understand, or even casually use, another language of the same branch. Kaqchikels, K'iche's and Tz'utujiles do communicate in each other's language in a mutually intelligible diasystem, and Minor Quichean speakers of K'iche' or Achi can understand or even learn Q'eqchi' or Poqom. For example, many Poqomchi' speakers of Baja Verapaz reckon that they have to pick up Q'eqchi' to make any agreement in Alta Verapaz with their neighbors, especially for local trade.

Around the Atitlán lake, every Mayan speaker can understand or speak any of the three coexisting Minor Quichean languages (a dialect continuum): K'iche', Kaqchikel and Tz'utujil, as local populations have exchanged crafts, goods and partners probably since pre-Classic times or even before. The same can be said of speakers of Q'anjob'al languages in the Cuchumatán mountains of northwestern Guatemala, where most bilingual school teachers today, who often are Popti' speakers, do their best to pick up Chuj, Akatek or Q'anjob'al Proper, because most local youngsters have chosen to migrate northward. However, Mams cannot easily be understood by Ixiles, and K'iche's are not likely to make the serious effort required to learn to understand or speak Ixil properly. Ch'orti', in the southeast, cannot be understood by any other Mayan speakers apart from Chols, in northern Chiapas in Mexico, or Chontales in the Caribbean Mexican state of Tabasco, whom they never meet.

Mesoamerica has evolved through intense language contact between Amerindian languages to the point of shaping a linguistic area (Campbell 2006; Campbell 1979: 955–972; Campbell, Kaufman & Smith-Stark 1986). These former networks, which were the result of confederative links between towns and kingdoms, have been dismantled by the "Conquest." With the colonial and the liberal eras, the inner structure of local sociolinguistic networks was again smashed into pieces. As with most Mesoamerican languages, Mayan languages survived as, one might say, the lowest language of the lowest people in a state of segregation. Only recently have they gained status and future prospects through a long process of political uprising from 1954 up to now, as far as Guatemala is concerned. Yet the stubborn policy of assimilation and ruthless military violence directed toward the Mayan population in the 1980s and early 90s fostered linguistic revival.

The complexity and compactness of such a Mayan linguistic community of 20 languages in Guatemala, in particular, the Minor Quichean linguistic community of Kaqchikel, is far away from the sociolinguistic patterns of a linguistic community such as New York City investigated by William Labov. Historical depth and the grammar of a non-Indo-European language type such as Maya open onto

quite different sociolinguistic worlds. Despite genocide, colonization, conservative authoritarian regimes, discrimination, policies of assimilation and acculturation, and massive economically and politically induced migration, Mayan languages are still widely and currently spoken, though they are still viewed by many Ladinos and Mayas themselves as a kind of vernacular. People still have to struggle against prejudice and the call of the assimilative ideology inherited from colonial times, which is unfortunately still supported by the dominant monolingual, Spanish-based, regime of formal education. But still, Mayan languages, even though in close contact with Spanish and in a time of increasing bilingualism (or diglossia) make up a sociolinguistic world of their own.

A descriptive framework for Kaqchikel vowel systems

The sociolinguistic variable we will be studying in the following pages is one of those ethnolinguistically idiosyncratic phonological variables: the Tense/Lax Vowel Contrast (TLVC) in syllable nuclei (i.e., vowels), a laxness correlation inherited from a former Proto-Mayan Vowel Length Correlation (VLC), as happened between classical Latin and Proto-Romance.

Some facts suggest that Kaqchikel (about 450,000 speakers) is an innovative *lingueme*[16] which developed out of a southwestern matrix, such as Atitek, the local variety of the main Tz'utujil town (over 25,000 inhabitants), as the result of expansion of the southwestern Minor Quichean segment of the diasystem to gain control of the territories to the east.[17] The direction of isoglosses from southwest of the Highlands on the shores of Atitlán to the east towards Sacatepéquez, and the structural unity with Tz'utujuil both might support this claim. The Central K'iche' and Kaqchikel TLVC dialects, with reduced vowels as the product of short Proto-Mayan vowels, identify with the southwestern area of Macro-Quichean along with other isoglosses, whereas the VLC (Vowel Length Correlation) dialects to the east in Sacatepéquez tend to neutralize duration, though without laxing of nuclei.

Kaqchikel TLVC systems have been thoroughly described in current literature (ALMG, Majzul Patal et al. 2000; Matzar & Rodríguez Guaján 1997; Cutzal 1990; Macario, Cojti & López 1990; Campbell 1977), but unfortunately no experimental measurements have been ever done of lax and tense vowel reflexes,

16. The term *lingueme* was shrewdly coined by Mario Alinei in order to neutrally refer to any language or dialect from a typological and genetic point of view, without discussing questions of ethnolinguistic identity (Alinei 1984).

17. Sper (1970) confirms this general trend of Kaqchikel dialect networks expanding innovations from a core area located around Sololá and Lake Atitlán towards the eastern highlands.

which seriously questions the credibility of the data available in current literature. Vowel systems throughout the Kaqchikel diasystem are impressionistically called 10-vowel systems (8 varieties: Patzun, Sololá and Lake Atitlán, San José Poaquil, San Andrés Itzapa), 9-vowel systems (San Martin, Santa Maria, Santo Domingo), 7-vowel systems (San Miguel Pochuta, San Pedro Yepocapa), and 6-vowel systems (Tecpán, Patzicía). See (5).

(5) Vowel systems in Kaqchikel, according to Majzul Patal & al. (2000: 35–39).

6-Vowels			**7-Vowels**			**9-vowels**			**10-vowels**		
i	ɨ	u	i	ɨ	u	i	ɯ	u	i		u
								ʊ	ɪ		ʊ
e		o	e	ə	o	e		o	e		o
							ə	ɔ	ɛ,ɜ	ə	ɔ
	a			a			a			a	

All these systems are surface expressions of a primary system ruled by VLC (Vowel Length Correlation) as in (6), for which some authors postulate a kind of retracted central vowel, as does Terrence Kaufman for Proto-Tzeltalo-Cholean (Kaufman 1972).

(6) Proto-Mayan Vowel system

PM Vowel system		
*ii		*uu
*i		*u
*ee	*V-lax (?) as an *a allophone	*oo
*e		*o
*a		*aa

We shall toe this philological line, assuming a VLC, and put aside the extra central vowel integrated into other kinds of correlative oppositions with the rest of the system, as in contemporary Chol, Chontal, Mopan, Itzaj, and Lakantun. We shall cling to the VLC, following the yellow brick road it traces for our quantitative, experimental survey. We hope this first approach, relying mostly on measurements, will prove helpful for better understanding the mechanism of the TLVC in Central K'iche' and Kaqchikel, two major DN of the highlands.

Faithful to Labovian methodology, we take vowel shifts, grammatical paradigms, lexical diffusion, contextual segmental variation, and additional clues such as duration, into consideration as we sample from speakers interviewed under similar conditions. We used a 110 item phonological questionnaire, occasionally

shortened to 70 or 50 items if informants did not have enough free time or willingness to answer. The stimuli of the word list were uttered either in Spanish or in Kaqchikel, according to the degree of bilingualism of the informant, by three alternating fieldworkers: Jean Léo Léonard, Cecilio Tuyuc Sucuc, and another member of the Kaqchikel ALMG (Academy of Mayan Languages of Guatemala) in Chimaltenango (Victor Roquel). In order to avoid blanks and words difficult to translate from Spanish or to elicit in Kaqchikel, many items were withdrawn from the questionnaire's first draft, which included a section on verbal inflection.[18] We soon realized that the best we could do, in order to get consistent results for such an exploratory attempt to grasp the patterns of the TLVC in Kaqchikel (//aa//[19] > /a/, //a// > /ä/), was to limit our inquiry to a strategic – we dare say, prismatic – aspect of this dialectal constraint. TLVC will require more experimental research in the future (especially articulatory gestures) and in a more extensive way than what we are committed to doing in the limits of this paper.

Moreover, TLVC is a major typological feature of two significant Minor Quichean languages: Kaqchikel and K'iche'.[20] The 6-vowel, 7-vowel, 8-vowel and 9-vowel varieties listed above can be considered as a sociolinguistic reality; Kaqchikel speakers are able to place other speakers according to this trait, just as New Yorkers easily give themselves away when uttering words containing postvocalic /r/, or when U.S. Southerners come accross the Northern Cities Shift, a change involving no less than 34 million people. Kaqchikel TLVC involves roughly half a million people, but in a much smaller territory. It echoes from a deep time-scale punctuated by cycles of settlement, cell-splitting, unification and koineization, fragmentation, and subordination to elite, foreign pre-Columbian and postcolonial languages. It is drowning in diglossia and struggles against acculturation, but

18. As far as we can tell from data on paradigms other than nominal possession (as listed in (8) below), it seems that the Possession Laxity Neutralization is not applied in verbal inflection, though a similar set of prefixes is involved in a split morphology pattern, since nominal possessive suffixes also happen to be ergative agreement marks in finite forms.

19. //aa// *versus* //a// with the double slash notation refers to a higher level of abstraction in the phonological analysis of the tense/lax vowel correlation in the Kaqchikel diasystem than <a> (tense) *versus* <ä> (lax) in current Kaqchikel script. The so-called "tense vowels" such as <a> are therefore underlying long vowels as //aa//, whereas the "lax vowels" such as <ä> are underlying short vowels, i.e. //a//.

20. Lax vowels turned out to be a hard morsel to chew for spelling reforms during language planning, which has been taking place mostly since the 1980's, thanks to institutions of applied linguistics such as Proyecto Francisco Marroquin, ALMG, and OKMA. See http://www.okma.org/ for more information about this non-governmental organisation of Mayan linguists – one of the most productive in the Amerindian field of applied linguistics.

it is still alive, with a multiplex diasystem and strong grammatical constraints, as the following section will highlight.

3. A Grammar of Lax Vowels (GLV) in Kaqchikel

3.1 Lexical and functional affixal heads

As the reader has easily guessed, a Grammar of Lax Vowels (GLV) turns out to be nothing more than a grammatical account of TLVC. How is the tense/lax vowel contrast implemented in the lexicon and in functional or derivational heads? Is laxity related to stress? We answer with (7) and (8), giving a wide array of morpho-lexical constraints.

(7) Kaqchikel GLV constraints
   a. Stress: Kaqchikel is a word-final stress language. Lax //a//, i.e., /ä/, as the nucleus of a lexical monosyllabic root (*jäl, chäj, kär, kyäq, säq, q'än, räx*, etc.) is therefore always stressed if not derived (*saqsöj* 'whitish'), nor compounded (*saqmoloj* 'egg'). In such cases, stress proceeds rightwards to the suffixal or last compound word's syllable (i.e. *saqsö̲j*, *saqmolo̲j*).
   b. Morphology: The TLVC is implemented in the lexical structure of lexical roots and functional affix heads, as evidenced in Table (8) below.
   c. Inflectional lexical-head distributed neutralization of laxity: Possessed nouns neutralize vowel laxity, while argument agreement inflection in verbs does not. Kaqchikel, like many other Mayan languages including very distant ones like Tének (Huastek), neutralizes vowel shortness or laxity in possessive phrases (PossP).

In other words, to make (7c) clear once and for all, laxity in Kaqchikel is implemented in morphosyntax as an unpossessed NP distinctive markedness condition that is neutralized in an inflected VP, although the VP ergative marking actually uses similar prefixal heads for agreement expression. We could therefore say that Kaqchikel is a morphophonologically split possessivity language, with strong iconic consequences on morphosyntax and discourse (for many words, lax nuclei tell the listener that what is being talked about is not involved in dependency marking of the possessive type). This is a most handy trick for a language to contrive, since it increases control over PossP, NP, and DP in discourse through NP and DP iconicity versus PossP. All Minor Quichean languages have a very intricate system of determination, deixis, and focus nourished by a wide array of proclitics and particles, so that the hiring of tenseness/laxity to play a head-identifying role in phono-lexical and morpho-lexical markedness is theoretically

welcome. Empirically, the trick works quite well, and it is by no means recessive, though there are cases of lexicalization of some items, from place to place and from lexical item to lexical item.

The reader will find examples of (7b) and (7c) in (8) below. C^{Dupl} refers to reduplication of the onset of the root into the onset of the suffix, a form of hypocoristic adjectival derivation in many Mayan languages.

(8) A Grammar of Lax Vowels (GLV) in Kaqchikel, according to Matzar & Rodríguez Guaján (1997: 42–49).

Morphological variable	**Example**	**Label**
i. Transitive stems ending in C (except with glottal stop)	*x-u-jäq* 'he/she opened (it)' *x-u-tzʼët* 'he/she saw (it)'	Trans-Stem-C#
ii. Intransitive verbs derived from onomatopeic stems	*x-witz'-ïtz'* 'rats or mice squeaking' *x-bʼä-tät* 'bursting of fireworks'	Intrans-Onom.Der. Stem
iii. Intransitive passive verbs: *-bʼäx*	*x-pa-bʼäx* 'it was (being) stopped' *x-tz'i-bʼäx* 'it was (being) written'	Intrans-pasv.Verbs
iv. Completive passive: *-täj#*	*x-chaʼa-täj* 'it (had been) chosen' *x-tij-täj* 'it (had been) eaten'	Compl-pasv.*-täj#*
v. Positional adjectives: *-Vl#*	*jaq-äl* 'open' *tzʼap-äl* 'closed' *xim-il* 'tied up' *jor-öl* 'weak'	Pos-Adj.*-Vl#*
vi. Descriptive adjectives: *-C^{Dupl}ïk#*	*naka-nïk* 'stupid' *koto-kïk* 'twisted' *bʼolo-bʼïk* 'cylindrical'	Descr-Adj.- *C^{Dupl}ïk#*
vii. Moderative adjectives: *-C^{Dupl}öj#*	*kaq-köj* 'reddish' *saq-söj* 'whitish' *tzʼil-tzʼöj* 'rather dirty'	Moder-Adj.*-C^{Dupl}öj#*
viii. Superlative adjectives: *-läj#*	*utz-iläj* 'very good' *nima-läj* 'very big' *kʼayi-läj* 'very bitter'	Superlat-Adj. *-läj#*
ix. Intransitive verbs derived from adjectives ("versive"): *-Vr#*	*x-kʼiy-ïr* 'it got plentiful' *x-nim-är* 'it got bigger' *x-qʼeq-är* 'it got black' *x-qʼeq-um-är* 'it darkened' *x-tew-ür* 'it got chilled'	Versive-*Vr#*

x. Perfect participle: *-(V)n-äq#*	*war-in-äq* 'he/she slept, is sleeping' *el-en-äq* 'he/she went out' *pet-en-äq* 'he/she came in' *oq'-on-äq* 'he/she cried' *ok-in-äq* 'he/she entered'	Perf-Part.*(V)n-äq#*
xi. Noun stems-short *V	*äk'* 'chicken' *kinäq* 'bean' *winäq* 'person' *wäy* 'tortilla' *k'ïm* 'straw' *umül* 'rabbit'	N-stems-*V
xii. Agentive-*öy/üy:* *-öy/üy#,* *-öl/-ül#*	*b'an-öy/b'an-öl* 'maker' *loq'-öy/loq'-öl* 'buyer, client' *su'-üy/su'-ül* 'washer'	Agent-*öy/üy#, -öl/-ül#*
xiii. Infinitive of intransitive and antipassive (*-Vn-*) verbs: *-ïk#*	*war-ïk* 'to sleep' *choy-on-ïk* 'to cut' *chul-un-ïk* 'to urinate'	Inf-Trans.Verbs-*ïk#*
xiv. Instrumental/locative noun suffixes: *-Vb'äl#*	*su'-üb'äl* 'washing device' *mes-eb'äl* 'broom, brush' *k'ay-ib'äl* 'shop' *chaj-ob'äl* 'laundry'	Instr/Loc-N-*Vb'äl#*

TLVC patterns are highly grammatical, involving a wide array of affixes and combined with vowel harmony (or, to put it more properly, *vowel copying*) and consonant reduplication in adjectives. Through derivation, all lexical categories are concerned with conversion or change of morphosyntactic voice; semantic roles such as instrument and agent are involved for nouns, semantic gradation for adjectives (superlative and moderative), and Aspect-Voice for verbs.

We can straightforwardly say that vowel laxity turns out to be one of the strongest pillars of the Kaqchikel and K'iche' lexicon and grammar structure, a Grammar of Lax Vowels (GLV). Moreover, as stress regularly falls on the last syllable in Kaqchikel, all suffixal lax vowels are actually stressed nuclei, so that unlike languages such as Portuguese or Russian, laxity has nothing to do with prosodic intensity or strength constraints in Mayan languages. Neither does it seem to be easily explained by phonotactic rules in the first place, since lax vowels can occur in noun stems without regard to onset or coda (even if surrounding consonants may have a slight influence on the quality of the nucleus, as we shall see when surveying vowel charts). On the contrary, even the neutralization of lax vowels

in Kaqchikel is largely bound up with additional grammatical constraints of the morpho-semantic type, such as possession.

As a matter of fact, one could argue that variables such as (xi) *N-stems-*V*, (i) *Trans-Stem-C#*, (ii) *Intrans-Onom.Der.Stem*, (v) *Pos-Adj.-Vl#* and derivational affixal variables such as (vi) *Descr-Adj.C^{Dupl}ïk#*, (vii) *Moder-Adj- C^{Dupl}öj#,* (viii) *Superlat-Adj.-läj#*, (ix) *Versive-Vr#,* etc., far from being grammatical, should rather be considered as lexicalized forms dependent on word-building resources in the lexicon. The assertion that we are dealing with a major grammatical paradigm would therefore collapse like a house of cards, forcing us to ask Grammar to keep a low profile; our claim for a Grammar of Lax Vowels (GLV) in Kaqchikel would therefore shrink into a mere enumeration of radical and affixal paradigms embedded in the lexicon. Nevertheless, a major constraint confirms that our claim for GLV is legitimate: the Mayan Possession Duration Contrast (MPDC), according to which "in Mayan languages that manifest vowel length, there is a group of nouns with long vowels when possessed and short vowels when not possessed" (Brown & Wichmann, 2004: 162; quoting Terrence Kaufman). Therefore, <ä>[21] = //a//, whereas <a> as well as <a> Poss. = //aa//.

3.2 Lax noun phrase and tense possessive noun phrase

(9.1) provides a list of 14 inflectional pairs according to the MPDC; lexical inputs (phonological forms) stand between slashes; //kar// > [kæř, kəř, kɜř, kɯř, kʉř] = (*kär*) – ř stands for a fricative vibrant – as a sociolinguistic variable referred to as (Ar) in vowel charts below; //nukaar// > [nukař] = (*nukar*), i.e. (*ar*) as an allophonic variable used in vowel charts.

(9.1) Underlying Inflectional VLC in Noun Poss.P in Kaqchikel (MPDC)

Monosyllabic stem		**Meaning**
Unpossessed	**Possessed**	
//kar// (kär)	//nukaar// (nukar)	'fish'
//xal// (jäl)	//nuxaal// (nujal)	'ear of corn'
//waj// (wäy)	//nuwaaj// (nuway)	'tortilla'

21. Brackets < > refer to the current spelling used in reference grammars and texts published in Kaqchikel according to Kaufman's proposals for the codification of Mayan languages (see Kaufman 1976).

//pak// (päk)	//nupaak// (nupak)	'anona'
//čax// (chäj)	//nučaax// (nučaj)	'pine'
//k'ax// (k'äj)	//nuk'ax// (nuk'aj)	'corn flour'
//wuj// (wüj)	//nuwuuj// (nuwuj)	'paper, book'
//laq// (läq)	//nulaaq// (nulaq)	'bowl'
//tsaq// (tzyäq)	//nutsaaq// (nutzyaq)	'garment, cloth'
Disyllabic stems		
//awan// (awän)	//nuawaan// (nuawan)	'milpa, corn field'
//waran// (warän)	//nuwaraan// (nuwaran)	'dream'
//čakač// (chakäch)	//nučakaač// (nuchakach)	'basket'
//kinaq// (kinäq)	//nukinaaq// (nukinaq)	'bean'
//winaq// (winäq)	//nuwinaaq// (qawinaq)	'person'

The table in (9.2) supplies sets of variables encoded according to the rhyme (nucleus + coda). The word *kär* 'fish' with a lax vowel encoded as (*är*) in the table and (*Ar*) in the vowel charts, alternates into a phonologically tense form when possessed, branching a possessive prefix on its left, identified as (*ar*) in tables and subsequent vowel charts.

(9.2) Encoding of phonotactic variables and syllabic ryhme types: A sample.

Monosyllabic stem		
Unpossessed	Possessed	Meaning
(kär) > (är), (Ar)	(nukar) > (ar)	'fish'
(jäl) > (äl), (Al), etc.	(nujal) > (al)	'corn ear'
(wäy) > (äy)	(nuway) > (ay)	'tortilla'
(päk) > (äk)	(nupak) > (ak)	'anona'
(čäj) > (äj)	(nučaj) > (aj)	'pine'
(k'äj) > (äj)	(nuk'aj) > (aj)	'corn flour'
(wüj) > (üj)	(nuwuj) > (uj)	'paper, book'

(läq) > (äq)	(nulaq) > (aq)	'bowl'
(tsyäq) > (iäq)	(nutsyaq) > (iaq)	'garment, cloth'
Disyllabic stems		
(awän) > (än)	(nuawan) > (an)	'milpa, corn field'
(warän) > (än)	(nuwaran) > (an)	'dream'
(čakäč) > (äch)	(nučakač) > (ach)	'basket'
(kinäq) > (äq)	(nukinaq) > (aq)	'bean'
(winäq) > (äq)	(qawinaq) > (aq)	'person'

Table (10) shows the syllabic integration of noun stems used in our experimental survey.

(10) A sample of syllabic patterns of noun stems for the lax vowel /ä/ = //a//

Codae					
Coronal sonorant	Palatal affricate	Palatal approximant	Dorsal fricative	Dorsal stop	Uvular stop
warän		wäy		päk	
jäl, kär					läq, kinäq, säq
	chakäch		chäj		
	jäch'				
					käq, k'äq
(q'än)					

3.3 Idiolects for lumpers

Science faces two parties, each fiercely defending its own position: Splitters *versus* Lumpers.[22] Splitters love details, idiosyncrasies, and peculiarities, and defend their highly delicate taste on behalf of the accurateness of atomism and the aesthetics of enumeration. Lumpers, on the other hand, prefer broad classification, wide clustering, large prospects, and the power of elegant generalization. We shall assume here that idiolects should not be considered as minimal individual units of a language or a dialect, according to the classical "Splitters' viewpoint," which dominates as soon as one takes idiolects as an empirical source in sociolinguistic survey. Paradoxically, idiolects should be considered with a Lumper's viewpoint rather than with a Splitter's framework, and we should above all attempt to trace in any idiolect the most indicative properties of the general structure of a

22. See Greenberg (2005: 115–117) and Gould (2003).

language – *lingueme* or *diasystem*, etc. – when handling idiolectal data, in order to fathom how the diasystem actually works. In the classical framework, which has definitely relinquished idiolects to the Splitters, while Lumpers proceed in their inquiry to reach higher, more abstract and homogeneous constructs on language, idiolects have been limited to social, ethnic, and individual properties, i.e., with sociolinguistic surface level issues rather than with underlying diasystemic patterns. In this respect, each detail of idiolectal variation should therefore hint at more than mere superficial stylistic features and attitudes, providing specific clues as to the position of the informant in the available network of statuses and socially correlated linguistic variables making up the sociolinguistic chessboard.

3.4 The ATR and RTR dialect conspiracy

We'll use Advanced Tongue Root (ATR) and Retracted Tongue Root (RTR) criteria to capture lax vocoids in (11). Let it be clear that [+ATR] refers to relatively increased highness, and [–ATR] to relatively lowered highness, whereas the [+RTR] feature applies to non-peripheral, that is, neither front nor back vocoids, i. e., centralized vowel types, such as schwas and retracted front and back vowels (*i, ʉ*, etc.), while [–RTR] goes for peripheral vocoids, with sharp chromatism (*i, u, e, o, a*). Although we do not have previously investigated articulatory gestures in which to ground this classification, we'll look upon these criteria merely as phonologically handy ones – not phonetic ones.

(11) Kaqchikel allophonic vowel space

V-Features	**+Front**		**+Back**		
	–RTR	**+RTR**			**–RTR**
+High +ATR	i	i̟	ʉ	ɯ	u
+High –ATR	ɪ	ɪ̟			ʊ
–High +ATR	e̞	ë			
–High –ATR	e	ə		ɣ	o
–Low +ATR	ɛ̝	ɜ		ʌ	ɔ
–Low –ATR	ɛ	ɐ			
+Low	æ	a	œ	ɑ	

We gave the playful title of *The ATR and RTR dialect conspiracy* to this section in order to make our point clear; complementary interactions between parameters selected by dialect varieties in the diasystem are more important than how many vowels a variety may have. Dialects play with structural variables, constraints, and parameters such as ATR and RTR, dispatched all over lexical, grammatical, and phonological patterns in a sociable and fashionable game, rather than losing time counting vocoid types and allophones to fit in a 6-vowel or 9-vowel type. This gambling of nuclei types happening in the Kaqchikel phonemic vowel conceptual space appears in (12).

In order to clarify how the Kaqchikel diasystem (DS) works, a great deal of what will follow concerns details of the categorial (the conceptual side of the DS) and segmental (the perceptual side of the DS) phonological integration of a mixed TLVC/VLC system. Neogrammarians would be equally satisfied and disappointed; the length correlation of Proto-Mayan (VLC) did shift to a Tense/Lax Contrast (TLVC) at the segmental level, but it still smoulders under the surface of actual duration and a High tone feature associated with the lax vowel. Moreover, we are just unveiling these aspects of Kaqchikel; a DS matrix like (12) is only part of a greater Minor Quichean vowel shift which still awaits phonetic scrutiny.

(12) Kaqchikel phonemic vowel conceptual space

<table>
<tr><td>Features</td><td colspan="2">+Front</td><td colspan="2">+Back</td></tr>
<tr><td></td><td>–RTR</td><td colspan="2">+RTR</td><td>–RTR</td></tr>
<tr><td>+High
+ATR</td><td>ii</td><td colspan="2" rowspan="2"><ä>
Patzicía</td><td>uu</td></tr>
<tr><td>+High
–ATR</td><td>i</td><td>u</td></tr>
<tr><td>–High
+ATR</td><td>ee</td><td rowspan="2"><ä>
Tecpán</td><td></td><td>oo</td></tr>
<tr><td>–High
–ATR</td><td>e</td><td colspan="2" rowspan="2">o</td></tr>
<tr><td>–Low
+ATR</td><td colspan="2"><ä>
SJC</td><td></td></tr>
<tr><td>–Low</td><td><ä>
Santiago</td><td colspan="2">a</td><td></td><td></td></tr>
<tr><td>+Low</td><td colspan="3">aa</td><td></td><td></td></tr>
</table>

From this matrix, we can sketch a typological classification of varieties surveyed in our sample, as in (13):

(13) TLVC-types in Kaqchikel
  a. RTR Raising, as in Patzicía (HU48): High RTR type
  b. RTR Mid, as in Tecpán (HU30): Mid RTR type
  c. ATR /–Low, as in San Juan Comalapa and Xenimakin: –Low ATR type
  d. Neutral, slightly ATR/–Low, as in Santiago Sacatepéquez: Neutral TLVC type

4. Some perceptual properties of the Kaqchikel phonemic vowel conceptual space

4.1 Diasystemic parametering of TLVC parameters

The Kaqchikel phonemic vowel conceptual space above in (11) and (12) is evidenced by the vowel charts[23] below in (24) and (25). If we convert the allophonic configurations of these vowel charts into the cells of the tables in (11) and (12) above, idiolects can be defined according to the parameters listed in Table (14) below, which accounts for idiolectal variation in SJC. In this description, idiolects of SJC (urban) and Xenimakin (rural) are integrated into a diasystemic network with a few parsimonious parameters. This variety is typically a Low-V Palatal dialect, since /ä/ is expressed phonetically as a palatal reflex: mostly [ɛ, e], or [ɜ]. The matrix reads as a glimpse into the inner variation of a Low-V Palatal dialect – a phonetically driven diversity which does not challenge the phonological constraints on nuclei. This collection of idiolects shows a consistent trend towards further merging of units like (ï) and (e), indecision as how to deal with the ATR/RTR properties of (ï), and further indecision as to setting a higher or lower target for (ä). The αRTR^{light} parameter in SJC is hardly audible, so that it should be considered as a subtlety for phoneticians. The lexicalization of possessed noun neutralization occurs according to clear local patterns; in SJC, *nukär* instead of *nukar* 'my fish', *nukyäq'* instead of *nukyaq'* 'my guayaba', *nuawän* and *rawän* instead of *nuawan* and *rawan* 'my/his maize crop', etc., whereas in Patzicía, *nuchäj* instead of *nuchaj* 'my pine'. According to Kaqchikel LVG, (ä) is a phonetically short, lax expression of //a//, whereas (ä) Poss. refers to the neutralization of laxity and lengthening of the nucleus triggered by possessive prefixation (Poss.). Lengthening and tension drives (ä) to the same categorial field as (a) in the //aa// class of reflexes. Cf. Section 3.1.

23. Thanks to Cedric Gendrot's scripts on Praat and most valuable help in designing the vowel charts (UMR 7018, CNRS-Paris 3).

As a matter of fact, the small pull-and-drag game of parameters does not suffice to show that any overt variation is happening in the linguistic community. What is clearly seen instead is a structural negotiation between Kaqchikel speakers on details as to how – and how high – one shall raise an (ä) palatally with a [+ATR] gesture instead of RTR raising towards the velum, as in the Tecpán and Patzicía dialects.

(14) Idiolectal variation: 7 informants, SJC-Xenimakin

<table>
<tr><th>Variables</th><th>(ï) = //i//</th><th>(e) = //ee//</th><th>(ä) = //a//</th><th>(a), (ä) Poss.</th><th>(ö) = //o//</th><th>(ü) = //u//</th></tr>
<tr><td>SJC-HU-52</td><td>–ATR
(e) merger</td><td>(ï) merger</td><td>–Low</td><td>αRTR^{light}</td><td rowspan="3">–Low</td><td rowspan="5">(no lax V)</td></tr>
<tr><td>SJC-HU-62</td><td></td><td>+ATR</td><td>αRTR
–High
–ATR</td><td>βBack</td></tr>
<tr><td>Xenim-HR-12</td><td>+ATR</td><td>–High
+ATR</td><td>–Low
+ATR</td><td rowspan="5">αRTR^{light}</td></tr>
<tr><td>Xenim-MR-15</td><td>+RTR</td><td rowspan="2">+ATR</td><td>αRTR</td></tr>
<tr><td>SJC-MU-27</td><td>αATR (ïx)
+RTR (ïs)</td><td>–Low
+ATR</td><td>–Low
+ATR</td></tr>
<tr><td>SJC-MU-25</td><td>αRTR</td><td>αATR</td><td>–Low
+ATR
(i) & (e) merger</td><td>–Low
+ATR
(o) merger</td><td>+RTR
(üw)</td></tr>
<tr><td>SJC-MU-78</td><td>–ATR</td><td>+ATR</td><td>–Low
+ATR</td><td>+Low</td><td></td></tr>
</table>

In the SJC-HU52 idiolect (shown in (15)), an α ATR /V–Low type as we dubbed it above, the whole array of acoustic clues on the vowel continuum ranging from /a/ to /i/ sorts into two natural classes: //aa// = (a), (ä)Poss., where low variances around a mean F1 = 680 Hz and a mean F2 = 1440 Hz suggest a single [+Low] class; whereas (ä) and (e) make up a separate, disparate class, with F1 and F2 differing from up to 75 Hz and 160 Hz ((ä) as compared to (e)) on a [α ATR/–Low] scale.

(15) SJC-HU52: a F1-F4 continuum of the Low-V palatal type

SJC-HU52	F1	F2	F3	F4	Tokens
(a)	685	1390	2365	3680	35
(ä)Poss.	675	1490	2340	3730	8
(ä)	545	1770	2435	3520	20
(e)	470	1930	2605	3595	20

(16) Patzicía-HU48: a F1-F4 continuum of the [α RTR] type

Patzicía-HU48	F1	F2	F3	F4	Tokens
(a)	575	1350	2430	3350	30
(‘a)[24]	675	1310	2510	3350	20
(ä)Poss.	620	1460	2545	3320	32
(ä)	420	1260	2525	3310	77
(u)	420	955	2415	3250	18
(‘u)	380	740	2530	3245	6

4.2 An RTR Raising Kaqchikel dialect: Patzicía

The quality and quantity of the data from Patzicía-HU48 and the strength of the RTR Raising parameter of his idiolect induce us to strongly rely on his speech for the analysis of subtle acoustic parameters, such as F3 and F4, in addition to F1 and F2, which are usually the sole parameters taken into account for vowel charts. But vowel charts are artifacts of limited scope; further research is needed to adequately fathom the complexity of the parameters at stake.

(17) (ä) phonotactic variation in a High.RTR dialect of Kaqchikel: Patzicía-HU48 : /ä/ (according to coda contexts) *versus* mean (‘a) by RTR variables. Cf. Vowel Chart 1 in (24).

	Patz-HU48	F1	F2	F3	F4	Tokens
/ä/ in various coda contexts	(än)	380	910	2350	3245	12
	(äl)	415	1245	2405	3175	3
	(är)	405	1280	2575	3235	8
	(äy)	400	1470	2470	3510	5
	(äx)	400	1400	2480	3090	2
	(äch)	380	1575	2385	3220	4
	(äch’)	420	1400	2495	3285	6
	(äj)	420	1360	2620	3370	8
	(äk)	415	950	2460	3320	4
	(äq)	475	1325	2650	3375	27
	(q’än)	415	1195	2575	3415	4
	(wär)	395	930	2475	3170	5
Mean /ä/, i.e., //a//		410	1255	2495	3285	88
Mean (‘a) = stressed /a/, i.e., //aa//		675	1310	2510	3350	20

24. (‘a) codes the stressed “tense” low vowel written as <a>, analyzed as //aa//. (‘u) is defined similarly.

Table (17) and the Patzicía-HU48 vowel chart below (Vowel Chart (1)) both clearly show the basic phenomenon at stake in an RTR variety like Patzicía: the 410 Hz threshold for F1 in /ä/. We have here a genuine High.RTR type of TLVC. The RTR features are visible in (18) from F2 clues. While all F1 values stand close to 400 Hz (except (*äq*), which is heading towards a schwa at 475 Hz), F2 values swing widely backward from a strongly backed 910 Hz (*än*) or 950 Hz (*äk*), to a more fronted (i.e., palatal) target, at about 1575 Hz (*äch*). Onsets may account for more of this variation than we initially assumed, as the variables (*q'än*) = *q'än* 'yellow' and (*wär*) = *wäran* 'sleep, dream' suggest; the peripheral onset (labial or uvular) drives F2 close to the /u/ vocalic range. But the dominant influence of the coda (and its primacy over the onset) is to be seen in items like (*äch*), (*äch'*), which are driven closer to [ɨ] than [ʉ] by the palatal affricate in spite of the velar onsets (*chakäch* = 'basket', *jäch'* = 'maize harvest').

(18) F2 variation in a High.RTR dialect of Kaqchikel, Patzicía, (HU48)

Patz-HU48	**F2**
warän	910
jäl	1245
kär	1280
wäy	1470
räx	1400
chakäch	1575
jäch'	1400
chäj	1360
päk	950
läq, kinäq, säq	1325
q'än	1195
wär	930
/ä/	1255
('a)	1310

The rather wide array of tongue positions expressed by shifts in F2 means that /ä/ in Patz-HU48 speech as a +High, +RTR vocoid moves along a palatal-velar continuum, conditioned by coda-nucleus and onset-nucleus interactions, as in (19), where values at the right side of >> tend to be less palatal and more RTR, or centralized.

(19) F2 variation in a RTR dialect of Kaqchikel as a palatal-velar continuum,[25] Patzicía, (HU48)

Patzicía-HU48									
Palatal RTR				Velar RTR					
(Hz) 1575	1470	1400	1360	1325	1280	1245	1195	950	930
chakach >>	wäy >>	jäch'	chäj >>	kinäq >>	kär>>	jäl >>	q'än >>	päk >>	wär, räx

In an RTR language, F3 and F4 may be particularly interesting acoustic variables to observe, as F3 is generally linked with lower resonances and provides hints of bemolization,[26] a strong harmonic consequence of both labiality and RTR or centralized articulatory gestures that is associated with wider cavities and subcavities, either nasal or oral. As compared to the regular scaling of the first four formants in /ä/ and (ʿa), phono-lexical variables in (17) demonstrate a strong tendency to fluctuate; F3: 2350-2575 Hz (*än-q'än*) and F4: 3090-3510 Hz (*äx-ay*). F3 and F4 seem to increase with velarity. F3 moves up and down around the mean value, showing not as nice a Gaussian shape as F2, but it is undoubtedly sensitive to uvularity (*läq, kinäq, säq*), velarity (*chäj*) and rhotic retroflexion (*kär*) in the coda. The main correlative acoustic parameters observed in (17) are listed in (20) below.

(20) F1-F3 phonotactic variation in an RTR idiolect of Kaqchikel: additional hints at the RTR continuum, Patzicía-HU48

Acoustic parameter	**F1**	**F2**	**F3**
	Aperture	Front-Back	Round/Unround
Physical phonological properties	Highness Sonority scale → Latitudinal position of the tongue	Frontness-backness Chromatic scale → Longitudinal position: Palatal-velar continuum	Increased resonator shape → Uvularity, fricative velarity, and rhotic retroflexion

25. Of course, Patzicía-HU48 is *phonologically* an RTR dialect, and as such, should not be mixed up with such so-called "palatal–ATR dialects" as SJC, but the Patzicía dominant RTR type does not impede an actual *phonetic* coarticulatory palatal-velar continuum, according to coda-to-onset palatal dissimilation rules and onset control over the nucleus, as shown in (20).

26. I.e. lowering of higher frequencies (F2, F3, F4).

4.3 A Mid RTR Kaqchikel dialect: Tecpán

Our speaker from Tecpán is a young educational advisor in bilingual education. Aged 30, born in Tecpán, he lived part of his youth in Antigua as a student, but his idiolect qualifies well as a Tecpán sample variety. As the vowel chart and (21) and (22) show, it belongs to the Mid RTR dialect, with /ä/ reflexes turning up and down around a vocoid of the schwa type, i.e., as mid centralized vowels.

(21) F1-F4 variation in a Mid RTR dialect of Kaqchikel:
Hints at the RTR Continuum, Tecpán (Tecp-HU30, cf. Vowel Chart (2))

Tecp-HU30	**F1**	**F2**	**F3**	**F4**	**Tokens**
(a)	705	1570	2390	3610	27
(ʻa)	770	1605	2435	3600	17
(ä) Poss	721	1580	2395	3480	23
/ä/	540	1690	2540	3555	36
(ʻe)	490	2185	2585	3340	9

(22) F1-F4 (ä) phonotactic variation in a Mid RTR dialect of Kaqchikel, cf. Vowel Chart (2)

Tecpán-HU30	**F1**	**F2**	**F3**	**F4**	**Tokens**
äm	620	1260	2550	3520	1
är	570	1680	2575	3380	6
äl	490	1655	2485	3575	3
äy	460	1590	2440	3670	8
äj	466	1775	2690	3615	3
äk	510	1425	2515	2515	3
äq	600	1795	2565	3470	17
/ä/	530	1560	2545	3340	41
(ʻa)	770	1605	2435	3600	17

In this idiolect, F1 has a bell-shaped distribution, from labial (*äm*) to uvular coda (*äq*), so that the more peripheral the coda, the relatively more open the lax low vowel. By contrast, the F2 peak proceeds with a more broken line of values, but the effects of the palatal-velar continuum already observed in Patzicía still acount for the variation; the more coronal the coda, the more fronted the nucleus, with higher F2 values (*är, äl, är, äy*). But the highest values are triggered by a velar fricative (*äj*) or a uvular stop (*äq*). A velar fricative has a raising effect on F3 (*äj*), followed by the rhotic coronal context (*är*) and the uvular stop (*äq*), confirming specific markedness conditions for these contexts.

4.4 A neutral dialect: Santiago Sacatepéquez

Table (23) provides F1-F4 values for low vowels in a so-called "neutral" dialect, from which laxity can hardly be found: Santiago Sacatepéquez. In this idiolect, where the //aa// versus //a// tense/lax alternation is the weakest of all speakers, differentiation of formant patterns proceeds smoothly, showing neutralization, or lack of any laxity parameter.

(23) F1-F4 (ä) phonotactic variation in a "neutral" dialect of Kaqchikel: Santiago Sacatepéquez (Santiago-MU19)

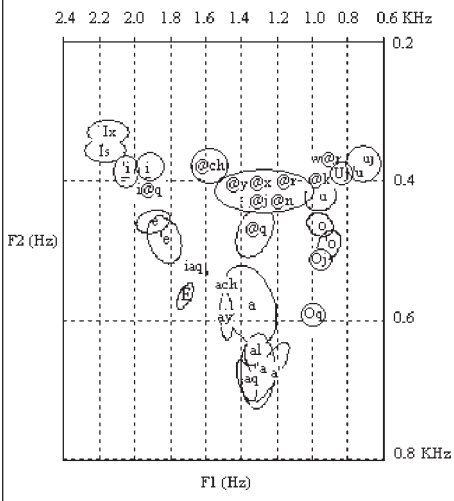
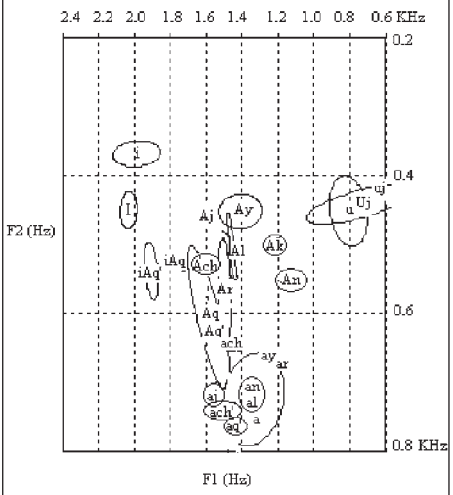
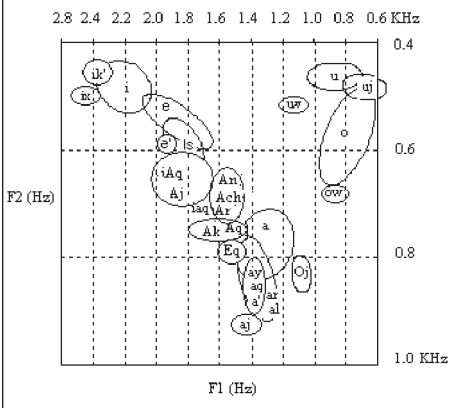
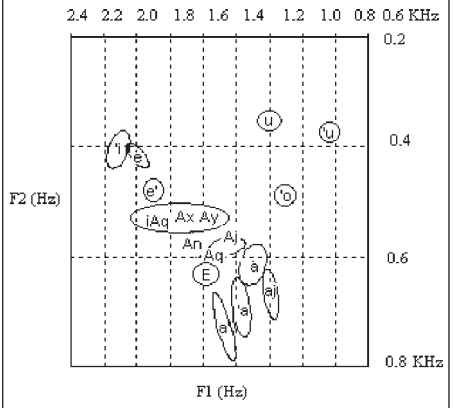
Santiago-MU19	F1	F2	F3	F4	Tokens
(b'äl)	785	1690	2900	4025	2
(äl)	870	1780	3000	3845	3
(är)	780	1925	2760	4280	4
(äy)	675	2150	2905	4395	9
(äch)	760	2010	2840	4360	3
(äch')	805	1890	3015	4350	3
(äk)	820	1665	2880	4200	3
(äj)	790	1895	2980	4120	3
(äq)	795	1785	3010	4015	18
/ä/	785	1865	2920	4175	48
/a/	790	1740	2910	4035	48

4.5 An overview: 6 vowel charts

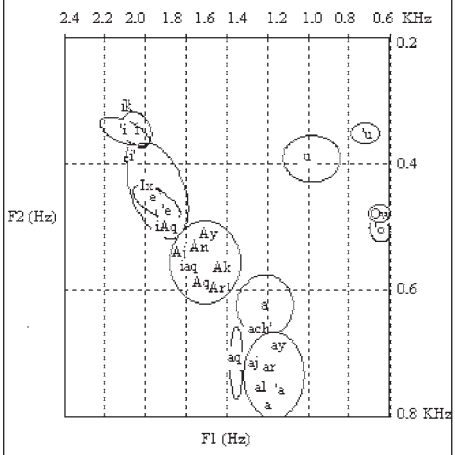
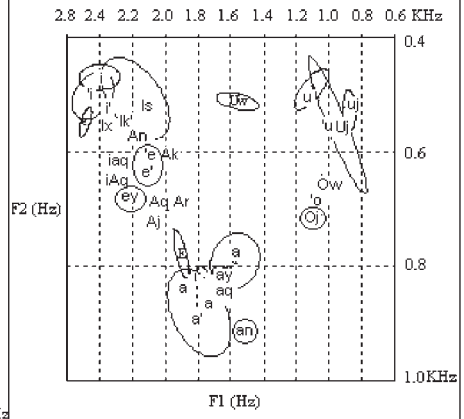
Previous categorization of Kaqchikel dialects as Mid or High RTR, or –Low ATR type was grounded in (17), (18), (21), (22), (23) and also shows up in the vowel charts in (24) and (25). These results give evidence of the position held by each phoneme in the vowel space of the language as sketched previously in (12) and (14). The symbol @ stands for the +RTR raised (ä) reflexes of Patz-HU48. Other (ä) reflexes are annotated with <A>. The uppercase I and U represent [–ATR] whereas O and E are [+RTR].[27]

27. 'V (e.g., <'a>) stands for a stressed vowel, <a> stands for an unstressed vowel, and V' (e.g., <a'>) stands for a vowel with glottal constriction.

(24) Vowel Charts 1-4: Four informants, three varieties

Vowel Chart (1) Patzicía-HU48: male therapist and farmer	Vowel Chart (2) Tecpán-Antigua-HU30: male school master and advisor in bilingual education
	
Vowel Chart (3) SJC-MU78: female farmer	Vowel Chart (4) SJC-HU62: male worker
	

(25) Vowel Charts 5-6: two informants, SJC (ATR/–Low type)

Vowel chart (5) SJC-HU52: male car driver	Vowel chart (6) SJC-MU27: shopkeeper
	

5. Some infraperceptive[28] properties of Kaqchikel TLVC

As vowel shifts have taken a strong hold upon the system, one would expect complete neutralization of duration in those modern dialects which developed substitutive parameters throughout a grammaticalized strategy. In other words, we saw that the TLVC of Quichean turned into sets of ATR and RTR constraints varying in the dialect network: a quantitative correlation of duration has become a qualitative opposition based on new markedness conditions. We should expect duration to have faded away under such circumstances, as it happened from Latin to Romance languages, which experimented with the same kind of process. However, a careful survey of segmental duration in our panel of 10 informants shows that some kind of quantitative opposition still lingers under the surface of the quantitative neutralization that is otherwise overwhelmed by qualitative grammaticalization.[29]

Mean duration in milliseconds, for such maximally syllabic nuclei as //a// and //aa// (i.e., /ä/ and /a/ in our encoding of underlying forms and (a), (ʻa), (ä),

28. To be understood as "below the level of perception."

29. See Léonard & Gendrot (2007) for a survey with Matlab of the details of length and formant shapes, showing the complexity of parameters involved in the Kaqchikel TLVC.

(äPoss), (an), (ar), (al), (an), (ar), (al), etc. as sociolinguistic variables) follows a smoothly rising line of vowel length differentiation, upwards from unstressed (a) to stressed (ʻa) (26).

(26) Mean duration of low vowels in Kaqchikel: Four varieties, 10 informants

Variety type within the DS	**Duration (milliseconds)**	**(a)**	**/ä/= //a//**	**/a/**	**/ä/ Poss. = //aa//**	**(ʻa)**
RTR Raising	Patz-HU-48	90	100	115	140	105
RTR Mid	Tecp-HU-30	80	95	100	120	125
[–Low, –ATR] Palatal	SJC-MU-78	120	125	140	170	130
	SJC-HU-62	80	90	120	150	125
	SJC-HU-52	75	110	100	110	120
	SJC-MU-27	80	135	135	150	165
	SJC-MU-25	125	125	140	135	160
	Xenim-HR-12	85	105	95	100	110
	Xenim-MR-15	115	130	115	120	120
Neutral	Sant-S-MU-19	70	85	135	105	180
All types	Mean	90	110	120	130	135

The number of tokens is given separately in (27), in order to simplify the tables and give the reader an idea of the size of our corpus.

(27) Empirical evidence: number of tokens, by informant

	(a)	**/ä/**	**/a/**	**(ä) Poss.**	**(ʻa)**
Patz-HU-48	30	77	89	32	20
Tecp-HU-30	24	34	41	26	17
SJC-MU-78	24	33	51	22	5
SJC-HU-62	42	49	72	14	21
SJC-HU-52	30	17	42	11	12
SJC-MU-27	40	30	72	30	15
SJC-MU-25	15	40	38	17	6
Xenim-HR-12	8	28	21	15	5
Xenim-MR-15	40	59	60	23	20
Sant-S-MU-19	30	48	47	25	12
Mean	28	41	53	21	13

Duration is a handy parameter for cross-idiolect comparison since it does not depend on age or gender indiosyncrasies as formants do, which makes overall comparison a matter of great caution in trying to find out correlations. A glance at the duration contrast in (26) suggests two things: (i) Duration contrast may

coexist with the tense-lax contrast, as speakers of various ages, the two genders, and from two other sub-areas of the diasystem (the RTR-Variety and the Neutral RTR-Variety), all get along with redundancy patterns (quantitative contrast +RTR as in Patzicía, ATR-RTR contrast as in Xenimakin and SJC, or neutrality as in Santiago Sacatepéquez). (ii) The older the speaker, the stronger the feature, which amounts to saying that redundancy of quantitative and qualitative features might be a kind of elaborate parameter in the Quichean DS.

These results point to a hierarchy as in (28a), converted in (28b) into an indexical way that makes the data easier to read in our comments and in (28c) according to a correlative and oppositional approach.

(28) A hierarchy of redundant duration contrast in Kaqchikel
  a. (a) 90 ms << /ä/ 110 ms << /a/ 120 << /ä/ Poss. 130 ms << (ʻa) 135 ms
  b. (a) ^{90} << /ä/ ^{110} << /a/ ^{120} << /ä/Poss ^{130} << (ʻa) ^{135}
  c. Unstressed V << Stressed V << Lax V *versus* Tense V << Lax V *versus* Tensed Lax V

Although each step does not exceed 20 ms (like unstressed (a) versus stressed (ʻa)), the mean difference between //a// and //aa// stays close to 10 ms, though it may vary noticeably within and between idiolects.

Let's now have a closer look at two columns: /ä/ = //a// on the one hand, and /ä/ Poss. on the other hand. The general trend of contrast between the two columns among the different speakers is quite high, coming close to a consensus (i.e., a grammatical consensus in the dialectal networks); e.g., the most RTR variety, Patz-HU-48, (a)^{100} strongly contrasts with /ä/ Poss.^{140}, to an amount of 40 ms. A 78 year-old female speaker from an ATR-(RTR) dialect of SJC, speaking a palatal V.Lax-dialect (SJC-MU-78), agrees with this; in this idiolect, values run at (ä)^{125} and /ä/ Poss.^{170}, therefore she invests no less than 45 ms on supporting grammaticalization of laxity (palatal laxity, in her case) through vowel length contrast. A 62 year-old craftsman from the same town (SJC-HU-62) invests even more in the bargain, with (ä) ^{90} and /ä/ Poss. ^{150}: a difference of no less than 60 ms. This drives his (ä) close to the total duration of an unstressed (a) in his own speech (80 ms). By contrast, a local driver (SJC-HU-52), does not count on duration contrast; he simply does not seem to care: (a) ^{110} = /ä/ Poss. ^{110}. Young women in SJC (SJC-MU-27 and SJC-MU-25) still cling mildly to the duration contrast, with (ä)^{135} versus /ä/ Poss.^{150} and (ä)^{125} versus /ä/ Poss.^{135} respectively.

We shall now turn to three columns: tense and stressed (ʻa), possessed stressed (ä) in nouns, i.e., (ä)Poss., and unpossessed stressed lax low vowel /ä/. The high score of (ä)Poss., close even to (ʻa), the longest nuclei of all, suggests that the lexical inputs in (9) above (//kar// > *kär*, //nukaar// > *nukar*, //xal// > *jäl*, //nuxaal// > *nujal*, etc.) are grounded on empirical evidence. A covert duration

contrast is thus competing with (or rather associated with) qualitative parameters in the DS, such as RTR, ATR-RTR, and Neutral. We can even dare say that to a certain extent, the former quantitative opposition has found in the possessive noun correlation a grammatical sanctuary to keep a toe in the system of nuclei in Kaqchikel. While neighboring linguemes of the Quichean diasystem, such as Tz'utujil, Achi, or Poqom, still maintain the Proto-Mayan vowel length opposition, Kaqchikel can be classified as a mixed type with respect to duration contrast and RTR/ATR/Neutral parameters, which both merge in a redundancy strategy. Empirical data in (26) shows evidence that (ä)Poss. nuclei are encoded as long vowels by the grammar, whereas /ä/ nuclei are much shorter; in the same way they are also qualitatively quite different through RTR–ATR sets of properties, except in the neutral type of Santiago Sacatepéquez. A hierarchy of redundant features is kept busy playing cards, variably alternating the pressure of constraints around the gambling table of the diasystem (DS) between players, according to the rules of the game displayed in (29).

6. After rainfall upon lava in the core of the diasystem

We started doing fieldwork on Kaqchikel TLVC with the idea that we might grasp covariationist shifts of the Labovian type in local norms or DS varieties, since we had good reason to suppose that Guatemalan Amerindian societies are stratified; they are highly urbanized with a wide array of occupational opportunities, in spite of rampant socioeconomic segregation. But in the first place, we had to consider that, since a written norm endowed with prestige and wide functionality is still missing to provide a normative model,[30] there is not sufficient Fergusonian diglossia yet in Kaqchikel nor in K'iche' to search for inner covariation.[31] On the contrary, we observed variation through a different perspective; throughout the diasystem, speakers are working hard at coping with subtle grammatical patterns combined with a multiplex set of phonological constraints. Functional factors still depend on universal laws for the elaboration and use of human artifacts.

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30. A functional standard does exist, thanks to OKMA, the ALMG, and other institutions working on applied Amerindian linguistics in the country, with concrete descriptive and prescriptive achievements.

31. Besides, we consider that the effect of Fishmanian diglossia (Kaqchikel versus Spanish) is probably null upon TLVC in the Amerindian language at stake; the phenomenon is totally alien to Spanish phonology and grammar, and the degrees of bilingualism observed in our informants were kept sufficiently separate in the speakers' linguistic repertoire to ensure structural autonomy of the speech forms produced.

In other words, optimal coarticulatory gestures, control of phonemic category commands, and personal style of speech all interfere in the framing of any idiolect representative of a local, ethno-cultural means of communication, as we observed here in Kaqchikel. This device, or artifact – however one calls it – that speakers work hard at making constantly functional, contributing to optimizing its typological expression for separation or interaction, is the dialect variety itself: the dialect as a member of the diasystem.

In (14) we listed four types in the Kaqchikel diasystem: (a) V-RTR Raising, as in Patzicía (HU48), (b) V-RTR Mid, as in Tecpán (HU30), (c) V–ATR Fronting /–Low, as in San Juan Comalapa and Xenimakin, (d) Neutral, slightly ATR/–Low, as in Santiago Sacatepéquez. We shall conclude that trends towards local unification in every urban center of the Kaqchikel area are as strong as those observed in urban and rural Comalapa, not giving much chance to covariation. But in spite of impressionistic allegations for the existence of various types of vowel systems (recall (5)),[32] the basic vowel shift in process in Kaqchikel is laid out in (29) and (30):

(29) The TLVC rules of the redundancy game
  a. Convert the vowel length correlation of Proto-Mayan into a tense/lax contrast alternation embedded in lexical categories implementing the correlational shift in the grammar and in the lexicon of roots and affixes, cf. (8).
  b. Infuse vowel laxity features such as RTR (in Tecpán, Patzicía and the vowel-centralizing varieties), ATR (in SJC) or neutral low merging (in Santiago Sacatepéquez) throughout the diasystem.
  c. Keep some kind of duration contrast between (ä) and (ä)Poss. as much as possible in the diasystem.

(30) *The Kaqchikel TLVC vowel-shift*
  a. High short/lax vowels become –ATR *(i > ɪ, i; u > ʊ).*
  b. Mid-vowels, if short/lax, are lowered, and therefore [–ATR] *(e > ɛ; o > ɔ).*
  c. Low short/lax vowel raising, with RTR or palatal raising (*a* > *ɐ̟* [+RTR]; *a* > *ɛ, e* [–ATR]).

In fact, the TLVC surveyed in this contribution is as simple as that; taking the right side of our binoculars to get a closer look at empirical and experimental

32. Our intention here is not to criticize the outstanding work achieved by OKMA and our colleagues from the ALMG who have done their very best to describe lax vowel allophony in Kaqchikel and K'iche'. Their descriptive work is still valuable and trustworthy, as they were native speakers and well-trained linguists. We only point out that no phonetic transcription relying exclusively on the linguist's perception can be properly accurate (cf. Ladefoged 1975: 50–142).

data, we had a chance to get to this conclusion. Some tiny clues helped us a great deal. The ATR parameter in Comalapa stemmed from noticing how high and tense (therefore, +ATR) the Kaqchikel //ee//, i.e. /e/, appeared in vowel charts. We also noticed with much interest that //e//, i.e. <ë>, and //o//, i.e. <ö>, systematically lowered in all SJC speakers, becoming [–ATR], which amounts to a chain of [–ATR] application on phonemic categories: //i// > /ɪ/, //u// > /ʊ/, //e// > /ɛ/, //o// > /ɔ/, while /ä/ in SJC regularly raised to reach an intermediate position between <e> and <ë> in the vocalic space.

As Patzicía and Tecpán clearly followed a similar trail for high and mid vowels, though relying more on RTR than ATR gesture, and differed mainly in the levels of RTR raising of /ä/, we wanted to see if the outrageously prolific annotation of lax vowels in available descriptions of Kaqchikel (cf. (4)) could be simplified. If there was a way to understand how allophonic dispersion of sonority (F1) and chromatic properties (F2, with perhaps redundant support of F3 and F4) worked, we could hope to get a much simplified overall picture. We discovered that syllabic integration of the onset and the coda did have an important role to play in conditioning the variability of reflexes, and quantified acoustic data reliably showed that this variation was easily predictable on the basis of homorganic or heterorganic place markedness conditions in the language.

The linguistic community in San Juan Comalapa did not prove stratified nor to be competing with stereotypes, markers, or any variable of a stratificational type in their native language.[33] Instead, a quantitative sociolinguistic approach to the grammatical or structural correlates of geolinguistic, typological, and stylistic variation opened the windows wide onto an unexpected set of parameters in the core of the diasystem: how an Amerindian language, or at least a non-Indo-European language of a specific type, handles semiotic balance and feature redundancy in a structural correlation (i.e., the TLVC).

Moreover, we have attempted here to grasp so-called "lax vowels" in a Quichean language empirically, relying on acoustic analysis, instead of hand notation as generally done in the available literature on these languages. This led us to address a major challenge for quantitative (socio)linguistics applied to Amerindian languages; most of the data available is still unfit, impressionistically written up, and we might say that the very structure of variables is still unclear. For instance,

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33. As already suggested, conditions of segregation on a Fishmanian diglossic basis with Spanish overcome conditions of Fergusonian diglossia between varieties of Kaqchikel and standard Kaqchikel, which does exist, but still struggles to gain more functional space and status in modern Guatemalan society. The type of stratification at work in New York City (e.g., Labov 1966) cannot be simplistically compared to the current and historical segregative policies in a rural country like Guatemala.

the TLVC in Kaqchikel turned out to be much more complex than a mere tense-lax vowel contrast. We had to take into account intricate patterns of duration contrasts to realize that the VLC (Vowel Length Correlation), its former matrix inherited from Proto-Mayan, was still somewhat active in the system. We had to enter into the intricacies of contextual variation, i.e., the properties of the coda, and its license to palatalize velar onsets in the case of uvular codas. We had to disentangle the whole array of morphological paradigms conditioning "laxity" in short nuclei, as in (8). We realized that "laxing" would be more or less grammaticalized or lexicalized throughout the 14 paradigms enclosed in the table. Nevertheless, we saw that male and female speakers of various crafts and professions and various levels of education would behave quite homogeneously within the framework of the local norm, as in San Juan Comalapa.

But there is still more to say about the consequences of the diasystemic TLVC and vowel shifts in a Minor Quichean language such as Kaqchikel. The TLVC probably started in ancient times, in pre-Columbian Mesoamerica. Summed up in a few words, our results point to very long historical continuity of phonological variables accounting for geolinguistic variation in each language and dialect continuum, rather than to recent dialect fragmentation and stratification in scattered communities.

In spite of internal wars between Mayan kingdoms, genocide and political disintegration from the *Conquista*, *reducciones*, and scattering over the country or migrating abroad, and in spite of wars waged by the postcolonial and national armies in later centuries, earthquakes erasing small towns of the size of San Juan Comalapa (see Section 1.3.), highland Mayan social and dialect networks still firmly hold on and experience linguistic changes such as those scrutinized here (vowel shifts, the structural conversion of the VLC from the Proto-Mayan period into the TLVC in modern K'iche' and Kaqchikel varieties) out of long-term historical continuity.

Though Kaqchikel, as well as K'iche' or Mam, are now well-described by current descriptive and applied Mayan linguistics, the phonetics and Labovian sociolinguistics of Mayan languages still await further work. Committed with great care to empirical data, Labovian methodology has a lot to say, beyond the quest for understanding stratification or psycho-social variation, to Mayanists, archaeologists, linguists, and bilingual school teachers. The quantitative phonetic study we attempted to report on here, according to basic principles of phonology and inflectional morphology, reaches the conclusion that the apparently intricate system of TLVC can be described simply, and that its complexity probably lies below the level of perception as a bundle of both segmental and prosodic redundant features. From an articulatory and category perception viewpoint, the diasystem-

ic constraints and basic laws of the TLVC vowel shift are actually quite simple, as mentioned in (13), (29) and (30).

Lava, like maize, has only four colors deep inside the core of the volcano.

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CHAPTER 8

Phonological features of attrition

The shift from Catalan to Spanish in Alicante

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This paper examines phonological attrition from a variationist viewpoint in an urban speech community where the target language is a marginalized one. This language is Catalan, the major speaking area of which is dominated by Spanish. Fieldwork is based on a sample of 69 subjects representing the small number of speakers born in the city who learned Catalan by engaging in natural meaningful communication. In the past, the phonological level of the grammar had remained the most faithful to the Catalan heritage in local speech. Recently, however, this component of grammar has become the most affected by attrition, as shown in the vocalic and consonantal systems, which are now converging from Catalan to Spanish.

Introduction

Dressler (1972) and Dorian (1973) were responsible for initiating discussion of *language death,* and since then studies about it have multiplied. The two main perspectives which inform these studies are social status and linguistic structures (Dorian 1989). It is this latter approach which concerns us in the present study, and it involves analysis of the disintegration or *attrition* of the structures of a recessive language (Andersen 1982). An additional theoretical distinction must be made among studies focusing on linguistic structures, as the term attrition is applied as well to aphasic research (Seliger & Vago 1991).[1] However, it is not the individual's health which concerns us here, but the health of the language in a minority situation. This "language disease" occurs in multilingual speech communities where a failure to transmit the former speakers' first language (L1) between consecutive generations gives rise to a new class of speakers with low proficiency

1. There is another trend in the study of attrition: the oblivion of languages explicitly learned (Lambert 1989; Ellis 1994).

in this language. These are called *semi-speakers* (Dorian 1977), and in nearly all cases their parents did not speak to them in their traditional language (L1) but rather spoke to them in the new dominant language. As a consequence, these semi-speakers only have listened passively to the recessive language, which has remained as their L2 (Andersen 1989: 386). In these conditions, as older generations of fluent speakers disappear, the traditional language – as spoken by semi-speakers – is characterized by attrition.

However, attrition starts before semi-speakers have appeared; the process begins among their forebears, who first learned the dominant language. From this point the initial full range of speech situations that characterized the older language decreases, until *stylistic shrinkage* (Campbell & Muntzel 1989: 195) or *monostylism* (Dressler & Wodak-Leodolter 1977: 36) is manifested by the generations preceding the appearance of semi-speakers. This implies that the other contextual styles would be implemented in the new dominant language, which is perceived more and more as "their other language," alongside the traditional one. These conditions favor the massive transfer of units and structures from one language, which we may refer to as higher (H), to another, described as lower (L).[2] That is to say, bilingual speakers not only use the H language in high styles but also use small integrated pieces of H in their discourse in the L language. Moreover, they sometimes codeswitch (metaphorically or situationally) with great skill when required. In the end, when it is no longer considered necessary to bring up the young with the L language, the first generation without the ancestral language arises. It is at this point that we begin referring to language death and attrition (Montoya 2000: 16–18).

Typology of the structural changes

The present study is concerned with phonology, but before we move on to our main area of interest, it will be useful to fix our context with the aid of Dressler (1988), Campbell & Muntzel (1989) and Clairis (1991), who show the variety of ways in which the other main components of grammar are manifested in a dying language.

The morphological component shows the most symptoms of attrition; the inflections show a regularization and reduction of paradigms, and the marking of number, gender, and case tend to disappear. It is in the lexicon that the influence of the dominant language becomes most evident.

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2. This distinction is inspired by the similar one proposed by Ferguson (1959).

The syntactic component exhibits the shift from synthetic to analytic verbal forms, the disappearance of the passive voice, the obligatory SVO order after elimination of the inflection, and loss of subordination.

The structural changes that take place in the phonological component, the most widespread sign of attrition in the Alicante speech community, consistently show the following characteristics among other languages around the world:

a. The direction of the changes is always from the subordinate towards the dominant language, which results in asymmetrical *convergence* of the two languages involved in the conflict (Poplack 1995).
b. Consequently, most of the changes are *externally induced* (Seliger & Vago 1991: 7), but when they are *internally induced*, this is referred to as analogical leveling, or generalization of the rules affected (Silva-Corvalán 1991: 152).
c. The previous point means that changes tend to be simplifying, implying a reduction in inventories or in the distribution of the units affected, although some authors criticize the validity of the concept of *simplification* (Holloway 1997: 47–48).
d. The universally unmarked forms are likely to dominate the marked ones (Seliger & Vago 1991: 13).
e. The amount and speed of changes is superior to those in healthy languages. A multiplication of allophones in free variation emerges in contrast to the reduction of allomorphy (Giacalone 1983: 496, 501; Clairis 1991).
f. Some changes may be *nonce loans* in the individuals' speech and so cannot be generalized to the whole community or social group (Sankoff, Poplack & Vanniarajan 1990; Turell 1994).

Not everything, however, is as clear as it appears. On the one hand, the problem of multiple causation makes it difficult to decide whether a change comes from the dominant language or corresponds to an internal rule (Campbell & Muntzel 1989: 188; Poplack 1995: Part 3). On the other hand, healthy languages also tend to change to unmarked forms (Labov 1994: 17). In general, the Labovian framework of linguistic change, confirmed only in healthy languages, is valid also in the study of threatened languages, but only if we account for some differences, mainly in the independent variable of social class, whose predictive role in variation may be replaced by factors related to language attrition (King 1989: 139).

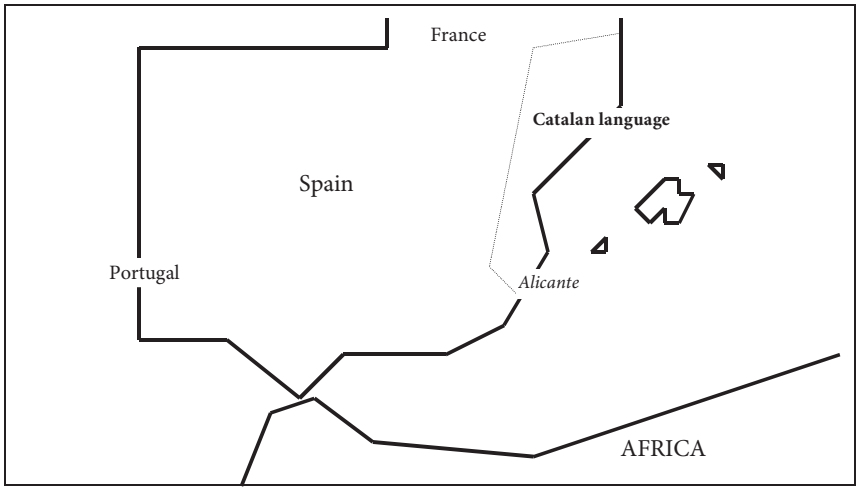

Figure 1. Geographical location of the Catalan language and the city of Alicante

The speech community: Alacant

Contrary to the general rule in case studies of language obsolescence, the speech community which we are discussing is not a rural area where the remains of a language which was more extensive in the past are still to be found (Dorian 1986). Our case study concerns a city in the extreme south of the Catalan-speaking area and the Valencian region,[3] Alicante (*Alacant*, in the vernacular spelling and pronunciation), with a population of 269,871 (see Figure 1). Only 27% are able to speak the traditional language of the city, that is, Catalan. In addition, only half of these Catalan speakers use Catalan as their family language. Everyone in the city has high proficiency in Spanish, especially the local dialect of the Murcian region.

The present situation has its roots in the 19th century, when upper class families in the city center began to interrupt the transmission of Catalan to their children. In the present century, that fashion extended to the lower classes and the rest of the city (Montoya 1996). Today Catalan has become a residual and marked language in the city and, moreover, a speech without prestige. In addition, those who do speak Catalan often do not follow the traditional norms of the original language.

3. The other main regions in the Catalan-speaking lands are Catalonia and the Balearic Islands.

Fieldwork

Fieldwork is based on a sample of 69 subjects, representative of the approximately 20,500 Catalan speakers born in the city who had learned Catalan by engaging in natural meaningful communication, that is, outside academic settings (see Ellis 1994), all of them above 30 years old. The social factors included are sex, age, skill in Catalan, and residential area. Class was excluded because the upper classes are no longer Catalanophones, as noted above. The two different kinds of speakers identified (fluent speakers and semi-speakers) correspond with those studied in the literature of language death, as we have seen. The semi-speakers are differentiated from fluent speakers by the linguistic features explained below, as well as by several morphological features. They are usually defined by the fact that their parents did not speak to them in Catalan during childhood. Younger speakers are usually more likely to be semi-speakers. Table 1 and Figure 2 show the distribution of the sample.

Table 1. Distribution of the sample of speakers

Sex		**Age**	
Men	40	30–39	4
Women	29	40–49	9
		50–59	15
Kind of speakers		60–69	19
Fluent speakers	25	70–79	18
Semi-speakers	44	80+	4

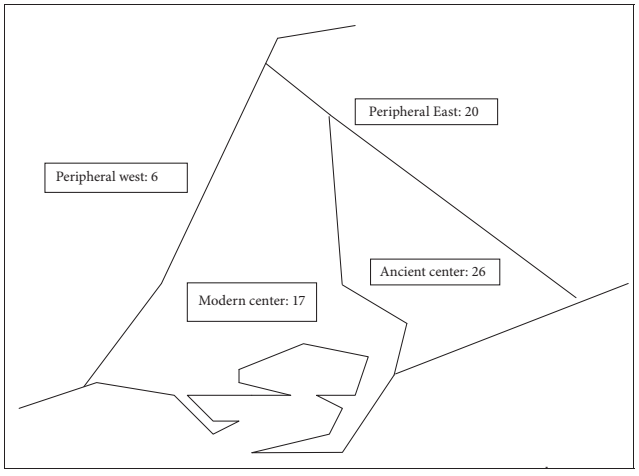

Figure 2. Map of the residential areas of the city of Alicante with the subjects' distribution

The interviews consisted of a life story in which free narratives were produced in order to elicit casual speech, the only style these speakers can manage in Catalan. The statistics program used to count the tokens and then calculate the probabilities of the variable rule was GoldVarb 2.0 (Variable Rule Analysis for the Macintosh™).[4]

The problem of gathering language data in dying languages[5]

The local Catalan of Alicante has been described repeatedly since the dialectologist Alcover (1908–1909) visited the city for the first time in 1902. Research on local speech continued until the end of the sixties, up until the time of the fieldwork for the *Atles Linguistic del Domini Català* 1967 ("Linguistic Atlas of the Catalan Dominion" [ALDC], Veny & Pons 2001–2006), but subsequent researchers wishing to record interviews had to look for speakers in the rural area surrounding the city. For example, we may draw attention to a statement made by Colomina (1986: 299):

> In the city of Alicante it proved impossible to find speakers aged between twenty and thirty with Catalan as their mother language, and I had to interview a woman from *el Palamó* who was 49. [translated from Catalan]

The sociolinguistic setting described above suggests that Catalan speakers had become fewer and older. Despite these difficulties, however, a more accurate sampling technique still provided us with a sufficient number of speakers to describe the Alicante linguistic variety (see Montoya 1996).

Changes in the local phonology

The phonological level is the level that has remained the most faithful to the Catalan heritage in the local speech of Alicante during the centuries of bilingualism with Catalan as L1 and Spanish as L2 (Montoya 1996: 41–53). Now, however, this component of grammar has become the most affected by attrition, as described below in detail.

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4. The authors are David Rand and David Sankoff ("A Variable Rule Application for the Macintosh™"), from the *Centre de Recherches Mathématiques, Université de Montréal*.

5. I take this title and the problem set out here from Dorian (1986).

The vocalic system

Catalan has two vocalic subsystems. One, with four degrees of opening, is produced in the stressed position, while the other, which has only three degrees of opening, is produced in unstressed position.[6] When the stressed subsystem is reduced to the unstressed subsystem, then the semi-open [ɛ] and [ɔ] disappear. Consequently, the monosyllabic (stressed) primitive words *verd* [vɛɾt] ('green') and *pot* [pɔt] ('pot, jar, can') change their semi-open vowels to semi-closed ([e] and [o]) when they take a derivative form: *verdura* [veɾˈðuɾa] ('vegetable'), *potet* [poˈtet] ('a little pot, jar or can'). (See the two vocalic subsystems of Catalan in Figure 3.)

i						u		i				u
	e				o				e		o	
		ɛ		ɔ								
			a							a		

Figure 3. Stressed and unstressed vocalic subsystems of (Alicante fluent speakers) of Catalan

Alicante semi-speakers of Catalan, however, tend to lose this reduction rule, and so the trend is towards a single vocalic system, which coincides with the Spanish system. The change is not abrupt, as we have learned from Labov (1994), because we can observe a range of variability: from the more fluent speakers, who have the complete subsystems, to those at the lower end of the scale, who always lose the two semi-open vowels (in the middle we have the diverse kinds of semi-speakers, those who sometimes lose the semi-open [ɔ]). Rules 1 and 2 below represent this change in course:

Rule 1: (ɛ) → <e>
Rule 2: (ɔ) → <o>

So in the semi-speakers' speech, *verd* and *pot* are frequently produced as [veɾt] and [pot], and consequently the derivative words do not change their vowels: *verdura* [veɾˈðuɾa] and *potet* [poˈtet].

We can observe a continuum of variants of the semi-open vowels (between [ɛ] and [e] and between [ɔ] and [o]). The more non-fluent the speaker is, the more closed his or her variants are. But while this is the prototype, quantitative analysis

6. This is only strictly true for Western Catalan. In the other dialect, Eastern Catalan, there is one more vowel, the schwa, and the unstressed subsystem is shorter. However, both dialects have in common the possession of a double vocalic subsystem.

Table 2. Probabilities of the close variant [o] of the variable (ɔ) by the kind of speakers and sex

Kind of speaker		Correlated with	Sex	
Fluent speakers	.39	→	Woman	.45
Semi-speakers	.53	→	Men	.52

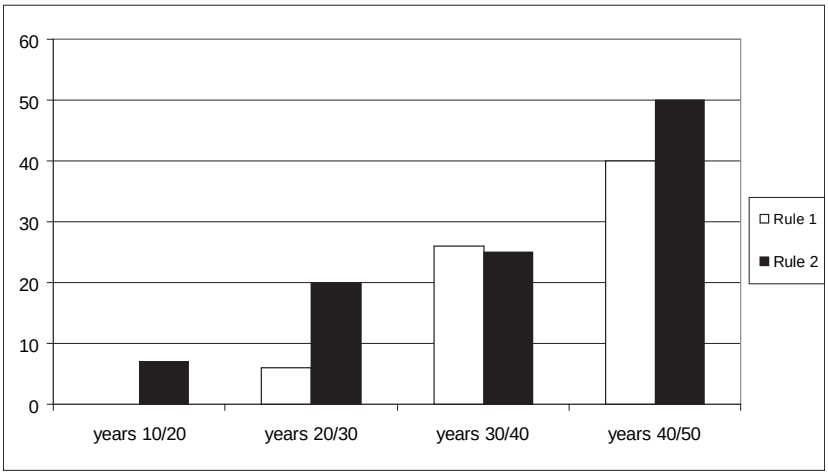

Figure 4. The closing process of the two vowels across the years of socialization of the individuals: Percent of application of Rules 1 and 2 as a function of socialization period (1910–20, 1920–30, 1930–40, 1940–50).

shows that sex and age are social variables which must also be taken into account; the men and the younger individuals have the more closed variants. Table 2 shows the probabilities of these factors for the application of the variable Rule 2 (i.e., realization as [o]).[7] Figure 4 exhibits the percentages of closing of the two vowels across the years of socialization (i.e., language acquisition) of the subjects. The periods of socialization (1910–1920, 1920–1930, 1930–1940, 1940–1950) show that age is correlated with fluency.

As far as structural aspects are concerned, this rule is only modified by vocalic harmony, perhaps due to functional utility. So, in the case of [ɔ], the more frequent of the two vowels examined, some semi-speakers tend to maintain this vowel in the words affected because of the repetition of the same vowels: *cosa* [ˈkɔzɔ] ('thing'), *dona* [ˈdɔnɔ] ('woman'), *obra* [ˈɔβɾɔ] ('building site'), *porta* [ˈpɔɾtɔ] ('door'), *sogra* [sɔɣɾɔ] ('mother-in-law'), *volta* [ˈvɔltɔ] ('time, occasion'). But when they do not have this pattern, the [ɔ] may become [o], as in *bo* [ˈbo]

7. For the variable (ɛ), there were not have enough tokens to calculate probabilities.

Table 3. Percentages of the close variants of (ɛ) and (ɔ) correlated with vocalic harmony

	Words with harmony	**Words without harmony**
(ɛ) realized as [e]	0 % [0/95]	41 % [111/274]
(ɔ) realized as [o]	6 % [13/235]	38 % [528/1405]

('good'), *coses* ['kozes] ('things'), *home* ['ome] ('man'), *jocs* ['d͡ʒoᵏs] ('games'), *obrin* ['oβɾin] ('they open'), *pobles* ['pobles] ('villages'). See Table 3.

Despite this trend, we may also find harmony with the closed vowel (*dona* ['dono]) or a lack of harmony: ['oɾta] ('vegetable garden').

Apart from cases of harmony, the semi-speakers show a majority of closed variants: *astò* [as'to] ('this'), *oli* ['oli] ('oil'), *ou* ['ow] ('egg'), etc, against a few cases of open variants: *nom* ['nɔm] ('name') and some others. The simple alternation of the two variants is also possible:

> *pues si que m'anrec**o**rde* ([o]) *algunes cosseteh pero de p**o**r* ([ɔ]), *de p**o**r* ([ɔ]) *perqué io li tinia pues molta p**o**r* ([o]) *as bombes (...) no, no m'ha jubilat: tinc cinquanta-n**o**u* ([ɔ]) *anys*
>
> [well, I do **remember** some little things but about being **frightened**, **frightened** because I was very **scared** of the bombs (...) no, I haven't retired: I'm fifty-**nine** years old]

Hypercorrection is additional evidence for the process of closing. In the following example, the word *zona* ('zone') is traditionally pronounced with a closed [o], but a semi-speaker pronounces it with an open [ɔ]:

> *Havia allí una colonia molt gran d'exa z**o**na* ([ɔ])
> ['There was a very big colony from that **zone**']

The reintroduction of the phoneme /-ɾ/

In Catalan the phoneme /-ɾ/ at the end of the word is phonetically produced in two geographically distributed variants; the alveolar flap [-ɾ] is common in the Valencian region (the continental south) while the phonetic zero (ø) is common in the rest of the territory: *dir* [diɾ] / [di] ('to say'), *fer* [feɾ] / [fe] ('to do, to make'), *flor* [flɔɾ] / [flɔ] ('flower'). Thus the Valencian community coincides at this point with standard Spanish: *decir* [de'θiɾ] ('to say'), *hacer* [a'θeɾ] ('to do, to make'), *flor* [floɾ] ('flower'), etc. But not all the Valencian areas produce this sound. The exceptions are the extreme northern regions that are contiguous with the rest of

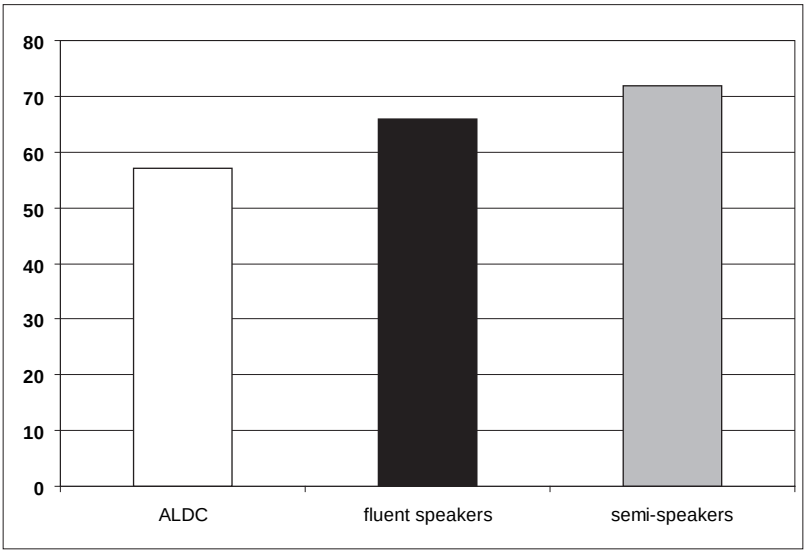

Figure 5. The rising trend of the pronunciation of the alveolar flap, inversely related to the fluency of Catalan speakers: % realized as [-ɾ]

the territory (Catalonia and the Balearic Islands) and the extreme southwest, near Alicante.

The pronunciation [-ɾ] has always been ascribed to Alicante (Alcover 1908–1909: 276). But according to Veny & Pons (2001–2006) and our own fieldwork, the articulation of [-ɾ] in the local dialect is a variable rule. The hypothesis would be that the trend of variation extends from non-articulation, as in the adjacent Valencian southwest area, to the articulation of [-ɾ], as in the rest of the Valencian region.[8] The formulation of the corresponding rule will be the following:

Rule 3: (ø) → < ɾ >

Veny & Pons (2001–2006), in their analysis of the 1967 ALDC, show only 57% pronunciation of [-ɾ]. Our results show a significant increase of this pronunciation: 70% occurrences of [-ɾ]. Within our survey, however, we have found a difference depending on the kind of speakers. While our fluent speakers show 66% pronunciation of [-ɾ], a score closer to the ALDC (a quarter of a century before), our semi-speakers have 72%, increasing the difference from the ALDC. Figure 5 shows this increasing trend.

8. We follow the hypothesis of Colomina (1985: 127–137) that the presence of [-ɾ] in the Valencian region was reintroduced at the beginning of the modern period, having been lost one or two centuries before. So this reintroduction would still be in process in Alicante.

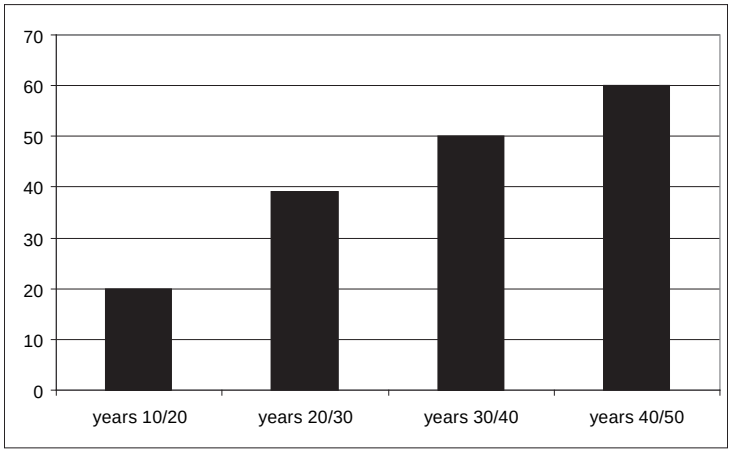

Figure 6. Relation between years of socialization and articulation of the alveolar flap: % realization as [-ɾ]; years of socialization given in the following increments: 1910–20, 1920–30, 1930–40, 1940–50

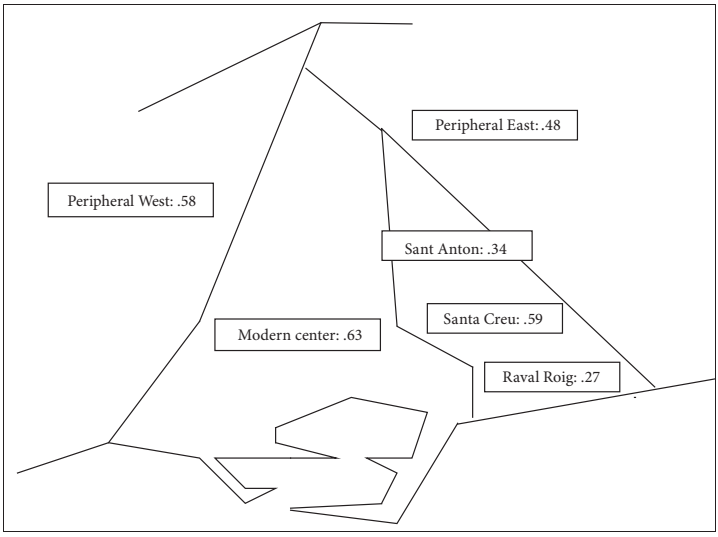

Figure 7. Probabilities of the articulation of [-ɾ] in the different urban areas of the city of Alicante

As in the analysis of the vocalic rules above, the semi-speakers are mainly younger than the fluent ones; this points to generational stratification and indicates the future trend of the variable rule (see Figure 6).

Similarly, the urban areas first hispanicized in the city (the modern center, *Santa Creu* (in the ancient center) and the Peripheral West (Montoya 1996))

present higher indexes of [-ɾ] articulation. On the other hand, urban areas where the Catalan transmission was interrupted in more recent times (the Periphereal East, *Sant Anton*, and, especially, *Raval Roig*) maintain the more traditional pronunciation without [-ɾ]. See Figure 7.

We can now examine the behavior of the rule distributed in the following linguistic contexts with some examples, with and without [-ɾ], elicited from the interviews:

1st context: infinitive plus clitic pronoun

dir-li a una persona	[ˌdiɾli a una peɾˈsona]	'to tell a person'
educar-los	[eðuˈkaɾlos]	'to bring them up'
alçar-me	[alˈsame]	'to get up'

2nd context: infinitive inside a phrase

quedar viuda	[keˌðaɾˈviwða]	'to be left a widow'
anar a escola	[aˌnaɾ asˈkɔla]	'to go to school'
llegir el periòdic	[ʎeˌd͡ʒil peˈɾjɔðik]	'to read the newspaper'

3rd context: infinitive at the end of a tone group phrase

pegaven a volar	[peˌɣaven a voˈlaɾ]	'they left'
me se va morir	[me se ˌva moˈɾi]	'he died'

4th context: not verbs (mainly nouns)

darrere del sopar	[daˌreɾe ðel soˈpaɾ]	'after dinner'
alredeor d'ell	[alreðeˌoɾ ˈðeʎ]	'around him'
el carrer Major	[el kaˌre maˈd͡ʒo]	'High Street'

Table 4 shows the percentages for each linguistic context both from ALDC and from our survey, whose speakers are classified as fluent speakers and semi-speakers.

There does not appear to be a regular trend between the columns (especially in the 1st and 4th environments), but the percentages hide the fact that higher frequencies of occurrences are found in the 2nd and 3rd contexts. The 2nd context offers the most regular trend to be observed in the table because there are constant and significant increases between one group and the next (from 25% in the ALDC up to 83% in the semi-speakers). And in the 3rd context, we can see the

Table 4. Percentages of pronunciation of [-ɾ] in Alicante according to each source

Linguistic contexts	ALDC	Our survey: fluent speakers	semi-speakers
1st	19% [3/16]	5% [2/37]	22% [22/98]
2nd	25% [2/8]	68% [135/200]	83% [315/378]
3rd	65% [30/46]	84% [42/50]	86% [103/120]
4th	84% [16/19]	79% [62/78]	66% [118/178]

highest indexes in the reintroduction of [-ɾ]. Since this higher use of [-ɾ] reduces the contrast between Catalan and Spanish, we can relate this increase as a new sign of Catalan attrition.

Consonantal reduction

The semi-speakers show several forms of consonantal reduction following the Spanish pattern in general and, in particular, the Murcian sound pattern, a Spanish dialect closer to the Catalan of Alicante. This reduction shows two main trends:

a. Loss of items of the Catalan inventory (preceded by a reduction in their distribution)
b. Approximation to Spanish phonotactics in the syllable coda

The loss of items of the Catalan inventory affects the labiodental /v/, the alveolar /z/ and the palatals /ʎ/ and /d͡ʒ/. Although the change from /v/ to /b/ is already extended to most of the Catalan speaking areas, Alicante had previously been an exception to this trend. Some instances are *vella* ['beja] ('old', fem.), *volem* [bo'lem] ('we want') and *vam vindre* [ˌbam 'bindɾe] ('we came'). The loss of /z/ implies a shift to the corresponding voiceless /s/, a shift which occurs more frequently in the link between words, as in *dos anys* [do 'saɲt͡ʃ][9] ('two years'), than within a word, as in *mesureta* [mesu'ɾeta] ('little measure'). Both are voiced in traditional Catalan, respectively [do 'zaɲt͡ʃ], [mezu'ɾeta].

However, the most important reduction in the inventory of Catalan phonemes occurs in the palatal subsystem, where, out of the six phonemes of the fluent Alicante speakers (the very palatal /ʎ/, /j/, and /ɲ/, and the postalveolar /d͡ʒ/, /ʃ/, and /t͡ʃ/), the semi-speakers only have four, leaving out /ʎ/ and /d͡ʒ/ and retaining only /ʃ/ of those which do not exist in Spanish. The result is that the distribution of /ʎ/ and /d͡ʒ/ in the vocabulary is replaced with /j/ in both cases, as can be seen schematically in Rule 4.

Rule 4: (ʎ)
(d͡ʒ) → <j>

9. The final /-s/ becomes [-t͡ʃ] after [ɲ-].

Table 5. Probabilities of linguistic factors on the delateralization of (ʎ)

At the beginning or in the middle of the word	.73
At the end of the word	.13
Preceding the plural morpheme	.02

Instances of the reduction of (ʎ)[10] are more common: *cistelles* [sisˈtejes] ('baskets'), *filla* [ˈfija] ('daughter'), *dilluns* [diˈjuns] ('Monday') (instead of [sisˈteʎes], [ˈfiʎa], and [diˈʎuns]). However, they are constrained by both the position in the end of the word (*ell* [eʎ], 'he'; *conill* [koˈniʎ], 'rabbit') and preceding the plural morpheme (/-s/ palatalized in [-t͡ʃ]): *ells* [eʎt͡ʃ] ('they'), *fills* [fiʎt͡ʃ] ('sons, sons and daughters'). Table 5 displays the probabilities of the delateralization of (ʎ) depending on the linguistic factors.

The reduction of /d͡ʒ/ is more frequent among the younger semi-speakers. Examples include:

major [maˈjoɾ] 'main, larger' (instead of [maˈd͡ʒoɾ])
fregit [fɾeˈjit] 'fried' (instead of [fɾeˈd͡ʒit])

Another reducible trend in /d͡ʒ/ is also possible: the change to [t͡ʃ]. But this is more uncommon, contrary to what might be suggested by other Catalan zones such as Central Valencia, where this change occurred three centuries ago (Sanchis Guarner 1936). Examples of this change in the speech of some Alicante semi-speakers are *germans* [t͡ʃeɾˈmans] ('brothers, brothers and sisters') or *ajuden* [aˈ t͡ʃuðen] ('they help').

The approximation to Spanish phonotactics in the syllable coda shows, on the one hand, a convergence with the Spanish Murcian dialect, where the final /-s/ is weakened, aspirated or lost, and, on the other, a simplifying process of plosive consonants and consonantal clusters in the non-plosive position. The first case is manifested in the following continuum: /-s/ → [ˉˢ] → [ˉʰ] → [-h] → Ø, the last being the rarest. Consider this utterance from a non-fluent speaker:

és per una des coses que més m'ha agradat
[eʰ peɾ una ðes ˌkozeʰ ke meʰ maɣɾaˈðat]
'it is because of one of the things which I most liked'

There are four realizations of /-s/: three semi-aspirated and only one maintaining the habitual [-s] in Catalan. We also find the related phenomenon of hypercorrection. Another subject said *deus* instead of *deu* ('ten') and *taxis* instead of *taxi*:

10. The only ones of this section that we are going to analyze quantitatively.

*per axó dic que as **deus** anytx ya estaba trebayant (...) el xiquiyo ahora s'ha possat a trebayar en un **taxis***
'that's why I say I was already working when I was ten (...) now the child has begun to work as a taxi driver'

The process of simplification of consonants in the implosive position weakens or elides the plosive consonant at the end of the word, particularly the /-t/: *eda**t*** [eˈðaᵗ] ('age'), *amista**t*** [amisˈta] ('friendliness'), *mari**t*** [maˈɾi] ('husband'), *no pot ser* [no ˌpo ˈseɾ] ('it couldn't be'). With regard to clusters in the same position, the units affected are the final consonants of the words inflected in the plural, again weakened or elided: *jo**cs*** [d͡ʒoᵏs] ('plays'), *poble**ts*** [poˈβleᵗs] ('villages'), *ami**cs*** [aˈmis] ('friends'), *reunio**ns*** [reuˈnjos] ('meetings'), etc. Some semi-speakers maintain the /-s/ of the plural morpheme as a way of showing a minimal awareness of this grammatical marker. However, other semi-speakers lose the plural morpheme instead of the final consonant of the lexeme, which has no morpho-syntactic value: *tot**s** es any**s*** [ˌtot e ˈsaŋ] ('every year'), *une**s** man**s** que tenia* [unez ˌmaŋ ke teˈnia] ('the hands he had'), etc.

Conclusion

A particular case has been considered, one of many, in which the features of linguistic attrition clearly appear. The grammatical component examined here, phonology, is the one which most clearly shows the signs of attrition in the dying language of the Alicante speech community. The three general features reviewed in the non-fluent Catalan spoken in Alicante (the 7 units of the vocalic system which tend to be reduced to 5 units, the increasing reintroduction of [-ɾ] against the local norm, and consonantal reduction) match perfectly with the typology of structural change which has been reviewed in global terms:

1. The direction of the changes is always from the subordinate language (Catalan here) towards the superordinate one (Spanish), which represents a convergence between the languages involved (from Catalan to Spanish). All the cases studied show the same direction.
2. Most of the changes are externally induced (from Spanish) or involve simplification (vocalic and consonantal reductions) and generalization (the rule of reintroduction of /-ɾ/).
3. Unmarked forms are prevailing over marked forms (the vocalic system of 5 units instead of 7 units and the change from the syllabic pattern CVC(C) to CV are both more common in the languages of the world).

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CHAPTER 9

Sociophonetic variation in urban Ewe[1]

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Due to fast-paced urbanization and rural exodus, speakers of different dialects of the Ewe language are thrown together in Lome, the capital city of Togo. Using various theoretical approaches that attempt to address such phenomena, I provide a quantitative analysis suggesting that urban Ewe in southern Togo is undergoing processes of leveling and simplification. I investigate the use of bilabial fricatives, alveolar affricates, and reduplication (as dependent variables) to show that ethnicity, community setting, and gender are influential factors in Ewe language variation in southern Togo.

1. Introduction

Urbanization as a sociodemographic phenomenon in Africa is relatively recent, but it is expanding to an unprecedented extent on the continent.[2] Urbanization rates in Africa rank among the highest in the world. Projections show that by 2025, more than half the African population will be living in cities, and during the last quarter of the current century, the urban population will grow twice as fast as the non-urban population, possibly reaching half a billion people.[3]

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1. The research in this analysis was made possible by funding granted by LLACAN UMR 8135 – CNRS (Villejuif-France). I would also like to thank all the people who have helped at various stages of development, especially Prof. Bernard Caron, Prof. Kossi Antoine Afeli, Prof. John Aglo, Prof. Desiré Baloubi, Prof. Hounkpati Capo, Kekeli Akple and the reviewers at Michigan State University. I alone am responsible for the remaining shortcomings. Special thanks to Dennis Preston for his assistance with the analysis.

2. For this paper I define urban sprawl as "an undesirable form of development due to loss of open space, increase in traffic congestion and decrease in neighborhood aesthetics" (Stoel 1999).

3. Source: Regional Overview. (Abstracted from: World Bank Regional Reports – Africa Region, Spring 2001). From http://web.mit.edu/urbanupgrading/upgrading/case-examples/overview-africa/regional-overview.html#Anchor-47857. Accessed on 9/04/2007.

It has been widely shown that language change is influenced by dialect contact situations. Urban sprawl involves social consequences on many levels, and linguistic consequences are by no means the least significant. The spread of urbanization and the high rate of in-migration lead to the increase of dialect contact within the main cities.[4] According to Trudgill (1986, 1998), Trudgill et al. (2000), Jeff Siegel (1985), Kerswill & Williams (2000), and other studies, when dialects come in contact in urban areas and speakers of different dialects are in situations of frequent interaction, similar linguistic processes take place:[5] koineization, dialectal leveling, and reallocation.

Togo is a West African country that is not very different from the rest of the region or even from other developing countries. In 2005, the Togolese population reached 5,212,000 people, 35.1% urban.[6] Most of these urbanites live in Lome, the capital city, which has a population of 1,200,000. Even though French is the official language of Togo, Ewe is spoken as a native language by 1,433,419 people in Togo, according to *Ethnologue* (1996). It is a lingua franca for the minority ethnic groups in the country and is used in the media. For historical reasons, Ewe prevailed as a language of wider communication. Most of the Ewe language speakers do not belong to the Ewe ethnic group. As Rongier notes:

> Surveys confirm that Ewe is the main African language of wider communication in Togo. It is easy to find Ewe speakers hailing from the areas under investigation. In non Ewe-speaking areas, Ewe is the second language in the markets. It seems well accepted by the population and is even regarded as indispensable.
>
> (1995: 49–66, my translation)

As the main local language in Togo, Ewe is spoken as an in-group variety as well as an out-group variety. Using the typology defined by Stewart (1968) and Ferguson (1971), Ewe will be defined as: Ewe = Lmaj (S – w – s – e – g – r).[7]

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4. The term in-migration is used here for migration trends taking place within a given country (or a given region), i.e., mainly from provincial and rural areas to cities.

5. However, in Siegel's case this may not necessarily be an urban setting.

6. Compared to 23% in 1980 and 25% in 1981. Sources: Recensement Général de la Population et de l'Habitat of 1981 and L'état du monde 2005, L'annuaire économique géopolitique mondial. Editions La Découverte, 2004, Paris.

7.

Lmaj	=	major language
Lmin	=	minor language
S	=	standard language
o	=	official language
w (wide)	=	language of wider communication
e	=	language of education

Numerous dialects are gathered under the umbrella term "Ewe," so the challenge is to be able to identify those dialects or varieties. There are many different classifications (see Capo 1988: 17–32). Rongier observes that:

> In Ewe regions, the language often changes drastically from one place to another, which gives rise to the distinctions between varieties such as *aŋlɔ̃, agu, wacitado, wací-Hwèno, danyi, kpessi, guin [gɛ̃], aja, evedomegbe* (inner country Ewe), etc. We haven't found two places where speakers have exactly the same modulation rules, the same realization of phonemes, or the same morpho-syntactical structures. Moreover, no recorded dialectal variety is the exact replication of the standard Ewe that came out of Ghana. (1995: 49–66, my translation)

The existence of an urban Ewe has long been recognized. Capo (1988: 122) took the lead by identifying an urban "Vhe" (Capo's term for Ewe).[8] Aglo (2001: 45) calls it a heterogeneous mix of mutually intelligible idiolects influenced by the phonological and morphosyntactic systems of each speaker's mother tongue. According to Rongier (1995: 55), it is a mix of proper Ewe and *gɛ̀gbě* [gɛ̀]. [9] The similarity of these descriptions is that they insist on the mixed characteristic of urban Ewe. As the capital city of Togo, Lome has always been a city where people from all over the country come to settle permanently. Needless to say, language and dialect contact have always been intense. In this urban environment, the ongoing contact between different varieties of Ewe gave birth to a new dialect. This urban variety is a koine that has the features of some of the Ewe dialects that were involved in the mix in Lome.[10]

Like most African capital cities, Lome is multicultural and multiethnic. People from different ethnic groups and various social backgrounds interact in the same geographic space, making African cities real cultural melting pots. Many

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i	=	international language
g	=	group or tribal language
V	=	non standard national or vernacular language
Spc	=	language with special status
s (school)	=	language taught as a subject in school
C	=	classic standard language no longer used as a living language
r	=	language used for religious purposes.

8. Even though he referred to urban Ewe as a variety spoken in Madina (a suburb of Accra, Ghana), he made it clear that it is used as a language for easy communication, which is the primary role of a koine.

9. This is a dialect spoken in South East Togo.

10. Ewe has also heavily borrowed lexical items and morphology from Western languages, but this is beyond the scope of this paper.

African cities are multilingual, but there are some other situations in which a major African language is used as lingua franca; Lome is one such situation. In such situations, when there is dialect contact, there are different varieties of the same language used by different people in different situations. This raises the now well-known question of "who speaks what to whom and when." This chapter is only concerned with attempting to provide an answer to "who speaks what." Consequently I must warn the reader not to expect much from "to whom and when." This research is meant to be quantitative, and, in my opinion the answer of "who speaks what" is more readily quantifiable than the second part of the question.

While Labovian methodology has been groundbreaking for American sociolinguistics, it is, however, not flawless. Because it relies too heavily on socioeconomic class as a primary independent variable, the applicability of this methodology to non-Western languages is questionable. Sociologically speaking, the paradigm by which society is stratified by class is not universal. Milroy correctly observes:

> This procedure obviously does reflect social reality to a certain extent and is a sensible way of ordering large amounts of data (…). But we must not lose sight of the fact that the groups we end up with by segmenting our scale – such as 'lower class,' 'working class,' 'middle class' – do not necessarily have any kind of objective, or even intersubjective, reality. (1987: 14)

In most African countries, trying to establish a theory that reduces society to a set of discrete socioeconomic classes is bound to fail. From a heuristic point of view, it is interesting to test the relevance of the Labovian methodology in a non-Western setting and for indigenous languages. Considering its sociolinguistic situation, Lome is an interesting place to run this investigation. Rather than focusing on social class or economic status, this research uses ethnicity, community membership and gender as independent variables.

2. Prior literature

Dialect contact in Africa is linked to in-migration and urban contact. Trudgill (1986, 1998) examines the results of such contact in cities in general. As for research on African urbanization specifically, the first major discussion of this topic was given by Richardson, who tried to find "(...) some general system or systems by which tribal languages are urbanized" (1963: 145). Richardson was followed by the French Africanist, Gabriel Manessy (1992), who also studied the subject and concluded that, considering the numerous differences between

Figure 1. Map of Togo (https://www.cia.gov/library/publications/the-world-factbook/geos/to.html, accessed June 21, 2008)

African urban linguistic varieties, similarities cannot simply be the result of luck. They must rather be the outcomes of identical evolutionary processes, and urban areas would be responsible for the activation or reactivation of these processes. Such processes naturally suggest koineization, described by Trudgill (1986: 127) in terms of mixing, leveling, simplification, and reallocation.[11] In particular, this paper addresses *simplification* – "either an increase in regularity or a decrease in markedness" (Siegel 1985: 358) – and regional dialect *leveling*, "the decrease in the number of variants of a particular phonological, morphological, or lexical unit in a given dialect area" (Kerswill 2002: 671).

In the case of African urban dialects, Manessy (1992) outlines a number of ways that simplification occurs. For example, at the morpho-syntactic level, speakers favor uncomplicated forms. They also prefer free markers to bound markers and analytic constructions to synthetic ones. In Trudgill's theory, this is simplification and reduction. It is also an attribute of dialect leveling in which the number of variants is reduced.

11. This paper does not address reallocation.

3. Hypothesis

My hypothesis is based on the notions of dialect contact and linguistic competition and selection. Trudgill (1986, 1998) and Manessy (1992) discuss urbanized variants of linguistic features in dialect contact situations. Mufwene (2001) asserts that whenever there is linguistic contact, there are processes of competition and selection. The result of this competition is that some features survive (they are selected by speakers) while others disappear (they are leveled out in the Trudgillian model). In this way, there is some similarity between Mufwene's notion of selection and Trudgill's notion of leveling. According to Trudgill (2004:23) the outcome of leveling is that minority forms (socially and linguistically marked forms) are lost. In cities, rural features tend to make room for their urban counterparts because the latter appear to be more appropriate to the urban communication needs.

> Hence, there is evolution, whose ultimate origin lies in the selections that speakers make during their communicative acts, accommodating other speakers or exapting some forms or constructions to meet new communicative needs.
>
> (Mufwene 2001:52)

African cities are multilingual and multiethnic environments. In such settings, whenever an act of communication is started, the principal aim of this act is to have the message understood. The results of the processes of competition and selection are noticeable in urban Ewe. Some features are still in competition (i.e., voiceless bilabial fricatives, alveolar affricates, and reduplication) while others have already been leveled out (i.e., the progressive form and the voiced bilabial fricative). The voiceless bilabial fricative is in competition with the voiceless bilabial plosive; the alveolar affricates are in competition with their palatalized counterparts; and partial reduplication is in competition with full reduplication. Dialectal leveling is the pathway to dialect simplification, and the urban realization of these rural features is the mark of this simplification.

Because some features are specific to Ewe and because other Togolese languages may not have them, urban speakers tend to realize the closest equivalent, such as producing [p] instead of [ɸ], and producing [tʃ, dʒ] instead of [ts, dz]. For speakers belonging to the Ewe group in particular, things might be slightly different. Since [ɸ] and [p] as well as [ts, dz] and [tʃ, dʒ] exist in rural Ewe, speakers who move from Ewe villages to the city have few or no problems accommodating to the local urban speech.

This may also be true for reduplication because the *gɛ̃* dialect has full reduplication. This means that both realizations of the affricates, the voiceless bilabial

fricative, and reduplication, are coexistent in Ewe. People who produce the rural realizations are also able to produce urban variants.

For example,

'sea':	*àɸù* and *àpù*
'lion':	*dzə̀tá* and *dʒə̀tá*
'machete':	*kpàtsà* and *kpàtʃà*

Reduplication is realized variably as either partial or full reduplication, the latter form being a clear case of simplification and greater semantic transparency.

For example,

trɔ́ 'to return'	→	*tɔ̌trɔ́* or *trɔ̌trɔ́*	'the return'
biá 'to ask'	→	*bàbiă* or *biàbiă*	'question'[12]

The phonological and morphological features that are being investigated in this study are specific to almost all the dialects of Ewe. For these variables, my hypothesis is that:

I. The rate of voiceless bilabial plosives, palatalized affricates, and full reduplication will be higher in Lome (urban) than in Tsevie (rural), thus showing that these less marked features appear more readily in the urban environment where dialect contact is occurring.

II. In Lome, the rural realizations (voiceless bilabial fricatives, alveolar affricates, and partial reduplication) will be produced more frequently by those who belong to the Ewe ethnic group. Speakers not belonging to that ethnic group and speakers living in the city will be more likely to realize those variables in their urban variants (voiceless bilabial plosives, palatalized affricates, and full reduplication), showing that community and ethnic membership are significant variables in this Ewe study.

4. Speakers, data, and methods

The data I used for this research was collected in two places (Lome and Tsevie), with 20 native speakers per location. Tsevie is 35 km away from Lome. The Ewe dialect spoken in Tsevie can be considered to be *wací* mixed with some *aŋlò* elements, which are two dialects largely spoken in southern Togo. Data was elicited in Tsevie because, in terms of phonology as well as morphosyntax, the dialect spoken in that area is a good sample of rural Ewe. The speakers were males and

12. There can be a tone variation in the reduplication process.

Table 1. Speakers in Tsevie

Speaker Number	Age at Interview	Sex	Ethnic Background
00	21	M	Ewe
01	16	F	Ewe
02	24	F	Ewe
03	27	F	Ewe
04	38	M	Ewe
05	17	F	Ewe
06	26	F	Ewe
07	15	F	Ewe
08	24	F	Ewe
09	26	M	Ewe
10	53	M	Ewe
11	17	F	Ewe
12	21	M	Ewe
13	24	M	Ewe
14	22	F	Ewe
15	26	F	Ewe
16	25	F	Ewe
17	28	F	Ewe
18	37	M	Ewe
19	63	M	Ewe

females, 15–63 years of age (Tables 1–2). In order to keep the speakers from suspecting that their speech was under investigation, I used some artifices so that hypercorrection could be avoided. The speakers were shown images depicting objects or situations. Under the alleged motive of an audiovisual academic project, the speakers were asked to describe what they saw in the picture. The aim of the "academic project" was to advise Togolese national television on how viewers see and understand the pictures that are broadcasted. The same strategy was useful for eliciting data on reduplication.

The fieldwork for this study focused on collecting variables from phonological data (voiceless bilabial fricatives and alveolar affricates) and morphological data (reduplication).

Table 2. Speakers in Lome

Speaker Number	Age at Interview	Sex	Ethnic Background
200	30	F	Guin-Mina
201	24	M	Ewe
202	18	F	Ewe
203	23	M	Guin-Mina
204	20	F	Ewe
205	20	F	Ana
206	16	F	Ewe
207	22	F	Ewe
208	19	F	Ewe
209	19	F	Ewe
210	26	M	Losso
211	22	M	Losso
212	31	F	Losso
213	25	F	Losso
214	25	F	Ewe
215	36	F	Ewe
216	31	M	Ewe
217	32	F	Guin-Mina
218	26	M	Ewe
219	33	M	Ewe

4.1 Phonology: Fricatives and affricates

Ewe fricatives and affricates are especially conducive to study as sociolinguistic variables:[13]

- voiceless bilabial fricative /ɸ/
- voiced alveolar affricate /dz/
- voiceless alveolar affricate /ts/

The question is: Which variants of /ɸ/, /dz/, and /ts/ are used in urban Ewe and by whom? The different realizations of /ɸ/ are [ɸ] or [p], while /dz, ts/ can be realized as [dz, ts] or as [dʒ, tʃ].

13. One difference between Ewe and the other Gbe languages (see Capo 1991) is the existence of bilabial fricatives. Interestingly, the only dialect not having bilabial fricatives is gɛ̀gbě.

4.2 Morphology: Reduplication

In Ewe (Ansre 1962), there are four main types of reduplication (verbal, nominal, adverbial, and sentential), and they can be either full or partial reduplication. This paper focuses only on the verbal and nominal reduplications. Most verb stems in Ewe have the canonical form: CVT, CLVT or CiVT. T is the tone, and L can be a variation of /r/. In most Ewe dialects, the base and reduplicated forms are:

CVT → CVTCVT
CLVT → CVTCLVT
CiVT → CVTCiVT

Therefore, except for CVT, verbal and nominal reduplications are realized as partial rather than full reduplication in most Ewe dialects. However, in the *gɛ̀gbě* dialect, which also contributes to the urban mix, verbal and nominal reduplications are realized as full reduplication. In order to determine which of these forms remain in urban Ewe, speakers were asked to reduplicate the following stems:

Stem	Gloss
tsrà	to filter
kplá	to learn
trɔ̀	to return
glì	to crush
klì	to stumble
flè	to buy
biá	to ask
fiá	to show
tsrɔ́	to decimate

4.3 The social variables

As I explained earlier, sociolinguistic research in an African environment cannot rely on socioeconomic class as an independent variable. Therefore, it is necessary to find different variables. The independent variables I selected were: ethnicity, community membership, and sex.

Community membership is used to show the contrast between urban community members (Lome) and rural community members (Tsevie); in most African countries, languages are often coupled with ethnicity, and, since the onset of urban sprawl, the more urban multi-ethnic community has become a sociological reality. I also considered sex and age as an independent variables in order to see

Table 3. Respondents from Tsevie (rural) by social variables (all are Ewe)

Age	Sex	
	Male	Female
15–19	0	4
20–24	3	3
25–29	1	5
30–39	2	0
50–63	2	0

Table 4. Respondents from Lome (urban) by social variables

Age	Sex			
	Male		Female	
	Ewe	Non-Ewe	Ewe	Non-Ewe
15–19	0	0	4	0
20–24	1	2	2	1
25–29	1	1	1	1
30–39	2	0	1	3
50–63	0	0	0	0

if those categories play a part in the language variation. Age groups were divided as follows: 15–19 (N = 8), 20–24 (N = 12), 25–29 (N = 10), 30–39 (N = 8), and 50–65 (N = 2).

5. Results and discussion[14]

5.1 Voiceless bilabial

In rural areas (all Ewe respondents), there were no occurrences of the plosive ([p]), and it would be misleading to show figures for this variable overall. The independent variables for Lome only were distributed as shown in Table 5. Since these data do not allow statistical investigation in general because of low numbers per cell, they are presented in percentage format showing first the percentage of the more conservative form (i.e., here the percentage realized as fricatives), and totals.

Overall the fricative was used only 30% of the time in Lome; recall that there were no plosives in the rural area. Sex appears to be an important factor; male respondents are much more inclined to use the fricative, and ethnicity also shows

14. The results in this paper are based on impressionistic analysis, rather than acoustic analysis.

Table 5. Results for Lome respondents (voiceless bilabial N = 123)

		% of fricatives	# of fricatives	Total
Sex	Male	.63	26	41
	Female	.13	11	82
Ethnicity	Ewe	.37	46	73
	Non-Ewe	.20	10	50
Age*	15–19	.21	6	28
	20–24	.27	10	37
	25–29	.21	5	24
	30–39	.47	16	34

* There were no speakers in the 50–65 age range in Lome.

Table 6. Results for all respondents (voiceless affricate N = 225)

		% of alveolars	# of alveolars	Total
Sex	Male	.65	31	48
	Female	.40	30	75
Ethnicity	Ewe	.53	60	113
	Non-Ewe	.10	1	10
Area	Rural	.58	58	100
	Urban	.13	3	23
Age	15–19	.82	18	22
	20–24	.66	25	38
	25–29	.08	3	36
	30–39	.53	9	17
	50–65	.60	6	10

a somewhat greater tendency among Ewe speakers for fricative use. Age shows an unusual pattern in that the oldest (30–39) and youngest (15–19) speakers show the greatest use of the fricative, all the more interesting since there were no male speakers in the youngest group. In general, it would appear that male and Ewe speakers have a more rural (and therefore perhaps more conservative) orientation.

5.2 Voiceless affricate

Overall the alveolar form was used 50% of the time. Males again prefer the conservative variable, and one may still conclude here as in the bilabial case that ethnicity plays an important role, doubly so since all rural respondents are Ewe, and, as Table 6 shows, they also preferred the alveolar variant. Age is again a confusing variable, with only the 25–29 year-olds strongly dispreferring the alveolar form. Again, then, male, Ewe (rural) speakers seem conservative.

5.3 Voiced affricate

Although the results here are not as striking for sex differentiation, ethnicity is very strong. Non-Ewe respondents produced no alveolars, but there was clearly variation within the Ewe group itself since only 65% of the rural (all Ewe) respondent tokens were alveolars. There was little age variation, although younger speakers (surprisingly) appear to be more conservative.

Is my working hypothesis consistent with the results of the alveolar affricates? The results show that realizations of the alveolar affricates as [ts, dz] are more characteristic of speakers of Ewe ethnicity. In the case of [ts], only one person in the non-Ewe portion of the sample produced one token of the alveolar. [dz] seems to be even more typically Ewe than its voiceless counterpart; speakers belonging to any other ethnic group than Ewe did not realize the alveolar form; all of them used the palatalized form.

These results provide evidence that the Ewe language in Southern Togo is ethnically stratified. According to my hypothesis, the reason for that stratification resides in a phonetic simplification and leveling of Ewe dialects. The study finds that 100% of the [dz] tokens and all but one of the [ts] were attributed to the Ewe ethnic group. However 47% of the voiceless tokens were realized as [tʃ] and 38% of the voiced tokens were realized as [dʒ] by the Ewe ethnic group. This means that both realizations of the affricates are coexistent in Ewe. People who pronounce [ts, dz] are also able to pronounce [tʃ, dʒ].

These variables are also stratified by community membership, although, due to the distribution (no non-Ewe rural respondents were studied), this can be shown only for Ewe urban speakers. In rural areas, for example, 58% of their voiceless fricatives were alveolar, but for urban Ewe speakers only 15% were, showing a considerable reduction in the conservative form. Similarly, as regards the voiced affricate, Ewe rural speakers use the alveolar form 65% of the time but reduce that usage to 38% in the urban environment.

When it comes to gender, the results show that [ts] and [dz] are preferred by men overall, although, as Tables 6 and 7 show, this difference is much larger for the voiceless variable.

5.4 Reduplication

Since the data for reduplication are more robust, a Goldvarb analysis was possible, and the logistic regression weights (or probabilities, in this case of a full reduplication appearing) are provided in the "weights" column in Table 8. Just like the phonological variables, reduplication in Ewe shows evidence of variation related

Table 7. Results for all respondents (voiced affricate N = 107)

		% of alveolars	# of alveolars	Total
Sex	Male	.62	28	45
	Female	.565	35	62
Ethnicity	Ewe	.62	63	102
	Non-Ewe	.0	0	5
Area	Rural	.65	58	89
	Urban	.28	5	18
Age	15–19	.62	13	21
	20–24	.68	25	37
	25–29	.50	14	28
	30–39	.50	5	10
	50–65	.545	6	11

Table 8. Results for all respondents (reduplication N = 399)

		Weight	% of full reduplication	# of full reduplication	Total
Sex	Male	.336	.41	62	150
	Female	.601	.65	161	249
Ethnicity	Ewe	.368	.46	148	319
	Non-Ewe	.897	.94	75	80
Area	Rural	.433	.40	80	200
	Urban	.568	.72	143	199
Age	15–19	.557	.62	49	79
	20–24	.701	.71	85	120
	25–29	.328	.42	42	100
	30–39	.465	.57	46	80
	50–65	.135	.05	1	20
Total Chi-Square = 44.3497	Chi-Square per cell = 2.3342	Log-Likelihood –206.795			

to ethnicity, area, and sex since full reduplication is preferred by speakers of the non-Ewe ethnicity and, not surprisingly, by urban and female speakers as well. However, as with the earlier variables, Ewe speakers also clearly used some full reduplication. In this case, along the age spectrum, the youngest speakers (15–19 and 20–24) are the most likely to use the nonconservative or urban and non-Ewe full reduplication, the first indication in these data that younger speakers are moving towards a non-Ewe norm, although it is important to recall that all speakers in the 15–19 age group are female. It is also the case that, although Goldvarb

provided a model for these data, the overall Chi-square (and Chi-Square per cell) results indicate that much could be done to improve it, and the solution clearly lies in acquiring more data. Nevertheless, this is a pilot study and one of the early attempts to provide variationist modeled data in indigenous African language variation, and one hopes further research will be done along these lines.

6. Conclusion

Cities exercise a great influence on the structure of languages of all types. This research gives evidence that the linguistic phenomena of leveling and simplification that have been observed in cases of urban contact in Europe and North America are found in indigenous African languages as well. For urban Ewe in Southern Togo, I studied phonological and morphological aspects, but it is also possible that such phenomena can exist in other areas (for example, semantics).

Specifically, this paper shows that the phonology of urban Ewe has been modified by reduction and simplification. In my sample, urban speakers more often realized /ɸ/ as [p] rather than [ɸ], and /dz, ts/ was more often realized as [dʒ, tʃ]. These are examples of dialect leveling; in the urban environment, the variants that are available to more speakers are favored over rural-specific variants.

Full reduplication overcomes partial reduplication in this urban setting as well, illustrating another case of simplification, i.e., an increase in semantic transparency through simplification of morphology.

In sum, I find that Ewe in Lome is going through processes of simplification and dialect leveling. Therefore, this paper supports Trudgill's theory (1986, 1998) of dialect contact and dialect urbanization through an investigation of a non-Western urban setting. It has also been shown that gender and age are factors in linguistic variation in urban Ewe. Women appear less conservative, perhaps more willing to accept new, urban norms, but the conclusions about age, except in the area of reduplication, where younger speakers are also less conservative, must await more data.

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CHAPTER 10

Phonological variation in a Peruvian Quechua speech community

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Previous work on Quechua language variation and change has focused on what changes had occurred to the syntactic system (cf. Sanchez 2003) or the phonological system (cf. Pasquale 2000, 2001, 2005; Guion 2003). This article will explore the motivations for linguistic change in Quechua, particularly in the vowel system of Quechua speakers in a speech community in contact with Spanish. Two examples of phonological change will be reviewed. First, the phonological change in Quechua which raises the high vowels /ɪ/ and /ʊ/ to the level of [i] and [u] will be explained as a change in progress. Second, an allophonic rule in Quechua which backs /ɪ/ to [e] and /ʊ/ to [o] when in the vicinity of a uvular consonant (e.g., [q], [q'], [q^h]) is compared among monolingual and bilingual speakers of Quechua. Linguistic and social factors are both at work in these examples to explain the motivation for phonological change in Quechua.

Introduction

The language situation in much of South America is a multilingual one with indigenous and European languages in contact. The situation in Peru is no different; Spanish is in contact with languages indigenous to the Andes region such as Quechua and Aymara. During the Inca Empire there were many different languages spoken within the empire, which stretched from Ecuador to Chile, with Quechua emerging as the dominant language. The invasion of the Spanish almost 500 years ago began the situation of long-term contact between the Quechua and Spanish languages that continues to exist today.

Given the long and intense contact situation, many changes have occurred to the languages. There have been studies detailing the effect of language contact on both Quechua and Spanish, mainly in the area of syntax (cf. A. Escobar 1976; Muysken 1984; Klee 1990; A. M. Escobar 1997; Sanchez 2003).

Spanish and Quechua phonological system comparisons

Researchers have begun to study variation and change in the phonological system of Quechua as a result of Spanish contact. Studies have shown acoustically measurable differences in Quechua systems in contact with Spanish (Pasquale 2000, 2001, 2005 and Guion 2003).

General overview of Spanish phonetics and phonology

Spanish has a five vowel system comprised of /i, e, a, o, u/ (Cressey 1978: 17). The five phonemes have the following allophones: (1) [a, e, o, u] are slightly lowered in closed syllables, and (2) /a/ is palatalized when adjacent to a palatal consonant and is velarized when adjacent to /l/ or a velar consonant (Cressey 1978: 21). The five phonemes also have allophones which are shortened in closed, unstressed syllables (Cressey 1978: 21).

Previous work in Spanish acoustic phonetics has been done by Quilis (1981), Manrique (1979), and Delattre (1969). Their results confirm a five-vowel system for Spanish with the average formant frequencies for each vowel shown in Table 1.

Table 1. Average Spanish vowel formant frequency values

	F1 (Hz)	F2 (Hz)
/i/	300	2300
/e/	475	2100
/a/	650	1400
/o/	475	1000
/u/	300	800

General overview of Quechua phonetics and phonology

Quechua has a three vowel system /a, ɪ, ʊ/, with the last two vowels similar to the ones in English *sit* and *book* (Canfield 1982: 116). Some varieties of Quechua, including the variety spoken in the Cuzco region, have an allophonic rule that backs and lowers the high vowels when they are in the vicinity of an uvular stop [q] (including its glottalized [q'] or aspirated [q^h] variants). The result is that /ɪ/ is pronounced as [e] and /ʊ/ as [o] (Parker 1969).

The phrase "in the vicinity" is included in the allophonic rule because it does not apply only when the vowels are adjacent to a uvular consonant but can also apply when separated by another segment such as a nasal, [r] or [s]. Examples

from Wölck (1969: 9–10) illustrate the rule application across boundaries: [erqe] 'small child', [esqon] 'nine', [mosoq] 'new', and [qanneraq] 'someone like you'. These examples from Wölck (1969) are from the Cuzco Quechua. Other varieties of Quechua do not follow the rule the same way and may apply it only when vowels are adjacent to the uvular consonant. Other varieties may lack the uvular consonant [q] altogether. The rule does not apply in Spanish, which has /e/ and /o/ as separate phonemes distinct from /i/ and /u/.

There have been many words borrowed into Quechua from Spanish. The borrowings have mainly been in the areas of religion, clothing, imported animals, and manufactured goods: *mankasa* 'sleeve', *wulsiku* (from Spanish *bolsillo*) 'pocket', *waka* (from Spanish *vaca*) 'cow', and *sijari* (from Spanish *cigarro*) 'cigarette' (Hardeman-de-Bautista 1982: 147). Some of the borrowed words contain the phones [e] and [o], which are similar to the allophones [e] and [o] in Quechua. The main difference is that the [o] in Quechua is backed in comparison to the high vowel [ʊ] while in Spanish the [o] is fronted in relation to [u].

Studies on phonological variation in Quechua

Pasquale (2001) presented a detailed investigation into the change of vowel height of the high vowels /ɪ/ and /ʊ/ in the Cuzco variety of Quechua. The respondents were all from the village of Urubamba in the Cuzco region and fell into three groups: Quechua monolinguals, Quechua-Spanish bilinguals, and Spanish monolinguals. Among the bilingual speakers, language proficiency was determined from information about language usage provided by speakers during an interview. Besides the monolingual Spanish speakers, all of the speakers had Quechua as their first language.

The studies set out to look at the influence of Spanish on the phonological system of Quechua. The main focus of investigation was whether there was an acoustically measurable difference on the Quechua system as a result of contact with Spanish. It was found that phonological interference did occur. In both Quechua-dominant and Spanish-dominant bilinguals, the high vowels /ɪ, ʊ/ were raised to the range of high vowels [i, u] in Spanish. Also investigated was the application of the phonological rule in Quechua which backs and lowers /ɪ, ʊ/ when they are in the vicinity of a uvular stop [q], glottalized [q'], or aspirated [q^h].

When the high vowels were measured for monolingual Quechua speakers and monolingual Spanish speakers, there was a difference. The high vowels in Quechua /ɪ, ʊ/ had the following range of formant frequencies: /ɪ/, F1s between 500–600 and F2s between 2000–2800; /ʊ/, F1s between 500–600 and F2s between

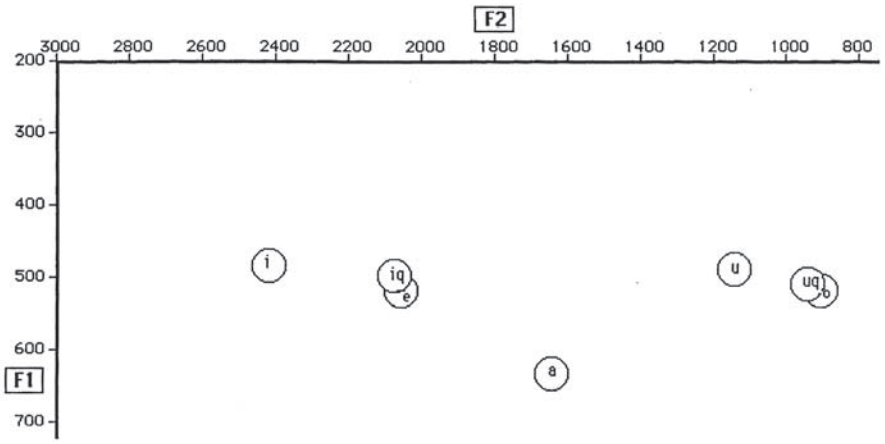

Figure 1. Monolingual Quechua speakers

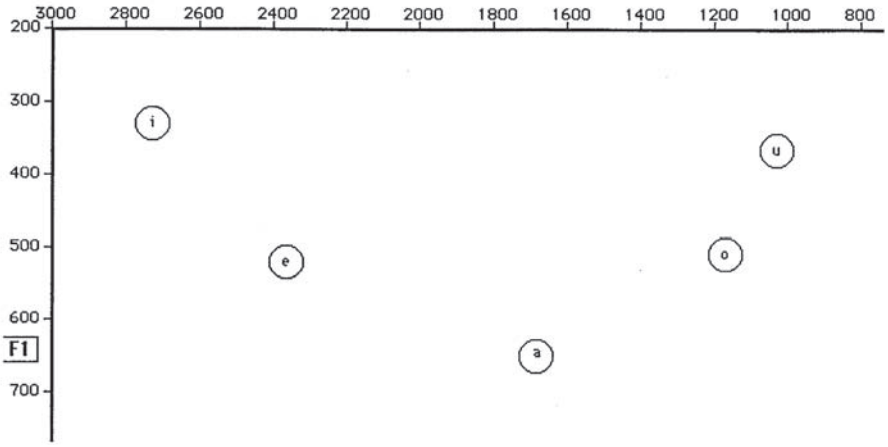

Figure 2. Monolingual Spanish speakers

1000–1400.[1] There is also evidence of the phonological rule with /ɪ, ʊ/ backed to the level of [e, o] in the Spanish system. In Figure 1, (iq) and (uq) represent the pronunciation of /ɪ, ʊ/ respectively when in the vicinity of [q], the (i) and the (u) represent [ɪ] and [ʊ], and the (e) and (o) represent [e] and [o] respectively in borrowed Spanish words spoken in Quechua.

In Figure 2, the high vowels in the Spanish /i, u/ of monolingual speakers had the following range of formant frequencies: /i/, F1s between 200–350 and F2s

1. Tape-recorded data was digitized and formant frequencies of the vowels were extracted. Linear Predictive Coding (LPC) was applied by using the acoustic analysis program Signalyze

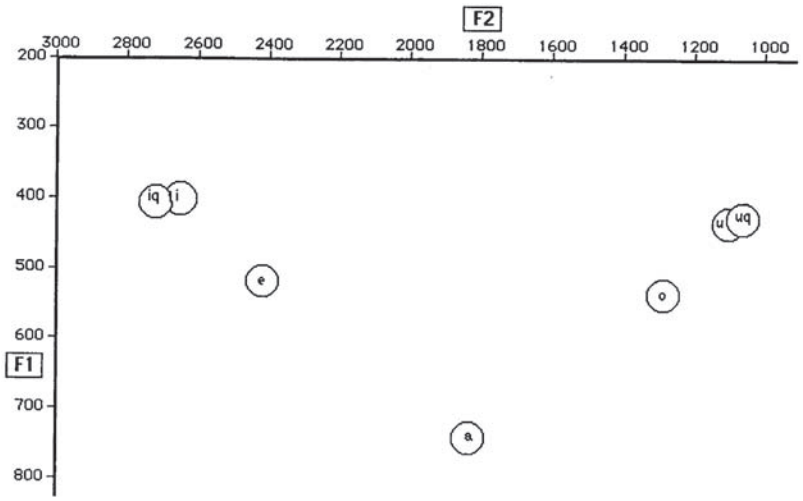

Figure 3. Spanish-dominant bilingual speakers

between 2600–2800; /u/, F1s between 300–400 and F2s between 800–1200. These figures align with the data listed in Table 1.

Bilingual speakers were found to pronounce Quechua words containing /ɪ/ and /ʊ/ closer to the Spanish range for high vowels than the monolingual Quechua range. The high vowels for Spanish-dominant bilinguals in Figure 3 had the following range of formant frequencies: /ɪ/, F1s between 300–400 and F2s between 2200–2800; /ʊ/, F1s between 300–500 and F2s between 900–1200. It was found that Spanish-dominant bilinguals did not have the allophonic rule in Quechua which backs and lowers the high vowels, which is present in the system of monolingual Quechua speakers. This is shown in Figure 3 in which the examples of words with /ɪ/ and /ʊ/ (represented as (i) and (u) respectively in Figure 3) are pronounced similarly to those in the vicinity of the uvular stop [q] (represented as (iq) and (uq)). As in Figure 1, the (e) and (o) represent the pronunciation of [e] and [o] in borrowed Spanish words.

The high vowels for Quechua-dominant bilinguals had the following range of formant frequencies: /ɪ/, F1s between 300–450 and F2s between 2000–2900; /ʊ/, F1s between 350–550 and F2s between 900–1300. The results show that the F1 and F2 values of high vowels for bilingual speakers are closer to the monolingual Spanish system rather than the monolingual Quechua system. The allophonic

(version 3.12) on a Power Macintosh 7200. A data file was prepared for each subject listing the F1 and F2 scores, vowel class, stress, and word for each token. The data file was opened in the vowel system analysis program Plotnik (verson 4.0). After all of the data files were completed, group means were calculated and the data was normalized.

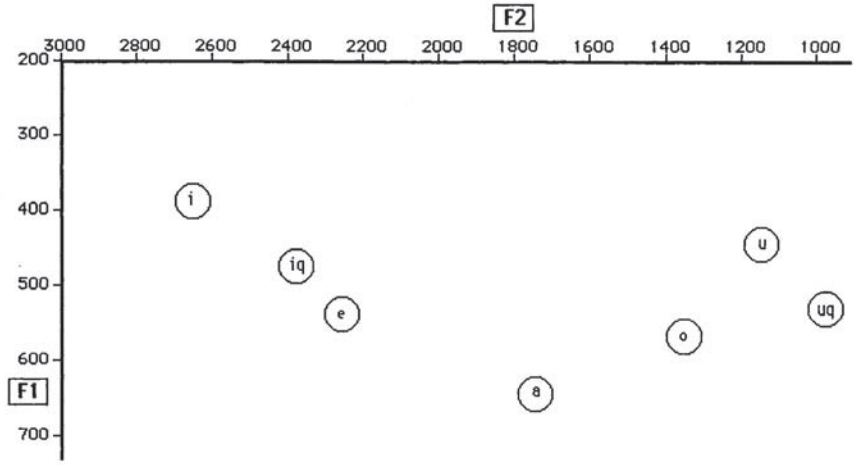

Figure 4. Quechua-dominant bilingual speakers

rule involving high vowels and [q] is also seen in the system of Quechua-dominant bilinguals.

Summary of previous studies on Quechua phonological variation

The previous studies done in Quechua over the last decade have identified certain sociolinguistic variables in Quechua and may illustrate examples of change in process.

First, high vowels in Quechua [ɪ] and [ʊ] are raised to the level of [i] and [u] respectively in Quechua-Spanish bilinguals. This change has also been attested in another variety of Quechua, Ecuadorian Quichua, in Guion (2003). Second, the Quechua allophonic rule that backs /ɪ/ and /ʊ/ to [e] and [o] respectively when in the vicinity of uvular consonants is being lost among Spanish-dominant bilinguals, but maintained in Quechua-dominant bilinguals.

The question is why these phonological changes are occurring in Quechua. Is it a result of linguistic change, a result of social forces, or both? The hypothesis of this article is that both social and linguistic forces are at work within these examples of Quechua language variation and change.

There is strong evidence that the phonological changes occurring in Quechua are based on language contact with Spanish due to differences in the phonological systems. It seems that linguistic forces would be at work in such a situation. However, Labov (1965) stresses a need to examine historical and social factors that may be a part of any language change. Previous studies on language attitudes in Peru (e.g., Wölck 1973; Myers 1973) have shown that Quechua is stigmatized and

Spanish is the language of prestige. The hypothesis here is that both the linguistic context and the external social context lead to higher vowels in Quechua. This hypothesis is in line with what Weinreich et al. (1968) argue in that one must make reference to the external and social factors that influence language change and relate those factors to the linguistic and structural ones. Silva-Corvalán (1994) in her study of Los Angeles Spanish argues that language change is a result of linguistic factors that are spread by external means. Milroy (1992) views a stronger role for external factors and argues that they are at the forefront of linguistic innovation and change.

Linguistic factors for language change

Pasquale (2001) examined reverse transfer in Quechua as a result of contact with Spanish. The specific area studied is influence on the phonetic and phonological levels in the Quechua of bilingual speakers. Within these levels one aspect in particular was recounted: the position of high vowels /ɪ/ and /ʊ/. First, it was shown that in bilingual speakers the high vowels /ɪ/ and /ʊ/ in Quechua were raised to the range of high vowels in Spanish. It can be concluded that, in part, this raising is due to the influence from the Spanish system in bilingual speakers.

Guion (2003) also found that bilingual speakers produced the high vowels /ɪ/ and /ʊ/ in Quechua higher than monolinguals did. Her study compared age of acquisition and the effect on the Quechua system. For those who acquired Spanish at an early age (e.g., before age five) the Quechua vowels were raised in order to distinguish the Spanish vowels in the system. Her thesis was that a bilingual speaker constructs one system for both languages. In this case the linguistic forces are at work to sufficiently allow both phonological systems to be distinguished.

Pasquale (2001) also presents evidence for a drag or pull chain (cf. Labov 1994). There is some evidence that a drag chain does occur in the Quechua system of Quechua-dominant bilinguals. These speakers retain the allophonic rule which backs and lowers the high vowels /ɪ/ and /ʊ/. When the high vowels are raised the allophones are also raised. This raising also has an impact on the pronunciation of [e] and [o] in borrowed words from Spanish. In a Quechua monolingual system like the one illustrated in Figure 1, the borrowed [e] and [o] are pronounced in the same general area as the allophones [e] and [o] in Quechua.

In the vowel system of Quechua-dominant bilinguals, the high vowels are raised from the areas where they were found in the monolingual systems. In instances where a word is borrowed from Spanish which has an [e] or an [o], there is evidence that these phones do not group with those high vowels that are backed and lowered in the vicinity of a uvular consonant. Figure 1 shows that in

a monolingual Quechua system, [e] and [o] in borrowed words grouped with those allophones, but in the Quechua-dominant bilingual system the borrowings were lower than the allophones and in the same general area where they would be found in a monolingual Spanish system. The grouping of borrowed words below the allophones in Quechua would be evidence for a drag chain, and this data seems to suggest that scenario.

Data from Pasquale (2001) and Guion (2003) reveal that linguistic forces are at work to cause variation and change in the Quechua system. Long-term, intense contact situations between two languages, along with a high degree of bilingualism, will inevitably lead to change. However, do linguistic forces alone account for the phonological variation and change documented in these studies?

Stigmatization of Quechua and the prestige of Spanish

Myers (1973) studied the change of language use and attitudes among Quechua speakers who immigrated to the coastal city of Lima from their Andean villages. Myers demonstrated a rapid shift in urban speakers from Quechua to Spanish, often completely shifting within one generation.

Wölck (1973) found that Spanish is considered more prestigious than Quechua or any other indigenous language, and speakers of Spanish are considered to be more educated and to have a higher social status than those who speak other languages. However, he found that Quechua was viewed more positively in the affective realm. A person who spoke Quechua was rated as being more attractive, stronger, and smarter than one who only spoke Spanish, but Spanish was considered to be the language of institutional values such as education, ambition, and urbanity. This information was found in a survey administered in 1969.

Nine years after Wölck's initial survey of speakers' attitudes in Peru, Gleich and Wölck (1994) revisited the issue. Gleich and Wölck (1994: 46) state the changes in attitude between 1969 and 1978 as follows:

> The most striking change is the narrowing of the gaps between the evaluations of the two languages and their speakers along almost all dimensions, most notably in the affective values of, e.g., attractiveness, strength, and modesty. In the institutional dimensions there still remains the distinction in favor of Spanish.

One additional piece of information from Gleich and Wölck (1994) is that when they asked their respondents where the best Quechua was spoken, a majority (64%) indicated the city of Cuzco. The respondents considered Cuzco Quechua to be the "original, legitimate, historical, autochthonous, and pure" (36) Quechua.

De Los Heros (1997) investigated language attitudes in Peru and how they affected language change in non-standard varieties of Spanish in contact with Quechua. She tested whether language attitudes, along with gender and network links, had a significant effect on language variation involving the use of an assibilated [r] and the palatal lateral [λ] in Spanish. An assibilated [r] is pronounced as a fricative. An assibilated [r] after [t], as in *tranvía* 'streetcar' sounds to those outside the speech community like [č] *chanvía* (Toscano Mateus 1953: 97). Historically, /y/ and /λ/ have merged in many varieties of Spanish, usually leaving /y/. In Andean Spanish, however, those words historically pronounced with [λ] retain that pronunciation. For example, *llamo* 'I call' is [λamo] rather than [yamo].

De Los Heros also found that social class was the most important factor for predicting variation in the speech community, although she found that gender affected variation when combined with other factors, and social network links were the determining factor in the use of non-standard items. Non-standard forms were more frequently found in dense networks. Attitudes did influence [r] and [λ] variation, but differently, since the assibilated [r] is considered stigmatized in the speech community. The results showed that lower social classes were the most frequent users of the assibilated [r]. The upper middle classes were the most frequent users of the palatal lateral [λ], as opposed to rural speakers who used [y]. The glide [y] is used in the standard variety spoken in Lima, but upper class speakers use [λ] to distinguish themselves from rural speakers, rather than using [y] to associate with the Spanish of Lima (De Los Heros 1997: 213). Such results show that attitudes had an effect on language usage.

In a follow-up to Pasquale (2001), the author conducted interviews with the Quechua speakers included in the original study and expanded the scope from the village of Urubamba to other villages in the Cuzco Department. The three villages (and their distances from Cuzco) were Chincero (17 miles NW), Ollantaytambo (58 miles NW), and Ancahuasi (40 miles W).

Fifty-three subjects were interviewed by native Quechua speakers. The questionnaire is included in the Appendix.

The results seem to support Wölck's idea that Quechua has affective loyalty for speakers, especially in the rural Andes. A large majority of speakers have a

Table 2. Language attitude survey of Quechua speakers in Cuzco, Peru

Question	Positive / Yes	Mixed / Maybe	Negative / No	No Answer
What is your opinion of Quechua?	43 (81%)	2 (4%)	8 (15%)	0
Should your children speak Quechua?	45 (85%)	1 (2%)	5 (9%)	2 (4%)

positive opinion of the language (81%) and believe that their children should learn and speak the language (85%). The results seemed to show that Quechua was supported on affective grounds. For example, many respondents used the adjective *buena* "good" to describe Quechua. A man from Ancahuasi wrote:

> *el edioma kechua es muy dulse, para nosotro, los campesimos, y queremos quese ensenen en los colegios, para no olbidar nuestra idioma*. (sic)
>
> Translation: The Quechua language is very sweet for us, the country folk, and we want it to be taught in schools so we don't forget our language.

A woman from Ancahuasi wrote:

> *El campesino siempre devemos ablar en nuestra idioma kechua*. (sic)
>
> Translation: The country folk always should speak our Quechua language.

In these quotes the male respondent used *dulce* 'sweet' to describe Quechua while the woman showed loyalty to Quechua by referring to "our language."

Social factors for linguistic change

The speech communities of Urubamba, Peru and villages such as Ancahuasi and Chincero are similar in their language distribution. Quechua is the first language of a large portion of the population, but Spanish is used in the education system and has an official capacity in village government. The result is a continuum of speakers, from those who are monolingual Quechua speakers to those who are monolingual Spanish speakers. In between are those who are bilingual, but are stronger in either Quechua or Spanish. There is no doubt that this is an intense language contact situation and that, at least in educational and official areas, Spanish exerts a great deal of pressure on the basis of its power and prestige.

The socioeconomic system in Andean Quechua society is as complex as that of any society. However, a few generalities can be derived from personal observation and from relevant ethnographic research (cf. Hornberger 1991). Monolingual Quechua speakers are often referred to pejoratively as *campesinos* 'country folk' by the Spanish-speaking populace. The term is also used in self-reference by monolinguals themselves. Monolingual Quechua speakers fall at the lower end of the socio-economic ladder in Andean society. They are primarily farmers who live in outlying rural areas, but come to town during the weekly market days in which they sell their produce and purchase needed goods. The upper class of society in Urubamba is monolingual in Spanish. As in other similar Quechua towns, many of the monolingual Spanish speakers are of non-Quechua heritage and have migrated

from other areas of Peru. The occupations filled by the upper class would be high-level government leaders, business owners, bankers, and hotel operators.

In order to be a member of the middle class in Urubamba, one must be proficient in Spanish. The continuum from lower middle or working class to upper middle class is quite diverse. Higher status jobs such as educators or clergy would require a high proficiency in Spanish. In Pasquale (2001) the twelve Spanish-dominant speakers had the following occupations: clergy (3), teachers (2), translators/interpreters (2), and students (2). Three of the women who had a high proficiency in Spanish did not work formally outside of the home but were married to either someone in the clergy or a teacher included in the study. Two of the students were children of clergy or teachers and were going to train to be teachers. The Spanish-dominant speakers were found to be higher socially than the Quechua-dominant bilinguals. In addition to their occupations, the Spanish-dominant bilinguals lived in homes that were in the village proper and not in the country.

The sixteen Quechua-dominant bilinguals primarily lived in rural settings outside of the village proper. None of the respondents who were from the country were found to be Spanish-dominant bilinguals. The occupations listed for these respondents included the following: agricultural workers (12) and clergy (and spouses) of small protestant Quechua congregations (4). Of the twelve involved in agricultural work, four pairs were husband/wife and two were children in farming families. The respondents that were in the Quechua-dominant group were of a lower status than Spanish-dominant bilinguals due to their occupational situation and living conditions.

In the Quechua-Spanish speech community of Urubamba, one needs Spanish to be a part of the upper middle class. There are strongly held views on the role of Quechua and Spanish in Andean society that are sometimes in conflict. On the one hand, there is much affection for Quechua as a heritage language, as was found in this study and earlier in Wölck (1973). There is a sort of pride of the Inca past, especially in Cuzco, the former capital of the Incas. For monolingual Quechua speakers and Quechua-dominant speakers especially, the language is obviously one that shapes their identity. On the other hand, Spanish has been and is the language of national prestige. It is the language of education, government, and power. It is also the language that connects Peru to a wider global context. Despite a strong sense of affective loyalty to Quechua, Spanish still plays a strong role in affecting language use in Peru.

The instance of phonological change in Quechua involving the raising of the high vowels /ɪ/ and /ʊ/ close to the level of Spanish /i/ and /u/ respectively may be influenced by the stigmatization of Quechua and the prestige of Spanish in the speech community.

Conclusion

In the case of phonological variation found in Quechua involving the high vowels /ɪ/ and /ʊ/, these phonemes are found to be produced at higher levels in bilingual speakers, especially Spanish-dominant speakers, so that they are at the range of Spanish vowels /i/ and /u/. It may be concluded, in part, that the raising of /ɪ/ and /ʊ/ in Quechua is due to linguistic factors involving the language systems of Quechua and Spanish in contact. This language contact provides the initial impetus for change to occur. However, as in Silva-Corvalán (1994), the context for language change was set by linguistic factors but was expanded by social forces. Social factors may strongly influence bilingual speakers of Spanish and their desire (albeit unconscious desire) to produce Quechua vowels that are more Spanish-like. These two factors working together provide an explanation for language variation and change in a Quechua speech community.

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Appendix: Interview with Quechua respondents

Instrucciones

Por favor entreviste ud. tres personas. Necisitan saber quechua. Por favor, no les entreviste en el mercado. Indique si cada uno es hombre o mujer y donde ocurrió la entrevista (por ejemplo en una chelera a las afueros de Urubamba).

Por favor pregunte a cada persona las siguintes preguntas y apunte las respuestas:

1. *¿Qué opina acerca del idioma quechua?*

2. *¿Qué idioma hablan en casa?*

3. *¿Sus hijos saben hablar quechua?*

4. *¿Piensa que es importante que sus hijos sepan hablar quechua?*

English translation:

Please interview three people. They need to know how to speak Quechua. Please do not interview in the market. Indicate if each is a man or a woman and where the interview occurred (for example in a field on the outskirts of Urubamba).

Please ask each person and write down their answers:

1. What is your opinion of the Quechua language?

2. What language do you speak at home?

3. Do your children know how to speak Quechua?

4. Do you think that it is important for your children to learn to speak Quechua?

CHAPTER 11

A tale of two diphthongs in an indigenous minority language

Yami of Taiwan[1]

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This study investigates the phonological variation and sound change in the Yami diphthongs (ay) and (aw) (e.g., *mangay ~ mangey* 'go', *araw ~ arow* 'day, sun'), a Philippine language spoken on Orchid Island, 60 kilometers southeast of Taiwan. Previous studies (Rau & Chang 2006; Rau & Dong 2006) found that the two diphthongs were undergoing vowel raising on the island with an isogloss separating the more progressive northeast from the more conservative southwest. However, social factors were not discussed, and thus no interpretation of the vowel raising was provided.

The present study examined both linguistic and social factors accounting for vowel raising, with a goal of interpreting the indexical meanings of sound change in the two diphthongs on the island. The data were 20 narratives taken from a Yami corpus (http://yamiproject.cs.pu.edu.tw/yami), 10 narratives from Dong & Rau (1999, 2000), and word list elicitation collected in 1995. Our results from VARBRUL analyses confirmed that vowel raising is a geographical feature and that the rates of change have formed a clear isogloss separating the northeast from the southwest varieties. However, vowel raising of (ay) has progressed slightly faster than that of (aw). The preceding segments of (ay) and (aw) favoring raising are mainly determined by the feature of [continuant]. For both diphthongs, [+continuant] favors raising whereas [–continuant] disfavors it. There was stylistic variation with more raising in narrative style than in word list reading. Vowel raising was preferred by males; however, young females seem to have surpassed young males in adopting this feature in narrative style, a phenomenon

1. The preliminary version of this paper was presented at NWAV 35, The Ohio State University, November 9–12, 2006. We would like to acknowledge the generous support of the following two grants provided to the first author for our research: the National Science Council of the R.O.C. (NSC94-2411-H-126-005) and the Endangered Language Documentation Program (ELDP), SOAS, University of London.

corresponding to the social mobility of women. Perhaps vowel raising has ceased to be a gender marker and shifted to an ethnic identity marker.

1. Introduction

Sociolinguistic studies on phonological variation in post-insular island communities have found male islander identity in the nucleus change of (ay) and (aw). Labov's groundbreaking work on linguistic change in progress on the island of Martha's Vineyard (1963, 1972) has established a paradigm of sociolinguistic variation. He correlated centralization of the (ay) and (aw) diphthongs with social factors (i.e., identity, occupation, age, and ethnicity) and linguistic factors, and predicted real time changes from apparent time data collection.

Several studies on variation of (ay) and (aw) in the last decade have focused on moribund dialects, such as Ocracoke Island and Smith Island, North Carolina (Wolfram & Schilling-Estes 1995, 1996; Schilling-Estes 1996, 1997; Schilling-Estes & Wolfram 1997; and Wolfram, Hazen & Schilling-Estes 1999). The islanders of Ocracoke are known as 'hoi toiders' (their pronunciation of 'high tiders'), turning [ay] into [oy], and [aw] into [ay], such as *hice* 'house' and *dine* 'down.' The backing of [ay] to [oy] is a social stereotype, a feature commonly associated with the islander, whereas the glide fronting of [aw] to [ay] remains a social indicator because there is no stylistic variation among the islanders. As a social stereotype, the backing of [ay] to [oy], as in 'hoi toiders,' was shared mostly by middle aged male speakers having a strong identity with the island (Schilling-Estes 1997). The young women on the island, in contrast, preferred the standard variant [ay] (Schilling-Estes & Schrider 1996). Among the Lumbee people of North Carolina, like speakers of dialects of the Outer Banks, (ay) is raised, e.g., [roɪd] 'ride,' and (aw) is glide-fronted and/or raised, e.g., [saɪnd] or [seɪnd] 'sound.'

Although most of the work on (ay) and (aw) variation has been done on English dialects, similar sound change patterns have also been found in indigenous minority languages. In Rau & Chang's (2006) investigation on the sound change of (ay) and (aw) in Yami, a nucleus raising and fronting was identified from [ay] to [ey] ~ [iy] for (ay) and from [aw] to [ow] ~ [uw] for (aw), respectively. The change has also spread from word final position (e.g., *mangay* 'go', *araw* 'day, sun') to environments such as a-i and a-o across morpheme boundaries (e.g. *asa keyli* 'one village' (< *asa ka-ili*), *makowbot* 'go out' (< *maka-obot*)). A chain shift has also occurred whereby the peripheral high front vowel [i] in verbal prefixes *mi-* and *pi-* and suffix *-i* is shifting to the diphthong [ey].

The results of the previous study revealed that the nucleus raising rule was an innovation in Yami and had progressed faster and longer in (ay) than in (aw).

In addition to linguistic factors, only geographical differences were found to be significant. Social factors were excluded from the discussion because they were not found to be significant. However, we observed that (ay) and (aw) had moved beyond the stage of indicators with no style-shifting and had developed into sociolinguistic markers (Labov 1994: 78) because there is a contrast in formality between written Bible forms and spoken forms, and the conservative forms are used in Bible translation. Raising, on the other hand, was clearly observed in spoken data, but the stylistic variation was not investigated empirically before.

The goal of this study was to test the preliminary observations proposed in Rau & Chang (2006) and provide a plausible interpretation of the indexical meanings of nucleus raising of the two diphthongs by examining linguistic, stylistic and social factors, based on data extracted from a Yami corpus. Using better data from the Yami corpus, this paper aims to answer the following questions: (1) how preceding environments, social factors (i.e., age, gender) and region account for vowel raising of the two diphthongs on Orchid Island, and (2) whether there is stylistic variation to confirm that vowel raising of the two diphthongs is a vernacular feature.

2. The Yami speech community

Yami is a Philippine language in the Austronesian family spoken by the indigenous people on Orchid Island (*Lanyu* in Chinese), a small offshore island southeast of Taiwan and at the northern tip of the Batanes Province of the Philippines. Politically, the island is under the administration of Taiwan.

Yami constitute 93% of the 3007 residents on the island (Rau 1995). Almost half of the population is either above 50 or below 20 years old. Young adults usually seek employment in Taiwan. Yami people above 60 years of age are mostly monolingual in Yami, whereas those below 20 consider Mandarin Chinese their L1 and Yami their L2, as of Chen's sociolinguistic survey in 1995 (Chen 1998). Young adults code-switch between Yami and Chinese in communication.

There are six villages on the island: Imowrod, Iratay, Yayo, Iraralay, Iranomilek and Ivalino, moving clockwise from the southwest to the northeast coast, as shown in Figure 1.

In and near Imowrod are the airport, post office, clinic, and a hotel. Right across from Imowrod at the opposite side of the island is Ivalino, where the Lanyu Nuclear Waste Plant is located. The administrative center of the island is at Yayo, where a hotel and a secondary school can be found. Iraralay and Iranomilek are further away from the government offices and tend to better preserve the Yami language. However, all villages have primary schools with Mandarin Chinese as

Figure 1. Geographic description of Lanyu

the only medium of education. Recently, with the development of tourism, an increasing number of remodeled homes have been opened for room and board for tourists, especially along the more scenic beaches on the northeast coast.

Iraralay is the only community of the six villages on the island where children still use Yami for daily interaction (Lin 2007). Although Yami has been offered as an elective in elementary school since 1998, it is gradually being replaced by Mandarin Chinese. Among the junior high school students on Orchid Island, 60% either believed Yami would die eventually or were uncertain about the fate of the language (Rau 1995).

Adult speakers use both Chinese and Yami in daily communication. The medium of education in schools is exclusively Chinese. Yami is used primarily in Christian church services and traditional ceremonies. Translation of the New Testament into Yami was completed in 1995. There is a locally run radio station on the island, managed by a Christian organization, broadcasting programs in Chinese and Yami.

Three different orthographies have been proposed for Yami, all based on Roman alphabets, but no consensus has been reached. One is used in the newly translated Bible, developed in collaboration between SIL and local pastors from

Iranomilek and Iraralay, whose speech represents the northeastern variety. The second was proposed by Professor Paul Li (1992), based on the more conservative Imowrod dialect in the southwest, in an effort to standardize the writing systems of all Austronesian languages in Taiwan.[2] The third was jointly developed by Dong and Rau during our collaboration. It is currently gaining ground as our team is actively documenting the language (Rau & Yang 2005). Except for teaching of Yami language in primary and secondary schools and teacher training workshops, the Yami orthography is not in general use by anyone in the speech community. The community has various degrees of literacy in Chinese (95%) while the most educated (less than 1%) are also literate in English (Rau 1995).

The two Yami dialects, Iraralay and Imowrod, are mutually intelligible with some lexical differences and systematic vowel changes (Rau & Dong 2006). One of the most noticeable linguistic features that distinguish the two varieties is nucleus raising of the two diphthongs (ay) and (aw).

3. Data and sample

The data of this study consist of 20 narratives taken from a Yami corpus from the Digital Archive of Yami Language Documentation (http://yamiproject.cs.pu.edu.tw/yami), 10 narratives from Dong & Rau (1999, 2000), and word list elicitation collected during a 1995 field trip. The 20 narratives were collected by Yami interviewers from the same villages as the interviewees while the 10 narratives were recorded by our research team members composed of eight Chinese female graduate students. All the narratives were transcribed by the third author. The word list elicitation was a translation of Chinese into Yami, recorded and transcribed by a trained Chinese female graduate student on the team and carefully checked by the first author. The original word list comprises a long list of basic vocabulary in Yami, but only the words containing word final (ay) and (aw) were extracted for this study for comparison with those in the narrative style.

The narrative data were contributed by 21 speakers, whose demographic distribution is represented in Table 1. Only region, age and gender were coded. We did not code for social class due to (1) an emic perception of Yami as an egalitarian society, whose level of achievement was measured by culturally specific values, and (2) the problem of comparing social class across different communities. The first author created an index of social class based on one's occupation, income, education, and style of housing in a study on phonological variation of

2. This version was revised and publicly announced in December 2005 by the Council of Indigenous Peoples as the standard orthography of all Austronesian languages in Taiwan.

Table 1. Speaker demographic characteristics (narrative style)

Participants	Region	Age	Gender
1. HMJ	Iranomilek	69	M
2. JXY	Iranomilek	49	F
3. HLL	Iranomilek	54	F
4. WJY	Iranomilek	66	M
5. XQR	Iranomilek	74	F
6. HYE	Iranomilek	58	F
7. LJL	Yayo	53	M
8. WRD	Yayo	75	M
9. WQY	Yayo	58	F
10. ZZJ*	Imowrod	54	M
11. SFS*	Imowrod	59	M
12. XQM	Imowrod	54	F
13. ZDS	Ivalino	47	M
14. ZQL*	Ivalino	48	F
15. LSZ	Iraralay	39	F
16. LYL*	Iraralay	45	F
17. GJP	Iraralay	36	M
18. ZSX	Iratay	64	F
19. DGY	Iratay	53	M
20. DYC	Iratay	51	M
21. SSL	Iratay	70	F

Atayal (Rau 2000), another indigenous language in Taiwan. However, the four levels identified in that study could not be considered equivalent to the construct of social class usually found in variationist studies.

The six villages were represented by a range of two to six speakers each. The age as of 2000 was divided into two groups with nine "old" (equal to or above 55 years old) and 12 "young" (below 55 years old) participants, ranging from age 36 to 75. There were 11 females and 10 males.

The sample of speakers who provided the word list reading style consists of 22 speakers whose demographic characteristics are shown in Table 2. The six villages were represented with a range of two to seven speakers each. The group was divided into nine "old" (equal to or above 55 years old) and 13 young (below 55 years old) participants, with an age range from 40 to 77 as of the year 2000. Gender was equally divided.

Only the four speakers marked with an asterisk behind their initials contributed data for both narrative and word list reading styles. The four speakers came from three villages with one above 55 and three below 55 years of age. The gender

Table 2. Speaker demographic characteristics (word list style)

Participants	Region	Age	Gender
1. WXY	Iraralay	40	F
2. LYL*	Iraralay	45	F
3. ZNY	Yayo	56	F
4. YZW	Yayo	50	M
5. HDH	Iranomilek	59	M
6. XJH	Iranomilek	63	F
7. XJY	Iratay	51	F
8. SLZ	Iratay	47	M
9. SSY	Iratay	45	M
10. ZSH	Iratay	55	M
11. ZYJ	Iratay	51	F
12. ZZJ*	Imowrod	54	M
13. SFS*	Imowrod	59	M
14. LZ	Imowrod	77	M
15. LXS	Imowrod	53	M
16. LDY	Imowrod	56	F
17. ZXM	Imowrod	41	F
18. STM	Imowrod	47	M
19. LLM	Ivalino	76	M
20. XWY	Ivalino	69	F
21. ZLH	Ivalino	51	F
22. ZQL*	Ivalino	48	F

of the sample was equally distributed. The results of word list elicitation were compared with those of the narrative style.

4. The variables

The diphthong variables in this study were restricted to word final (ay) and (aw), such as *volay ~ voley ~ voliy* 'snake' and *araw ~ arow ~ aruw* 'sun.' GOLDVARB 2001 (Robinson, Lawrence & Tagliamonte 2001, Tagliamonte 2006) was used for the VARBRUL analysis. Application of the rule includes all raised, fronted or monophthongized variants, e.g., *voley ~ voliy* 'snake' and *arow ~ aruw* 'sun.' Non-application of the rule refers to the conservative non-raised (ay) and (aw).

The independent variables consist of one internal factor group and three external factor groups. The linguistic and social factors that were coded include:

1. Preceding environments
   i = high front vowel (e.g., *maviay* 'alive', *makaniaw* 'taboo')
   a = low central vowel (e.g., *kangaay* 'usual')
   o = high back vowel (e.g., *isaboay* 'lift', *mitotoaw* 'out')
   h = uvular fricative (e.g., vahay 'home')
   d = retroflex stop (e.g., *adaday* 'all, full', *midadowdaw* 'very sad')
   t = alveolar stop (e.g., *miatay* 'pass by', *attaw* 'sea')
   p = labial stop (e.g., *cinapay* 'vegetable', *yapapaw* 'miss')
   s = retroflex fricative (e.g., *rasarasay* 'bottom board', *kazisaw* 'cursing')
   k = velar stop (e.g., *mehakay* 'male', *manakaw* 'steal')
   z = alveolar trill (e.g., *vazay* 'thing', *nivozaw* 'leave')
   r = retroflex liquid (e.g., *kararay* 'companion, friend', *mararaw* 'noon')
   l = alveolar liquid (e.g., *awalay* 'Ouch!', *iyaipasalaw* 'swallow')
   n = alveolar nasal (e.g., *aonay* 'long time', *meynaw* 'strong fishy taste')
   m = labial nasal (e.g., *pangamay* 'cursing', *tazmamaw* 'illusion')
   ŋ = velar nasal (e.g., *nongay* 'move forward')
2. Region: Northeast (Yayo, Irannokilek, Iraralay, Ivalino) and Southwest (Imowrod, Iratay)
3. Age: old (equal to or above 55) and young (under 55)
4. Gender: male and female

The data extracted from the narratives for analysis include 685 tokens of (ay) and 202 tokens of (aw).

The word list representing formal citation style includes the following words:

(ay): *anay* 'sand', *atay* 'liver', *mehakay* 'male', *miray* 'to lie down', *mivazay* 'to work', *mangay* 'to go', *vahay* 'house', *volay* 'snake', *wakay* 'sweet potato'

(aw): *araw* 'sun', *araraw* 'every day', *maraw* 'day', *pakaw* 'shoulder', *zagaw* 'neck'

Since only a small number of speakers provided comparable data for comparison of styles and the demographic distribution was not balanced, we did not include style as a factor group for our initial VARBRUL analyses. However, we did include a comparison of styles in the second stage of our analysis to determine if (ay) and (aw) variables show any stylistic variation.

5. Results

The results of the first question on how preceding environments, social factors (age, gender) and region account for vowel raising of the two diphthongs on Orchid Island are shown in Table 3. All the independent variables, except for age,

Table 3. Phonological variation of (ay) and (aw)

Factor groups	Nucleus raising	
	Probability weight (ay) **N (%)**	**Probability weight (aw)** **N (%)**
Villages		
Northeast	.83	.81
	382/426 (90%)	102/127 (80%)
Iranomilek	213/220 (97%)	42/52 (81%)
Yayo	129/138 (93%)	47/48 (98%)
Iraralay	19/22 (86%)	4/4 (100%)
Ivalino	21/46 (46%)	11/23 (48%)
Southwest	.07	.08
	42/259 (16%)	8/75 (11%)
Iratay	35/215 (16%)	4/46 (9%)
Imowrod	7/44 (16%)	4/29 (14%)
Range	76	73
Age		
young (< 55)	[NS]	[NS]
	178/251 (71%)	39/82 (48%)
old (55 +)	[NS]	[NS]
	246/434 (57%)	71/120 (59%)
Gender		
male	.65	.60
	243/324 (75%)	69/118 (58%)
female	.37	.36
	181/361 (50%)	41/84 (49%)
Range	28	24
Preceding environments		
vowel/semivowel	.85	.67
	88/111 (79%)	13/23 (57%)
consonant [+continuant]	.64	.57
	65/92 (71%)	62/103 (60%)
nasal [–continuant]	.38	No data[3]
	182/327 (56%)	
consonant [–continuant]	.36	.36
	89/155 (57%)	35/76 (46%)
Range	49	31
Total	424/685 (62%)	110/202 (54%)
Input probability	.69	.54

3. There is only one token *meynaw* "strong fishy taste" in this environment, and thus it was excluded from analysis.

were selected to account for diphthong raising, which followed the same constraint rankings for the internal factor group. The more sonorous the preceding segment, the more conducive an environment it is for raising. Furthermore, region had the greatest influence on the variation, followed by preceding environments and gender based on the differences of range of the probability weights for each linguistic variable.

5.1 Internal and external factors

Our results confirmed that vowel raising was a geographical feature and that the clear distinction of the probability weights formed an isogloss, separating the northeast from the southwest varieties. Table 3 shows that the four northeastern villages favored vowel raising in (ay) and (aw) at .83 and .81 respectively. The two southwestern villages retained the conservative, non-raised (ay) and (aw) with very low factor weights of raising at .07 and .08 respectively.

The input probability weights indicate the raising of (ay) was slightly more frequent than that of (aw) at .69 and .54, respectively, and thus (ay) raising is interpreted as more progressive than (aw) raising.

The factors in the internal factor group displayed almost the same constraint hierarchy, determined by the feature of [continuant]. For both diphthongs, the preceding segment with the feature of [+continuant] favored raising whereas that of [–continuant] disfavored it.

Gender was selected as a significant factor. It shows that males preferred raising, whereas females did not favor it for both (ay) and (aw).

Since age was not selected as significant in the step-up and step-down procedures due to interactions with other social factors, several cross-tabulations were conducted to compare the relationship among age, gender and region. In the following paragraphs, we will discuss the two variables separately.

5.1.1 *(ay)*

As shown in Table 4, (ay) raising was clearly a geographical feature in the northeast of the island (90% vs. 16%). Although the older people in the northeast had

Table 4. (ay) raising: region by age

	Northeast	Southwest	Total
Old (55 +)	212/224 (95%)	34/210 (16%)	246/434 (57%)
Young (55 –)	170/202 (84%)	8/49 (16%)	178/251 (71%)
Total	382/426 (90%)	42/259 (16%)	424/685 (62%)

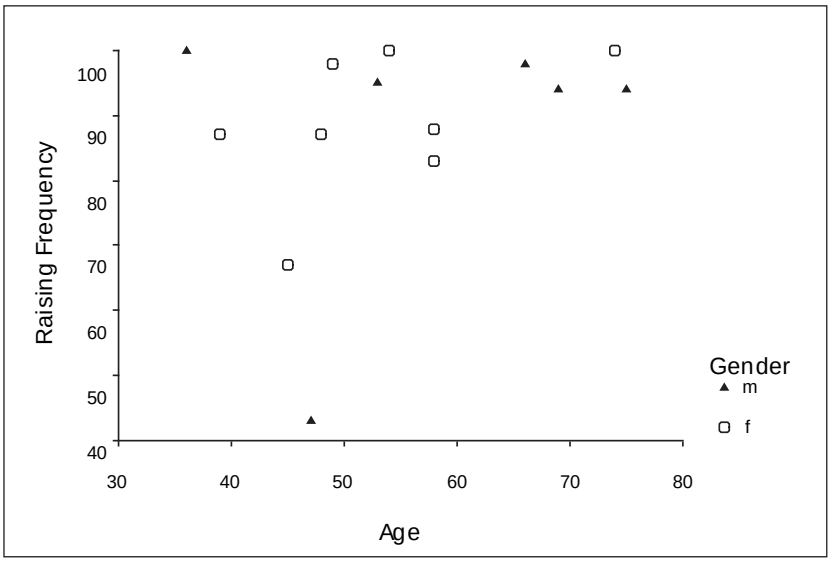

Figure 2. (ay) raising in the Northeast region

a higher percentage of raising (95%) than the younger people (84%), it is not statistically significant.

We did a regression analysis to see whether the raising frequencies could be predicted from the age. Figure 2 was drawn to further illustrate the lack of correlation between age and the frequency of (ay) raising in the Northeast region ($r = 0.353$, $p = 0.216$). Age only accounts for 13% of the variation in the data.

More males preferred (ay) raising than did females (75% vs. 50%), as shown in Table 5 and Figure 3. Vowel raising for (ay) in narrative style was more frequent among men than women in both areas.

However, when age was cross-tabulated with gender, a surprising pattern emerged. Younger females (78%) seem to have surpassed younger males (62%) in adopting this feature, as indicated in Table 6. The interaction between gender and age is shown in Figure 4. This interesting development will be discussed in Section 6.

5.1.2 *(aw)*

A similar pattern correlated with social factors was found in (aw). As shown in Table 7, (aw) raising was also favored by the northeast side of the island. Although old people had a slightly higher rate of raising than did the young people in the northeast (84% vs. 74%), it was not statistically significant.

Table 5. (ay) raising: region by gender

	Northeast	Southwest	Total
Female	162/191 (85%)	19/170 (11%)	181/361 (50%)
Male	220/235 (94%)	23/89 (26%)	243/324 (75%)
Total	382/426 (90%)	42/259 (16%)	424/685 (62%)

Table 6. (ay) raising: gender by age

	Females	Males	Total
Old (55 +)	74/224 (33%)	172/210 (82%)	246/434 (57%)
Young (55 –)	107/137 (78%)	71/114 (62%)	178/251 (71%)
Total	181/361 (50%)	243/324 (75%)	424/685 (62%)

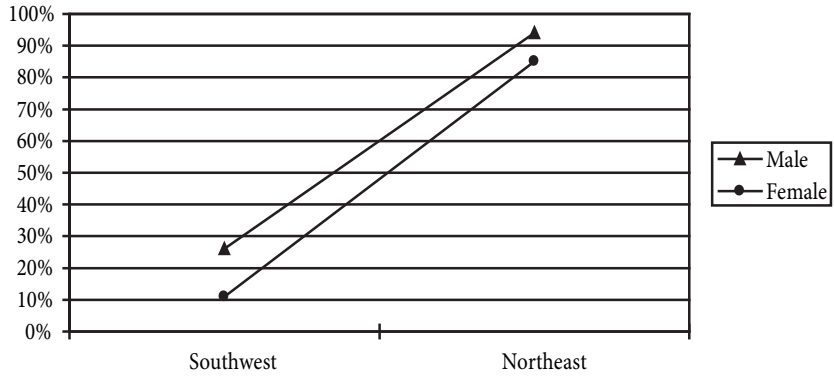

Figure 3. (ay) raising: region by gender

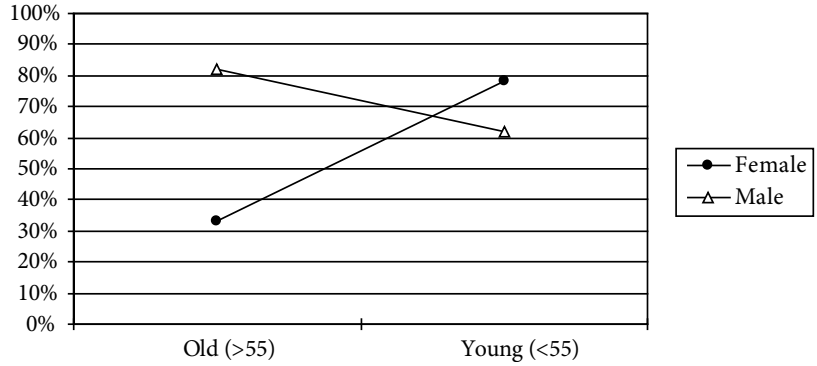

Figure 4. (ay) raising: age by gender

Table 7. (aw) raising: region by age

	Northeast	Southwest	Total
Old (>55)	67/80 (84%)	4/40 (10%)	71/120 (59%)
Young (<55)	35/47 (74%)	4/35 (11%)	39/82 (48%)
Total	102/127 (80%)	8/75 (11%)	110/202 (54%)

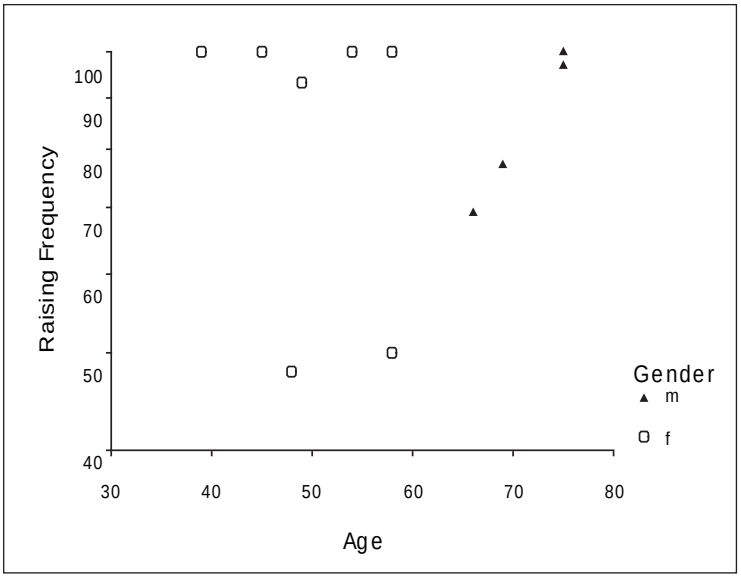

Figure 5. (aw) raising in the Northeast region

Similarly, a scatter plot was drawn to illustrate the lack of correlation between age and the frequency of (aw) raising in the Northeast region ($r = 0.153$, $p = 0.654$), as shown in Figure 5.

Table 8 and Figure 6 also show (aw) raising was favored more by males than females (58% vs. 49%). Similar to (ay) raising, (aw) raising in narrative styles was also used more frequently by men than by women in both areas.

However, once age was cross-tabulated with gender, young females (68%) seem to have surpassed young males (33%) in adopting this feature, as indicated in Table 9. The interaction between gender and age is shown in Figure 7. This interaction between age and gender in (aw) raising is the same as that in (ay) raising and will be discussed further in Section 6.

Table 8. (aw) raising: region by gender

	Northeast	Southwest	Total
Female	40/55 (73%)	1/29 (3%)	41/84 (49%)
Male	62/72 (86%)	7/46 (15%)	69/118 (58%)
Total	102/127 (80%)	8/75 (11%)	110/202 (54%)

Table 9. (aw) raising: age by gender

	Old (> 55)	Young (< 55)	Total
Female	18/50 (36%)	23/34 (68%)	41/84 (49%)
Male	53/70 (76%)	16/48 (33%)	69/118 (58%)
Total	70/120 (59%)	39/82 (48%)	110/202 (54%)

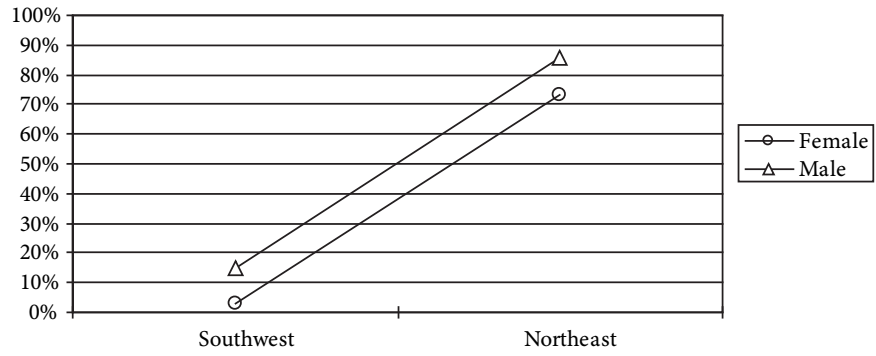

Figure 6. (aw) raising: region by gender

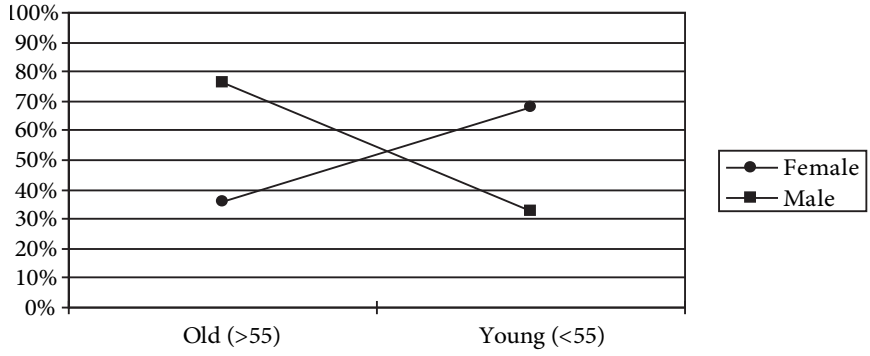

Figure 7. (aw) raising: age by gender

5.2 Stylistic variation

The second stage of our analysis presented the results of word list reading in the two diphthongs and compared the results of the four speakers who had data for both word list reading and narrative styles to answer the question of whether the two diphthongs indicate stylistic variation.

The results of raising in word list style are presented in Table 10. The numbers 1, 0/1, and 0 indicate the percentages of raising are high (60 ~ 100%), mid (40–60%), and low (0 ~ 40%), respectively. Among the four villages in the northeast region, three (Iraralay, Yayo, Iranomilek) indicate high rate of raising of (ay), followed by Ivalino in the mid range between 40–60%. The two villages in the southwest region indicate a low rate of raising.

There is also a clear implicational scale between the two diphthongs in that (ay) raising is progressing faster than (aw). In other words, if a speaker indicates a high level of raising in (aw) by being assigned the number 1, she should also display a high level of raising in (ay), but not vice versa.

Table 10. Raising in word list reading style

	Region	Age	Gender	ay	aw
WXY	Iraralay	40	F	1	1
LYL*	Iraralay	45	F	1	1
ZNY	Yayo	56	F	1	1
YZW	Yayo	50	M	1	1
HDH	Iranomilek	59	M	1	1
XJH	Iranomilek	63	F	1	0
LLM	Ivalino	76	M	0/1	0
XWY	Ivalino	69	F	0/1	0
ZLH	Ivalino	51	F	0	0
ZQL*	Ivalino	48	F	0	0
SSY	Iratay	45	M	0	0
SLZ	Iratay	47	M	0	0
XJY	Iratay	51	F	0	0
ZYJ	Iratay	51	F	0	0
ZSH	Iratay	55	M	0	0
ZXM	Imowrod	41	F	0	0
STM	Imowrod	47	M	0	0
LDY	Imowrod	56	F	0	0
LXS	Imowrod	53	M	0	0
ZZJ*	Imowrod	54	M	0	0
SFS*	Imowrod	59	M	0	0
LZ	Imowrod	77	M	0	0

Table 11. Comparison between styles for (ay) and (aw)

Name	Region	Age	Gender	ay		aw	
				word list	narrative	word list	narrative
LYL*	Iraralay	45	F	100%	67%	100%	100%
ZQL*	Ivalino	48	F	0	87%	0	48%
ZZJ*	Imowrod	54	M	0	71%	0	20%
SFS*	Imowrod	59	M	0	45%	0	0

Table 11 shows the results of the four speakers who had data for both word list reading and narrative styles. Except for the speaker LYL, a young woman in the Iraralay region who had 100% raising in the word list reading style for both (ay) and (aw), the rest of the speakers had more raising in the narrative style but showed no raising categorically in word list reading. The results confirmed that the two diphthongs had moved from indicators to markers because there was a stylistic difference.

6. Discussion

The most important finding of this paper is that although vowel raising was a regional vernacular feature and was generally preferred by men, young women (below 55 years old) on the island were in the lead in the development of this feature in narrative style. A young woman in the northeast region even exceeded her own rate of raising in the narrative style by using categorical raising in word list style. Unfortunately, as an endangered language, we could not find enough capable speakers under 30 to serve as participants, thus sound change in progress could not be tested.

Our data suggest that the phenomena of (ay) and (aw) raising might have begun as cases of change from below (the level of consciousness) but have gradually developed into cases of change from above (the level of consciousness) because native speakers were aware of this variation and even commented on it. As shown in the different input probability weights in Table 3, (ay) raising was probably progressing further than (aw) raising in terms of change from above.

In the following excerpt (1), a middle aged man from Iraralay comments on the variation between *ivey* and *ivay*, while discussing the importance of the *ivey* fish caught in the evening.

(1) *o* *ivey* *iya* *am,*
NOM[4] fish.name this TM

i-panci *d(a)* *ori* *no* *kadoan* *l-ili* *a* *ivay* *koan* *da,*
IF-call 3PG that GEN other RED-village LIN fish.name say 3PG

mi-ángay *ori* *aka* *no* *ivey,*
AF-same that and GEN fish.name

ta *yamen* *Jiraraley* *am,*
because 1PNEXCLF village.name TM

i-panci *namen* *a* *ivey,*
IF-call 1PGEXCL LIN fish.name

sira *do* *Jimowrod* *a* *Jiratey* *am,*
3PNOM LOC village.name LIN village.name TM

i-panci *da* *ivay,*
IF-call 3PG fish.name

"*Ivey* is called *ivay* in other villages. But it has the same meaning as *ivey*. We in Iraraley call it *ivey*, whereas those in Imowrod and Iratey call it *ivay*."

As shown in excerpt (1), the word final (ay) indicates variation. The speaker draws the distinction between his raised pronunciation of *ivey* and the non-raised *ivay* in the other two villages, i.e., *Imowrod* and *Iratey*. Notice in his reference to *Iratey*, he uses his raised variant [ey], although the speakers from that non-raising area would refer to their own village as *Iratay*.

As vowel raising has shifted to the status of change from above, it is natural for young women to adopt this non-stigmatized feature, in the same way as New Zealand women who were involved in the non-stigmatized on-going sound change of the front vowels (Maclagan, Gordon & Lewis 1999). Similar to Haeri's (1994) study on the female speakers of Cairene Arabic (Haeri 1994) who increased palatalization in the word list style, our study also found a young female in Iraralay who increased vowel raising in the formal style. However, due to the small number of speakers who provided comparable data, this speculation awaits further confirmation.

It is also reasonable to infer that vowel raising is a vernacular feature, as the percentages increased in the narrative style and decreased in the word list reading style. As many sociolinguistic studies have found that young women are often the

4. Abbreviations: 1PGEXCL = first person plural genitive exclusive, 1PNEXCLF= first person plural nominative exclusive free, 3PNOM = third person nominative, 3PG = third person genitive, AF = agent focus, GEN= genitive, IF = instrumental focus, LIN = linker, LOC = locative, NOM = nominative marker, RED= reduplication, TM = topic marker.

innovators of sound changes that are not stigmatized, but tend to be conservative in sound changes or with stable sociolinguistic variations that are stigmatized (Labov 1990, 1994), we have shown that young women on Orchid Island are the innovators of vowel raising, using the vernacular feature more than men. This probably indicates that young women on the island are gaining visibility and power, commensurate with the status enjoyed by traditional men. As the language and culture of Yami are dying on the island with a language shift to Chinese and increasing dependence on tourism, the traditional division of labor and role expectations of males and females are no longer clear-cut.

One of the middle-aged Ivalino women in the Northeast area reported that she used to question her mother on the legitimacy of social discrimination against Yami women.[5] Her mother replied, "That's how it should be. In the future, can you do what men do? Will you bury the dead? Will you dig in the mountains to cultivate the land? If someone bullies you, can you outfight a man? Will you build boats? Will you build houses? Those are all jobs for men, so do not think yourself higher than your brothers." However, as the island is moving away from sustainable agriculture and has become increasingly sinicized, the division of gender roles is being redefined. In addition to the economic factor that has changed women's roles in the society, Christianity has also played an important role. For example, the Ivalino woman attributed the change of her status to the spread of Christianity on the island: "Today, I am very happy to have faith in God. Now it is very different from the past. Now everywhere seems like heaven to me, and I can often have a fish to myself."

Today the number of women has surpassed that of men in taking up important roles in schools, churches, and civil services on the island, although politics is still mostly the domain of males.[6] Following Eckert's (1989) interpretation, women's roles in the community would explain why young females were in the lead in the indigenous community.

Being a vernacular feature, the vowel raising rule may not have been stigmatized but rather served as a positive identity marker, as explained in Eckert (2000: 227). Vowel raising of the two diphthongs on Orchid Island started as a regional and male feature but is indexed with positive social meanings as young women begin to surpass young men in adopting this vernacular feature. As the distinction of traditional gender roles has become blurred in the Yami society, the

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5. The complete text is available from the on-line Yami corpora: http://yamiproject.cs.pu.edu.tw/yami/corpus/corpus_41.htm

6. The four candidates of a recent Township Chief election were all males. Their political speeches can be found at: http://yamiproject.cs.pu.edu.tw/yami/corpus3.htm

ethnic contrast between Yami and "outsiders" (i.e., Chinese) seems to be increasingly salient.

As indigenous languages are gaining visibility in Taiwan, the northeast region, being further away from the township office and the airport and thus preserving their indigenous language the best, is now taking the lead in language revitalization. The geographical feature of diphthong raising is thus indexed with a new social meaning corresponding to the social mobility of women.

7. Conclusion

This study has provided another interesting case of diphthong raising in post-insular island communities. Using data from our Yami corpus, we found that region, preceding environments and gender could account for vowel raising of the two diphthongs on Orchid Island. We also confirmed that vowel raising was indeed a vernacular feature because, whereas the narrative style promoted vowel raising, word list reading inhibited it.

Our results confirmed that vowel raising was primarily a geographical feature and that the rates of change had formed a clear isogloss separating the northeast from the southwest varieties. Although vowel raising of (ay) and (aw) followed the same constraint rankings for the internal factor group, determined by the feature of [continuant], vowel raising of (ay) had progressed slightly faster than that of (aw).

There was stylistic variation with more raising in narrative style than in word list style. Although vowel raising was preferred by males, young females seem to have surpassed young males in adopting this feature in narrative style, a phenomenon corresponding to the social mobility of women. We predicted that as the sound change has shifted to the status of change from above, young females should increase vowel raising in the formal word list reading style. This speculation awaits further confirmation

Perhaps vowel raising has ceased to be a gender marker and shifted to an ethnic identity marker.[7] As young women are gaining status on the island and as the indigenous language is dying, the regional feature is no longer needed to distinguish gender roles but is used to contrast Yami with Chinese.

The Northeast region is taking the lead in reversing the loss of Yami language vitality since Iraralay is the very last community on the island where children still interact in Yami, so their regional feature of diphthong raising is finally gaining

7. Thanks go to Daming Xu, who pointed out this interpretation to us.

ground and seems to be gradually spreading to the rest of the island. Unfortunately, this prediction can never be confirmed unless the dying language has a chance to regain its vitality.

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CHAPTER 12

Phonological markedness, regional identity, and sex in Mayan

The fricativization of intervocalic /l/ in K'iche'

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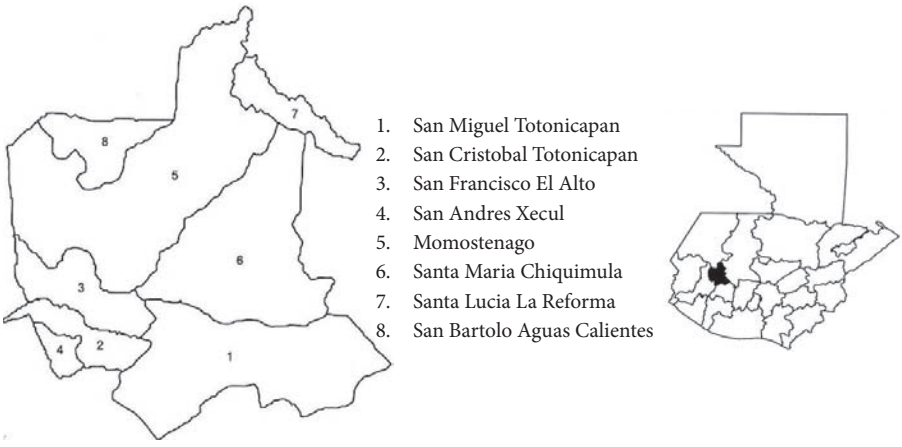
This paper is a quantitative study of the intervocalic fricativization of /l/, a marked allophonic process across languages, which has nevertheless become a linguistic stereotype of the dialect of K'iche' Mayan spoken in the township of Santa Maria Chiquimula (MAR) in the highlands of Western Guatemala. Based on the quantitative analysis of 1856 tokens of intervocalic /l/ from sociolinguistic interviews and recordings of 85 speakers (34 women and 51 men), I will show that it is precisely its status as a regional stereotype that has led it to override its phonetic markedness to spread throughout the township and beyond as ethnolinguistic marker of MAR. A pattern of sociolinguistic variation has emerged in which women lead over men in frequency of the fricative variant. There is also variation related to frequency of contact with speakers of other dialects. Men are more sensitive to the stigmatization of fricativized /l/ due to their more frequent contact with speakers of other dialects of K'iche', and therefore accommodate more than women, contradicting the well known sociolinguistic principle that women tend to avoid stigmatized forms more than men.

1. The K'iche' language and the fricativization of /l/

K'iche' is a language of the Eastern branch of the Mayan stock spoken in the western highlands of Guatemala by more than one million people (Map 1). It is well known among Mesoamericanists as the language in which the *Popol Vuh* and various other famous indigenous chronicles were written. It is also the native language of Rigoberta Menchu Tum, Nobel Peace Prize winner in 1992.

One of the features that make K'iche' special among Mayan languages is its extraordinary dialectal diversity. According to T. Kaufman, at least five groups of dialects can be recognized based on a series of isogloss bundles (Kaufman, Unpub.). Most of these isoglosses are lexical, but in some cases phonological

Map 1. Geographic distribution of the Mayan languages spoken in Guatemala (Source: BEST project 520-0374 USAID-Guatemala)



Map 2. Map of Santa Maria Chiquimula and neighboring townships

processes are involved, such as in the phonetic realization of short vowels as lax vowels, characteristic of some Central dialects (Campbell 1977). Sometimes isoglosses are defined in terms of phonetically marked realizations of particular phonemes.

In the township of Santa Maria Chiquimula, located in the department of Totonicapan (Map 2), the intervocalic fricativization of /l/, a rare phenomenon across languages, has become an ethnolinguistic stereotype of *Chiquimulas*[1] and their speech, including hamlets in neighboring townships inhabited by Chiquimula migrants.

The fricativization of /l/ in MAR is a variable feature, showing a characteristic pattern of sociolinguistic variation which will be examined in the following sections. I will start with a brief sketch of K'iche' phonology and will continue with a detailed description of the linguistic facts of intervocalic fricativization of /l/. Then I will present a quantitative analysis and a discussion of the internal linguistic and sociolinguistic variables involved, focusing on the role of contact with other dialects in explaining the differences between the frequencies of men and women.

2. Allophonic variation and intervocalic /l/ in MAR

Figures 1 and 2 below present the phonemic inventory of K'iche'.

p	t	c	ʧ	k	q	ʔ
ɓ	t'	c'	ʧ'	k'	q'	
	s			x	h	
m	n					
	l					
	r					
w			j			

Figure 1. Consonantal inventory of K'iche'

i/i:		u/u:
e/e:		o/o:
	a/a:	

Figure 2. Vocalic inventory of K'iche'

1. The Spanish term used by Chiquimulans to refer to themselves when speaking K'iche'.

The consonantal inventory of K'iche' is rather conservative in Mayan; it preserves the velar series from Proto-Maya and does not have any of the innovations developed by some other languages: retroflex consonantal series, tone, etc.

The vocalic inventory consists of the five vowels: a, e, i, o, u. Vowel length is phonemic. Primary stress falls on the ultima and secondary stress on every uneven syllable counted from right to left. Unstressed vowels are weakened to a central vowel (ə or ɨ) and variably delete (as in *sìɓaláx* > *sìɓaláx*)[2] 'very.'

In most dialects /l/ is phonetically realized as a sonorant liquid [l], except in word final position where it devoices. However, MAR shows three additional intervocalic allophones: [l], [ɬ][3] and [ð].[4] The last of these is the most noticeable to speakers of other dialects; it is a veritable stereotype of MAR inside and outside Santa Maria Chiquimula (Table 1). The least frequent variant is velarized [ɬ], found only when /l/ is both preceded and followed by [a].[5] Native speakers are not consciously aware of this allophone, which they do not distinguish from [l]. In the environment a_a, [ɬ] alternates with [l] and [ð], being by far the least frequent. In my MAR 2005 corpus[6] of 85 interviews with native speakers, the total frequency of [ɬ] was only 0.01 (N = 1262). In contrast, the frequencies of [ð] and [l] in the same environment were 0.64 and 0.35 respectively.

Unlike [ɬ], which is restricted to the environment, a_a, [ð] has a much wider distribution, always in variation with [l]. The relative frequencies of [l] and [ð] depend on the preceding and following vowel or vowels. As for velarized [ɬ], no other linguistic or social factor group correlates significantly with it.[7] Fricative [ð] is restricted to the following environments, where it occurs variably: [l] > [ð] / a_a, o_o, i_a, and o_a.

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2. Primary stress will be marked when relevant with the acute accent and secondary stress with the grave.

3. Like the English 'dark' <l>.

4. Like intervocalic <d> in Spanish *cada* and *miedo*.

5. This environment will be represented by a_a throughout this article.

6. The interviews were conducted between January and November 2005.

7. Since the number of velarized tokens in my corpus was so small (N = 12), I decided not to separate them from [l] and therefore I treated both of them as [l] in the rest of this work.

Table 1. Some examples of the intervocalic allophony of /l/ in MAR

Liquid	Fricative	Gloss
alah	aðah	boy
ʃinalaʃ	ʃinaðaʃ	I was born
xe na laʔ	xenðaʔ[8]	thus
uc ɓa laʔ	uc ɓa ðaʔ	that's fine
xolom	xoðom	head
colom	coðom	wood plank
ʧilaʔ	ʧiðaʔ	over there
uʧolaxil	uʧoðaxil	its way
loqʾolax	loqʾoðax	holy

Table 2. Frequencies of fricativization of intervocalic /l/

Phonetic environment	Total no. of tokens with intervocalic /l/	Frequency of [ð] realizations
o_a	11	0.91
o_o	153	0.86
a_a	1262	0.64
i_a	437	0.10

3. Vocalic environment and fricativization of /l/

Not all intervocalic environments license the fricativization of /l/. The most favorable are o_a and o_o, as can be seen in Table 2.

The least favorable environment is i_a, which is not common in K'iche', though it comprises adverbials occurring frequently in speech such as *ʧila* 'over there,' and *ucilax* 'very good,' variably realized as [uciðax].

The fricativization of intervocalic [l] is ordered before the deletion of unstressed vowels; fricative [ð] occurs even when the preceding or following vowel has been deleted, as in (1) below:

(1) [alaɓom] > [aðaɓom] > [aðɓom] 'boys'

The only phonotactic restriction is that [l] must be in onset position as K'iche' does not license syllables without onsets. Fricativization occurs across word boundaries, particularly across strings of deictic and discourse particles, a characteristic word class of Kichean languages (2).

8. After deletion of unstressed [a] in [na].

(2) [xe na laʔ] > [xe na ðaʔ] > [xenðaʔ] 'thus'

The particle *xe* in (2) is a demonstrative, which often forms compounds with other deictics such as the article *ri* in *ri-xe* 'they.' The particle *na* is an adverbial that can be glossed as 'still,' and *laʔ* is a distal deictic.

Intervocalic [ð] occurs in all word classes having the relevant intervocalic environments but is restricted in words of Spanish origin, which will be discussed in the following section.

4. Spanish loanwords

In words of Spanish origin, fricativization is restricted to nativized loanwords. These can be distinguished from nonce borrowings by phoneme substitution and the adoption of K'iche' stress. Phoneme substitution includes the replacement of Spanish voiced stops by homorganic voiceless stops, and the Spanish labio-dental fricative /f/ by [p]. Spanish stress is replaced by primary stress on the ultima and secondary stress on the other odd numbered syllables. Unstressed syllables are weakened or deleted. Table 3 shows a few examples of established loanwords. The acute accent [´] is used throughout to represent primary stress, and the grave for secondary stress.

In [paðá], from Spanish [pála], stress shifted from the penultima to the ultima, and intervocalic [l] was replaced by [ð]. In [pàntoðón], no primary stress shift was necessary as Spanish 'pantalón' is stressed on the ultima. However, [a] in the second syllable assimilated to [o]. There are a few other cases of vocalic assimilation across an intervening consonant in K'iche'.[9]

9. Mondloch (1978) argues that the forms [nu] and [k'u] in [nu k'u la] 'even hither' are really the result of vocalic assimilation to the [u] in [uloq], a directional particle of which [la] would be an allomorph. Both cases involve round vowels, [o] in [pàntoðón], and [u] in [nu k'u la], which looks like vowel harmony with roundedness as the spreading feature. However, it is not clear how [la] wound up replacing [uloq] in [nu k'u la]. Also [nu k'u] is found in contexts where roundedness harmony triggered by the leftmost clitic is out of the question as in [nu k'u ri] 'and then.' Rather than vowel harmony, it seems to me that the shift from [a] to [o] involves a reconstruction of a weakened [a]. Due to weakening in unstressed position, the original [a] was centralized or deleted, and the segment was reconstructed as a round vowel under influence from the following stressed [o]. Furthermore, the change from [a] to [o] is not a categorical condition for /l/ fricativization in loanwords, as there are two cases of [pàntaðón] in my corpus.

Table 3. Some established K'iche' loanwords in MAR

Spanish	K'iche'	Gloss
tiyénda	tiyentá	store
trígo	trikó	wheat
rúda	rorá	garden rue
pála	paðá	shovel
pantalón	pàntoðón	pants

5. Phonetic grounds for the fricativization of intervocalic /l/

The alternation [l] ~ [ð], while not unnatural, is definitely uncommon across languages, and unknown elsewhere in Mayan. To the best of my knowledge, it has been reported twice in the literature. In Bugotu, an Oceanic language spoken in the Solomon Islands, *l, which is preserved in all closely related languages, has become the voiced interdental fricative (Levy 1979). In Woods Cree, an Algonquian language spoken in the provinces of Manitoba and Saskatchewan in Canada, proto-Algonquian *l is realized as [ð], and [l] alternates with [ð] in certain registers, as documented by Starks & Ballard (2005). The phonetic motivation for this change involves "slippage in timing," as discussed by Browman & Goldstein; failure to make complete closure with the tip of the tongue produces a sound indistinguishable from a voiced dental fricative, which is interpreted as such by learners (Browman & Goldstein 2000).[10]

Sonorant consonants in K'iche' tend to devoice word-finally, acquiring phonetic features of fricatives. However, the extension of this process to word-medial position is unique to /l/ in MAR. Consonants that devoice in word final position include [l], [r], and [y]. The acoustic result of the devoicing of /l/ and /y/ is a lateral voiceless sibilant with noticeably more turbulence than the intervocalic fricative [ð]. Hence, devoiced [l] in word final position and fricativized intervocalic [l] differ at least in voicing and degree of turbulence. Although these two processes cannot be directly related, they show that the fricativization of liquids is not alien to K'iche'. Rhotic /r/ is realized as a retroflex fricative in word-final position, as explained above. Both /l/ and /r/ pattern in the same way in word final position, losing their sonorant quality and becoming fricatives. However, in word medial

10. There seem to be two degrees of time-slippage: one involved in the velar [ɬ] realization of /l/, and another in the fricative realization [ð]. For [ɬ], there is contact between the alveolar region and the tip of the tongue. However, it is shorter in duration and the area of contact is smaller than for [l]. For [ð], there is no alveolar contact, as [ð] is a purely interdental segment.

position they behave differently; /r/ does not fricativize intervocalically and is always realized as a tap as in [kara:x] '(s)he wants.'

Regarding the vocalic environments that license fricativization, the crucial feature seems to be vowel aperture, closely related to vowel sonority. Crucially, [a] and [o] are the most sonorant vowels in the vocalic inventory of K'iche' as measured by F1 values (Donegan 1985: 61–63). In all three environments that license fricativization, either [a], [o] or both are involved. What distinguishes intervocalic fricativization in MAR from intervocalic fricativization in Bugotu and Woods Cree, is that in the latter languages, vowel sonority is not involved. In Bugotu and Woods Cree the vocalic features preceding and following /l/ do not influence the outcome of fricativization, as it is conditional on the presence or absence of the intervocalic environment, not on the specific vocalic segments that delimit it.

The vowel /a/ is phonetically the most sonorant (Donegan 1985: 59–63), and yet the environment a_a is not the most favorable to fricativization in MAR. There isn't a proportional relation between ease of fricativization and relative sonority of [a] and [o]. Nevertheless, fricativization is spreading to the environment i_a (f = 0.10), in which [a] is the licensing sonorant segment. Crucially, it is not attested in the environment i_o, in which the less sonorant vowel [o] would be the licensor. Lexical diffusion does not seem to be involved in the spread of fricativization to i_a as it is not limited to a particular set of words. The words where fricativization occurs did not form a significant factor group in my VARBRUL runs.

6. Sociolinguistic variation

6.1 Background

The fricativization of intervocalic /l/ is one of the most striking features of MAR. As we have seen before, no other dialect of K'iche' has been reported to have it, although today it is no longer restricted to the territory of Santa Maria Chiquimula. In hamlets originally settled by immigrants from Santa Maria in Patzite[11] and Sacapulas,[12] K'iche' speakers fricativize /l/ in the same environments. Some of these migrations date to the late 19th and early 20th centuries (McCreery 1994). For example, in the hamlet of Pa Raxtut in Sacapulas, originally settled by immigrants from Santa Maria, people still identify as Chiquimulans and use many

11. A neighboring township settled originally by Chiquimulan settlers. It was originally part of the territory of Santa Cruz del Quiche in the department of Quiche.

12. A distant township in the department of Quiche. Most 'Sacapultecos' are speakers of a different dialect of K'iche'. In five hamlets of Sakapulteko, a different Kichean language is spoken.

of the same symbols of ethnic identity. Women wear the same traditional outfit, and Catholics celebrate the same religious feasts and have the same patron saint as Chiquimulans. However, most residents have lost all family ties to Santa Maria, and have never visited it. Contact with MAR is mostly through traveling merchants and vendors from Santa Maria regularly coming to sell their wares at the hamlet.

The fact that speakers in Pa Raxtut fricativize /l/ shows that this feature must be at least 100 years old. This is in fact the only data we have as to the age of [ð] in MAR. Unfortunately, there are no written records or witness accounts from that time. The baptismal records in the parish show the spelling of K'iche' last names from as early as the middle of the 16th century. We know that the early Franciscan missionaries in this area spoke K'iche' (Saint-Lu 1968). However, their spelling conventions were phonemic and therefore it is impossible to know if /l/ was fricativized intervocalically at the time. In Pa Raxtut /l/ fricativization has endured despite the loss of regular contact with Santa Maria and the existence of stereotypes of Chiquimulans in Sacapulas. *Sacapultecos* stereotype the residents of Pa Raxtut as poor and backward strangers (Ricardo Falla p.c.). Many Pa Raxtut residents were killed or disappeared during the Civil War in the 1980's. Some of this violence was the result of simmering conflicts with neighboring Sacapulas (REMHI 1999).

6.2 Results

The data was analyzed quantitatively by means of a binomial logistic regression using the freeware software GOLDVARB. The independent variables examined included sex, age group, education, occupation, and hamlet of provenience, though the only social environments found to be significant factor groups were sex and age (Table 4). A total of 85 speakers were analyzed (34 women and 51 men) for a total of 1856 tokens. All were born and raised in Santa Maria Chiquimula by Chiquimulan parents or relatives. The 64 recordings were monolingual interviews conducted by myself (56), being a fluent non-native speaker of MAR, by Fr. Ricardo Falla from the Santa Maria Chiquimula Catholic parish (7), also a fluent non-native speaker of MAR, and by Jose Cac, a member of a Catholic youth group and a native speaker of MAR (1). The shortest interview lasted only 15 minutes and the longest almost two hours. The topic of the interviews was the interviewee's life history, focusing on dramatic events such as religious conversion, personal anecdotes from the civil war in the 1980's, marriage and recent changes in the interviewee's hamlet. Other recordings included various public events such as school lessons, church sermons and radio broadcasts in K'iche'. The recording devices

Table 4. Factor group weights of best-fit model

Factor groups	Factors	Weights
Sex	Females	0.576
	Males	0.446
Age Group	14–29	0.544
	30–49	0.394
	50+	0.536
Vocalic Environment	a_a	0.640
	o_o	0.845
	o_a	0.820
	i_a	0.093
Input = 0.522	Log likelihood = –979.752	

Table 5. Cross-tabulation of sex vs. age group for /l/ fricativization

Age group	Females		Males	
	N	Frequency of [ð]	N	Frequency of [ð]
14–29	343	.65	565	.56
30–49	181	.54	333	.35
50+	239	.68	186	.51

used were a Sony Minidisc recorder MZ-R700 and a Marantz PMD 660 DAT recorder. The microphone was a Sony lap-size ECM-717. The step/up-step/down procedure found the following environments to be significant (Table 4).

Speaker sex and age group were the only two sociolinguistic variables correlating significantly with frequency of fricativization. The data from my corpus shows that women fricativize more than men for all age groups, as can be seen in Table 5.

The VARBRUL analysis converged for age group, sex and vocalic environment. For sex, the weight values were 0.575 for women and 0.447 for men (see Table 4). The percentage difference between men and women (Table 5) was 17% for the 50+ age group, 20% for the 30–49 group and 9% for the 14–29 group.

Figure 3 shows that for the middle age group there is a significant fall in the frequency of fricativization. The percentages for men drop from the youngest to the middle age group by 22%, and go up again from the middle to the oldest group by 17%. The pattern is similar for women, although somewhat less sharp. From the youngest to the middle group there is a drop of 9%, and a rise from the middle to the oldest group of 14%. The middle group includes fundamentally people of working age, most of whom engage in frequent travel outside Santa Maria. This group is particularly sensitive to the stereotyping of marked features

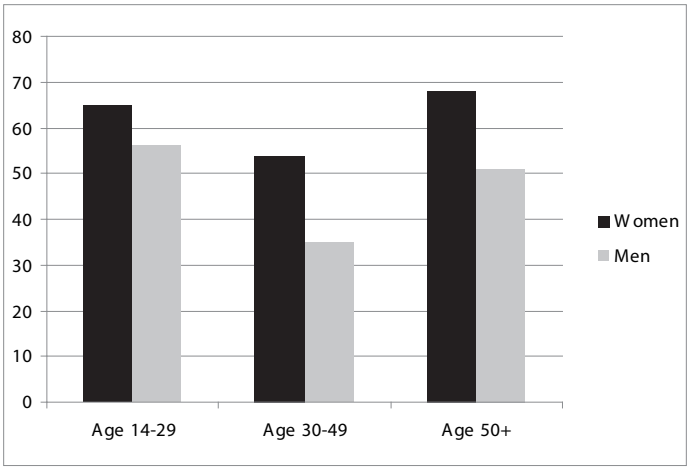

Figure 3. Percentages of intervocalic /l/ fricativization

of MAR. Figure 3 shows a pattern of variation in which the middle-aged speakers, especially the men, are avoiding the marked [ð] allophone. Speakers in this group include community leaders, catechists, and several family heads. Most of them have little formal education but crucially their livelihood and social standing depends on extended networks involving speakers of other dialects of K'iche', which has sensitivized them to the [ð] stereotype. For the youngest and oldest groups the pressure to avoid [ð] is smaller. The youngest group includes speakers who are still in school and do not regularly engage in trade. The oldest group includes elderly speakers, especially women, who have seldom engaged in regular travel for work reasons. The full incorporation of women to trade outside the territory of Santa Maria is a relatively recent development, as we will see below.

7. Santa Maria Chiquimula, social history, and linguistic stereotypes

Santa Maria Chiquimula is a township of about 45,000 inhabitants spread out over an irregular territory of high mountains and deep ravines. Only 5,000 people live in the main town and county seat. The rest live in 16 rural circumscriptions subdivided into fairly spread out hamlets often associated with patrilineages called *kalpul* in K'iche'. Chiquimulans' main occupation used to be subsistence agriculture combined with periodic trips to the cotton, sugar cane and coffee plantations in the southern piedmont of Guatemala to work as field hands in the cotton, sugar and coffee harvests. The hamlet was, and to a large extent still is, the center of social life. Villagers still visit the town every Thursday for the weekly market, and participate in the same religious and political institutions such as religious

sodalities, Pentecostal churches, and the various cargos[13] in the *q'atɓal ci:x* or city hall. Until the beginning of the 20th century, relative isolation and economic self-sufficiency made most Chiquimulans spend much of their lives in Santa Maria, depending on local social networks for survival and social prestige.

Linguistically, these social conditions favored the spread of internal innovations, especially when they became markers and stereotypes of local speech, such as the [ð] allophone of /l/ in intervocalic position. As we have seen earlier, we have no data to assess how old this innovation is. All we can say at this point is that at the beginning of the 20th century it was a feature of MAR, although we cannot be sure whether it had the same social distribution it has today.

Santa Maria Chiquimula is considered a poor, backward township by its neighbors. It borders on three sides with wealthy K'iche'-speaking townships, seats of huge weekly markets and renowned in Guatemala for their small industry and trade: Totonicapán, Momostenango and San Francisco el Alto (Map 2). For K'iche' speakers in these towns, Chiquimulan speech indexes poverty and isolation. In visits to Totonicapan and San Francisco el Alto (Map 2), I was often told how poor and, until recently, how isolated Santa Maria Chiquimula was. Chiquimulans are considered distrustful and violent, and so wary of strangers as to avoid sending their children to school (Marco Tulio Cutz p.c.; Ricardo Falla p.c.). However, they seldom had to confront this prejudice as very few depended for their livelihood on trade with their neighbors. This began to change about 80 years ago when population growth and reduced subsistence production in agriculture made many Chiquimulans seek alternative sources of income. Many migrated to other townships, in some cases creating new hamlets populated entirely by migrants. Others became traveling merchants or tailors producing for or selling in the regional markets of San Francisco el Alto, Momostenango or Totonicapán. Still others worked seasonally as field hands in the southern coast plantations.

Today very few Chiquimulans depend on agriculture to make a living. Most are traveling merchants or vendors trading as far away as Guatemala City, southern Mexico, and El Salvador. Furthermore, education has become more common and widespread. While few Chiquimulans get university degrees today, many get high school and teaching certificates. Numerous high school graduates work in schools, NGO's, and government offices, often traveling far and wide across Guatemala. Many Chiquimulans today depend for their livelihood on social networks extending beyond Santa Maria.

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13. Cargos (*pata:n*) are unpaid positions held by men usually for one year at the city hall or religious sodalities. Cargo holders rotate and rarely hold the same position more than once in their lifetime.

For many people of working age, contacts and frequent travel to other K'iche' speaking townships is fundamental for their livelihood and family life. It is not uncommon for Chiquimulan men to marry K'iche' women from other townships.[14] However, in interactions with speakers of other dialects Chiquimulans are often in subordinate positions, as small vendors or tailors in a put-out system of clothes production originating in the town of San Francisco. The linguistic implications of this change in life orientation from isolation and self-sufficiency to dependence on external markets and social networks are important. Chiquimulans trading regularly in other K'iche'-speaking towns now feel the pressure of negative stereotypes to rid their speech of stereotyped fricativized [l]. In my corpus, speakers who have never worked as vendors have some of the highest fricativization frequencies.

One afternoon in the hamlet of Chwa Korral, I recorded a conversation with two 60 year-old male speakers; one had been a vendor most of his life before retiring, and the other was an agriculturalist who had never worked as vendor and at the time of the interview was serving in the cargo of *ax tʃ'amey* 'hamlet marshal'. The difference in frequency of fricativization was 53% between them. Crucially, the vendor's suppliers were from San Francisco el Alto, where MAR is stereotyped, and the areas he visited to sell his wares were on the southern coast, where speakers of the Nahuala (NAH) dialect were predominant. NAH speakers do not fricativize /l/ in intervocalic position, but they have very strong attitudes regarding the purity, clarity, and intelligibility of their own dialect compared to other dialects of K'iche' and Kaqchikel with which they are often in contact (Guarchaj, Diego p.c.; Matzar, Pedro p.c.; Tahay, Manuel p.c.). Most NAH speakers do not have enough exposure to MAR to distinguish it from other Totonicapan dialects (TOT). Both TOT and MAR speakers are known as peddlers through the western highlands and are often subsumed under the category *tʃ'wi miq'inaiɓ* 'people from Totonicapan'.

I have no data regarding southern coast NAH speakers' attitudes toward MAR, but it does not seem likely that Chiquimulans are as openly stigmatized there as in San Francisco el Alto, Momostenango, Totonicapan or Sacapulas. Any pressure to avoid marked features would be the result of speaker accommodation to interlocutors speaking other dialects. Unfortunately, linguistic accommodation in markets has not been studied in Guatemala, even though some of the

14. I did not interview any residents not born in Santa Maria, but I had conversations with them in K'iche', especially with in-married women. Those who fricativized intervocalic /l/ were usually from Patzite, whose population descends from Chiquimulan settlers. I met several Q'eqchi' women from Alta Verapaz who learned K'iche' after moving to Santa Maria with their Chiquimulan husbands. They tended to fricativize intervocalic /l/ like MAR native speakers.

most important markets attract speakers of different dialects and languages. This is particularly true of the large markets of San Francisco el Alto, Momostenango, and Totonicapan.

8. Dialect contact and sociolinguistic variation in MAR

The fricativization of intervocalic /l/ in MAR does not seem to be an ongoing change. Unfortunately, we lack real-time data as we have seen above, though the distribution of frequencies in apparent time does not show differences between the youngest and the oldest age groups. Furthermore, my interviews show evidence of systematic speaker accommodation, including the avoidance of intervocalic [ð], as will be seen below, which is most noticeable among middle-aged interviewees. Attitudes toward MAR are not consistent across different age groups in Santa Maria. Depending on the amount of contact and economic dependence on speakers of other dialects, MAR speakers are more or less prone to modify their speech in the direction of leveling out marked features.

Explicit language ideologies in Santa Maria are very egalitarian in the sense that no linguistic form is regarded as superior. Speakers do not openly say that one dialect is better than others. Language ideologies have not been institutionalized by schools or the linguistic market in the same way as other societies. Therefore, for the field linguist, it is not easy to obtain a sense of the attitudes that actually influence speaker performance. Often they are not explicit ideologies but rather automatic reactions in exchanges with speakers of other dialects.

Furthermore, MAR is emblematic of local identity. A person from outside Santa Maria is never considered a speaker of MAR, in spite of their proficiency and time spent in Santa Maria (De Leon, Eduardo p.c.). If there are no perceptible acoustic differences, MAR speakers will project them onto their interlocutors if necessary as indices of ethnic or regional differences. Very often, when I asked Chiquimulans to describe the differences between their dialect and the next township's, some pointed to what they considered to be categorical differences in features that they themselves used all the time (use of *k'o tax* 'there isn't any' versus the neighboring township's *max*). Others could not think of any particular differences, but they would strongly argue that there were important differences nonetheless, as their speech and the neighbors' could not be the same, in their view.

> *Osea kinkun ta kinɓix ri kič'aɓal pero de ke si k'o udiferensiya, k'olik.*
> I mean, I can't say words in their tongue, but there's definitely a difference.
> (Maria, 24 years, El Rancho)

Since I am not a native speaker of MAR, the interview setting was the kind of situation in which marked forms such as [ð] would be leveled out by groups sensitive to its social value. I detected a few other features that middle-aged speakers modified when addressing me, especially in the first few minutes of the interview. These included the inconsistent use of second person honorific agreement markers and pronouns, which are seldom used in Santa Maria, the use of K'iche' numbers whenever the speaker knew them instead of the more commonly-used Spanish numbers, and the use of archaisms instead of the more frequent Spanish nonce borrowings. MAR speakers feel that these features distinguish their vernacular from 'pure' K'iche'.

Jane and Kenneth Hill have studied language ideologies among speakers of Nahuatl in rural areas of the La Malinche volcano in Puebla, Mexico where they found that *Mexicano legitimo* 'legitimate Mexican,' that is, Nahuatl spoken without Spanish loanwords, is contrasted with *Mexicano mezclado* 'mixed Mexican', the vernacular interspersed heavily with Spanish loanwords and codeswitching. *Mexicano legitimo* is the emblem of local identity and traditional ritual, and it is associated with economic strategies that enhance household independence from jobs in the modern Mexican industrial economy (Hill & Hill 1999). What distinguishes the linguistic purism of Nahuatl peasants in La Malinche from that of MAR speakers in Guatemala is that MAR speakers contrast their vernacular not only with Spanish, but also with 'unmarked' K'iche' dialects that use honorific forms regularly and do not fricativize intervocalic /l/ such as MO and NAH.

9. Sex and sociolinguistic variation in MAR

In my corpus, middle-aged speakers show the highest frequency of leveling of unmarked [l]. Interestingly, men are more sensitive to it than women. Figure 3 above shows that for all age groups, the frequency of fricativization is higher for women.

How does social change in Santa Maria relate to the pattern of variation introduced above? As can be seen in Table 5, females in the oldest age group show the highest frequencies in the entire sample (68%), a good 17% higher than the men. For the middle group the differences are sharper: 54% versus 34%. For the youngest age group, the percentages are 65% versus 56%.

Men were the first to venture into commerce and temporal agricultural work in plantations outside Santa Maria early this century. Being in frequent contact with speakers of other dialects, it is therefore not unexpected that their speech shows the lowest frequency of stereotyped intervocalic [ð] in my interview corpus. While it is conceivable that age grading in females could account for the sex

distribution of [ð] frequencies, there is no other evidence of qualitative differences between the speech of men and women. All of my interviewees stated that there were no differences between men's and women's speech, although for some speakers coarse language was considered improper for women.[15] Therefore, sex differences in the frequencies of intervocalic [ð] are most likely not the result of different internal speech norms for men and women. They are rather a form of "accommodation from above," the result of the conscious attempt by speakers, especially men, to eliminate from their speech those forms that are stereotyped by more powerful social groups, in this case employers, customers, and contacts in neighboring K'iche' speaking townships. That many women have been incorporated to trade and often travel with their family members throughout the highlands is reflected in that they are accommodating, too, although less than men. For many Chiquimulans, especially traveling merchants and government employees who were almost exclusively men until recently, their command of K'iche' is a valuable asset in their trade in other townships. It is their contact with speakers of other dialects, especially in places where their speech is stereotyped, that has provided the motivation for speaker accommodation.

The linguistic behaviour of women in MAR diverges from the generalized linguistic principle that women avoid stigmatized variants more than men (Labov 1990).[16] The principle's formulation should perhaps be amended to say "insofar as women have access to the norms." In MAR awareness of the norms was triggered by contact with speakers of other dialects, a recent experience for female MAR speakers.

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15. I also noticed that a certain sound-symbolic falling intonation common in narratives was much more common in my interviews with women.

16. One well-known exception is Nichols' (1978) study of Gullah.

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CHAPTER 13

The pronunciation of /r/ in Frisian

A comparative study with Dutch and Town Frisian

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West Frisian is an indigenous minority language situated in the north of the Netherlands. The majority language is Dutch. Both languages traditionally have an alveolar [r]. However, during the last century Dutch has acquired two other variants of /r/, namely uvular [r] and approximant [r]. We examined whether the close contact with Dutch has influenced the pronunciation of /r/ in Frisian. Recordings of 26 speakers of Frisian showed alveolar [r] only. However, we did find traces of uvular [r] in Town Frisian, spoken in the older cities in Friesland. This variant is due to contacts between the urban elites in Friesland and in Holland at the beginning of the twentieth century. Apparently, neither in Dutch nor in Town Frisian has uvular [r] been a model for speakers of Frisian. Also, the more recent approximant has not (yet) infiltrated.

1. Introduction

This study is about West Frisian, an indigenous minority language spoken by about 350,000 inhabitants of the province of Friesland in the north of the Netherlands. Dutch, the first national language in the Netherlands, is the dominant language in Friesland. The two languages have typological affinity as both are West Germanic languages. However, whereas Dutch belongs to the branch of continental West Germanic, together with German, Frisian is regarded as North Sea West Germanic, together with English.

Just like the other Germanic languages, both Frisian and Dutch are generally assumed to traditionally have an alveolar type of [r], i.e., the type of [r] which is realized with the tip of the tongue against the alveolar ridge. However, since the end of the nineteenth century Dutch has seen two waves of powerful expansion of other pronunciation variants of /r/. First, there was the spreading of a trilled or fricated uvular [r]. Similar variants are found in present-day varieties of French and German. And more recently many Dutchmen started to adopt an approximant [r]

(in coda position only), similar to the variant found in many varieties of English. So, at the moment three pronunciation variants of /r/ coexist in Dutch, at least in the standard language. In other varieties, both alveolar and uvular [r] are found, but the approximant [ɹ] does not seem to have infiltrated yet.

The goal of the present study is to determine the present-day pronunciation of /r/ in the Frisian language. Given that all speakers of Frisian are also fluent in Dutch, which is the dominant language in all formal domains in the province (education, commerce, administration, media), and with the massive immigration of non-Frisian speaking people, it is not surprising that Frisian has been influenced by Dutch, especially with respect to the lexicon and the morphology (Sjölin 1976; Breuker 1982; and Ytsma 1995). It can be assumed that this influence is also manifested at the phonetic level. However, hardly any sociolinguistic studies have been conducted to probe these phonetic changes in a quantitative manner. The only exception is the study by Feitsma (1989) of the influence of Dutch on sandhi phenomena (syllabification, nasalization, and assimilation). In the present study we focused on the variation and change in the pronunciation of /r/. We specifically wanted to establish whether the traditional Frisian alveolar pronunciation of /r/ is still dominant or has instead been affected by the more recent pronunciation variants in Dutch, i.e. uvular [r] and approximant [ɹ]. As our study is sociolinguistic in nature, we took the factors sex and age into account.

As a reference, we looked at the pronunciation of /r/ by speakers of so-called Town Frisian. This is a separate language variety which developed in some towns of Friesland in the course of the sixteenth century. The lexicon of Town Frisian contains many Dutch words, whereas the grammar and pronunciation resemble (but are not identical with) Frisian. At present Town Frisian is the second language (Town Frisian combined with Dutch) or third language (Town Frisian combined with Dutch and Frisian) of about 26,000 inhabitants of Frisian towns. Most speakers of Town Frisian are living in Leeuwarden, the capital of Friesland. There are two reasons why we think that Town Frisian might have been even more easily influenced by Dutch pronunciation habits than Frisian. First, Town Frisian is spoken in the cities, whereas Frisian is mainly spoken in the countryside. Generally speaking, the cities have been in closer contact with Dutch than the countryside. Second, Town Frisian is typologically closer to Dutch than Frisian, which might facilitate the adoption of yet another element of Dutch. Again the possible effects of the factors sex and age were included.

In Section 2 we will give some background information on the three languages compared in this study, i.e. Dutch, Frisian, and Town Frisian. Most attention will be paid to Frisian and Town Frisian, as English information on these two minority languages is less easy to find than on Dutch. In Section 3 we will present a short overview of the literature on /r/ in the three languages at issue. In Sections 4

and 5 we will describe the method and present the results of our empirical studies of /r/ in Frisian and Town Frisian, respectively. Finally, we will conclude in Section 6 with a general discussion of the findings.

2. Dutch, Frisian, and Town Frisian

2.1 Dutch

Dutch (Dutch *Nederlands*) is the first official language of the Netherlands. In the Netherlands it is the mother tongue of 16 million people. It is also the mother tongue of six million people living in the northern part of Belgium (Flanders).[1] The large majority of speakers of Dutch have a fair command of the standard language, though dialect differences are still considerable, especially in peripheral areas in the south, the north, and the east of the Netherlands and in the whole of Flanders. Linguistically, Dutch belongs to the West Germanic branch of languages. Together with German it constitutes the subgroup of continental West Germanic. For more information on Dutch, see for example Donaldson (1983).

2.2 Frisian

Frisian (Frisian *Frysk*) was recognized as the second official language of the Netherlands in 1970.[2] It is a regional minority language which is the mother tongue of about 350,000 people (Gorter 2003) in Friesland, in the northern part of the country (see Figure 1). This comprises about half of the inhabitants of this province. The number of speakers is slowly diminishing (Gorter 2001b). Frisian is used more frequently in the countryside than in the cities. Three dialect groups are distinguished, namely Kleifries, Woudfries and Zuidhoeks (see Figure 1). These varieties differ mostly at the phonological level and are mutually intelligible; at the

1. Outside of Europe, Dutch is the official language (but not necessarily the mother tongue) of the inhabitants of Surinam and the Dutch Antilles. Indonesia has been independent since 1948, but there are still quite a few older people who speak the language well.

2. Instead of the term "Frisian," the minority language spoken in the Dutch province of Friesland is also referred to as West Frisian, to distinguish this variety from the two other branches of Frisian, namely East Frisian and North Frisian. North Frisian is spoken by 10,000 people on the North Frisian islands and along the shores of the North Sea in Schleswig-Holstein, just below the Danish border. East Frisian is spoken by 1,000 people in Saterland, between the German city of Oldenburg and the Dutch border.

periphery of the province there are three non-Frisian areas with separate varieties, namely Bildts, Stellingwerfs and Kollumerlands (see Figure 1).

The position of Frisian has been characterized as being between a vernacular and a standard language (Feitsma 1978). Frisian is spoken more by the lower social classes than by the higher social classes. It is heard mostly in the informal domains of society, for example at home within the family, in shops, in the schoolyard and at sports events. In the formal domains, Dutch is the dominant language, although efforts are being made to promote the use of Frisian. Frisian is used and taught to a limited extent in primary and secondary education. There is no Frisian-language university. Only a small minority of the inhabitants of Friesland (17%) is able to write Frisian, but most (65%) report being able to read Frisian (Gorter 2001b).

Just like Dutch, Frisian belongs to the West Germanic branch of languages. However, it is not part of the continental but of the North Sea Germanic subgroup, together with English. Of all Old Germanic dialects that used to be spoken on the continent, Old Frisian is most closely related to Old English. There are some remnants of this close historic relationship. A lexical example is Frisian *kaai* [kaːj], cognate with English *key* [kiː], as opposed to Dutch *sleutel* [sløtəl] and German *schlüssel* [ʃlysəl]. A phonological example is Frisian *tsiis* [tsiːs], which can be compared to English *cheese* [ʧiːz], i.e., with palatalised onsets, as opposed to Dutch *kaas* [kaːs] and German *käse* [keːzə], which retain the velar onset. However, in the course of time Frisian has increasingly been influenced by Dutch (Sjölin 1976, Breuker 1982, Ytsma 1995). That is why present-day Frisian shows a greater resemblance to Dutch than to English. This holds for the sound system as well as for the lexicon and for the grammar. A description in English of the linguistic aspects of Frisian can be found in Hoekstra & Tiersma (1994), Tiersma (1999), and Hoekstra (2001). Information on sociolinguistic and language-political aspects is given by Gorter (2001b).

It is assumed that in earlier times Frisian was spoken in a much vaster area than nowadays, covering the whole North Sea coast from the river Eems in current Germany to the river Old Rhine just north of The Hague in the Netherlands. Around 1500, Friesland lost its political independence. The upper class opted for (a mixture with) Dutch. Frisian disappeared from the public domain and only kept a home function. For centuries Frisian was mainly spoken, especially by the farmers, and hardly ever written. Frisian had a low status. This situation changed after World War II. Frisian has now regained a limited position in education, media, public administration and law.

Figure 1. Linguistic landscape of Friesland. The black dots indicate the seven towns where Town Frisian is spoken. Light grey indicates the Frisian-speaking area. Middle grey indicates the non-Frisian regions.

2.3 Town Frisian

Town Frisian (Frisian *Stedsk* or *Stedfrysk*) is spoken by 26,300 people (Gorter 2001a) in seven towns in Friesland, namely Dokkum, Leeuwarden (largest population, namely 12,750), Franeker, Harlingen, Bolsward, Sneek, and Stavoren (see Figure 1). These towns are surrounded by Frisian-speaking countryside and thus constitute small language islands.

Town Frisian has often been described as a "mixed language." The Town Frisian lexicon shares many elements with Dutch, whereas the Town Frisian grammar and pronunciation resemble Frisian (Duijff 2002; Van Bree 2001b). Town Frisian dates from the beginning of the sixteenth century. In that period there was a substantial immigration of Dutch-speaking civil servants and merchants in the Frisian towns. The Frisian townspeople were unable to communicate with these

"foreigners" and adapted their language (Hof 1956; Hellinga 1940; and Jonkman 1993). Apparently, Dutch had more prestige than Frisian; otherwise the adaptation would have been the other way around.

According to Van Bree (2001a) the acquisition of Dutch was limited to the most conspicuous elements, i.e. content words and striking sound deviations in the stressed syllables. These elements are considered to be relatively unstable, which means that they can easily be adopted from another language. For the rest the townspeople stuck to their own Frisian way of speaking. Later, the Dutch/Frisian elements were conventionalized and kept as fixed characteristics of Town Frisian. A short description in English of Town Frisian can be found in Jonkman (1993).

Most likely, Town Frisian originated in the higher and middle classes, as these had the most intensive contacts with the Dutch-speaking civil servants and merchants. Gradually, Town Frisian spread to the other layers of the urban population. For centuries, Town Frisian was spoken by all social classes. It had a higher status than Frisian, which was seen as the language of the peasants. This started changing in the second half of the nineteenth century. The higher classes began imitating the "distinguished language" of the upper classes in Holland (e.g., The Hague, Leiden, and Dordrecht). The downward trend accelerated in the first decades of the twentieth century, when the use of Town Frisian became more and more confined to the communication among shopkeepers, craftsmen, tradesmen, and laborers. This process was accompanied by a loss of status. The same development can also be seen in other Dutch cities, such as Amsterdam and Groningen. Nowadays, Town Frisian is used almost exclusively in the informal domains. In the formal domains Dutch, and to a limited extent Frisian, are used.

3. Literature on /r/

According to Ladefoged & Maddieson (1996) about 75% of the languages of the world contain the phoneme /r/. It subsumes an extremely varied collection of sounds, grouped under the heading of rhotics. In many languages different variants of /r/ exist side by side, sometimes with a contrastive function, for example in Spanish, but more often as free or sociolinguistic variants. What is known about the phonetic properties of /r/ in Dutch, Frisian, and Town Frisian?

3.1 Dutch

Until the end of the nineteenth century the Dutch situation was fairly simple. Almost all speakers of Dutch had an alveolar /r/, i.e., the type of /r/ which is realized with the tip of the tongue against the alveolar ridge of the upper teeth, once

(tap) or several times (trill). In the course of the twentieth century, however, the pronunciation of Dutch /r/ came to be affected by large changes and a growing complexity. First, there was a forceful and phonologically unconditioned increase of uvular realizations of /r/, either with frication or trilled. The aristocratic circles in the larger cities in the west, such as The Hague, Leiden, and Dordrecht, were the first to show this speech change (Van Bezooijen 2006). Uvular /r/ had prestige, which was possibly reinforced by its presence in the esteemed French language (Van Bezooijen 2006). During the first half of the twentieth century, uvular /r/ continued to spread through Dutch, outward, from the elites in the western cities to the elites in the peripheral cities such as Arnhem, Groningen, and Leeuwarden, and downward, to the middle and lower social classes within the cities. However, uvular [r] never completely took the place of alveolar [r], in contrast, for example, to what took place in Danish (Torp 2001).

Around the middle of the twentieth century, a new change appeared. Onset and coda /r/ began to develop separate pronunciation patterns. Onset /r/ preserved its traditional consonantal character. In the coda, however, consonantal alveolar and uvular realizations were increasingly being replaced by reduced variants of /r/. A large part of the reduced realizations is taken up by various types of approximants. A study by Van Bezooijen & Giesbers (2003) of media speech showed that 67% of the presenters in national Dutch television broadcasts at least occasionally use an approximant [r] in the coda. To map the geographical spreading of approximant [r], Van Bezooijen (2005) made recordings of 10 to 13-year-old children. It was found that in Haarlem, a large city in the west of the Netherlands, all children used approximant /r/, against 60% of their parents. About 60% of the children in Nijmegen, a city in the east of the Netherlands close to the German border, used approximant [r], against less than 20% of their parents. The spreading of approximant [r] seems to be yet another instance of "Holland expansion." In a recent study (not published) we found that 80% of the children in a school class in the city of Groningen used an approximant [r]. Groningen is the capital of the province of Groningen, which is situated just to the east of Friesland. Geographically, Groningen is farther removed from the expansion center Holland than Friesland.

3.2 Frisian

The oldest reference to the pronunciation of /r/ in Frisian is by Winkler (1874). However, he only pays attention to the fact that /r/ not realized in the word *bern* [bɛːn] 'child', where /r/ is followed by an alveolar consonant. The mute character of Frisian /r/ in this phonological context has often been mentioned in the literature and the structure of this phenomenon has been studied empirically by Van

Bezooijen (2006). Winkler does not provide any specific information about the realization of Frisian /r/ in other contexts. In fact, Winkler describes as many as 186 language varieties, mostly spoken in the Netherlands and Flanders, and only talks explicitly about its phonetic nature once, namely when describing the dialect of Zwolle, which according to Winkler has a uvular [r]. From this it must be deduced that Winkler considers alveolar [r] to be the unmarked realization. Whenever a variety has an alveolar [r] it is not mentioned by Winkler. So, apparently, in the second half of the nineteenth century Frisian had an alveolar [r], except when followed by an alveolar consonant, where deletion (as a consequence of assimilation) takes place.

The alveolar character of Frisian /r/ has been confirmed in many publications since then (e.g., Eijkman 1907; Sipma 1913; and Fokkema 1948). Some authors explicitly point out that the situation in Frisian differs from Dutch, where uvular [r] is rather common (Sytstra & Hof 1925; Duijff 2002). It is sometimes admitted that there is a small minority of native Frisians who do use a uvular [r], but this is seen as a speech defect (Fokkema 1937). The fact that uvular [r] must be very rare in Frisian also appears in two large-scale dialect surveys, first in the 1950s in 110 Frisian-speaking locations (Boelens & Van der Woude 1955) and once again in the 1980s in 45 Frisian-speaking locations (Veenstra 1988). In all cases an alveolar [r] is noted down. Uvular [r] was never recorded, nor was approximant [r].

There are three reasons why we think it worth conducting a new study of Frisian /r/. First, most studies and publications are rather old. Second, there have been some powerful changes in Dutch, especially the rapid diffusion of approximant [r] towards the peripheral regions of the Netherlands. And third, Frisian shows more and more influence of Dutch at other linguistic levels.

3.3 Town Frisian

The first reference to /r/ in Town Frisian is by Jeltema (1768). He writes that in some words /r/ is not pronounced, but does not mention anything specific about the nature of /r/ in other phonetic contexts. The same holds for Winkler in 1867 and 1874. Just like we argued for Frisian, we assume that this means that up to the end of the nineteenth century Town Frisian had the unmarked, i.e. alveolar realization. Crucial is the description of /r/ by Fokkema (1938) in his dissertation on the dialect of Leeuwarden. Referring to /r/ when not followed by an alveolar consonant, he states that many inhabitants of Leeuwarden use a "gerolde tongpunt-r" [a trilled alveolar [r]], adding: "de gebrouwde-r komt echter ook voor" [however, burred r occurs as well] (p. 75). Also in later publications it is occasionally pointed out (e.g., Duijff 2002) that, in contrast to Frisian, many Town Frisian speakers have a uvular [r]. No explanation is provided as to its origin.

4. Study of /r/ in Frisian

To study the behavior of /r/ in Frisian, we made recordings of 26 Frisian-speaking adults. Detailed information on the informants' socio-geographic characteristics is provided in Section 4.1. The method used to collect the speech data is described in Section 4.2. In Section 4.3 the results are presented.

4.1 Informants

The 26 Frisian-speaking adults who took part in the investigation had a middle or higher level of education. Quite a few had an administrative or secretarial function. Four were teachers and seven were researchers. The professions of the informants' fathers were diverse. Among them were two bakers, six farmers, a car mechanic, a grocer, and seven teachers. According to their age, the informants were divided into two groups, namely young (< 46 years of age) and old (≥ 46 years of age). The distribution of the informants according to age group and sex can be found in Table 1. The mean age of the 11 male informants was 45.3 years and that of the 15 female informants 42.5 years.

All informants had been raised in Friesland. Almost all had communicated in Frisian with both parents in their childhood. There were two exceptions. One informant spoke Frisian with his father and a Lower Saxon dialect with his mother, and one informant spoke Frisian with her father and Dutch with her mother. These were the only cases where another language was spoken at home in addition to Frisian. The informants were asked how often they spoke Frisian at present. All informants responded "always" or "almost always," except for the youngest informant, who responded "not so often." The informants had grown up in places spread all over the province of Friesland, as can be seen on the map presented in Figure 2. One informant is not shown on the map, as he grew up in the neighboring province of Groningen. At the time of the recordings, all informants were still living in Friesland, except two, who were living in Groningen.

Table 1. Frisian informants according to sex and age group

	Male	Female	All
Young	6	9	15
Old	5	6	11
All	11	15	26

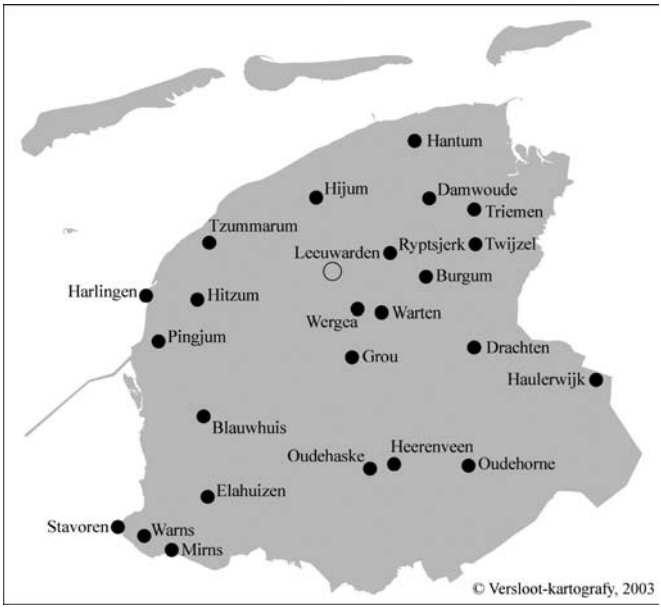

Figure 2. Map of Friesland with the places where the Frisian-speaking adults grew up

4.2 Data collection

Information on the pronunciation of /r/ by the Frisian adults was collected by means of a picture naming task. The informants were shown simple drawings of everyday objects, and they were asked to provide the Frisian words for these objects. Examples are 'boot' (Fr. *lears*), 'heart' (Fr. *hert*), 'bridge' (Fr. *brêge*), 'belt' (Fr. *riem*), 'tulip' (Fr. *tulp*) and 'box' (Fr. *doas*) (for the pronunciation of these words, see Table 2). All words were monomorphemic nouns. In the present study of /r/, 15 words were used, nine with /r/ in the onset and six with /r/ in the coda. In both positions, /r/ figured in different phonological contexts, as can be seen in Table 2. The informants were not informed that the study focussed on /r/. They were told in general terms that the study aimed at gaining insight into the typical characteristics of the Frisian language.[3] The interviews were conducted by a native speaker of Frisian.

Before performing the picture naming task, the informants answered some questions about their personal background (age, education, own profession, father's profession, place of birth, place where he or she grew up, place of resi-

3. In addition to the picture-naming task, the study included translation tasks, substitution tasks and completion tasks, which aimed at other aspects of the phonology and morphology of Frisian. Also, the test battery for Town Frisian included these elements.

Table 2. Realization of /r/ in Frisian words

/r/		Word			Results				
Position in syll.	**Phonological context**	**Spelling**	**Pronunc.**	**Meaning**	**N missing**	**% alveolar**	**% uvular**	**% approx.**	**% mute**
Onset	Word initial	riem	riəm	belt	1	100	0	0	0
		rôk	rɔːk	skirt	0	100	0	0	0
	Preceded by	brêge	brɛːɣə	bridge	1	100	0	0	0
	consonant in	griente	griəntə	vegetables	0	100	0	0	0
	same syllable	strik	strɪk	ribbon	0	100	0	0	0
		skrift	skrɪft	notebook	0	100	0	0	0
	Preceded by vowel in	stjoeren	stjurən	steering wheels	1	100	0	0	0
	preceding	bearen	biərən	bears	0	100	0	0	0
	syllable	muorren	muorən	walls	0	100	0	0	0
Coda	Word final	boer	buər	farmer	0	100	0	0	0
		gieter	gitər	watering can	0	100	0	0	0
	Followed by	lears	liə(r)s	boot	1	16	0	0	84
	consonant in same syllable	hert	hɛ(r)t	heart	6	15	0	0	85
	Followed by	woartel	wa(r)təl	carrot	0	88	0	0	12
	consonant in next syllable	gerdyn	gə(r)din	curtain	0	0	0	0	100

dence, use of Frisian in childhood within the family, language used with children at school and in the neighborhood, command of other languages, and present use of Frisian). The informants' speech used in the questionnaire served to study the characteristics of /r/ in a more spontaneous setting.

All recordings were transcribed by the present author.[4] Four pronunciation variants of /r/ were distinguished, namely (1) alveolar [r] (either tap or trill), (2) uvular [r] (fricative or trill), (3) approximant [r], (4) mute [r] (no trace of [r] being audible).

4. In a study of r-variation in Haarlem and Nijmegen (Van Bezooijen 2005), all recordings (63 speakers x 22 language varieties x 69 r-tokens) were scored independently by two raters, namely the present author, who had taken transcription courses at the Radboud University in Nijmegen in the Netherlands, and Griet Coupé, who had taken transcription courses at the University of Ghent in Belgium. Six r-variants were distinguished. In 95.2% of the cases the pronunciation of /r/ was assigned to the same category, which indicates a very high reliability of the ratings of the two raters.

4.3 Results

The results of the auditory analysis of /r/ in the Frisian words are presented in Table 2. Ten of the responses given by the Frisian informants were not fit to be used in the analysis, mostly because an informant gave the wrong word. In Table 2 the percentages for the different variants are based on the number of correct responses. In syllable onset the analysis revealed no variation in the realization of /r/. All speakers, whether young or old, male or female, invariably used the alveolar variant, either tapped or trilled. In none of the Frisian words was /r/ ever pronounced as a uvular or as an approximant. The same result emerged when listening to the answers given by the informants in the questionnaire preceding the picture naming task (see Section 4.2).

Table 2 shows that the behavior of /r/ in the coda is more complex than that in the onset. There are two words where /r/ is word final, namely *boer* and *gieter*. Here /r/ is realized consistently as an alveolar, just like in the onset. However, a different picture emerges from the four words where /r/ is followed by an alveolar consonant, specifically /s/ (*lears*), /t/ (*hert*, *woartel*), and /d/ (*gerdyn*). In this context /r/ is often deleted. The percentage of deletion varies between 100 for *gerdyn* and 12 for *woartel*. Whenever /r/ was realized before an alveolar, the informants used a weak version of the alveolar variant. The large variation in the percentages suggests that /r/ deletion is a lexical, i.e., word-linked, phenomenon rather than a predictable, context-induced phonetic phenomenon. As mentioned in Section 2.3, the frequent absence of /r/ when followed by an alveolar consonant has often been signaled in the literature on Frisian.

5. The study of /r/ in Town Frisian

Similarly to what was done for Frisian, recordings were made of 30 speakers of Town Frisian. Detailed information on the informants' socio-geographic characteristics is provided in Section 5.1. The data collection is described in Section 5.2. In Section 5.3 the results are presented.

5.1 Informants

All 30 Town Frisian informants were born and raised in Leeuwarden, the capital of Friesland. Leeuwarden boasts the largest population of Town Frisian speakers. The Town Frisian informants had a somewhat lower level of education than the Frisian informants. Their professions and also those of their fathers were very di-

Table 3. Town Frisian informants according to sex and age group

	Male	Female	All
Young	3	4	7
Old	15	8	23
All	18	12	30

verse. Like the Frisian informants, the speakers of Town Frisian were divided into a younger group (< 46 years of age) and an older age group (≥ 46 years of age). Numeric details on the distribution of the informants according to age group and sex can be found in Table 3. The mean age of the 18 male informants was 54.7 years and that of the 12 female informants 53.5 years.

5.2 Data collection

The data collection and coding of r-variants was identical to that of Frisian. Of course, the words elicited were now in Town Frisian (see Table 4) and the interviewer was a native speaker of Town Frisian rather than of Frisian.

5.3 Results

The results of the auditory analysis of /r/ in the Town Frisian words are presented in Table 4. In 22 cases informant failed to correctly identify the word. Here also the percentages for the different variants are based on the number of correct responses. In syllable onset, most Town Frisian words were realized with an alveolar [r], but in contrast to what was found for the Frisian words, there is a non-negligible percentage of uvular realizations. The uvular variants originate from six speakers. These six speakers consistently used the uvular variant, not only in syllable onsets but also in syllable codas, at least when /r/ is in word-final position. None of the other 24 speakers ever used a uvular [r]. The same pattern emerged from an analysis of the informants' answers to the questionnaire. Note that /r/ was never realized as an approximant.

Is the use of uvular [r] determined by social factors? There is no relation with sex, as four of the male informants, i.e. 22.2%, and two of the female informants, i.e., 16.7%, used a uvular [r]. There is no relation with age, either. The mean age of the six uvular [r] speakers is 53 years, that of the alveolar [r] speakers 57 years. We also looked at a possible relationship with education, but again the two types of speakers seemed to be randomly distributed across the lower and higher levels.

Table 4. Realization of /r/ in Town Frisian words

/r/		Word			Results				
Position in syll.	**Phonological context**	**Spelling**	**Pronunc.**	**Meaning**	**N missing**	**% alveolar**	**% uvular**	**% approx.**	**% mute**
Onset	Word initial	riem	riəm	belt	2	79	21	0	0
		rôk	rɔːk	skirt	1	83	17	0	0
	Preceded by consonant in same syllable	broad	broəʁ	bread	2	79	21	0	0
		gras	gras	grass	2	82	18	0	0
		strik	strɪk	ribbon	1	79	21	0	0
		skrift	skrɪft	notebook	1	79	21	0	0
	Preceded by vowel in preceding syllable	sturen	styrən	steering wheels	1	83	17	0	0
		bearen	biərən	bears	1	83	17	0	0
		muren	myrən	walls	2	82	18	0	0
Coda	Word final	boer	buər	farmer	0	80	20	0	0
		gieter	gitər	watering can	0	80	20	0	0
	Followed by consonant in same syllable	lears	liə(r)s	boot	1	7	0	0	93
		hart	ha(r)t	heart	7	4	4	0	91
	Followed by consonant in next syllable	wurtel	wy(r)təl	carrot	1	66	10	0	24
		gerdyn	gə(r)din	curtain	0	3	0	0	97

Table 4 shows that /r/ is not fully realized in all contexts. In Town Frisian /r/ is deleted in the same contexts as in Frisian, i.e., when followed by one of the alveolar consonants /s/, /t/ or /d/. The frequency of deletion again varies for the different words, with high frequencies, between 91% and 97%, in *lears*, *hart* (corresponding with Frisian *hert*) and *gerdyn*, and a much lower percentage of 24% in *wurtel* (corresponding with Frisian *woartel*). This pattern is virtually the same as that observed for Frisian in Table 2. That /r/ is deleted in Town Frisian before an alveolar consonant is a widely known phenomenon. As mentioned in Section 3.3, it was already commented on in 1768 by Jeltema and in 1867 and 1874 by Winkler, and also frequently in the more recent literature (e.g., Fokkema 1937; Ozinga 1983; and Van der Burg 1991).

6. Discussion

In contrast to Dutch, where a large portion of the speakers have uvular [r] or approximant [r], the latter two variants are completely absent from Frisian. All 26 speakers in our Frisian sample have an alveolar [r], i.e., the variant that was domi-

nant in Dutch until the second half of the nineteenth century. This means that in this respect the Frisian phonological system has been immune to the influence of Dutch, where uvular [r] and approximant [r] are frequently present. As shown in the introduction, Dutch, the first national language of the Netherlands, is strongly present in Friesland. Virtually all speakers of Frisian are fluent in Dutch, as it is the language of education from primary school on. Frisian only has a small role in education. Moreover, Dutch is the primary language of the media, administration, justice, etc. The use of Frisian in these domains is the exception rather than the rule. Finally, there is a large influx of immigrants from other provinces, so that most inhabitants of Friesland, both adults and children, are in daily contact with non-Frisian speaking people. It is customary that in these cases Frisians switch to Dutch. Could the resistance towards adopting uvular [r] and approximant [r] in Frisian have to do with negative attitudes towards these two variants?

There is plenty of evidence that the Frisians indeed hold negative attitudes towards uvular [r] in Frisian. The use of uvular [r] in Frisian is heavily stigmatized. Children and adults were, and may still be, sent to a speech therapist to get rid of their uvular [r] and replace it by the normal alveolar [r]. Uvular [r] is generally seen as a speech defect (e.g., Fokkema 1937:75) and incorrect Frisian (Duijff 2002:36).[5] The attitudes towards uvular [r] when speaking Dutch are more moderate, but still negative. This appeared in an evaluation study (Van Bezooijen 2005) that we conducted to examine the attitudes towards alveolar [r], uvular [r], and approximant [r] in different regions of the Netherlands, one of which was Friesland. We opted for a matched guise approach, in which one speaker read the same Dutch text in four different ways, namely with (1) alveolar [r] in all positions, (2) uvular [r] in all positions, (3) alveolar [r] in the onset and approximant [r] in the coda, (4) uvular [r] in the onset and approximant [r] in the coda. The four text versions were presented to the listeners mixed with texts read by other speakers, so that it was unclear that the same speaker was presented several times. Forty Frisian subjects participated in the experiment, equally distributed over males and females and two age groups (younger than 45 and older than 45). One of the scales listeners were asked to rate was *Would you like to talk like this yourself?* (1 = absolutely not, 7 = very much). There was no effect of age or sex, so the scores were averaged over all subjects. With a mean score of 2.8, the all-uvular version received a significantly lower rating than the all-alveolar version (mean of 3.4). In none of the other regions of the Netherlands (central-east, south-east, central-west), was the all-uvular version rated as negatively. In Friesland, the approximant versions

5. The same negative attitudes used to be present in Dutch during the first half of the twentieth century and even later (Van Bezooijen 2006), so it must be noted that speech changes may occur even in very unfavorable circumstances.

received the most positive ratings (mean of 4.0). So, Frisian respondents preferred to speak Dutch with approximant [r] over uvular [r] and, more surprisingly, even over alveolar [r], i.e., the traditional, dominant variant in their own language. Despite this relatively positive attitude, we have found no instances of approximant [r] being used by our Frisian informants.

There is no evidence, then, of any influence of Dutch on the pronunciation of /r/ in syllable onset and word final position. However, matters may be different when /r/ is followed by an alveolar consonant, such as /s/, /z/, /t/ and /d/, where Frisian /r/ is prone to deletion. The most extensive description of the structure of r-deletion in Frisian is given by Tiersma (1999). Tiersma distinguishes thirteen morphophonological contexts in which /r/ is deleted in Frisian, either optionally or obligatorily (for a concise overview, see Table 8.12 in Van Bezooijen 2006). In some of these contexts, /r/ has to be followed by an alveolar consonant for deletion to occur, whereas in other contexts all consonants except /h/ will lead to deletion.

We conducted a study to test Tiersma's claims (Van Bezooijen 2006). Different tasks were designed to elicit speech materials in the deletion-relevant contexts specified by Tiersma, using the same 26 informants as described in Section 4.1. In seven of the 13 contexts, our empirical findings agreed with Tiersma's description. In the other six contexts, Tiersma overestimated the frequency with which /r/ is deleted in Frisian.[6] In some contexts we found deletion to be optional whereas Tiersma claimed it to be obligatory. In other contexts we found no deletion whereas Tiersma claimed deletion to be optional. One of the explanations we forwarded to explain the discrepancy was a change in Frisian under the influence of Dutch, where r-weakening and r-deletion is much less pronounced. This development must then have taken place after 1985 (or perhaps 1979), since Tiersma's observations date from before 1985 (or even 1979), whereas our empirical data were collected in 2002. There are two alternative explanations. One explanation is the influence of spelling. The Frisian spelling is conservative in the sense that /r/ is preserved in the spelling for historical reasons, even in the contexts where /r/ is not pronounced. The other is the origin of the informants. Tiersma mainly observed the speech behavior of the inhabitants of Grou (in central Friesland, see Figure 2), whereas our informants originated from all over Friesland (see Figure 2). It is stated in the literature that the frequency of r-deletion differs in various regions (Boelens 1952: 48).

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6. The six contexts are (1) superlative of adjectives ending in *-r* (e.g., *djoerder* 'more expensive'), (2) and (3) adjectives with a stem ending in *-r* followed by the suffix *-lik* (e.g., *gefaarlik* 'dangerous') or *-sum* (e.g., *spaarsum* 'thrifty'), and (4), (5), (6) verbs with the prefix *fer-* (e.g., *ferkeapje* 'sell'), *oer-* (*oermeitsje* 'redo'), and *foar-* (e.g., *foarkomme* 'prevent').

In our introduction, we argued that Town Frisian might be more susceptible to the influence of Dutch than Frisian. Our results show that a non-negligible portion of the Town Frisian informants (six out of 30) did not speak with an alveolar [r] but with a uvular [ʁ]. Should this be attributed to the influence of Dutch? We think that this is indeed the case. In our view, uvular [ʁ] was introduced into Town Frisian at the end of the nineteenth century. This agrees with the literature on uvular [ʁ] in Town Frisian cited in Section 3.3, namely the absence of uvular [ʁ] in 1867 and 1874 (Winkler) against the presence of uvular [ʁ] in 1938 (Fokkema). We argue that the adoption of uvular [ʁ] in Town Frisian is part of the general expansion of uvular [ʁ] at the end of the nineteenth century from the cities in the west of the Netherlands, mainly The Hague, towards the peripheral regions in the southwest (e.g., Middelburg and Vlissingen), north (e.g., Groningen) and east (e.g., Nijmegen, Arnhem, Zutphen, and Deventer). All these cities had city dialects, just like Leeuwarden. The elites in these cities were becoming conscious of the fact that these dialects were different from Standard Dutch and they began modeling their speech on the speech of the elites of the cities in Holland. Holland had much prestige because of its dominant cultural and economic position. Uvular [ʁ] was one of the main features – perhaps even the most marked feature – of "distinguished Dutch" as spoken by the elites in prosperous cities such as The Hague, Leiden, Delft, and Dordrecht. There was much contact between the elites all over the Netherlands, for example through universities in Amsterdam, Leiden, and Utrecht, and through boarding schools. Moreover, there was much migration towards cities such as The Hague, because of the availability of better positions for the highly educated, and towards the region around Nijmegen and Arnhem, with its beautiful scenery. There was thus a tight, supra-regional network with intensive contacts of the aristocracy and plenty of opportunity for prestigious speech habits to spread.

We think that the Leeuwarden elite thus started to speak with a uvular [ʁ] in the first half of the 20th century. The language spoken by the Leeuwarden upper class at that time may have ranged from pure Standard Dutch as spoken in Holland to broad local dialect. Subsequently, the uvular [ʁ] started spreading among the middle and lower classes in Leeuwarden and towards some of the other towns in Friesland where Town Frisian was, and is, spoken. In the most recent, large-scale dialect survey in Friesland (Veenstra 1988), it appeared that the (single) speakers from Bolsward and Harlingen both had a uvular [ʁ]. The urban hierarchy model (Britain 2005) thus seems to have worked at several levels, namely from The Hague (possibly under the influence of Parisian French with uvular [ʁ]) towards other cities within and outside Holland and from there to smaller cities in the province. However, the diffusion of uvular [ʁ] has not been complete. There are large areas in the – partly still dialect-speaking – countryside of the Netherlands where uvular [ʁ] never took root. So, Friesland is not exceptional in this case. Probably it makes

no difference for language change and diffusion whether a language variety is officially recognized as a language, such as Frisian, or "just" plain dialect.

For the sake of completeness, it should be added that it is not clear yet if the same pattern of diffusion also holds for approximant [r]. Approximant [r] also seems to be spreading from Holland to the peripheral regions. However, in this case children seem to be the carriers of the change rather than adults from the higher classes (Van Bezooijen 2005). Recent data point out that the urban hierarchy model also seems to apply to approximant [r], as there are more children with approximant [r] in the cities than in the neighboring villages. However, it is as yet unclear which cities and villages have been reached already by the latest variant of /r/.

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PART II

Variation in syntax, morphology, and morphophonology

CHAPTER 14

Language shift among the Mansi

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This paper investigates the process of language shift in Mansi (Vogul, Uralic language family). The scope of the investigation is a period of approximately 100 years and analyzes two corpora of written texts to see what kinds of changes are manifested in various sub-systems of Mansi as a result of the intensive language shift going on in the language. Two aspects of the language are targeted: on the one hand, the grammatical system (and, within it, the use of the passive and the dual), in order to see what kinds of changes and simplification processes characteristic of language loss are happening; and, on the other hand, the lexicon and the Russian elements that can be found in it.

1. Introduction

1.1 Mansi

The Mansi (Vogul) language belongs to the Ugric group of the Finno-Ugric language family, which forms a branch of Uralic languages. The languages closest to it in the language family are Khanty (which, together with Mansi, is in the Ob-Ugric branch and is a neighboring language geographically) and Hungarian. It is a well-known fact that with the exception of Hungarian, Finnish, and Estonian, the languages of the Uralic language family are endangered to a smaller or greater extent, and Mansi is one of the seriously endangered ones.[1] Today, the designation *Mansi* usually means the Northern Mansi regional dialect; it is a variety spoken in a few villages by the lower Ob and its western tributaries, the Sosva and Sigva rivers in the Khanty-Mansi Autonomous District (*okrug*) of the Tyumen Region (*oblast'*) of Russia, as well as by the Lozva river in the Ivdel Area of the Sverdlovsk

1. In UNESCO's "Red Book on Endangered Languages" Juha Janhunen proposes the following categorization for Mansi: Southern (Tavda) Mansi as an *extinct language*, Western Mansi as a *possibly extinct language*, Eastern Mansi as a *nearly extinct language*, and Northern Mansi as a *seriously endangered language* (http://www.helsinki.fi/~tasalmin/nasia_index.html).

Table 1. Ethnically Mansi population according to census data since 1926

Year	1926	1939	1959	1970	1979	1989	2002
Mansi	~5,800	~6,300	~6,300	7,609	7,434	8,279	11,432

(Source: Pusztay 2006: 45)

Region. In the 19th and early 20th centuries, Mansi was found to be spoken by researchers in a much larger area and identified as having four main dialects. The Southern and Western dialects were already disappearing in the early 20th century, while the Eastern (Konda) dialect had a considerable number of speakers up until the mid-20th century, with even literary works written in it, but it is practically extinct today. The fourth dialect, Northern Mansi, is currently threatened by the process of language shift to Russian.

Census results for the ethnically Mansi population are given in Table 1.

The figures in Table 1 indicate that the Mansi population – or rather the number of people reporting themselves as Mansi – has undergone a slight increase during the 20th century, and then a sharp increase between the last two censuses. In 1989, 8,279 people claimed to be of Mansi nationality, while in 2002 over 3,000 more people did. A similar tendency has been noted on the basis of the results of the 2002 census for the other Uralic peoples in Siberia, namely, the Khanty, Nenets, Enets and Selkup peoples. This, however, does not reflect a population increase, but rather an increase in the number of people choosing to claim their nationality – a change not surprising in view of the ethnic policy changes of the Soviet Union, the social changes in Russia since the early 1990s, and, especially, present-day Siberian conditions. While a few decades ago belonging to smaller ethnic minorities was a disadvantage, today the situation has changed; it is advantageous and is a basis for receiving extra financial benefits. All this explains the increase in population observed in the census results. Previously, parents registered their child as having Russian nationality in mixed (usually Russian-indigenous) marriages, while in the last one or two decades they tend to choose "indigenous" status.[2] In the majority of such families, children speak only Russian, but their status as "indigenous" secures various benefits for them.

Census figures regarding language proficiency show a drastic decrease of Mansi language use; in 1989, 38% of the ethnically Mansi population spoke

2. This, however, does not change the negative way parents relate to passing on the minority language to their children. The prevailing view is that Mansi is not worth acquiring; it is enough to know Russian in order to secure a successful future.

Table 2. Census data on proficiency in Mansi and in Russian

Proficiency in Mansi			**Proficiency in Russian**
1989	**2002**		**2002**
	Total number of speakers	Mother tongue speakers	
~3,000 (38%)	2,233 (19.5%)	2,007 (17.5%)	11,332 (99.1%)

(Sources: http://www.perepis2002.ru/, Pusztay 2006: 93–94)

Mansi, but by 2002 the figure was down to 17.5%, while practically everyone had proficiency in Russian. See Table 2.[3]

It is, however, difficult to make inferences from these data since it is not possible to know what kind of language use is meant by Mansi proficiency in the census. In order to assess this, we should take into account the results of field data as well as the Mansi people's own assessment of the situation.

The great decrease in mother tongue proficiency and use indicates language shift to Russian among the Mansi, the rate of which increased in the second half of the 20th century due to the increase in oil and natural gas production in Siberia. As a consequence of the exploitation of these natural resources, the number of Russians and speakers of other languages of the Soviet Union greatly increased in this part of Siberia. As a result, the indigenous populations are becoming small minorities in their own autonomous provinces; the number of mixed (exogamous) marriages is increasing,[4] and the opportunities for education in the mother tongue are decreasing (Sipőcz 1993). Table 3 summarizes census figures regarding the ethnic composition of the population of the Khanty–Mansi Autonomous District since 1950.

The political changes of the 1990s opened up new possibilities for the smaller Uralic peoples and their languages, but for the smallest of them, these changes came too late.

On the other hand, the Mansi have gone through a spiritual and ethnic renewal in the past two decades; they have created new organizations for the maintenance and boosting of their mother tongue and ancient culture, and several positive steps have been taken in mother tongue education as well. In 2004, 1,042

3. Mansi-Russian bilingualism is practically fully asymmetrical, as is common with all Uralic languages in Russia; Russians are usually monolingual, and it is the Uralic language speakers who are bilingual in their own language and Russian.

4. According to one study, Mansi people living in towns have positive attitudes towards exogamous marriages; 60% of those surveyed stated that the nationality of the spouse did not make a difference either way. According to the latest figures, about 50% of Ob-Ugric people under the age of 30 live in exogamous marriages (Pusztay 2006: 53).

Table 3. Census data on the ethnic composition of the population of the Khanty–Mansi Autonomous District, 1950–2002 (percent)

	1950	1970	1979	1989	2002
Khanty	15% in 1950 for Khanty and Mansi combined	5.0%	2.0%	0.9%	1.2%
Mansi	–	2.0%	1.0%	0.5%	0.7%
Russian	no data available	76.9%	74.3%	66.3%	66.1%
Other ethnicity	no data available	16.1%	22.7%	32.3%	32%

(Source: Pusztay 2006: 14)

children were learning the Mansi language as an optional course, 783 of them of Mansi nationality (Pusztay 2006: 150; Lalajeva 2005). In recent years the attitudes of the younger generation of Mansi towards their mother tongue has become more positive than it was before, although one or two hours of Mansi language lessons will probably not change their language use profoundly since they are learning Mansi as a foreign language. In 2001, Yugra University was founded in Khanti-Mansiysk, with a department of Mansi Philology as part of the Faculty of Ob-Ugric Philology.[5] But, similar to the introduction of Mansi teaching in schools, this will not significantly change the future prospects of the Mansi language.

The experiences of linguist and ethnographer colleagues who have made field visits in recent years show no grounds for optimism regarding the fate of the Mansi language. E. A. Rombandejeva, the best known linguist of Mansi ethnicity, predicted in the early 1990s that in 15 years' time there would be no speakers of Mansi left (Dolovai & Sipőcz 1998: 59). The 15 years are almost up, but Mansi is still spoken in daily life, used in newspapers, and occasionally heard in ethnic programs on television and radio. In spite of this, we cannot say that Rombandejeva made a completely incorrect prediction. The main issue is to what extent the Mansi used today can be regarded as a mother tongue that is able to fulfill the daily communication needs of its speakers.

1.2 Language shift and language loss

In our paper we aim to investigate what kind of linguistic changes characterize the various subsystems of the Mansi language as it undergoes the present process of rapid language shift. Before reporting on linguistic findings, however, we want to discuss relevant theoretical points regarding language shift.

5. It is a cause for concern that the Faculty of Ob-Ugric Philology at Yugra University does not have any first-year students in the academic year of 2007-08. http://www.ugrasu.ru/institutes/yugra/mansy/

Language shift and language loss are processes characteristic of bilingual communities, sometimes resulting in the death of the minority language. The process most often takes places gradually, domain by domain, and may be accompanied by certain linguistic phenomena such as reduction and simplification (Trudgill 1992: 47). According to Crystal (2000: 17), "*Language shift* is the conventional term for gradual or sudden move from the use of one language to another (either by an individual or by a group)," while "*language loss* [is] a situation where a person or group is no longer able to use a language previously spoken." According to certain sociolinguists (Bartha 1999: 125), the difference between language shift and language loss is that language shift is a community level phenomenon, while language loss is an individual one. This latter distinction is also warranted by the fact that language loss can happen without language shift as well, e.g., in aphasia, autism, or dementia.

Language shift can involve loss of function as well as structural loss; the former means a decrease in the domains of language use, while the latter refers to changes in the structure of the language occurring in the process of language shift. As far as functional language shift is concerned, a necessary condition for the survival of the smaller Uralic languages would be the increase of their functions. Today Mansi is not used at all outside of everyday (primarily family) language use – not as the language of official communication, instruction, cultural life, scholarship or science, nor the workplace.

As far as the structural side of language shift is concerned, we can only sketch tendencies based on data provided by some case studies. Even though in the past few decades numerous sociolinguistic descriptions of language shift processes have been published, more is known about general tendencies of language shift processes in the lexicon than in syntax and morphology. Although many studies on language shift deal with changes in the grammatical structure as well, it has been easier to make general conclusions concerning the lexicon than about the particular subsystems of morphology or syntax.

We investigate characteristics of language shift in two aspects of the Mansi language. (1) As far as the grammatical system of the language is concerned, we will focus on two features (passive structures and the dual) in order to see whether any tendencies of simplification, characteristic of the language shift process,[6]

6. Language loss can result in simplification processes due to analogical change and overgeneralizations of certain grammatical elements or structures. In other words, the process of language loss is characterized by structural simplification and the tendency of the linguistic system to become more regular and transparent (cf. Mougeon & Beniak 1991; Lanstyák 2002, 2006: 50).

occur in Mansi, and (2) we provide a multi-faceted analysis of Russian elements of the Mansi lexicon.

1.3 The corpora

The two corpora of data we use in our analysis extend over about a hundred years. The first corpus consists of folkloric texts collected in the late 19th century, i.e., before intensive language shift to Russian started among the Mansi. The second consists of recent texts from one issue each of the 2004 and 2005 volumes of *Luima Seripos,* a Mansi language newspaper published since 1989. In order to make a quantitative analysis possible, we have chosen texts of approximately equal length from the periods to be compared. Since the two newspaper issues add up to about 5,200 words of text, we selected folkloric texts totaling approximately 5,200 words as well.

The folkloric texts are spoken language texts (basically, recorded narratives, since literacy in Mansi did not yet exist), consisting of two songs of mythological content:

– *Mā tārätim jelpiŋ ēriɣ*
'The sacred song of how the earth came down from the sky'
(Munkácsi 1892–1902: 77–99)
– *Tūr-χåtäŋ – As-χåtäŋ-voikən-åtər, Ta'it-taľəχ åjkä tērniŋ ērɣä*
'The heroic song of Lake-Swan-Ob-Swan-White-Prince-Hero, the Old Man of the Upper Sosva river' (Munkácsi 1892: 130–159)

and an everyday folk story:

– *Vāta-χum mōjt* 'The tale of the trader' (Munkácsi 1896: 324–344)

The mythological texts, by definition, reflect a more archaic language than that of the time when they were recorded, while the language of the everyday folktale most likely reflects the language of the era when it was recorded. (Examples from the folkloric texts are given in the original transcribed Latin orthography with minor simplifications.)

The newspaper texts constitute written texts by definition, but they are not written in formal journalistic style; the language use and style of *Luima Seripos* is quite varied and is probably closer to the spoken language variety; this is exactly why, lacking an opportunity to collect empirical data in the field, we chose *Luima Seripos* texts as a basis for our analysis. The typical *Luima Seripos* issue is four pages long, with articles of local interest on political or public life issues on the front page, and with articles in the rest of the paper about local holidays and events as

well as interviews mostly with "respectable" Mansi people (i.e., those maintaining their language and traditions). In addition, the paper regularly publishes stories, riddles, accounts of hunting adventures, and, rarely, stories of mythological character, which are not written by journalists but are recorded discourse from Mansi-speaking old people.

It also should be mentioned that some of the journalists of the paper learned Mansi basically as a foreign language, and they use Russian as their primary language. This also applies to the younger generation of Mansi intellectuals.

The paper is published every two weeks, has a circulation of 1125, and is distributed free among the Mansi (Parfenova 2003: 296). Like other Uralic peoples in Russia, the Mansi orthography is based on the Cyrillic, so the newspaper texts are also written in Cyrillic. (We cite Mansi data written in Cyrillic script in Latin transcription.)

2. Structural features

In the first part of our analysis, we investigate structural features, namely, two typical characteristics of Mansi syntax and morphosyntax: the use of the passive and the dual. Our aim is to see, on the basis of these two features, whether Mansi has undergone changes in its grammatical system that can be attributed to the process of language shift.

2.1 Passive[7]

The use of passive structures is a characteristic feature of the Mansi language, and there are several unique aspects that are absent from many other languages with passive structures. These are as follows: (a) passive structures are extremely frequent, (b) the agent is frequently present in passive, (c) intransitive verbs

7. Mansi, like other Uralic languages, is an agglutinative language using suffixes. Its main word order is SOV but clause structure is also motivated pragmatically. Mansi has an active and a passive conjugation. Active conjugation can be objective (definite/determinate) and subjective (indefinite/indeterminate). Forms of objective conjugation encode the person and number of the subject and the number of the direct object. In active conjugation two tenses (praesens and praeterite) and three modes (indicative, conditional, and imperative) are distinguished. Passive conjugation has praesens and praeterite forms, and it is used in indicative and conditional. It is formed with the suffix *-(a)we-*. Passive may be formed from both transitive and intransitive verbs. Similarly, objective conjugation can be used besides transitive verbs; it can also be used with intransitive verbs. According to recent studies, the use of objective conjugation and passive voice is highly determined pragmatically.

Table 4. The use of the passive in the two corpora

Total number of passive constructions	Transitivity		Agent			Passive verb refers to			Medial verbs
	Transitive verb	Intransitive verb	Overt		None	Pat.	Ben./ Rec.	Loc.	
			Lative	Other					
Older texts 62 (100%)	58 (93.5%)	4 (6.5%)	31 (50%)	4 (6.4%)	27 (43.6%)	43 (69.3%)	10 (16.2%)	4 (6.5%)	5 (8%)
Modern texts 121 (100%)	117 (96.6%)	4 (3.4%)	27 (22.3%)	–	94 (77.7%)	105 (86.7%)	12 (9.9%)	4 (3.4%)	–

can be passivized, and (d) the scope of the passive verb is not only the patient of the action but basically any thematic role (cf. Kulonen 1985, 1989; Skribnik 2001: 224–225). In the following, we discuss our findings with respect to each of those points in order.

a. The measured frequency of the passive structures does not suggest a significant difference in our two corpora. Although the recent texts contain almost twice as many passive constructions as the old ones (cf. Table 4), this does not mean that the use of passive has increased significantly today; instead, it is due to the fact that while in the folkloric texts we find long sentence structures, the recent texts contain much simpler sentences with fewer sentence elements. That is, the corpora under investigation are asymmetrical in the sentential units they use; the folkloric texts contain fewer passive constructions in fewer sentence elements than the newspaper texts.

b. As mentioned above, the Mansi passive is characterized by the presence of the agent. Our analysis shows that this is indeed true of the older (folkloric) texts; in more than half of the passive constructions (see Table 4), the agent is present (Example (1) below),[8] and the agent is easily recoverable from the context in the majority of agentless expressions (see Example 2).

8. Throughout this paper we use the following abbreviations in the glosses: ABL = ablative case, DET = determinate conjugation, DU = dual, DUPOSS = dual possession, GER = gerund, INDET = indeterminate conjugation, INSTR = instrumental case, LAT = lative case, LOC = locative case, OBJ = object, PART = participle, PASS = passive, PAST = past tense, PL = plural, PRES = present, PX = possessive marker, SG = singular, TRANSL = translative case, VX = verbal person/number marker.

(1) *kank-ä-n* *kwona* *i* *pōs-wə-s*
older.brother-PX3SG-LAT[9] out also chase-PASS-PAST:VX3SG
'and his/her brother chased him/her out'

(2) *åńy-ä* *tēp vārnə* *kwol-t* *śaj-iy* *vina-iy*
sister.in.law-PX3SG food making house-LOC tea-DU brandy-DU
såsənti. *rumkä-t śāj-ān-in* *ūnttəla-wä-s-t*
pour-PRESVX3SG glass-PL tea-tray-LAT place-PASS-PAST-VX3PL
'His/her sister-in-law is pouring tea and brandy [into glasses] in the kitchen. She places the glasses onto trays…'

However, the recent texts show a very different picture; less than one quarter of the structures contain the agent, the absent agents usually being indefinite or general subject agents (see (3) and (4)). It is important to note that in the folkloric corpus such agents are often present (see Example 5).

(3) *sāw* *jilpiŋ* *pāwl-ət,* *ūs-ət* *ūnttu-we-s-ət*
many new village-PL town-PL build-PASS-PAST-VX3PL
'Many new villages and towns were built.'

(4) *ań* *χūrumχujplowit* *wistawka* *ti* *wāra-we*
now thirteenth exhibition thus do-PASS:PRES:VX3SG
'The thirteenth exhibition is being done now.'

(5) *atä* *χotpä-n* *maj-wä-s-əm*
not somebody-LAT give-PASS-PAST-VX1SG
'I was given presents by nobody.'

A chi-squared test on presence of agents in the older corpus versus the modern corpus shows a significant difference ($p < 0.00001$).

The agent is marked in Mansi by the lative case marker *-n* (cf. Footnote 9). While this is a rule which is always observed in our recent texts (Example (6)), in our earlier texts we find that other means of marking – like ablative (7) and nominative (9) – were also used.

(6) *Galina Petrovna* *oma-te-**n*** *jūnsaχtuŋkwe* *ōs*
Galina Petrovna mother-PX3SG-LAT to.sew and
χańəśta-wə-s
teach-PASS-PAST:VX3SG
'Galina Petrovna was taught to sew by her mother.'

9. The agent of passive constructions is marked by the Lative case marker *-n*, which is used primarily as a local case marker, e.g. *kol-**n** śaltəs* '(s/he) stepped **into** the house'.

(7) *jäγ-əmēn-**nəl*** *molăl* *lau-wä-s-əm*
father-PX1DU-**ABL** earlier say-PASS-PAST-VX1SG
'the father of two of us said earlier to me'

c. Probably the most striking characteristic of the Mansi passive is the fact that intransitive verbs can also be passivized. See Example (10). This sentence type is not very common in the folkloric texts – we had only four examples of it (see (8) and (9)) – or, indeed, in the recent newspaper texts either. The four examples we have from the latter come, unsurprisingly, from texts whose subject matter is close to folklore: a short account of a mythological story and a text connected with the bear cult (10–12). It is possible that the structures in question appear as "fixed panels" in these texts.

(8) *kēlpiŋ* *mayiləp* *sāt* *tāχət-nə* *tari-layiləp* *saw* *jā*
bloody chested seven diver.duck-LAT crane.footed many river
sāw-əl *χajt-wä-s-ət*
many-INSTR run-PASS-PAST-VX3PL
'The seven bloody-chested diver ducks ran through many crane-footed rivers.'

(9) *jåməs* *χumm-iγ* *at-ke* *joχtəla-wä-s-əm*
good man-**NOM**-DU not-if come-PASS-PAST-VX1SG
'if those two good people had not come my direction'

(10) *mis-nē* *χuń* *χājtala-we-s,* *taw* *χūliŋ* *tūr* *ēntapt-im*
fairy as run-PASS-PAST:VX3SG she fish.with lake embrace-GER
jot-toti-s-te
with.her take-PAST-VX3SGDET
'As they ran to the fairy (lit. 'as the fairy was run to'), she embraced the lake with the fish and took it with her.'

(11) *wōrt-ōln-ōjka-n* *ti* *ju-w-ew!*
bear-LAT here/thus come-PASS-PRESVX1PL
'The bear comes here to us!'

(12) *ja-ta,* *ań* *ōs* *am* *jal-ēγum,* *ērəŋ* *ań* *wōrt-ōln-ōjka-n*
yes-yes now and/thus I go-PRES:VX1SG surely now bear-LAT
χot-nēγlapa-we-m
appear-PASS-PRES:VX1SG
'Yes, yes, I go now, now the bear surely appears to me' (lit. 'I will be approached by the bear.')

d. In the analyzed texts, the passive verb primarily refers to the patient of the action (Example (13)). This is more characteristic of the newspaper texts (86.7% patient), as the folkloric texts have a greater diversity in this respect (69.3% patient), see Table 4; chi-squared test is significant at $p < 0.01$.

In addition to the patient, the passive verb can also refer to the locative (this usually occurs with passives formed from verbs of motion, cf. (8)–(12)), or to the beneficiary/recipient. In the latter kind of cases, the ditransitive structures typical of Mansi, in which the direct object is marked with the instrumental case, are used consistently in both the old (14) and the new texts (15)–(16).

(13) *Anja pāwəl-nəl joχt-um āγi χańəśtaχt-ən*
Anja village-ABLAT come-PARTPAST girl study-PARTPRES
jurt-ane-n saka ērupta-we
fellow-PX3SGPLPOSS-LAT very like-PASS:PRES:VX3SG
'The girl who came from the village Anja is liked by her fellow students very much.'

(14) *kank-ən-nə (…) åln-palä-l at*
older.brother-PX2SG-LAT money-half-INSTR not
maj-wä-s-ən
give-PASS-PAST-VX2SG
'your older brother didn't give you even half a coin'

(15) *a-na-na, tarwitəŋ ōlə-s 200 gramm ńań-əl*
well-yes hard be-PAST:VX3SG 200 gram bread-INSTR
mi-w-ew manər tēγ-uw?
give-PASS-PRES:VX1PL what eat-PRES:VX1PL
'Well, it was very hard, we were given 200 grams of bread, what were we to eat?'

(16) *ti tāl taw jomśakw χańəśtaχti-ne-te māyəs gubernator*
this year s/he well study-PARTPRES-PX3SG for governor
stipendia-l maj-we-s
grant-INSTR give-PASS-PAST:VX3SG
'This year s/he was given the governor's grant for studying well.'

We also need to add at this point that the passive conjugation of medial verbs occurs often in the folkloric texts (17)–(18), while, in contrast, the newspaper texts do not contain any examples of this. In our experience this phenomenon does not occur at all in recent texts.

(17) *saj* *mā-t* *karapli at* *ńowiyta-wə*
sheltered place vicinity-LOC ship not move-PASS:PRES:VX3SG
'In a sheltered place the ship does not move.'

(18) *numəl* *minnə tåwliŋ* *uj* *sim-ä* *jäχχata-wə*
up.above going winged animal heart-PX3SG tremble-PASS:PRES:VX3SG
'The heart of the winged animal passing up above trembles.'

In conclusion we can state that in passive structures there is a simplification process that can be observed between the texts of the two corpora, the result of which is that passive constructions in the Mansi language today are used primarily when the actor is indefinite. It is unquestionable that the changes in the use of passive, beyond the simplification typical of language shift, show the influence of Russian: the approximation of the Russian-type passivization. Results regarding the passive are summarized in Table 4.

2.2 Dual[10]

The investigation of the use of the dual can be motivated by the fact that the dual is a category which already shows a tendency to disappear from the Uralic languages, and this applies to numerous Indo-European languages as well. The category of dual can be reconstructed for proto-Uralic, but it is preserved only in very few of the present-day Uralic languages, for example, Mansi. In the folkloric texts, the dual is extensively used: in personal pronouns, in the nominal category, in possessive marking, and in the objective conjugation of verbs.

First, our investigation shows a slight confusion in the use of the dual in modern Mansi. In traditional Mansi when the numeral 'two' is used as an attribute, it is followed by the noun in singular, e.g., *kit χum* 'two men(Sg.).' In contemporary Mansi the usage is not so consistent in this respect. In the older texts, out of seven examples of such attributive constructions, the nouns all were singular. By contrast, in the newer corpus, out of nine examples the noun was singular in four cases and dual in five cases.

Another sign of change in the use of the dual is related to the use of paired body parts. In the Uralic languages, paired objects (e.g., paired body parts, paired

10. There are three number subcategories in Mansi grammar: singular, dual, and plural. All these numbers are distinguished in declension as well as in conjugation. In possessive declension, the number categories indicate the number of the possessor as well as the number of the possession, e.g.: *kwol-aɣ-men* 'the two houses of the two of us'. Similar to possessive marking, the determinate conjugation verb endings encode not only the number of the subject but also the number of the object, e.g., *tot-aɣ-men* 'the two of us bring those two'.

pieces of clothes) are characteristically considered a unity, so to this day many of the Uralic languages use singular for such objects. This explains the following types of Mansi expressions: *sampāl* '(one) eye' (lit. '(one) eye-half'), *kātpāl* '(one) hand' (lit. '(one) hand-half'). Our Mansi results show variation in the numeral marking of paired body parts. In our old corpus we found the names of such body parts in dual in six instances and in singular in seven instances. In our newer corpus, however, the only example of body part terms was in singular.[11]

We also researched the occurrence of dual number in the possessive declination and in the objective conjugation. Concerning the possessive declination, we found that the old and new corpora contained examples marking the dual of the possesser and/or possessee nearly to the same extent (20 cases in the old texts and 22 cases in the new texts). The use of suffixes in the old texts was "regular" in all cases (Example (19)), while in the new texts we found one "irregular" form (Example (20)) opposed to 21 "regular" tokens (Example (21)). The old corpus contains eight verbs of determinate conjugation in dual, all of which were "regular" (Example (19)); there were no examples of this in the new corpus nor any such context where this type of conjugation could have been used.

(19) *karapli.ńol-nəl māńnūw potali-äyä*
bow-ABLAT smaller ball-PX3SGDUPOSS

vi-s-äyä, pūťi-n pin-s-äyä
take-PAST-VX3SGDUOBJ bosom-LAT put-PAST-VX3SGDUOBJ

'S/he took the two smaller balls from the bow of the ship and put both of them in his/her bosom.'

(20) *śań-ayən-aś-ayən os χotəl*
mother-PX2SG**DU**POSS-father-PX2SG**DU**POSS and from where

ōl-s-ēy? nam-anən χumus ōl-s-ēy?
be-PAST-VX3DU name-PX3DU**PL**POSS how be-PAST-VX3**DU**

'Where did your parents live? What were their names?'

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11. On the basis of our investigation, we assume that contemporary Mansi is rather inconsistent in this respect; there are singular, dual, and even plural forms as well. For example:

*takem χosa ta ľuńś-əs, ań **sam-ayə***
so long so cry-PAST:VX3SG that eye-PX3SGDUPOSS
*taj śar **wiyr-ət jemt-s-əy***
that very red-PL become-PAST-VX3DU
'(s)he cried until her/his eyes became red' (Luima Seripos 18.01.92)

*aman naməl **sam-anəl** lap-χuni-janəl*
or on purpose eye-PX3SGPLPOSS cover-PRES:VX3SGPLOBJ
'or covers her/his eyes on purpose' (Luima Seripos 15.02.92).

(21) *ńāwram-aγe* *sas* *licej-t* *χańiśtaχt-eγ*
child-PX3SGDUPOSS both secondary.school-LOC study-PRES:VX3DU
'Both his/her children study at a secondary school.'

A characteristic feature of the Mansi dual is its "reciprocal" use that signals belonging together. In recent texts it only occurs with the combination of kinship terms 'father' and 'mother' meaning 'parents,' (Example (22)), but even in these constructions the number use is not consistent. Out of nine examples, the reciprocal dual was apparent in six cases, while it was absent in three cases (Example (23)).

(22) *śāń-aγe-āś-aγe* *jomas*
mother-PX3SGDUPOSS-father-PX3SGDUPOSS good
χotpa-γ *ōl-s-iγ*
person-DU be-PAST-VX3DU
'His/her mother-and-father were good people.'

(23) *taw* *oma-te,* *āś-e*
(s)he mother-PX3SGSGPOSS father-PX3SGSGPOSS
χosa *at* *ōl-s-iγ*
long not be-PAST-VX3DU
'His/her mother and father did not live long.'

Although we found only one example of reciprocal dual (Example (24)) in our older corpus, this single case demonstrates the possibility of its wide usage. Moreover, we have noted examples of reciprocal dual in other folklore texts besides those used for the current study.[12]

(24) *åńγ-ä* *tēp vārnə* *kwol-t* *śaj-iγ* *vina-iγ*
sister.in.law-PX3SG food.making house-LOC tea-DU brandy-DU
såsənti
pour-PRES:VX3SG
'His/her sister-in-law is pouring tea and brandy [into glasses] in the kitchen.'

An interesting question is whether the newer corpus includes cases where the reciprocal dual usage is missing in places where it would be expected. Without native competence, it is difficult to answer this question; in the Mansi cultural

12. In Mansi folklore texts the reciprocal dual is used in a variety of cases, e.g. *ēkwaγ-ōjkaγ* 'a woman (DU) and a man (DU)', i.e., 'a couple', *ētposiγ-χōtaliγ* 'the moon (DU) and the sun (DU)', *koliγ-sūmjaχiγ* 'house (DU) and garner (DU)', *supiγ-kwāliγ* 'shirt (DU) and belt (DU)', i.e., 'clothes.'

sphere, besides the more or less evident kinship relations, the possible reciprocal liaisons among certain objects and phenomena can take a variety of forms.

However, we find variation in cases where the two arguments of the verb are connected with the postposition *jot* 'with.' In the modern texts there are nine examples of this altogether; the verbs are marked for dual in four cases (Example (25)), and for singular in five cases (Example (26)). (Since this postposition did not occur in our folkloric texts, we did not have an opportunity to check whether the variation we describe was already present a century ago or not.)

(25) *Volodja ēkwa-te jot ńila ńāwram janmalta-s-iγ*
Volodja wife-PX3SG with four child bring.up-PAST-VX3**DU**
'Volodja and his wife brought up four children.'

(26) *Galina Petrovna ań jomaśakwe nomi-te χumus*
Galina Petrovna now well think-PRES:VX3SGSGOBJ how
taw āťa-te jot ās jā mus jalas-as
s/he father-PX3SG with Ob river to go-PAST:VX3**SG**
'Galina Petrovna likes to think about how she and her father used to go to the Ob river.'

To summarize our investigation, our corpus did not contain a sufficient amount of examples to make statistically valid statements about the use of the dual, as the dual number requires a special context, i.e., it is used only when talking about two persons, entities, phenomena, paired body parts, etc. However, the comparison of the two corpora showed that the dual number category still survives in Mansi, but its use has become slightly limited and inconsistent.

2.3 Lexicon

Borrowing can affect any subsystem of a language, but it affects the lexicon first and foremost (Thomason 2001: 10). A sociolinguistic investigation of lexical borrowings involves several difficulties of a theoretical nature. The first important question is from what point on we can see lexical borrowing as a symptom of language loss. After all, languages change constantly, languages borrow words freely, and the number and proportion of the loanwords is affected by numerous factors (the topic, the social status, age, and language attitudes of the speakers, etc.). Another theoretical issue is the classification of the foreign element as a borrowing versus a one-word codeswitch. Solving this issue usually depends on the frequency of use of the element in question, the extent of its phonological and morphological adaptation, its acceptability, how widespread the word of foreign

origin is among the speakers, and whether it already has existing equivalents in the recipient language (cf. Poplack 2005: 225; Bartha 1999: 120).

What Mahootian (2006: 513) suggests might prove to be a good point. Borrowing is characteristic of monolinguals; codeswitching, on the other hand, can be defined as bilingual language mode. From this perspective, the elements also occurring in the language of monolinguals are to be defined as borrowings. In the case of Mansi, however, this perspective cannot be used; the speech community is almost entirely bilingual according to the most recent data (see Table 2).

Lexical borrowings have been present in Mansi for centuries. Early Mansi–Russian contacts date back to the 12th century but started to slowly intensify beginning with the 16th century when Siberia was conquered by Russians (Kálmán 1988: 411). The spread of Christianity and the immigration of Russians into areas inhabited by the Mansi brought increasingly more contact from the 18th century onward. Still, we can say that for centuries Russian did not have a considerable influence on Mansi. For instance, in the folkloric texts collected between the mid-19th century and early 20th century, the number of Russian elements does not exceed that of elements of Komi or Tatar origin. Folkloric texts, of course, do not indicate the state of the language at the time since, by definition, they use archaic elements reflect an earlier state of the language; the everyday spoken language at the time must have contained many more Russian borrowings. The people who collected the folkloric texts wrote about the problem of finding native speakers who still speak their language well because of the influence of Russian on the speakers (Kálmán 1961: 16–24).

Kálmán's (1961) monograph contains a collection of 580 Russian loanwords primarily based on folkloric texts. The lexical material comes in unequal proportions from the four dialect areas of Mansi, with the greatest number of Russian loanwords recorded in the western and southern dialect areas (Kálmán 1961; Kálmán 1988: 411). From this, it follows that Russian had more impact on these dialects, which, in turn, explains why these dialects were disappearing already in the early 20th century and were practically extinct half a century later. The monograph attests that until the beginning of the 20th century, the northern dialect was least affected by Russian. It is not surprising, then, that this is the only dialect that survives to this day. By now it has been greatly affected by Russian, of course, and is now in the same state as the others were in the first half of the 20th century.

2.3.1 *The older corpus*

In the folkloric texts under investigation, the number of Russian loanwords is negligible. In the lyrical part of the corpus containing the two mythological songs, no Russian loanwords occur at all, which is probably due to the topic of the text (cf. Section 1.3). It is very surprising, however, that in the prose folklore work, the

everyday folktale of more modern content, there are only eleven loanwords from Russian. These are the following:

mir	'people' (< R. *mir* 'world')
rupiti	'to work' (< R. *rabotať* 'to work')
pājėr	'rich man' (< ? R. *boyar* 'boyar')
śāji	'tea' (< R. *čaj* 'tea')
vina	'fruit brandy' (< R. *vino* 'wine')
rumkä	'wine glass' (< R. *ŕumka* 'wine glass')
karapli	'ship' (< R. *korabľ* 'ship')
jākėr	'anchor' (< R. *yakoŕ* 'anchor')
sāpaki	'boots' (< R. *sapoghi* 'boots')
känes	'prefect, aristocrat' (< R. *kńaź* 'prince', possibly via Komi, cf. Munkácsi and Kálmán 1986: 191, or via Tatar, cf. Kálmán 1961: 164)

The loanwords found in the corpus are fully adapted to the phonology of Mansi, as was the case with all loanwords in Mansi until the earlier decades of the 20th century. The eleven loanwords of the corpus are too few to allow for a semantic field analysis. With the exception of *rupiti* and *mir*, they designate objects and notions that were introduced to Mansi by the Russians. According to Kálmán (1961: 119–136), Russian loanwords affected Mansi vocabulary in several semantic fields already by the beginning of the 20th century.

2.3.2 *The modern corpus*

In contrast to the folkloric corpus, the modern newspaper corpus we investigate allows for a much more complex analysis of the 150 Russian loanwords it contains. Among these 150 words, we do not include loanwords which were attested in much earlier texts and which are fully adapted phonologically:

śaj	'tea'
*ru**p**iti*	'to work'
ťela	'issue, something to do' < R. *ďelo* 'issue, something to do'
kirpaś	'brick' < R. *kirpič* 'brick'
***p**ulńica*	'hospital' < R. *bolnitsa* 'hospital'

We also do not include Russian proper nouns (names of persons, geographical locations, or institutions) which occur in abundance in the paper.

We analyze the 150 loanwords from the following aspects: (1) what semantic field they belong to, (2) whether the Russian loanword has a Mansi equivalent, and (3) what kind of adaptation, if any, it has undergone. Finally, we also investigate (4) what Mansi innovations occur in the texts.

(1) Most loanwords belong to domains of daily life and designate phenomena which did not exist in the life of the Mansi people before but constitute an integral part of it today:

i. Politics:

ďeputat	'representative'
okrug gubernator	'district governor'
okružnoj Duma	'district Duma [=parliament]'
komiťet	'committee'
zakon	'law'

ii. Education and scholarship:

klass	'class'
škola	'school'
pedučiliša	'pedagogical [=teacher training] college'
pedagogičeskij universiťet	'pedagogical [=teacher training] university'
gramota	'certificate'
kružok	'extracurricular school society'
sťepeń	'degree, level'
diplom	'degree, certification'
sťudent	'student'
filologija specialnosť	'specialization in philology'
filologičeskij naukat	'doctor of philology, professor'
doktor, professor	

iii. Culture:

žurnal	'journal'
žurnalist	'journalist'
pressa	'press'
arhiv	'archive'
iskusstvo	'art'
muzej	'museum'
koncert	'concert'

iv. Economy:

burovoj	'drilling tower'
elektroeńergija	'electrical energy'
gaz	'natural gas'
ekonomika	'economy'
ribokombinat	'fish processing plant'

v. Official life:

komsorg	'komsomol [=communist youth organization] official'
puťovka	'official trip'
kontor	'office'
komissija	'committee'
nacionalnosť	'nationality'
passport	'passport'

vi. Health services:

zdravoohrańeńija	'health protection'
medučiliše	'medical school'
medśostrinkoje otďeleńie	'nurse course'
Igrimskaja rajonnaja bolńica	'Igrim district hospital'

vii. Other:

million	'million'
dollar	'dollar'
paviľon	'pavilion'
pensija	'retirement'
pamjatńik	'memorial'
serija	'series'
kinomehańik	'movie technician'
plotńik	'carpenter'

(2) Since most of the Russian loanwords refer to things and notions that were unknown to the Mansi people before, they do not have Mansi equivalents. But there are some loanwords in the corpus which do have indigenous equivalents. For instance:

ďekabr	'December' (vs. *wāťi χōtal ētpos* 'December', lit. 'month of short days')
vojna	'war' (vs. *χōntan warmaľ* 'war' [lit. 'fighting thing'])
armija	'army' (vs. *χōnt* 'army')
prezident	'president' (vs. *puŋkχum* 'president, boss' [lit. 'fore-man'])
škola	'school' (vs. *χańiśtan kol* 'school' [lit. 'teaching house'])
stuďent	'student' (vs. *χańiśtan ńawram* 'student' [lit. 'learning child'])
lekkar	'doctor' (vs. *pusmaltan χum* 'doctor' [lit. 'curing man'])
pulńica, bolńica	'hospital' (vs. *pusmaltan kol* 'hospital' [lit. 'curing house']), etc.[13]

13. Although there are Mansi equivalents, they were most probably not used in the modern sense because 'president', 'school', 'student', etc. were unknown in the traditional Mansi life.

In connection with these words, it is important to mention that in recent years there has been a tendency among some Mansi journalists to restore the usage of original Mansi words and use those words rather than Russian loanwords. This is likely to be a result of the language and culture preservation efforts. Names of the months are a case in point; the original Mansi names are increasingly used instead of the borrowed Russian words, despite the fact that they do not even provide exact equivalents of Western designations.

(3) Phonological and morphological adaptations. The extent of the adaptation of Russian elements in Mansi can be measured with phonological characteristics and with how well they fit into Mansi structures. Phonological adaptation of Russian loanwords is not frequent at all; in fact, non-adaptation is the rule. For instance, the phonological system of Mansi lacks voiced oral stop phonemes, which in the Russian loanwords occurring in the folkloric texts from a century ago were replaced by their voiceless equivalents, e.g., *karapli* 'ship' (< R. *korabl*), *sāpaki* 'boots' (< R. *sapoghi*). However, in recent texts voiced oral stops are preserved in the loanwords, e.g. ***g**az* 'natural gas', ***g**azeta* 'newspaper', ***b**judžet* 'budget', ***ď**eputat* 'deputee'. In a similar fashion, Russian affricates and the fricatives *f, z,* and *ž* remain unadapted, even though they too are absent in Mansi: *kružok* 'extracurricular school society', *pedagogičeskij* 'pedagogical', ***f**ilologija* 'philology', *zakon* 'law'.

At this point, special mention should be made of those words that have two variant forms in Mansi as they were borrowed twice from the same language, though at different times. Typically, at the earlier time the word form was phonologically adapted to native Mansi sounds, while at the later time it was not: For example, *pulńica ~ bolńica* 'hospital' (< R. *bolńitsa*). The question of which of these variants is preferred among native speakers needs further investigation.

Lexical borrowings from Russian, which tend to be primarily nouns, receive Mansi suffixation when they are inserted into Mansi phrases:

pensija-t [LOC] *ōli*	'retiree' [lit. 'be on retirement']
pensija-n [LAT] *mini*	'to retire' [lit. 'to go to retirement']
pensija-n [LAT] *patne porat*	'at the time of retirement' (< R. *pensiya*)
ďeputat-iγ [TRANSL] *pēri*	'to vote [somebody to be] deputy' (< R. *ďeputat*)
ď'iplom-il [INSTR] *majluwəs*	's/he was awarded a diploma' (< R. *ď'iplom*)

The Mansi language usually borrows Russian verbs in their present tense 3SG form, which ends in *-t* (e.g., *zašišajet* 's/he protects'), corresponding exactly to the frequent and productive *-t* derivational suffix of Mansi verbs. This way of verb borrowing is typical of early loan verbs (e.g., *rupiti* 'to work', Révay 1994), and is the one used almost exclusively today. There are only three borrowed verbs in our corpus:

zaščiščajti	'to protect' (< R. *zaščiščat'* 'to protect')
sdavajti[14]	'to submit' (< R. *sdavat'* 'to submit')
sutiti	'to judge, to convict' (< R. *sudit'* 'to judge, to convict')

(4) A substantial set of the new words in Mansi are neologisms formed from Mansi or partly Mansi elements to refer to things and notions that did not exist before. There are two main groups of these: (a) some are the result of a circumlocutory way of expression, while (b) others extend the meaning of already existing lexemes.

(a) There are numerous examples of expressions of the descriptive type in the corpus of folkloric texts. For instance:

juw-tēnə ńir-såw	'edible berry; enough to eat' (lit. 'eating-stick-bud')
lū-nūpəl tēlä, mis-nūpəl tēlä	'horse and cattle care; animal husbandry' (lit. 'thing towards horse, thing towards cow')
kit lūwəl kērimə kwoliŋ tujt	'two-horse covered sleigh' (lit. 'sleigh with house drawn by two horses')

The examples above show that such types of expressions can stand for names of new things and notions. This is likely in the case of the second example, since animal husbandry was introduced to the Mansi by Russians, and also most probable in the case of the third example, since the expression describes a typically Russian-style sleigh. Such innovations became very widespread after the Soviet Revolution in 1917 and the changes that followed it. After the formation of the Soviet Union, school textbooks and especially propaganda materials contained numerous such innovations referring to the new ideology as well as modernization. These, however, were created following political decrees and, with a handful of exceptions, did not become widely used by speakers.

Beginning with the 1940s, the borrowing of Russian words was encouraged by the Communist Party instead of new word formation from Mansi elements, and Russian spelling and pronunciation of the loanwords was often required (Comrie 1981: 33–34). Since the 1990s, word coinage from Mansi elements has again become a trend, but the acceptance of such word coinages by speakers cannot be objectively judged on the basis of our newspaper data. In many cases one senses that it is the effort and language preservation intent of the writer that is behind the use of such expressions first and foremost.

14. Atypically, in this example the Mansi form is based on the imperative form of the Russian verb.

This observation is supported by the fact that in newspaper texts alternative words for the same thing can often be found (e.g., the names of the months, mentioned above). In such cases the loanwords from Russian are most likely to be favored in spoken language. Further examples are as follows:

nājiŋ wit	'crude oil' (lit. 'fiery water')
nājiŋ liliep	'natural gas' (lit. 'fiery breath')
rēy śuń	'oil and gas' (lit. 'hot wealth')[15] versus *ńefť* 'crude oil' (< R. *ńefť* 'crude oil') and *gaz* 'natural gas' (< R. *gaz* 'natural gas')

A smaller group of descriptive expressions contain only Mansi elements. For example:

χurit pōslən χum	'painter [artist]' (lit. 'picture painting man')
ńāwramət ōśne kol	'orphanage' (lit. 'house with children')
ńāwramiy wiy	'to adopt' (lit. 'to take for child')
omam janitlan χotal	'mothers' day' (lit. 'my mother respect day')

Many expressions contain both Russian and Mansi elements together. For example (Mansi elements are in bold):

mań ńāwramət *lekkar* ***nē***	'[female] pediatrician' (lit. 'small children's lady doctor')
molitwa ***ēryi***	'to pray' (lit. 'to sing prayer')
internett rupitam ***maχum***	'computer technicians' (lit. 'people working on the internet')
počotnəj ***namət***	'awards' (lit. 'awarding names')

Such hybrid expressions are sometimes the result of partial loan translation (loanblends), and many are proper nouns (names of institutions, offices and their departments, holidays, etc.). For example:

kulturnəj ***jalpəŋ χotalət***	'cultural festival' (lit. 'cultural holy days')
maločislennəj ***sossaŋ maχmət*** *ďepartament*	'delegation of small indigenous peoples'
soglasie ***ōs*** *primireńie* ***nampa jalpəŋ χotal***	'the day of consent and reconciliation' (November 7, the anniversary of the Soviet revolution) (lit. 'the holy day called consent and reconciliation')
"berjoza" ***nampa*** *ďetskij saďik*	'birch tree daycare' (lit. 'daycare called birch tree')

15. These types of expressions based on Mansi words can also be motivated by Russian since they are often calques of their Russian counterparts.

(b) Another way of new word formation is the extension of the meaning of an existing word. Some examples are as follows:

pōsli	'to draw' > 'to photograph, to paint'
χuri	'drawing' > 'photograph, painting'
ńāl	'arrow' > 'bullet'
ńāləп sawatalwes	's/he was killed by arrow' > 's/he died of a gunshot wound'
noχ-pati	'to get upward' > 'to develop'
mujlupsa	'gift' > 'award'
wowiγli	'to call' > 'to summon [to the police]'
ūralti	'to guard' > 'to arrest'
lūpta	'leaf' > 'wreath'

To the best of our knowledge, there are no linguistic studies dealing with present-day Mansi lexical variation and new word formation. Investigations focusing on recent Bible translations into Uralic languages have noted similar tendencies as those mentioned above. That is, in contrast with earlier translations, recent Bible translations into Mansi tend to create terminology from Mansi elements as well as neologisms based on circumlocution and extension of meaning (Keresztes 2004).

2.3.3 *Summary of the lexical investigation*

To summarize our lexical investigation, our analysis has shown that, in contrast to the very few Russian loanwords in the corpus of the older folkloric texts, the recent newspaper texts contain several hundred Russian loanwords (including proper nouns). On this basis, we can conclude that there are significantly more borrowings in the modern texts as compared to the older ones. Without counting repetitions of the same loanword, the newer corpus has 150 lexical items (excluding proper nouns) that are Russian loanwords, but the older corpus only has 11 Russian loanwords.

We also checked the frequency of occurrence of Russian loans by sampling texts from both corpora. We tested samples of 310 words each. Due to the frequent repetition of the same Russian loanwords, more than one quarter (27% or 85 out of a total of 310) of all the words in the sample from the newer corpus were Russian loanwords. A similar examination of samples from the older corpus yielded the following results: in the mythological text, 100% of the 310 words were Mansi, while in samples from the folk stories, no more than 12 tokens of Russian loan words occurred in the 310-word samples (thus the samples varied from 0% to 3.9% loan words).

In addition, the loanwords in our earlier corpus underwent full phonological adaptation, while those in the newer texts hardly adapted phonologically at all.

Finally, the two corpora allow a limited comparison of the use of descriptive expressions as a way of formation of new words; while in the older texts such expressions are composed solely of Mansi elements, in the more recent texts we find a hybrid type as well that contains both Russian and Mansi elements.

3. Conclusion

In our investigation we have sought to identify change in two aspects – the grammatical system and the lexicon – of the Mansi language in the past one hundred years. The second half of these hundred years brought about an acceleration of language shift which has made Mansi one of the most endangered members of the Uralic language family at present.

In line with our expectations, changes in the lexicon have turned out to be more prominent than those in the grammatical system. Lexical changes have manifested themselves in the number and frequency of Russian loanwords, in the way of borrowing (i.e., with or without adaptation), as well as in the way of the expression of innovations.

Within the grammatical system, we have analyzed passive structures and the dual. We have found measurable changes in the use of the passive and have identified these as examples of simplification characteristic of language shift processes. We have not detected a comparable magnitude of change in the dual, only a tendency toward inconsistency in the modern texts and a small narrowing in its usage.

Our analysis regarding the grammatical features of Mansi might sound surprising to those familiar with the language; one might have expected that more changes could be detected. After all, the language of newspapers might seem to be very simplified, "textbookish," and unrefined compared to the rich and varied expression of the folkloric texts. Moreover, it is a well-known fact that the primary language of some of the authors of the newspaper articles is Russian and that they learned Mansi basically as a foreign language during their tertiary education. The differences in language use are perceived by scholars not only as the result of impoverishment of the lexicon and spread of Russian words but also as structural changes in the language. However, our quantitative methods have been able to detect only less prominent changes in this latter aspect of the language.

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CHAPTER 15

Fine-grained morphophonological variation in Scottish Gaelic

Evidence from the Linguistic Survey of Scotland[1]

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Descriptive accounts of Scottish Gaelic dialects (e.g. Borgstrøm 1937; Oftedal 1956; Ternes 1973) have noted significant regional variation in the surface description of nasal mutation; this paper brings previously unpublished data from archives of the Linguistic Survey of Scotland to bear on the full range of variation across Gaelic speaking Scotland. We employ these data to map out the actual range of variation in the nasal mutation; using Mapmaker software we focus on three graded parameters: voicing, aspiration, and nasalization. With this research we demonstrate the continuing value of "historical" data for the analysis of endangered and minority languages. As yet, no maps have been published based on this survey data.

1. Introduction

The international linguistic community generally recognizes the value and indeed the timeliness of continued research on endangered or minority languages; the increased grant funding available for fieldwork and other projects specifically focusing on endangered languages is one sign of the value we place on this work. We welcome a renewed focus on research encompassing all aspects of endangered languages, from descriptive work on phonology and syntax to variationist studies on social aspects of language use. However, research on any single endangered language often suffers from a very specific constraint: lack of data. This is a central

1. *Acknowledgements:* Many thanks to the department of Celtic and Scottish Studies, Edinburgh University, for access to the archives of the Linguistic Survey of Scotland. This research was supported in part by sabbatical fellowships from the American Philosophical Society and the Institute for Advanced Study in the Humanities, Edinburgh University, granted to Anna Bosch, and most gratefully acknowledged.

part of what it means, after all, when we call a language "endangered," and one of the reasons additional fieldwork is highly prized. Ideally, data collection and analysis work hand in hand (although we know in a practical sense this is not always how we work). Consequently, new data are often gathered to address a new theoretical question. But this should not lead us to conclude that extant data has little relevance or is unable to illuminate contemporary theoretical debates. In fact, it is worthwhile and important to stop collecting data and look back at what we have: what we can in fact learn from the data we now have at hand. Even if this data is limited, or constrained in some way, or available only in some far-from-ideal presentation, nonetheless we owe it to our field to examine exactly what we *can* learn from what we have. Part of our purpose in this article is to test the limits of what we can learn from data that is available, and yet imperfect–in this case, data on regional variation in Scottish Gaelic.

While the data we draw from are in a sense "historical," in a very real sense they provide the widest window for a snapshot of the geographical distribution of the phonological organization of Scottish Gaelic. The Linguistic Survey of Scotland, described in more detail in the following section, involved the efforts of more than 200 speakers of Gaelic, interviewed by eight or more fieldworkers over a period of nearly 15 years between 1949 and 1963 (that period extending to 46 years prior to eventual publication), as well as the dedication of numerous scholars and ad hoc advisors before the main part of the project was made available in published form. And yet very little analysis of this survey data has been completed (although see Ó Dochartaigh 1996 and Ó Maolalaigh 1999). To ignore this data would be to deny ourselves an immense storehouse of fascinating and detailed information on the complete range of Gaelic pronunciation in the mid-twentieth century. We argue here that linguists must look at imperfect data with an eye to exploiting what it *is* able to tell us, especially in the case of endangered languages – it may be all we ever have.

1.1 The Linguistic Survey of Scotland: Gaelic section

During the late 1940s a project developed out of the combined interests of the Celtic, English Language, and Phonetics departments at Edinburgh University to produce a linguistic atlas of the Gaelic and English (Scots) dialects of Scotland; the project soon came to be known as the Linguistic Survey of Scotland (Gillies 1997 in Ó Dochartaigh 1994–1997). The Gaelic and Scots sections of the project became separate endeavors shortly thereafter, with the Gaelic section directed by Kenneth H. Jackson, professor of Celtic at Edinburgh, aided by the additional phonetic expertise of David Abercrombie, professor of Phonetics. Eight

fieldworkers, including Jackson himself, covered the geographic region of the *Gaidhealtachd* between 1949 and 1963; additional fieldwork continued in a sporadic fashion through the 1980s, and contributes to the archival holdings of the Survey. In 1994–1997, the "phonetic record" of the transcribed questionnaires of the *Survey of the Gaelic Dialects of Scotland* (henceforth SGDS; Ó Dochartaigh 1994–1997, ed.) was published as a five-volume series, presenting one volume of explanatory material and four volumes of the narrow phonetic transcriptions of 207 speakers responding to a forty-eight-page word-list questionnaire. Interviews included in this published record took place mainly prior to 1963; one additional point (St. Kilda speaker, point 16) is included from fieldwork by Eric Hamp in the 1980s. In many cases, some of the very last Gaelic speakers in a particular region were interviewed, and we thus have transcribed material of dialects that are now practically extinct. Naturally, the historic quality of these records renders them all the more valuable for close study.

Additional morphological and morphophonological data were also collected as part of the questionnaire by survey fieldworkers, but only the word list data have been included in the published volumes, in narrow transcription. Data for the present study were taken from these unpublished sources, held in the archives of the Linguistic Survey of Scotland, at Edinburgh University.

1.2 Scottish Gaelic as an endangered language

Scottish Gaelic, spoken primarily in the mountainous Highlands and western islands of Scotland, has been declining even in these areas since the earliest census data (cf. Mackinnon 1993; Withers 1984). The map indicating Gaelic speakers by county in the census results of 1891 (Withers 1984: 214) clearly illustrates the Highland line, demarcating the southern and eastern reaches of the *Gaidhealtachd*, or Gaelic-speaking region. Most recent census results are discouraging; as McLeod summarizes, "the language has continued to weaken… to the point where it now can hardly be said to function as a community language anywhere in Scotland" (McLeod 2006: 12). While the only significant figures of Gaelic speakers as a percentage of local communities are still to be found in the Western Isles, Skye, and the Highlands, still, more than 40% of all Gaelic speakers in Scotland live outside the *Gaidhealtachd*, in urban centers such as Glasgow, Edinburgh, and Aberdeen (General Register Office for Scotland, 2005, http://www.gro-scotland.gov.uk/files/gaelic-rep-english-commentary.pdf).

Figure 1 shows the demographic distribution of Gaelic speakers in 1951, around the beginning of the Linguistic Survey of Scotland project. At that time most of the Western Isles and the west coast of the mainland showed more than

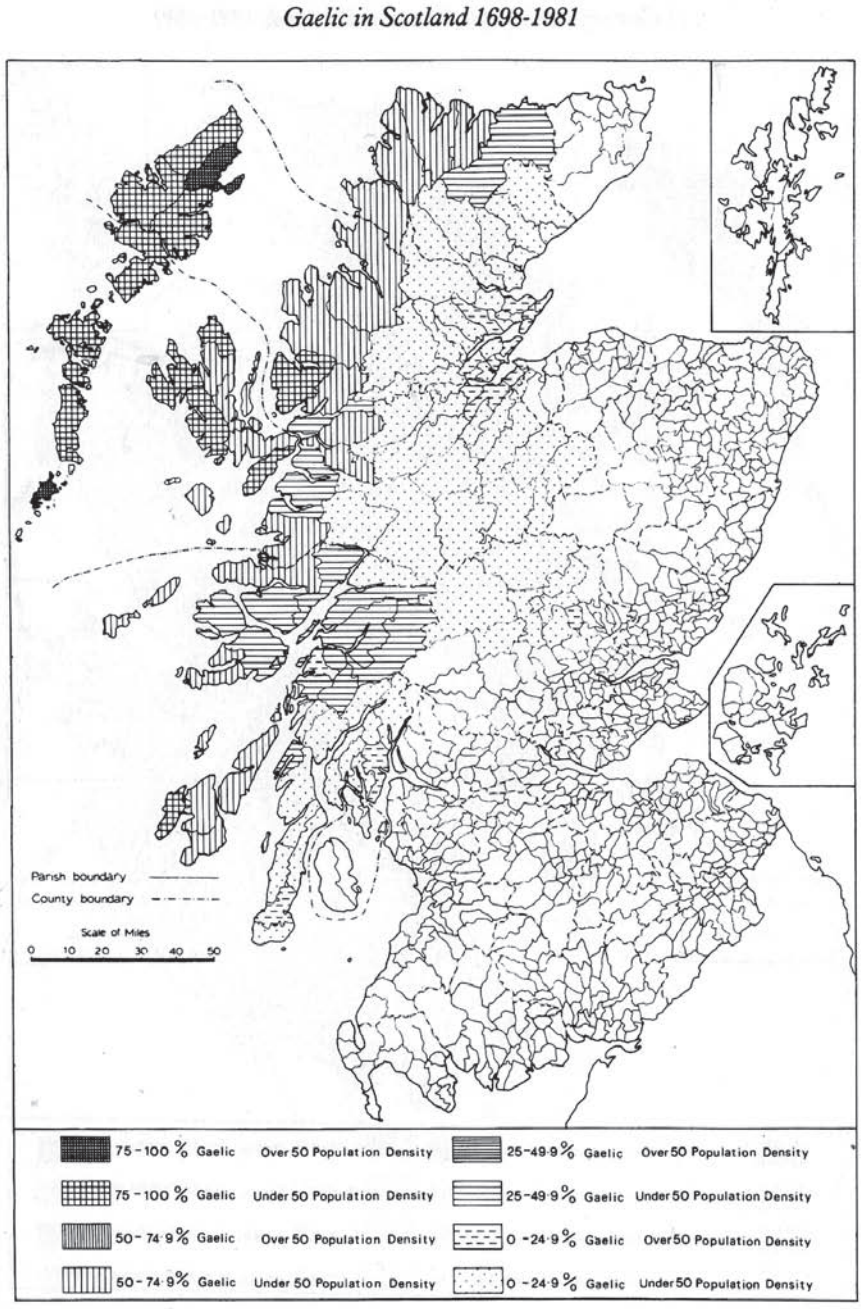

Figure 1. Gaelic speaking by parish, 1951 (from Withers 1984: 232)

50% of the population to be Gaelic speaking. Census figures from 2001, available on-line (www.scrol.gov.uk/scrol/common/home.jsp) show that even the sparsely-populated Western Isles have now declined to less than 75% who self-report as being Gaelic-speaking, while the most populous town in the region, Stornoway, Lewis, only shows 40–60% of its population as self-identified Gaelic speakers. Similarly, the Isle of Skye is now only 20–40% Gaelic-speaking, while the inland area from the western highlands to the periphery of the Highland line is only 5% Gaelic speaking or less.

Further analysis of the 2001 census data by MacKinnon 2004 examines, with little optimism, the possibility of reversing language shift (cf. Fishman 1991) in Scotland, with a particularly close examination of intergenerational ratio (comparing numbers of speakers at different age grades) and intergenerational gain/loss (comparing census data from 1991 and 2001). Evaluating Gaelic along with other Celtic languages within the United Kingdom, MacKinnon concludes that while "Irish is fairly steadily maintained [in Northern Ireland]… Gaelic is in scarcely retarded free-fall and Welsh shows strong evidence of genuine recovery" (MacKinnon 2004: 109).

While the total number of Gaelic speakers in Scotland, according to the 2001 census, was 58,652, this represents a rapid decline even since 1951, when the census identified 95,447 Gaelic speakers (still not 2% of the total population at that time). The data collected for the Linguistic Survey of Scotland represents a valuable resource of transcribed material from across the *Gaidhealtachd* which Celticists and linguists can ill-afford to ignore; indeed, we have transcribed speech from some of the very last speakers and semi-speakers of local varieties of Gaelic. For example, points 14, 15, and 16 of this survey represent the highly distinctive variety of Gaelic belonging to speakers born on the island of St. Kilda, whose 36 remaining residents were evacuated to mainland Scotland in 1930.

1.3 Survey subjects

As the Linguistic Survey of Scotland took shape in 1949–1950, the priorities and methodology of the survey in many ways reflect other linguistic atlas projects of that period (see Jackson 1958; Gillies 1988; and Bosch 2006 for more detailed discussions of the history and methodology of the survey). As with the roughly contemporaneous American survey projects (e.g. Kurath et al. 1939–1943 [LANE]; McDavid et al. 1980, 1982–1986 [LAMSAS]), and the similar project for Irish (Wagner 1958–1969 [LASID]), the focus was placed primarily on the speech of a rural, relatively stable population. A glance at the Survey's geographical coverage will illustrate how successful Survey workers were in recording the very last

"ideal" speakers in some regions. The project director, Kenneth Jackson, later described strict requirements for identifying survey respondents:

> …we pick our informants with very great care, making sure that they were themselves born and brought up in the immediate neighbourhood whose dialect we are studying, and that both their father and their mother were likewise. …We try if possible also to avoid those who are married to speakers of other dialects, or have themselves lived for a very long time in another dialect area.
>
> (Jackson 1958: 232)

Although field researchers were expected to seek out the "best" representatives of local speech varieties, depending on the linguistic demographics of each area, semi-speakers as well as fluent conversationalists could serve as survey respondents, provided the individual's personal history satisfied the above requirements. Given population movement and individual histories, these "best" speakers cannot be assumed to be representative of their contemporaries, nor of younger speakers from their location. They do provide a reasonably representative system, given that their own experience of language input was relatively local for two generations before the survey. Brief paragraphs describing each respondent are included in volume 1 of the SGDS ("Chapter 5, Informants and locations").

2. Eclipsis: The nasal mutation

Like other Celtic languages, Scottish Gaelic demonstrates the phenomenon of initial consonant mutation, a morphosyntactic series of alternations which affect the initial consonants of words. The nasal mutation, known to celticists as eclipsis, historically applied following certain nasal consonants; synchronically the trigger is no longer purely phonological, nor is the result straightforwardly a phonetic nasalization. The most common example of the nasal mutation occurs when certain nouns are preceded by the definite article, which in standard orthography is *an* (or *am* before labials). Note that it is only masculine nominative nouns that select a form of the article which triggers this nasal mutation, and it does so only in some initial consonants. Feminine nominative nouns select a different form, orthographically *a'* (or *an* before dentals), which triggers a different mutation, lenition, which spirantizes or otherwise weakens certain initial consonants.

(1) Voiceless initial: [kʰaht] 'cat' [əŋᵍhaht] 'the cat' (with eclipsis) {pt114; Skye}

(2) Voiced initial: [baʊlʏ] 'limb' [əmaʊlʏ] 'the limb' (with eclipsis) {pt114}

The actual presence of a vowel for the article is not obligatory; when the initial consonant of the noun is one that may demonstrate eclipsis, in some instances

mutation may serve as the only evidence of the definite article. Oftedal describes this for the Gaelic of Leurbost (Lewis) thus: "Since the initial [ə] is caducous, the article is very often observable only in the initial of the noun. If this initial is not susceptible to mutations, the article is not observable at all in those positions where a caducous ə is dropped…" (Oftedal 1956: 201).

(3) Voiceless: am poll 'the mud' [mpʰɔʊlʸ] {pt2; Lewis}
Voiced: am ball 'the limb' [mᵇaʊlʸ] {pt2}

Interestingly, from a phonologist's perspective, the nasal mutation affects word initial fortis (voiceless) and lenis (voiced) stops differently, usually triggering some nasalizing effect on voiced stops, while voicing the voiceless stops. Crucially also, the nasal mutation may create novel segments – such as an aspirated nasal – that are nonetheless contrastive at a surface level; a phonetic difference like [p] or [m] vs. [mh] is thus contrastive (as in (4)), albeit the meaning difference is morphosyntactic rather than lexical, making this a "quasiphonemic" contrast (Scobbie & Stuart-Smith, in press). This raises interesting questions about whether this morphosyntactic and rather abstract mutation is "phonetic", in the sense that it gives rise to marked segments which are not strictly-speaking phonemic in Gaelic (and thus is not structure-preserving in the sense of Kiparsky), or whether it is "truly" phonological.

(4) Aspirated nasal under eclipsis: {pt3, Lewis}
Am poll 'the mud' [mhɔʊlʸ]
An tarbh 'the bull' [nʸharàv]
An caolas 'the narrows' [ŋhɯːlʸəs]

The examples in (4), (5), and (6) show rather different phonetic realizations of the eclipsis forms, which may be due to random variation of some kind (which is of little phonological interest) or may be representative of subtly-different targets for the eclipsis forms. Insofar as fine phonetic detail is arbitrarily speaker specific or dialectal, it is learned, and part of the grammar. Consideration of the variation between speakers can thus add to our knowledge of how specific the grammars of different languages must be. If the variation is structured in some way, then information about this variation will be linguistically valuable. Given the data from the corpus, the most obvious structure we can look for is geographical variation.

(5) Aspirated vs. unaspirated 'voiced' stops under eclipsis: {pt152, Easter Ross}
Am post 'the post' [mbʱɔst]
An tarbh 'the bull' [ndʱaraᵛ]
An cat 'the cat' [ŋgʰaʰt]
Am ball 'the limb' [mbaːlʸ]

Nan daoine	'of the men'	[nəndɯːnʲəɣ]
An guth	'the voice'	[ŋgu]

Nasalization may also neutralize the contrast between voiced and voiceless radical (initial) consonants in certain speech varieties, as in (6). Neutralization of the feature /voice/ of initial stops in masculine definite forms seems a rather odd characteristic, and it would be interesting to see if there is any geographical and/or phonetic pattern to it. Is neutralization limited to just some variants of eclipsis, for example?

(6) Absence of nasal segment under eclipsis: {pt142, East Sutherland}

Am post	'the post'	[ə bost]
An tarbh	'the bull'	[ə darʊ]
An cat	'the cat'	[ə gat]
Am ball	'the limb'	(not recorded)
Nan daoine	'of the men'	[nə dɯ̃ːnʲəɣ]
An gob	'the beak'	[ə gob]

2.1 Survey data on eclipsis

Somewhat less than two pages (pp. 36 & 37) of the original 48-page survey are devoted to gathering evidence of eclipsis; an example of page 36 is provided below. The questionnaire asks for evidence of eclipsis in masculine nouns preceded by the definite article *an/am*. Page 37 asks whether the possessives 'our' *ar* and 'your' *bhur* "eclipse vowels [with /n/], or [add a] prefix h" before vowel-initial nouns (e.g. *ar n-athair* or *ar h-athair* for 'our father'). In order to focus on the expression of eclipsis in voiced and voiceless stops, and the geographic distribution of its neutralization, we looked only at the data found on page 36 of the survey instrument; that is, evidence of the nasal mutation of masculine nouns beginning with voiced or voiceless stops. At this stage in our analysis we are not able to consider the dialect variation in (a) other possible triggers of eclipsis, or (b) how or whether eclipsis is expressed in the cases of initial fricatives [f s ʃ] or initial vowels.

Our task is further complicated by the factors of fieldworker variation (which will be discussed below) and the changing nature of transcription practices over the course of this long-term project. In his detailed exposition of the transcription principles of the Survey project, Ó Dochartaigh points out that Jackson did not initially insist on transcribing initial postaspiration; that is, the aspiration found word-initially which forms the basis of the fortis/lenis contrast in many varieties of Gaelic. Ó Dochartaigh quotes Jackson commenting late in the project that "the voiceless stops are aspirate initially, and should be written [p^h], [t^h], etc." although

Figure 2. Gaelic questionnaire p. 36: Eclipsis [District: Skye III; points 104, 114, 113, 112; Fieldworker: Terrence McCaughey; Fair Copy by Kenneth H. Jackson]. Courtesy of the archives of the Linguistic Survey of Scotland, Gaelic and Scottish Studies, Edinburgh University

apparently they were not uniformly so indicated (KHJ 1963, quoted in Ó Dochartaigh 1997: 134). For example, we find that postaspiration is not normally recorded by fieldworker Fred MacAulay, who worked primarily in eastern and southern regions; so here again we cannot know for sure whether the lack of postaspiration in certain areas – especially peripheral areas – is due to differing transcription practices, or genuine differences in pronunciation. Editorial steps were taken by Jackson to ameliorate the confound between inter-fieldworker variation and geographical variation among speakers, through his oversight of all the data.

Figure 2 shows page 36 of the Fair Copy of the questionnaire for the Skye III district; fair copies were frequently copied by Jackson from the actual fieldnotes, and generally include marginalia by Jackson (signed K.J.) and occasionally also those of the original fieldworker, though it is impossible to know what notes may have been lost from the original working copies. As Figure 2 demonstrates, it was Jackson's habit to copy several speakers from a single region into parallel columns of a single Fair Copy; this leads to a somewhat tangled page, especially when diacritics and footnotes are taken into account. Each column represents data collected from a single speaker, identified by speaker's initial(s) and two numbers: one from a point-numbering system developed by Jackson, and a second from a later numbering system employed for the published SGDS. The transcription system is based on the International Phonetic Alphabet as revised by traditional practice within celtic studies (see Hamp 1988 for a discussion of transcription usage in the Survey).[2]

2.2 Surface phonetic variation

The Survey data show a surprising amount of phonetic variation in how the eclipsis context (e.g. /am#b/ or /am#p/) is pronounced. We collated this variation and present it in Table 1 below, using word-initial bilabial stops as exemplars for all places of articulation (e.g. /am#b/ or /am#p/). (We have no reason to assume at this stage that places of articulation vary in how eclipsis operates.) We tabulate this variation, below, from a purely phonetic perspective in two dimensions: an unaspirated/aspirated dimension and a structural oral-nasal dimension.

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2. Jackson's transcription practice was modified, as described in Hamp 1988, for the publication of the SGDS volumes in 1994; phonetic transcription in the present essay is additionally modified so as to conform as closely as possible to the current (2005) approved version of the International Phonetic Alphabet. Notably, therefore, palatalized consonants are written with the superscript [ʲ] in this text, rather than an apostrophe; velarized consonants are transcribed here with a superscript gamma [ˠ], rather than a bisecting tilde as was Jackson's practice.

Table 1. Range of transcribed variation in initial stops with nasal mutation

	Unaspirated	Aspirated
N	m	m^h mh $m̥^h$
NC	mb $m̥b$ $m̥b̥$ $mb̥$	mbh $m̥b^ɦ$ $mb^ɦ$ mbɦ $mb̥^ɦ$ mp^h m^Ph $mb̥h$ m^bh m^bh
^NC	^mb ^mp $^mb̥$	$^mb̥^h$ $^mb̥^ɦ$
C	b	b^h

In the following table, only eclipsis forms are presented. In addition, basic citation forms would be simple C, namely [p] from /b/ (and sometimes from /p/) and [p^h] from /p/. Horizontal rows illustrate the range of forms of the consonant (sequence) appearing at the start of the noun, plus potentially its nasalization and/or voicing due to eclipsis as follows: N = a plain nasal, NC = a nasal+stop cluster, ^{N}C = a prenasalized stop and C = a plain stop, without nasal. In other words, the putative sequence /m#C/ can be a cluster, or the sequence can be reduced to a singleton nasal, or a singleton oral, consonant. The left side column shows unaspirated variants (which generally arise in the context of noun-initial /b/), while the right column illustrates forms which are aspirated (always due to the noun starting in /p/). Aspirated nasals and stops tend to be transcribed as voiceless or devoiced, although this is not consistent nor necessary.

Not examined here is a third dimension, namely whether the initial schwa of the definite article is phonetically realized or not. It can be omitted in all types apart from those beginning with non-nasalized [b^h].

Underlying voiced stops are invariably realized with one of the alternatives from the left "unaspirated" column; they are never aspirated. Underlying voiceless stops, however, are considerably more variable: in the eclipsis context they may retain aspiration, as represented in the right-hand column, or they may lose it. However, even if aspiration is lost, the contrast between voiced and voiceless (unaspirated vs. aspirated) need not be neutralized; instead the contrast may be coded in the presence or absence of the oral stop or of the nasal itself. (See maps below.)

The variation in transcription illustrated above may be surprising to those who have not worked with this type of transcribed survey data. While we expect fine-grained non-categorical variation in acoustic data, we have perhaps grown to expect categorical or near-categorical certainty in phonetic transcription, even when we are talking about surface variation (e.g., in the oft-cited example from English, the /p/ is either aspirated, in 'pit', or unaspirated, in 'spit'). It is something of an eye-opener to see the transcriptions offered here, where the reader is required to interpret the difference between a raised stop and a stop "on the line;" or distinguish between voiced [b], [b̥] with the devoicing diacritic, devoiced and aspirated [b̥h], or unaspirated [p]. To their credit, the fieldworkers on this

project were making a genuine effort to record the minute details which might, under comparison with the whole, provide evidence of regional variation, either phonetic or phonological. (In fact, they were primarily concerned with phonetic distinctions, rather than phonological ones, as evidence from the archives and Jackson's correspondence suggests.)

One of the challenges of working with this set of data is to identify which aspects of fine phonetic detail are simply evidence of "fieldworker's isoglosses;" after all, eight fieldworkers contributed to the survey's collection. For practical reasons, fieldworkers tended to work in specific geographic areas, so the confound between genuine geographic variation and the "fieldworker's isogloss" may ultimately remain unanswerable. However, mapping these phonetic factors can provide visual confirmation of regional trends and local specificity, which in the long run significantly aid our understanding of the geographical distribution of these several parameters.

As an example of our interpretive dilemma, consider the lengthy marginal commentary by Kenneth Jackson on the questionnaire page (provided), which reads as follows:

> NB My own collections made during my expedition to Skye included "eclipsis" as one of the points of special interest which I checked with everyone from whom I took notes. They show that I heard [mh], [nh], [ŋh], [m], [nʸ], and [ŋ] all through the area covered by Skye III (and part of that covered by Skye II). McCaughey generally has a trace of the occlusive, in the form of the suprascript letter. He does not describe it, but I believe it can scarcely have been more than very slight, to judge from my own experience. Or perhaps the informants were being more careful and precise with him than they were with me. K.J.
>
> (Jackson, Fair copy Skye III p. 36, survey archives, emphasis in the original)

That is, in his own work in this same region, Jackson heard and noted a contrast between aspirated nasal segments (representing the aspirated oral stops in the nasalization context), as contrasted with full but unaspirated nasals (the unaspirated or voiced stop counterparts), while the fieldworker TMC in this region notes a slight, superscript oral occlusion preceding the nasal in the case of the aspirated series. In fact, from the evidence provided in Figure 2, the fieldworker TMC is quite consistent in noting some evidence of the occlusive, either as superscript or (for point 104) as a full obstruent. As Jackson notes, the distinction could result from careful speech in the one case, but we cannot know for certain.

While the question of fieldworker variation remains a thorny one, then, a map or other graphic display of variation can at a minimum provide a "first pass" analysis to determine which diacritic details demonstrate regular and specific geographic distribution, and which instances appear more randomly distributed.

Additional insight comes from taking a phonetic perspective to interpret these fine distinctions. While the distinction between [mp^{h}] and [m^{p}h], for example, appears overly detailed and probably trivial, and that between [m] and [mb] seems apparently larger and probably more meaningful, in fact these differences may be differences of degree rather than of kind. Given data from just a couple of speakers, it would not be possible to make such a claim, but we have the advantage of being able to view these variations in the context of a gradient phonetic cline from N to C across more than two hundred speakers.

From a phonetic perspective the presence or absence of a "segment" in the eclipsis forms can be modeled through differences in gestural overlap (Browman and Goldstein 1990, 1992). In this view, a slight variation in the alignment of articulations can result in either a subtle transcriptional difference, such as increased duration of nasality or aspiration; an intermediate difference, such as a short ([m^{p}]) or long ([mp]) oral phase in a cluster; or an apparently more radical difference, such as the presence vs. absence of a segment altogether.

The difference between N, NC, and C forms in Table 1 could perhaps be due to such differences in gestural alignment, but what really matters is whether they are systematic, and learned. If so, the survey might reveal this through a geographically-distributed set of isoglosses. Similarly, the difference between strongly and weakly aspirated forms, and the devoicing of the stop and nasal consonant can be explored from this perspective.

3. Geographical distribution of the nasal mutation

Below we provide two maps which do not yet implement the complexity of the parametric scales of nasalization or voicing, nor deal overtly with fieldworker variation in the fieldnotes. However they do show clusterings of phenomena, and where those clusters are located.

Figure 3 combines two issues of interest: first, the particular articulatory representation of aspiration (voiceless or voiced); and second, the neutralization of the voicing contrast in the initial stop. Each point on the map represents a single speaker. The largest outlined area shows the distribution of voiceless aspiration (in all instances only underlying voiceless stops are ever aspirated). In addition, then, the sum of all outlined and shaded areas demonstrates where the fortis (aspirated) and lenis (unaspirated) initial consonants remain contrastive in the context of the nasal mutation. To abstract away from detail, in these areas we see an initial /p/ expressed as some variant of [mbh] after nasalization, whereas the initial /b/ is expressed as [mb].

The contrast remains one primarily of aspiration.

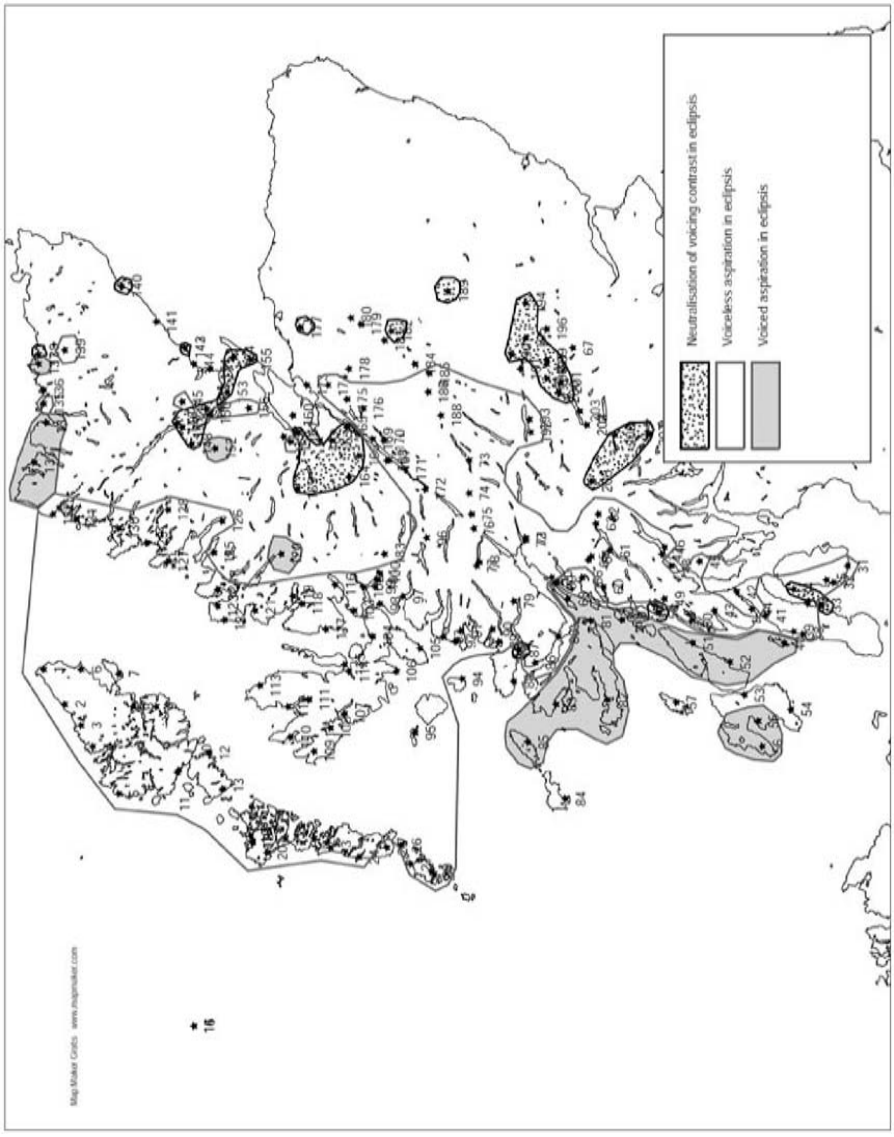

Figure 3. Neutralization of voicing and distribution of voiceless and voiced aspiration in eclipsis

However, a smaller area to the southwest, encompassing Coll, Mull, Jura, and parts of Islay, as well as a few northern points (133, 134, 137) illustrates a voiced variant of aspiration, shown as shaded. Here, an initial voiceless aspirated stop, when in the context of the nasal mutation, becomes voiced – and that voicing appears to continue through the expression of aspiration. Thus the nasalization of /p/ results in [mbɦ] or similar.

It may be worthwhile to note that one fieldworker was responsible for all the (shaded) voiced aspiration data, including the non-contiguous northern points. In fact we have chosen to map this contrast primarily as an exercise to illustrate the likely phenomenon of fieldworker variation; although the transcription is consistent (and we have no reason to question its accuracy), we cannot be certain that these are the only areas that display a voiced aspiration in the context of the nasal mutation. We are somewhat hampered in developing this hypothesis by the lack of detailed regionally-specific monographs exploring any of these particular areas; there are no detailed phonological studies of North Sutherland, Mull, Islay, or Jura such as already exist for East Perthshire, East Sutherland, Barra, or Lewis, for example, so we have no independent confirmation of these data. We hypothesize that the phonetic difference between the pronunciations expressed here regarding the "quality" of aspiration (voiced or voiceless) remains a low-level phonetic process of which most speakers and (probably) listeners remain unaware.

Also identified on this map are spotted areas dotted along the east in which underlying voiced and voiceless stops are in fact merged in eclipsis (e.g. <u>am poll</u> = <u>am ball</u>). These areas include East Sutherland (cf. Dorian 1978), parts of Easter Ross and Speyside, and Perthshire (both North West and East); see also examples provided in (6) above. These areas generally do not coincide with aspiration, or show only minimal aspiration in the fortis-lenis contrast. Thus, in most of these eastern points the primary feature distinguishing fortis from lenis initial stop consonants (transcribed predominantly as a distinction in voicing) is neutralized in the environment of the nasal mutation. This corresponds to evidence provided in Ó Murchú's 1989 study of East Perthshire Gaelic, which draws heavily on data from the archives of the linguistic survey. In ordinary word-initial position, Ó Murchú describes the initial stop consonants /p t k/ (etc.) as "voiceless postaspirate stops" (1989: 102), although "postaspiration is not very marked by general Scots Gaelic standards" (102). The lenis initials /b d g/ (etc.) are described as "voiceless nonaspirate (lax) stops" (102). In a following section on prenasalization, while the term 'neutralization' is not mentioned, it is clear from Ó Murchú's discussion that the nasal-stop context eliminates the original word-initial contrast in stops. Examples are provided as follows:

(7) Neutralization of the initial contrast of [voice] under eclipsis:
am pùd [mbuːd]
am baile [mbɑl]
an toll [ndolʸː]
an dorus [ndɔrs]
and so on (examples from Ó Murchú 1989: 114)

From Figures 3 and 4 (below) we see then that neutralization of the initial contrast in the stop consonant system tends to be found in peripheral areas on the east and south of the Gaidhealtachd. It is also worth mentioning that fieldwork on the points encompassed by these spotty areas (approximately points 138 through 207) was accomplished by seven out of the eight original fieldworkers. Thus we cannot point to fieldworker transcription practice to account for the occurrence of contrast-neutralization in these varied and geographically-dispersed areas. The shared factor for "neutralizing areas" remains only the peripheral nature of these locations, and the scarcity of Gaelic speakers in these combined regions (generally less than 5%). The neutralization of this salient contrast may therefore represent (or result from?) language attrition in a context where Gaelic is little used.

The very few points that are not singled out in the map – areas that are neither spotty, nor shaded, nor encircled – are areas where the voicing contrast appears to be maintained under eclipsis, but without the expected feature of aspiration. Instead, these areas demonstrate the distinction between initial /p/ and /b/, for example, by means of a voicing (or devoicing) contrast. Thus for points 178, 179, 180, we find initial /p/ is eclipsed as [^{m}b̥], with a devoicing diacritic on the [b̥]; while initial /b/ is eclipsed as simple [^{m}b]. The slight, perhaps questionable distinction between [b̥] and [b] (with and without devoicing diacritic) is difficult to interpret here: was it the fieldworker's intention to show a contrast? As we note, the contrast *appears* to be maintained by these speakers. Since these few points are now in the most peripheral areas of the traditional Gaelic-speaking world, further empirical clarification on this question would be unlikely.

Figure 4 maps the distribution of neutralization of voicing contrast in eclipsis, in dotted areas, (as discussed above for Figure 3), as well as the distribution of two types of reduced cluster, which represent the two "extremes" of the oral-nasal dimension. In the first type of reduced cluster (a), mainly found in small dispersed areas to the east, shown in vertical or horizontal cross-hatching, the nasal can be lost (which overlaps with neutralization). Although the omission of the nasal is not exemplified in the East Perthshire data available on the survey instrument, in fact Ó Murchú claims the nasal element of the nasal mutation is commonly omitted "in highly frequent forms" (189: 115), presumably as an optional phenomenon. Indeed, he provides an example of this nasal deletion which conveniently

Figure 4. The distribution of the neutralization of the voicing contrast in eclipsis compared to the extremes of the structural oral-nasal dimension

also demonstrates the neutralization of the voiced/voiceless (or aspirated/unaspirated) distinction in the context of the nasal mutation:

(8) /bals/ for /mbals/: am pailteas 'the abundance' (Ó Murchú 1989: 115)

So the omission of the nasal from the nasal mutation itself appears not to be constrained by the possibility of eliminating useful meaningful contrasts. Again, however, we note that these areas (in vertical or horizontal hatching on the map) overlap with neutralization only in the peripheral eastern areas, where spoken Gaelic has long been in decline; see inset.

In parts of Lewis and the northwest highlands, however, we find another "extreme" type of example: here, indicated by diagonal cross-hatching, (b) the stop itself can be lost; this type of cluster reduction never seems to co-occur with the neutralization of contrasts. This results in a typically Lewis Gaelic shibboleth, in which the stop under nasalization is represented as a nasal or aspirated nasal consonant word-initially. Thus, initial /p/ after the nasal mutation is pronounced as some variant of [mh], while /b/ is simply [m]. This was described by Borgstrøm in his 1940 comparative study, *Dialects of the Outer Hebrides* (cf. Borgstrøm 1940: 23), and reconfirmed by Oftedal's 1956 description of Leurbost Gaelic. The absence of the oral stop under eclipsis is widely understood by Gaelic speakers today to be indicative of Lewis speech (and may on occasion be employed to comic effect).

The contrasts illustrated in the map in Figure 4, then, show (a) where the nasal is omitted (vertical/horizontal hatching) and (b) where the oral stop is omitted (diagonal hatching). The regions geographically are not at opposite ends of the Gaelic speaking region, and future research is needed to see if there are any complex patterns of partial de-nasalization and partial de-oralization. The voiced and voiceless stops tend to pattern together in cluster reduction; for example, where the oral stop itself is lost, the contrast voiced/voiceless (or aspirated/ unaspirated) is nonetheless retained. Comparison of the two maps reveals that the area with aspirated nasals has no neutralization; the contrast is maintained as plain vs. aspirated nasal. (The aspirated nasals may themselves be devoiced to some extent.)

It is clear from the geographic distribution of the different variants of eclipsis forms that speakers specify the relative timing of at least three dimensions, but perhaps the result is not much different than one might predict from a segmental description in which the nasal or the oral stop was deleted. We lack the finer-grained phonetic data, especially instrumental data, that could investigate just how detailed these systems are.

What is interesting here is that the apparent N to NC to C cline is not represented as an evenly spaced transition on the ground, geographically. While stop deletion is found in the far north of the Gaidhealtachd, nasal deletion appears to

extend west-to-east just to the south, in a series of relatively isolated locations, with a cluster realization being more widespread.

Theoretically-speaking, instead of incorporating numerical targets into the grammar, more schematic formalizations of subtle differences in gestural alignment have been undertaken in Articulatory Phonology itself, and in gestural Optimality Theory (e.g. Gafos 2002; Bradley 2005). There seems to be an increasing acceptance that phonetically fine-grained specifications have to be represented in the grammar somehow. Evidence for or against such theories is not generally available in the phonological literature, because the broad segmental transcriptions found there beg the question. Cross-linguistic studies provide some support, particularly if dialects are included in the comparison, and if instrumental phonetic data are included. For example, see studies on geographical variation in intonation in Irish Gaelic (Dalton & Ni Chasaide, to appear) or consonant-consonant overlap in /kl/ clusters across Europe (Gibbon, Hardcastle & Nicolaidis 1993) which show clines of alignment variation. The distribution of oral-nasal variation as presented here based on finely-transcribed survey data provides appropriate evidence both because of the large number of speakers, and by virtue of the fact that the data are structured, not because the data are simply phonetically subtle. Instrumental phonetic data from structured pools of subjects would be even more powerful evidence, and would be able to address the question of just how fine-grained grammars have to be.

4. Significance of the study

The detailed transcriptions of the Linguistic Survey archives offer a wealth of nearly unexamined data on geographic variation in Gaelic. Our focus here is to outline the bases for geographical or regional variation in the initial nasal mutation, in part because we saw so much transcribed variation in a casual review of the data, and in part because the nasal mutation seems to create novel and contrastive segments such as the initial voiceless aspirated nasal, which has important theoretical implications. However, because there is very little instrumental (articulatory or acoustic) data on this aspect of Scottish Gaelic phonology (although cf. Ladefoged 1998), at this early stage we simply don't know what aspects of the transcribed data are significant, and what elements are simply "noise," for example, due merely to fast-speech or careful speech phenomena, or individual idiosyncrasy. There are obvious and familiar lessons, too, for fieldwork on endangered languages, where large numbers of dialectally-variable speakers are unlikely to be available. First, transcriber bias can occur, undetected. Second, the system may have become attrited as the communities of use fail. Third, the fine phonetic variation between

geographical or even socially-determined dialects will not be recoverable. When only small numbers of speakers are available, the best we can do is to record fine phonetic detail as accurately as possible, preferably instrumentally, and not force the phonological system into familiar and convenient categories.

Scottish Gaelic today is an endangered language, spoken by less than 2% of the population of Scotland. As can be seen by the figures cited, the geographic distribution of significant Gaelic-speaking population has shrunk dramatically since 1951. In addition, Gaelic today provides fertile ground for the examination of language-contact and language-change phenomena, although little work is being done in this area. Currently there is significant interest in developing a second large-scale geographic survey of Scottish linguistic practice, encompassing use of Gaelic, Scots, Doric, and other non-majority language practices. However, before a convincing argument can be made for financial support of such a project, it must be evident that previous survey efforts have been put to good use. This project represents one attempt to employ the detailed phonetic transcriptions of the survey to further our understanding of the geographic distribution of one phonological feature of Scottish Gaelic.

Authors' note

We would like to dedicate this paper to one particular informant contributing to the Linguistic Survey of Scotland, Duncan Black from Lismore (point 68), Scobbie's maternal grandfather.

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CHAPTER 16

Animacy in Bislama?

Using quantitative methods to evaluate transfer of a substrate feature

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The source of and, hence, principal factors constraining, several variables in Bislama, an English-lexified Pacific creole, remain the subject of some dispute.

This chapter uses quantitative methods to evaluate the strength of claims that variable presence/absence of arguments in Bislama is principally due to the transfer of preferences in the substrate languages. It focuses particularly on the role that the *animacy* of a referent plays in determining:

a. presence/absence of pronominal subject in a clause,
b. the form of 3p agreement, and
c. the presence/absence of pronominal objects (Crowley 1990, 2002).

Other research has claimed discourse salience (not a substrate feature) and/or direct possession relations (substrate feature) are more relevant (Meyerhoff 2000, 2003a). Clauses of spontaneous conversational Bislama recorded on Malo island in the 1990s *and* a corpus of 10 Tamambo (the Malo vernacular, Jauncey 1997) narratives or process texts are analysed for the same factors. The results show that animacy is a significant constraint on the subject pronominal variable, but it is not strong for the other two variables.

The result is an empirical gain and a theoretical gain. First, claims for transfer of substrate features into Bislama are motivated in a more transparent way than they have been before. Second, we see clearly the potential that multivariate analysis offers for resolving outstanding questions and debates relating to language contact and the role of substrate transfer. This is especially true for the Pacific creoles where we continue to be able to gather, and analyse, substrate corpora.

1. Introduction

Research over the last thirty years has shown that many aspects of the structure of Bislama, Solomon Islands Pijin and Tok Pisin may well be transfers from the substrate languages spoken in Vanuatu, the Solomons and Papua New Guinea into the emergent English-lexified creoles (e.g. Camden 1979; Mosel 1980; Keesing 1988; Sankoff 1996; Siegel 1998; Meyerhoff 2002). Similar claims have been made for the French-lexified creole Tayo spoken in New Caledonia (Corne 1994; Siegel et al. 2000), and it is likely that the reason for the transfer of some very basic features is the lengthy period of widespread community bilingualism and multilingualism during which the structure of these creoles has stabilised, or gelled (cf. Bickerton 1990: 121). Some features that clearly reflect substrate influence include the distinction between inclusive and exclusive pronouns in first person plural, e.g., in Bislama *yumi* 'we (inclusive of the addressee)' versus *mifala* 'we (exclusive of the addressee).' They almost certainly include the use of directional serial verb constructions when the main verb is a verb of motion, e.g., in Bislama the use of *kam* and *go* to indicate movement towards or away from the deictic centre of the discourse. In addition, they may also include aspects of the tense, mood and aspect systems of the languages, e.g., the use of a STAY lexeme as a marker of continuous or habitual aspect.

Other work has considered the possibility that features of the substrate grammar may transfer into the creoles of the region in more evanescent ways. There is a small but growing body of variationist research showing that grammatical features marked obligatorily in the substrate languages, specifically, a distinction between alienable and inalienable possession, show up in the creoles spoken in the region as statistically significant, though fundamentally variable, preferences in the form with which arguments are realised as full or overt NPs (Sankoff & Mazzie 1991; Meyerhoff 2002).

A natural extension of this is to consider whether variable processes in substrate languages might transfer into the Pacific creoles. Crowley (1990, 2002) and Mühlhäusler (2003) have suggested that animacy – a feature that is variably marked in syntactic structures in substrate languages of the region – constrains the variable realisation of subject and object arguments in Bislama and Tok Pisin. However, little empirical work has been undertaken to evaluate these claims, and what little has been done has only been presented informally at conferences where a limited range of factors are discussed (Meyerhoff 2003b; Crowley 2004).

In sum, there is some dispute about the source of (and, hence, principal factors constraining) several variables in Bislama, an English-lexified Pacific creole. The basis for the dispute is whether these variables are primarily constrained by factors independent of the sociolinguistic history, such as the semantic transpar-

ency of morphological agreement (as Meyerhoff 2000 suggests for subject variation) or whether they are primarily constrained by semantic features found in the substrate languages (as Meyerhoff 2003a and Crowley 2002 suggest for objects).

Resolving this matter is not only relevant to scholars of Pacific creoles. Depending on which answer seems to fit the data best, we are drawn to different conclusions about the relationship between surface variation and a language's grammar. If the principal constraints on these variables are formal (syntactic) factors, then this strengthens arguments that formal properties of grammar facilitate and sustain variation (cf. Adger & Smith 2005). On the other hand, if the principal constraints are semantic features found in the substrate languages, then we might conclude that formal distinctions in the grammar result from the transfer of semantic features (and that these semantic features in turn give rise to the grammaticalisation of formal features). The difference between these two conclusions boils down to fundamental questions regarding the nature of I-language: the former retains the integrity of assumptions about the modularity and immanence of grammar; the latter represents grammar in a much closer and productive relationship with culture – in this case, the historical contingency of contact between speakers of sometimes very different languages. It should be apparent that I will assume that it is reasonable to consider variation part of the (I-language) grammar and not wholly a production (E-language) phenomenon – in a volume focusing on variation, I trust this won't be terribly tendentious.

Multivariate analyses are, of course, not new to creolistics (e.g. Rickford 1996; Blake 1997; Patrick 1999; Poplack & Tagliamonte 2001; Walker 2000), and multiple regression analyses have enabled creolists to debate questions like the possible creole genesis of African-American English in quite a different manner than they would have otherwise been able to. However, it is less common to use variationist methods to directly probe the possibility of transfer from one language into another. Papers in Poplack (2000) explore variationist methods for making a case for the English vernacular origins of AAE. But to the best of my knowledge, no one has used quantitative methods to question the potential transfer of variable processes from substrate languages into a creole. Usually, discussions of structural transfer have focused on whether or not a categorical feature has transferred categorically.

In this chapter I will use quantitative methods to evaluate the effects of animacy on two aspects of argument structure in spoken Bislama – the realisation of subject and object arguments. Both these variables have been reported on previously (Meyerhoff 2000, 2003a); however, there are three reasons why they merit being revisited here. First, there continues to be some debate over what the most important constraints on these variables are (see Section 2 for discussion). I will address this question by considering the relative weighting of different constraints on the variables. Second, by drawing together the analysis of

variable presence/absence of subject *and* object arguments in one place, we will obtain a much clearer picture of how constraints on variation play a systematic role across related phenomena in the grammar of a single language. Third, we will evaluate the likelihood that the most important constraints on variation may in fact have transferred from substrate languages. I will do this by comparing the relative weighting of the same constraints on the same variables in both Bislama and Tamambo, a relevant substrate language for a number of the speakers in my Bislama corpus. In Section 3, I will make explicit the sense in which Tamambo can be considered a relevant substrate language.

In order to explore the question of whether variation has been transferred, we need to be very clear that the data has been organised in comparable ways. This means that before we can explore and compare variation in Tamambo and Bislama, I will have to systematically establish what the most important constraints are on the Bislama variables. I will then be able to introduce the Tamambo data and compare like with like (wherever possible).

2. Hypotheses to be tested

I test four hypotheses about the variable effects of animacy in Bislama.

Hypothesis 1: The alternation between zero and pronominal anaphors in **subject** positions is constrained by animacy. Human subject referents favour overt realisations; non-human subject referents favour null realisations (Crowley 1990: 241).

Hypothesis 2: The distribution of the agreement markers *oli* and *i* with **3rd person plural** subjects is constrained by the animacy of the subject. Human subjects are more likely to occur with the plural agreement marker *oli*; inanimate 3rd subjects are more likely to occur with the singular or default agreement marker *i* (cf. Comrie 1989: 191; Crowley 2002: 227).

Hypothesis 3: The alternation between zero and pronominal anaphors in **object** positions is constrained by animacy. Human object referents favour overt realisations (Crowley 1990: 326–327).

Hypothesis 4: The constraints on these variables that are most important in Bislama are the same as the constraints on these variables that are most important in the substrate language, Tamambo.

Aspects of these hypotheses overlap with typological generalisations that hold cross-linguistically. Hypothesis 2, for instance, posits that default or singular

agreement occurs frequently with inanimate subjects; similar patterns occur in Ancient Greek, Persian and Georgian (Comrie 1989: 190).

Different linguists characterise the variable in (2) differently. I have argued (Meyerhoff 2000) that when the subject of the clause is referential (i.e., when there isn't a raising verb, weather verb, etc.), *i* and *oli* are subject agreement markers cliticised to the left-edge of the verb phrase (this is very close to the analysis provided by Tryon 1987, though our terminology is a bit different). However, there is also ample evidence in Bislama that *i* is the default agreement marker, i.e., that it is underspecified for both person and number. When there is intervening material between the subject and the predicate, e.g., the subject NP is complex or there is a serial verb construction, we find *i* instead of the full range of subject agreement markers (Meyerhoff 2002). For this reason, Hypothesis 2 is stated in terms of "the singular or default" agreement marker *i*.[1]

Crowley's generalisations about these constraints (1990, 2002) were qualitative or impressionistic; they were, nevertheless, based on extensive fieldwork and daily exposure to Bislama (as are his claims about the role of animacy in variable processes in the numerous substrate languages he studied in Vanuatu). A few months before his death, Crowley offered the first attempt to pin down the parallels between animacy effects in substrate languages and Bislama in more quantitative terms (Crowley 2004). His preliminary results suggested that raw frequency counts back up his impressions, but the data he made public do not, unfortunately, allow us to test his results for significance. Nonetheless, they are important data in the history of quantitative studies of the languages of Vanuatu, and I therefore report them here, exactly as Crowley (2004) did, modifying the layout slightly to facilitate comparison.

With respect to Hypothesis 1, Crowley (2004) reported that a frequency count of third person subject pronouns in a corpus of Bislama oral histories showed the following distribution for animacy of the subject. Note that the breakdown in Table 1 is for animate/inanimate subjects, slightly different to the human/non-human claim being tested (however Crowley claims that animate non-human subjects occur most often in fables and that in this context they are for all intents and purposes 'human').

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1. These morphemes have been variously described in Bislama and related creoles as 'subject resumptive markers' or 'predicate markers'. Crowley (2000) prefers the latter; my reading of his reasons for this is that he would expect 'agreement' to be categorically marked in a language. I don't have that expectation (cf. Comrie 1989: 191, 218–219), and I find the notion of 'default agreement' useful in accounting for the distribution of *i*. However, the terminology chosen is irrelevant to the analysis of variation I undertake here.

Table 1. Distribution of subject pronoun and null forms (percent) in Bislama oral histories (Lindstrom & Gwero 1998). Number of clauses not specified. [Shaded cells where percentages do not add up to 100 across.] Data from Crowley (2004)

		Pronoun + V	Ø + V
3s	animate	63%	29%
	inanimate	37%	71%
3p	animate	12%	88%
	inanimate	0	100%

Table 2. Percentage of third person plural subject referents occurring with third person plural agreement on the verb in texts from five vernacular languages of Vanuatu, compared with a corpus of oral histories in Bislama. Numbers of clauses not specified. Data from Crowley (2004)

Language	Human subject (3 plural)	Non-human animate subject (3 plural)	Inanimate subject (3 plural)
Sye (Erromango, South Vanuatu)	100%	100%	7.7%
Paamese (Paama, Central Vanuatu)	100%	80%	15%
Nakanamanga (Nguna, Central Vanuatu)	100%	100%	40%
Naman (Malakula, North Vanuatu)	100%	100%	37.5%
Neve'ei (Malakula, North Vanuatu)	100%	84.6%	60%
Bislama (Lindstrom & Gwero 1998)	81.3%	32.2%	

Table 3. Percentage of third person objects (singular and plural) realised as null (no overt pronoun) in Lindstrom & Gwero (1998). Number of tokens not specified. Data from Crowley (2004)

	Animate	Inanimate
3rd person singular	36.7	95.1
3rd person plural	10.3	98.4

Table 2 shows the results relevant to Hypothesis 2: occurrence of 3rd person plural agreement (as opposed to the default *i*) with third person plural subjects. In this case, Crowley made more explicit comparisons with vernacular languages in Vanuatu, drawing on texts he and other linguists have recorded.

Finally, Crowley examined the oral histories in Lindstrom & Gwero (1998) for the occurrence of pronouns or null forms in object position (cf. Hypothesis 3). The results are shown in Table 3.

3. Method

To directly test Hypotheses 1–3, I draw on a corpus of Bislama conversations that I recorded on Malo island (Northern Vanuatu) in 1994–1995. (Figure 1 shows the position of Malo in relation to the rest of Vanuatu.)

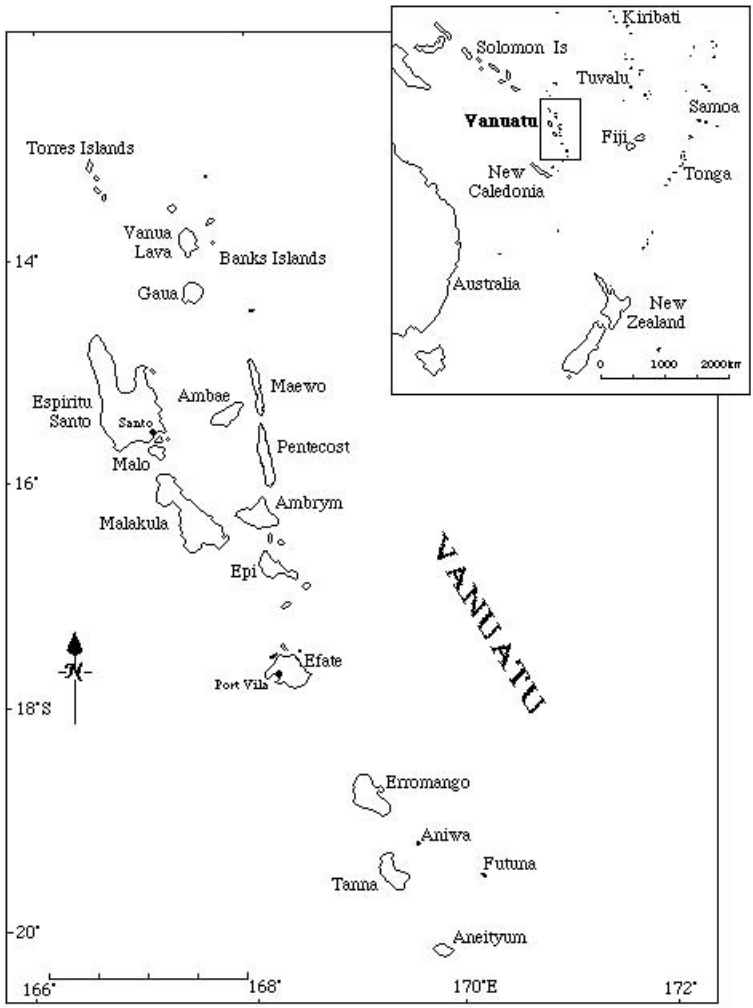

Figure 1. Location of Malo island within Vanuatu

Conversations ranged from two party chats (with other family members present) to group discussions on the beach or talk after dinner with as many as eight people present. The total number of speakers sampled for this corpus is 25 (14 women and 11 men). Most of the discussants had learnt Bislama in their pre-teen years, that is, within the critical period, and there was one speaker for whom Bislama was clearly a co-equal L1. The speakers had a range of other L1s: all the men spoke Tamambo (the language of Malo) as their first language, as did 6 of the women. The first languages of the remaining women were from throughout Vanuatu: southern, northern and central languages were represented. Many of these women speak Tamambo fluently, all have complete comprehension of the language. Since Tamambo is the L1 for a large subset of the Bislama corpus, and an important medium for daily interaction for all members of the corpus, I will refer to it as the relevant substrate. In Section 5, I will compare animacy effects in a small corpus of spoken Tamambo with the findings for Bislama in order to test Hypothesis 4.

3.1 Subject presence/absence and subject agreement

A finite clause in Bislama may have a full NP, a pronoun or a null subject. This is illustrated in (1)–(2).[2] Example (1) shows the transition from full NP *boe ya* at the beginning of a new chunk of discourse, to pronoun *hem* in lines 2–3, and finally to a zero subject in lines 4–5. Example (2) shows that the stage of pronominal reference is not required; the subject *ol man* becomes a zero subject in the next two finite clauses.

(1) *Ale boe ya i gobak long haos,*
DM boy SPEC AGR return PREP house
ale hem i – ating hem i karem wan masket redi i stap.
DM 3S AGR maybe 3S AGR carry INDEF.ART gun ready AGR stay
Ale hem i fasem hea blong hem wetem tawel –
DM 3S AGR fasten hair PREP 3S with towel
a, ae blong hem wetem towel
uh eye PREP 3S with towel
ale Ø i putum a, olsem maot blong masket ya
DM Ø AGR put uh like mouth PREP gun SPEC
insaed long maot blong hem
inside PREP mouth PREP 3S

2. Examples are identified by tape number from the corpus, and by a speaker pseudonym.

ale *Ø* *i* *prestem* *masket* *wetem to* *blong* *hem.*
DM Ø AGR press gun with toe PREP 3S

'So the boy goes back home, and he – I guess he had got a gun ready. Then he tied up his hair with a towel – ah, his eyes with a towel, then [he] put like the mouth of the gun in his mouth, then [he] fired the gun with his toe.'
(M-95-10, Lolan)

(2) *Ol* *man* *oli* *kam,* *Ø* *oli* *lukaot* *hem*
PL man AGR come Ø AGR look.for 3S

Ø *oli* *luk*
Ø AGR look

we *trak* *blong* *leg* *blong* *hem* *i* *kam* *go* *finis* *nomo* *long* *ston.*
REL track PREP leg PREP 3S AGR come go finish only PREP stone

'Everyone came [and] [they] looked for him. [They] saw (how/that) his footprints went up to the stone and vanished.' (M-95-9, Obed)

Example (1) also shows that the form of subject agreement with third person singular subjects is generally *i*, while example (2) shows that when the subject is third person plural, the agreement marking is generally *oli*. However, 3rd plural subjects may also occur with *i*.

A number of finite clauses were excluded from the corpus (they are listed in the Appendix). This was either because they invariably occur with a null subject or invariably occur with a pronoun. They cannot therefore be included in an analysis of variation since they do not constitute a variable context. If we were to include them, they would skew the results. Some clauses were excluded because previous work (Meyerhoff 2000) has shown that while they may occur with an overt subject and full agreement on the predicate, the variation is so infrequent that they, too, will unduly skew the analysis of variation if they are included. Finally, clauses where the subject is ambiguously referential were excluded.

After defining the envelope of variation (all and only those contexts in which there is variation) necessary for Hypotheses 1–2, I was left with a corpus of 3112 clauses. These were coded for person and number of the subject argument, the form of the argument (full NP, pronoun, null) and the form of the agreement for third person arguments (*oli* vs *i*).

3.2 Object presence/absence

The methods used for identifying object variants were very similar. Finite transitive clauses were identified in the corpus, and each one was coded according to whether the object was a full NP, a pronoun or a null realisation. Example (3)

illustrates the object variable. The underlining shows that a full NP object in one clause can be realised as null in following clauses. In a discussion about whether there are any turtles that visit the area, Mesek says there are some big ones that visit. His son, Saemon, replies that he and some of the other children have seen one of them, and his aunt, Alis explains to Mesek why we started talking about turtles in the first place: 'she', i.e. Miriam, hadn't seen any in this family's harbour.

(3) *M:* *I gat sam bigbigwan.*
AGR have some RED.big

S: *Mifala i luk wan bigbigwan.*
1P.EXCL AGR look INDEF.ART RED.big

A: *Hem i se bae Ø i mas luk Ø.*
3S AGR say IRR Ø AGR must look Ø

Ø i se Ø i go longwe,
Ø AGR say Ø AGR go there

Janette i soem Ø nao.
J AGR show Ø now

Afta hem i stap askem nao se
then 3S AGR CONT ask now say/COMP

'Be yufala i gat Ø?'
but 2P AGR have Ø

'M: There are some big ones [turtles]. S: We've seen a really big one. A: She said she has to see [one]. [She] said she went up there, [and] Janette showed [some turtles]. So then she was asking "And do you have [any]?"'

(M-95-19, Mesek, Saemon, Alis)

The corpus in this case is smaller since not all clauses are transitive; results are presented for 869 utterances. The data was coded for a range of discourse and semantic factors: form of antecedent; grammatical role of antecedent; discourse recency (present in prior clause, present further back, entirely new); main verb semantic type; animacy; (in)alienability; string priming (replication of all or part of the clause from one utterance to the next); age of speaker. Objects of a sentence that are events/propositions are considered in this analysis (e.g., thoughts or reports of belief and saying). Events/propositions were excluded in the analysis of subjects (for reasons discussed in Meyerhoff 2000: 130–132), so this factor cannot be compared directly across different argument types.

3.3 Statistical testing

The tokens of subjects, objects and third person plural agreement that were extracted from the corpus were subjected to multivariate analysis using Goldvarb 2.1 (Sankoff et al. 1992). The logistic regression performed by Goldvarb weights the raw frequencies of a particular variant (e.g., null vs overt anaphor) allowing, for example, for the relative overall frequency of each interclausal context and for the relative frequency of each subject form in the corpus as a whole. The resulting weightings indicate the extent to which each context favours or disfavours a variant. The weighting provides a more solid basis for comparing the within-group frequencies than the comparison of simple percentages does.

4. Results

4.1 Animacy constraints on subjects in Bislama

Previous quantitative work on the distribution of null subjects in Bislama has offered some support for thinking that there is some kind of animacy effect at work. Meyerhoff (2000) found that 1st and 2nd person subjects were significantly more likely to be realised as overt pronouns than they were to be realised a null subjects. Conversely, 3rd person subjects favoured the null option at statistically significant levels. It is by no means unusual for a language to treat 1st and 2nd person alike and 3rd person differently (speech participants versus non-participants). This may be an aspect of discourse deixis, and it can be construed in terms of an animacy distinction – the highly animate, co-present speaker and hearer are distinguished from potentially less animate, and potentially non-present, third persons. However, a functional account of systems in which there is a pro-drop split generally would predict that 1st and 2nd person will occur with null subjects more than 3rd person referents do (e.g. Chafe 1994). Yet, the Bislama facts show the opposite tendency. I accounted for this by referring to the informativeness of the subject agreement in each of the different persons and numbers. The canonical agreement system for Bislama (one which abstracts away from some of the variation we will be exmaning) is shown in Table 4 below.

If, for the moment, we consider only the agreement associated with singular and plural forms for each person, we can see that several things characterise the agreement paradigm in first and second person. One characteristic is that both 1st and 2nd person have zero agreement in the singular and *i* in the non-singular. In other words, agreement in 1st and 2nd person can really only be said to distinctively mark number – the overlap between 1st and 2nd person mean that, in the

Table 4. Canonical subject-verb agreement (predicate marking) in Bislama, for the verb *singsing* 'sing' (pronoun **agreement** verb)

	SINGULAR	DUAL	TRIAL	PLURAL
1 (excl.)	mi **Ø** singsing	mitufala **i** singsing	mitrifala **i** singsing	mifala **i** singsing
1 (incl.)	–	yumitu **Ø** singsing	yumitri **Ø** singsing	yumi **Ø** singsing
2	yu **Ø** singsing	yutufala **i** singsing	yutrifala **i** singsing	yufala **i** singsing
3	hem **i** singsing	tufala **i** singsing	trifala **i** singsing	olgeta **oli** singsing

Table 5. Distribution of pronominal and null subjects as percentage of all subjects in Bislama conversational corpus (total number of subjects 3031)

	Ø + V	**N (null subjects)**
1st person	7%	48
2nd person	6%	16
3rd person	44%	815
Total	29%	879

absence of a pronoun, the agreement marker itself does not disambiguate between 1st and 2nd person. By contrast, in 3rd person, the contrast between singular *i* and plural *oli* means that agreement here identifies both person and number.

Meyerhoff (2000) suggests that the relative informativeness of the agreement morphology accounts for the counter-functional pattern of Bislama subject-dropping. The variable rule analysis showed that person/number of the subject and the discourse salience of the subject referent are by far the strongest constraints favouring the occurrence of null subjects. The contrast is between pronoun presence and absence (i.e., does not include full NPs) since null subjects are always in some sense activated referents and therefore are more closely comparable to pronouns than they are to full NPs (which may provide new or contrastive referents). The factors most favouring absence of a pronoun were: if the subject was third person; if the subject had also been the subject of the preceding clause; *and* if the subject had already been realised as phonetically null. These results are reported in detail in Meyerhoff (2000), so I won't review them here.

Let us examine the results from our corpus of speakers of Bislama on Malo. Table 5 shows the number (and percentage) of phonetically null subjects in each of the three persons in the corpus.

Clearly, there is a quantitative difference between 1st/2nd and 3rd person subjects (as Meyerhoff 2000 found for a larger corpus). What accounts for this split better? The informativeness of the subject agreement in 3rd person, or the fact that 1st/2nd person are higher on an animacy hierarchy than 3rd persons are? (Hypothesis 1)

Table 6. Breakdown of third person subjects in a corpus of conversational Bislama, according to different degrees of animacy. Number of null subjects, and percentage of all subjects that were null in each category

	% this subject	No. of null tokens
3s (human)	45	339
3s (animate)	59	162
3s (inanimate)	31	91
3p (human)	45	177
3p (animate)	46	32
3p (inanimate)	36	14

We might also ask whether the discourse old/new status of the referent is an important factor. In Meyerhoff (2000), I showed that if a referent had previously been realised as a null subject in the preceding clause, then it strongly favoured being realised as null in the current clause. The discourse status of the referent was the second factor group selected in a Goldvarb analysis of that data set. However, the discourse status of the referents is not being directly tested here since the focus is on the relative importance of animacy or person/number of the referent.

As we saw above, Crowley argued in support of the animacy constraint being more important based on an analysis of oral history texts (Lindstrom & Gwero 1998). The trends documented in Table 1 were clearly in the direction he predicted. However, it is hard to compare his results with my own for a number of reasons, partly because of the format in which he presented his findings, and partly because he did not analyse the highly animate 1st and 2nd person subjects.[3] The data for these persons would be helpful as we could use them to contextualise the results for 3rd person in terms of a general system of animacy marking.

In Table 6, I split up the third person subjects in my corpus to code more finely for animacy of the subject. I then undertook a variable rule analysis of the results testing how much each of the different persons and numbers for the subject favoured the absence of a pronoun. This is shown in Table 7.

The results show that there does appear to be a difference between human 3rd person subjects and any other animate or an inanimate 3rd person subject. Compared to other 3rd person subjects, having a *human* subject inhibits pro-drop: that is, human subjects are more likely to be realised with a pronoun subject than other 3rd person subjects are.

3. I'm not critical of Crowley's decision to do this in itself. If he assumed that the pronominal/agreement system was independently influenced by the deictic qualities of the pronouns, the decision to focus on 3s/3p only can be linguistically motivated. The problem arises when we try to evaluate his work against my work since we are aren't comparing like with like.

Table 7. Probability of null subject according to subject type, considering only null subjects and pronominal subjects. Input probability: 0.347; chi-sq/cell: 1.5

	Goldvarb weighting	**% null subject**
1s	0.090	5
1p	0.149	5
2s	0.086	8
2p	0.131	7
3s human	**0.728**	**58**
3p human	**0.613**	**55**
3s other animate	0.900	83
3p other animate	0.770	64
3s inanimate	0.796	67
3p inanimate	0.929	88

But note that this effect is nothing like as strong as the disfavouring effect shown by 1st and 2nd person subjects. Overall, 3rd person human subjects still favour absence of an overt pronoun. Hence, at this point in time, the informativeness of agreement appears to still be more important in constraining this variable that animacy is. Nevertheless, the corpus suggests that we may be witnessing an early stage in the development of a clearer animacy distinction, as Crowley suggested was the case. Whether this incipient development might be influenced by transfer from the substrate (Hypothesis 4) will be examined in Section 5.

4.2 Animacy constraints on the Bislama *oli/i* alternation in 3p

Our corpus shows a strong preference for *oli* agreement when the subject is a full NP and human, or when the pronoun is *olgeta* (referring to human subjects): 89% *oli* versus 11% *i*. For other non-singular third person pronouns, speakers use *i* (the norm, see Table 4), but speakers do use *oli* 10% of the time when referring to human subjects with other pronouns. When the subject is a non-human, animate entity or an inanimate referent, there is more variability. Speakers prefer *i* with 3p inanimate (as Crowley suggested), but for inanimate, non-human subjects there is no clear preference for either variant.

The frequencies with which third person plural human subjects occur with plural agreement and singular/default agreement *i* are very close to the frequencies reported in Crowley (2004) – Crowley 81.3% *oli*; 89% here, and so are the results for inanimate plural subjects (Crowley's 67.8% *i* agreement; 67% here).[4]

4. These findings were originally presented as Meyerhoff (2004) at COOL 6 in July 2004, so Crowley was aware that his results matched earlier quantitative work done on this variable.

Table 8. Percentage (and overall frequency) of *i* and *oli* variants according to 3rd person plural subject type (* NB: For third person singular subjects 3–6% tokens occur with no (zero) agreement)

	% *oli*	% *i*	Total N
3s (human)	0	94*	710
3s animate	0	97*	266
3s inanimate	0	97*	284
ol(geta) + NPs (human)	89	11	422
other 3rd person pronouns (human), e.g. *tufala* 'they (2)', *trifala* 'they (3)'	10	90	31
3p animate	47	53	64
3p inanimate	33	67	36

A regression analysis confirms the clear distributional trend in Table 8. As Figure 2 shows, 3rd person plural human subjects disfavour use of the default agreement *i*, while non-human referents (and human referents with the less frequent pronouns *tufala, trifala*) highly favour use of the default *i*.

This again shows the usefulness of multiple regression analyses of variation to clarify the effects of different semantic constraints on these variables. The frequency effect for inanimate 3p subjects is in the direction suggested by Crowley, and he appears to have accurately identified a trend within the grammar. But the relative probabilities of *i* with different subject types suggests that at present the division is still principally constrained, first by the form of the subject, then by whether the subject is human or non-human. There is no significant effect favouring *i* agreement with inanimate rather than animate entities.

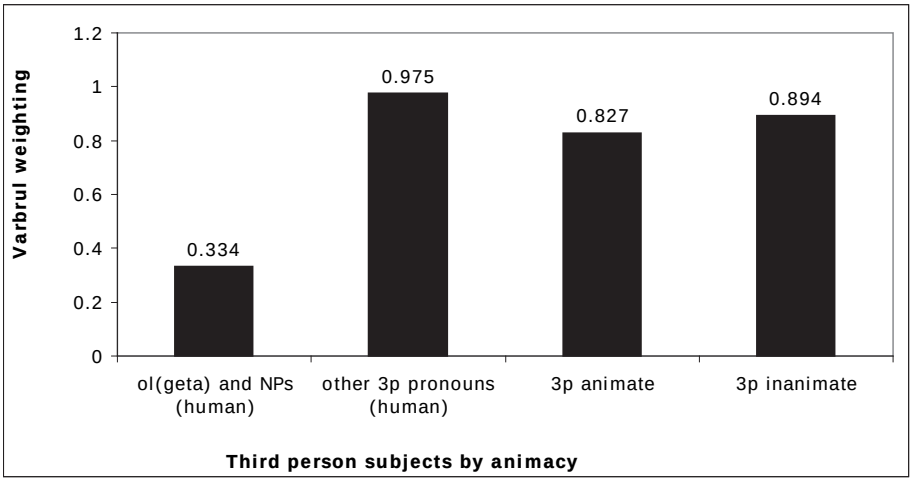

Figure 2. Probability of *i* with different types of third person plural subject

This is important because it may afford us insights into the complex process by which features such as animacy are progressively grammaticalised in contact languages (and perhaps more generally). It is perhaps not surprising that this distinction appears to emerge earliest as a significant constraint in Bislama. Typological work shows (Comrie 1989: 192–194; Croft 1995: 118) that the human/non-human distinction is fundamental to the typology of animacy marking.

4.3 Animacy constraints on null objects in Bislama

As we saw earlier, Crowley's analysis of the Lindstrom & Gwero texts suggested that inanimate objects are almost categorically realised as null in Bislama. As with subject referents, I reanalysed my corpus of direct object clauses so as to discriminate between human, other animate and inanimate object referents. This fine-grained coding of animacy allows us to assess its strength as an independent variable relative to the strength of other factors. Meyerhoff (2003a) determined that discourse constraints had the strongest effect on whether or not an object was realised as null in conversational Bislama, so it is particularly important to consider discourse factors along with the weaker (semantic) constraints. In Meyerhoff (2003a), I discussed the surprising finding that whether an object fell into the class of things that are inalienably possessed proved to be a significant constraint (inalienably possessed entities favoured realisation as an overt pronoun). Here I consider the possible effect of animacy.

The strongest factors constraining the occurrence of a null object were form of the referent in the preceding clause, whether the referent was discourse new/old referent, and the verb type. Animacy was a significant factor, and the weightings for different levels of animacy are shown in Table 9, but its effect was less strong than the other three factors.

Again, the biggest difference seems to be 1st/2nd versus 3rd person referents. But overall the results do not line-up in anything like a conventional animacy hierarchy (abstract Ns disfavour null objects like 1st and 2nd person do, and there is no recognisable animacy hierarchy ordering the third person referents).

I attempted four recodes of the referent types in ways that were more compatible with a conventional animacy hierarchy.[5] The model that provided the best

5. The different ways of operationalising high and low animacy were:
{*abstract N; events; inanim*} LOW vs. {*1st/2nd; 3 (hum); 3 (anim)*} HIGH;
{*abstract N; events; inanim*} LOW vs. *anim* MED vs. {*1st/2nd/3rd*} HIGH;
{*abstract N; events; inanim*} LOW vs. {*anim; 3(hum)*} MED vs. {*1st/2nd*} HIGH;
{*abstract N; events*} LOW vs. {*3(hum); anim; inanim*} MED vs. *1st/2nd* HIGH.

Table 9. Frequency and probability of null object with different referent types

	Goldvarb weighting	% null	Total N
1st, 2nd person	0.051	21	8
3rd (human)	0.692	57	89
3rd (animate)	0.817	59	30
3rd (inanimate)	0.591	36	106
abstract N	0.382	13	14
event, proposition	0.340	14	31

Table 10. Frequency and probability of null object with different referents grouped according to animacy (best fit, LL = –272.5, chi-square per cell = 1.07)

	Goldvarb weighting	% null	Total N
Low animacy – abstract Ns; events	0.314	14	45
Mid animacy – 3rd human, animate, inanimate	0.672	45	225
High animacy – 1st & 2nd person	0.064	21	8

fit to the data was one that modelled abstract Ns and events as LOW in animacy, third person human, animate and inanimate referents as MEDIUM in animacy, and first and second person referents as HIGH in animacy.

This exercise in exhaustively recoding for different models of animacy confirms the impression we gained from Table 9: the "animacy" effect for objects is primarily a distinction between the speaker/hearer and all other referents. There is no evidence (yet) for a coherent animacy constraint across all persons and numbers.

5. Variable rules in Tamambo texts: Testing substrate parallels

In Section 4, I used quantitative methods to evaluate the distribution of three linguistic variables in Bislama. I took the discourse status of subject and object referents into consideration, and claims about the effect of animacy, person and number of the referent, and/or alienability of the referent. I now use the same variationist methods to evaluate the same factors for the same variables in one of the substrate languages, Tamambo.

As noted, Tamambo is the L1 for most of the speakers in the Bislama subcorpus I have been examining. It is the vernacular language indigenous to Malo island, just south of Santo, and it is still the first language of approximately 2000 speakers (Jauncey 1997). Tamambo is an Austronesian language, a member of the Eastern Southern Oceanic Group, Northern-Central Vanuatu sub-group (Lynch

1998: 48). The western dialect has more sociolinguistic vitality than the eastern dialect; all speakers in my sub-corpus are users of the western dialect described by Dorothy Jauncey (1997). For some speakers in the corpus, Tamambo is not the L1, these are *ol woman nara aelan* ('women from other islands,' as they self-identify on Malo), i.e., women who have married into Malo. *Ol woman nara aelan* are in more or less frequent contact with Tamambo on a daily basis. Even *woman nara aelan* in this corpus who seldom actively use Tamambo in family life, such as Lolan (example 1), have excellent passive understanding of it. Several of them, such as Dien (example vi in Appendix), speak closely related languages of northern-central Vanuatu as their L1.

I was able to undertake a small comparative study of the distribution of subject and object noun phrases in Tamambo narratives by examining their distribution in some of the unpublished texts collected by Dorothy Jauncey in western Malo in 1994–1995. Jauncey was, coincidentally, there at exactly the same time as I was collecting Bislama texts, however, there is no overlap of the speakers in the two corpora. This means that if we find parallelisms, they are unlikely to be caused by the idiosyncratic preferences of individual speakers.

I have chosen a sub-sample of Jauncey's texts that are part of a genre known as *tandono* 'custom stories.' I chose these (as opposed, for example, to the process texts, which Jauncey also kindly made available to me) since the narratives of Tandono contain stretches of reported speech and changes in events and topics that seemed to me to replicate more closely the structure of the Bislama conversations I recorded.

The Tandono corpus is much smaller than the corpus of conversational Bislama I am comparing it against (the total number of clauses is only 272), and it is not possible to provide a direct comparison with the *oli/i* alternation in 3p in Bislama. This is because the Tamambo texts overwhelmingly show regular marking of person and number in the bound pronoun forms occurring immediately at the left edge of a finite verb. Jauncey calls these bound pronouns. She writes them – following the local (originally, ecclesiastical) tradition – as separate words, but their clitic status is clear. Jauncey records some observed variation in 3p (in the realis mood, *mo* which usually indicates 3s realis may appear at the left edge of the VP instead of the canonical 3p *na*. I found only one example of this use of *mo* in the texts I was analyzing, so this variable cannot be subjected to quantitative analysis). Tamambo makes frequent use of null subjects, so this comparison with Bislama is straightforward, and I coded subjects in the Tamambo corpus in exactly the same way as I coded subjects in the Bislama corpus.

(4) … *suina na vano na rasirasitaka ana hurina.*
bone 3P go 3P poke.out 3S.POSS skin
Ø Na waladalihahi na embena.
Ø 3P go.round 3S.POSS body
'… his bones poked out of his skin. (They) went all round his body.'
(lines 10–11, 'Manji atolu', Vula Vutilolo)

(5) *Ø Ka tau tahasi mo sahe, le hani.*
1P put.in.place stone 3S go.up TA burn
Hani hinda ka-le biri-mbiri.
burn IP:1P.EXCL 1P-TA REDUPL-grate.
'(We) put the stones up [on the fire] and it's burning. While it's burning we do the grating [of the yams].' (Jauncey 1997: 104, her example 49)

The realisation of objects is slightly different in Tamambo; the contrast is principally between full noun phrases and cliticised object pronominals which transparently identify all persons and numbers. Despite this difference, I propose that the alternation between clitic pronouns and full NPs in Tamambo is functionally the same as the null vs free pronoun/full NP distinction coded for in Bislama. I suggest that speakers might well calque preferences for the variable realisation of objects as enclitics onto a Bislama grammar that allows for the presence or absence of an object referent in the clause. I therefore coded all transitive clauses in exactly the same way as I had coded the Bislama transitive clauses. I applied the same criteria for alienability to objects in Tamambo as I had in Bislama; thus, kin (but not spouses), body parts (e.g. head, skin, bones) and thoughts and ideas were coded as inalienably possessed.[6]

(6) *ku mai ku-mbo lai na wembe.*
1S come 1S-FUTURE get DET wembe.bird
Matan ku vinei-a mo-iso
because 1S arrow.shoot-3S 3S-finish
'I'll get the wembe bird, because I've shot it with my arrow'
(lines 12–13, 'Tarikoko', Vula Vutilolo)

A multivariate analysis of the Tamambo corpus suggests clear parallels with the results for the Bislama corpus. The discourse status of the referent is the principal

6. Current work on Ni-Vanuatu languages tends to use the terminology *direct(ly)* and *indirect(ly)* possessed, rather than the older alienable/inalienable terminology (Lynch and Crowley 2001). Direct possession is perhaps a more transparent and culturally appropriate term, but in my experience most linguists remain (as yet) more familiar with the term (in)alienable possession.

constraint on the use of a null subject (rather than an overt pronoun or NP), and it is also the principal constraint on the use of a clitic pronoun form of the object (rather than a full NP). The analysis also reveals that both animacy and alienability of a referent are weaker, but still significant, factors: animacy plays a significant role in constraining the use of null subjects; alienability plays a significant role in constraining the use of full NP objects.

5.1 Subjects in Tamambo

Following usual practice with Goldvarb, I regrouped factors in order to arrive at the most economical account of the variation observed. In the case of the Tamambo corpus, I was able to reduce the variation in subjects to two factors only. These were the discourse status of the referent in the preceding clause, and animacy of the referent.

That is, whether the referent would be considered an alienable or inalienable possessum was not a significant factor, nor was the person and number of the subject. The fact that (in)alienability is not a significant constraint on subject presence/absence isn't surprising. This semantic factor tends to be overtly marked in non-agent NP roles (specifically, possessive NPs [Lynch 1998: 122ff.]).

The fact that person and number is not significant is, however, surprising. Tamambo has a semantically transparent system of bound subject pronouns in both irrealis mood (which is the unmarked mood in Tamambo) and in realis. As Jauncey notes (1997: 102) the bound pronouns are clearly eroded forms of current or earlier free pronouns. They are shown in Table 11 below.

The absence of an identification effect in Tamambo is helpful for interpreting the patterns we observed in Bislama. The Bislama speakers cannot have transferred a tendency to rely on the informativeness of the subject agreement markers in Bislama from Tamambo because this factor is not selected as significant in the Tamambo corpus. Hence, the reliance on agreement marking appears to be a feature of the Bislama grammar which Bislama speakers have focused on independently of the substrate, creatively drawing on the potential that this part of the Bislama morphological system offers.

When I examined the effects of a subject's discourse status, I differentiated cases where the subject in the current clause occurred as (i) a subject, (ii) direct object, (iii) other thematic role, (iv) not at all in the preceding clause, and (v) where it was brand new in the discourse. When I looked at this data more closely, I found that these distinctions could be collapsed into a two-way contrast between same subject continuity versus all other discourse conditions without a significant worsening of the model's fit to the data.

Table 11. Tamambo paradigm of bound subject pronouns in irrealis and realis, with independent (free) pronouns shown for comparison (adapted from Jauncey 1997: 102)

	Independent pronouns	Preverbal subject pronouns	
		Unmarked irrealis	Realis/non-future
1s	iau	ku	ku
2s	niho	o	o
3s	nia	a	mo
1p-incl	hinda	ka	ka
1p-excl	kamam	ka	ka
2p	kamim	no	no *(mo)*
3p	nira	na	na *(mo)*

Table 12. Frequency and probability of null subjects in Tamambo by discourse status and animacy of referent (input probability: 0.783, LL = –126.768; chi-square per cell = 0.2536)

	Goldvarb weight	% null	Total N
Subject in prior clause	0.686	89	116
Other discourse status	0.228	49	106
Human referent	0.592	82	173
Animate (non-human) referent	0.353	65	74
Inanimate referent	0.298	39	23

As far as the animacy of the subject is concerned, in Tamambo, the split lies between human referents (all 1st and 2nd persons and 3rd person human subjects) and everything else (3rd person animate referents, such as animal heroes in Tandono, and inanimate subjects such as a leaf or an idea). However, the direction and strength of the animacy effects are informative. Non-human referents favour realisation in some overt form (either pronoun or full NP). Human referents very slightly favour being realised as null, but as the effect of this factor in the final Goldvarb run is only p = 0.592 and the corpus is quite small, we must be cautious about making general claims about the effects of humanness (rather than non-humanness) on the realisation of a subject in Tamambo.

The most economical run evaluating the influence of different factors on null subjects in Tamambo is shown in Table 12.

5.2 Objects in Tamambo

The analysis of clitic versus full NP objects also showed discourse status to be relevant in Tamambo. Again, by recoding and combining factors into informative

Table 13. Frequency and probability of clitic object in Tamambo by discourse status and alienability of referent (input probability 0.403; LL= –68.683; chi-square per cell = 0.9184)

	Goldvarb Weight	% clitic	Total N
Subject/object in prior clause	0.864	80	59
Other discourse status	0.224	18	88
Alienable referent	0.416	38	106
Inalienable referent	0.715	54	39

subgroupings, we can show interesting convergences and divergences in the way Tamambo and Bislama handle object deletion.

As with subjects, it was possible to recombine a number of different discourse activation states into a simple two-way contrast for Tamambo objects. For objects, the significant contrast is whether the referent was either subject *or* object in the immediately preceding clause (as opposed to all other states, i.e., another thematic role in the prior clause, not in the prior clause, or brand new to the discourse). If an object referent had occurred in the immediately preceding clause as either a subject or an object, it strongly favours realisation as a clitic pronoun (p = 0.864), while any other condition strongly favours realisation as a full NP (p = 0.224). This is shown in Table 13.

For objects, animacy was not a significant factor in the mutivariate analysis, but (in)alienability was. In Tamambo, an entity that would be considered an inalienable possession favours realisation as a full NP, and this effect is even stronger than it was in the Bislama corpus (p = 0.715, cf. p = 0.668 for objects in Bislama, Meyerhoff 2003a). However, this generalisation must be forwarded with some caution as it is based on only 39 tokens of inalienable objects.

6. General conclusions and further directions

This quantitative analysis of a corpus of conversational Bislama and Tamambo has demonstrated the usefulness of undertaking fine-grained and statistically-informed analyses in the quest to better understand the extent and robustness of substrate transfer in a creole language. We examined three variables in Bislama, all of which have been claimed to vary under the influence of patterns modelled in the substrate.

We saw that discourse factors are central constraints for all three variables. In the case of subject-subject continuity (which favours a null pronoun), this is paralleled in Tamambo. Since this is a quite typical finding cross-linguistically, the case for substrate transfer here is rather weak.

At the start, I outlined four hypotheses regarding substrate transfer into Bislama.

> *Hypothesis 1: Zero subjects in Bislama are constrained by animacy of the referent, just as such variation is constrained in substrate languages.*

Animacy was found to be a significant constraint in Tamambo. In Tamambo, non-human subjects favoured realisation as free NPs or independent pronouns. This same factor group was found to be significant in Bislama, but the valency differed. Non-human subjects strongly favoured being realised with null pronouns. On balance, I concluded that there was evidence that Crowley's animacy effect is in the process of being grammaticalised in Bislama.

> *Hypothesis 2: Human 3p subjects are more likely to occur with* oli *agreement; non-human 3p subjects with* i*, just as such variation is constrained in substrate languages.*

Human 3p subjects referred by an NP or the pronoun *olgeta* 'they' favour *oli* agreement. All other referents favour *i* agreement including human 3p subjects with the (less frequent) pronouns *tufala, trifala*. This variable could not be tested in Tamambo because the comparable variable occurred only once in the corpus.

> *Hypothesis 3: Zero objects in Bislama are constrained by animacy of the referent, just as such variation is constrained in substrate languages.*

Animacy was not a significant factor constraining variation between clitic and full NP objects in Tamambo. Animacy was shown not to be a significant factor for Bislama. The hypothesis is not supported.

> *Hypothesis 4: Evidence for transfer from the substrate will be found if the more important constraints on these variables in Tamambo are also the more important constraints in Bislama.*

We have seen conflicting evidence of transfer. The clearest case can be made for agreement marking in 3p subjects where a robust distinction between human and non-human referents seems to be emerging and the distinction seems to be going in the same direction as some substrate languages (see Table 2). For null subjects and objects, the evidence is harder to evaluate. The same (or similar) factor groups emerge as significant constraints on null subjects and null objects in Tamambo and Bislama, but which factors favour and disfavour the variable differ in the two languages. In Tamambo, non-human subjects favour realisation as a full NP/pronoun. In Bislama, non-human subjects favour realisation as null pronouns. An object that can be considered an inalienable possession favoured

realisation as a clitic in Tamambo. But inalienably possessed referents favour realisation as a full NP/pronoun in Bislama (Meyerhoff 2003a).

This investigation seems to provide further evidence of what can be called "transformation under transfer" (Meyerhoff 2003a), or "reallocation" (e.g. Britain & Trudgill 1999), where the variants remain constant but the constraints on the variation may be transformed from one linguistic domain to another, or the ranking of constraints on a variant may be transformed to the point of reversal.[7] I noted at several points that the phenomena under investigation are by no means unique to Bislama and the substrate langauges of Vanuatu. Animacy constraints, in particular, are grammaticalised in many (if not most) languages of the world. Hence we must treat with caution superficial parallelisms between animacy effects in one language and animacy effects in another, even if those languages have been in extended contact. For this reason, it may be essential to turn to more subtle quantitative methods as the basis for our comparisons.

At the beginning of this chapter, I suggested that the use of multivariate analysis would be useful means of making discussion about the putative influence of substrate languages on Bislama more transparent. I also suggested that multivariate analysis might have potential for answering more general linguistic questions about what kind of process "transfer" is, and what it involves.

As the summary of each of our main hypotheses have shown, the comparison of multivariate analyses of similar variables in Tamambo and Bislama answers some questions but raises still others, such as whether transformation under transfer is qualitatively the same process as direct transfer of, for instance, a pronominal paradigm. As many linguists working on language contact have observed, it is difficult to pin down inviolable principles for the field of language contact because contact occurs both between individuals and groups ("we may speak of focussed and of diffuse, or non-focussed, linguistic systems, both in individuals and in groups", Le Page & Tabouret-Keller 1985: 181–182), raising the possibility of infinite idiosyncratic responses to similar inputs.

Nevertheless, we are reminded of how useful quantitative analyses of variation in lesser-known languages, such as Tamambo, are because they offer a way of evaluating the (non-)significance of simple frequency counts. In the case of inalienably possessed objects, a simple frequency count suggests a roughly 50:50 split in Tamambo between full NPs and pronominal clitics. However, the multivariate analysis

7. The difference between the two terms is probably immaterial. I have found "transformation under transfer" a useful description of the phenomena I have observed because it foregrounds the transfer process as being the source of the transformation (rather than, e.g., internal language change, see Nichols 1992). But whether there's a qualitative difference between contact-induced and internal language change is an open empirical question.

shows that when the distribution of inalienable referents is adjusted relative to the other factors coded for in the corpus (discourse status, animacy), the probability of such referents occurring as full NPs is very high. It is perhaps particularly important that our quantitative descriptions of lesser known languages are descriptively adequate. Sigley (2003) argues that regression analyses such as those undertaken here are only the start of sound descriptive work, but as we have seen here, even a modest start provides us with descriptive and typological riches.

Acknowledgements

As always, thanks to the people in Santo and West Malo who welcomed me and my tape recorder into their homes. Special thanks also to my research assistant Sharon Morrie Tabi. Data collection in 1994–1995 was funded by the Wenner-Gren Foundation. I'm grateful to Olesya Khanina who commented on an earlier draft of this paper. A good portion of the analysis actually took place while doing fieldwork in Bequia, with the support of the British Academy. Thanks to the editors for their patience and encouragement.

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Appendix

Examples of clauses that were excluded from the analysis

- Blong *'in order to' clauses*
- *Copula constructions with the form NP + XP*

(i) Visi: *Aneas i se*
mi mi Rambo
yu yu andapan
Visi: Aneas said, "I'll be Rambo and you be Underpants [i.e. The Phantom]".

(ii) Tarip: *Be blong waetman taem blong politik, taem blong politik,*
be taem blong wok, taem blong wok.
Tarip: But for whites, politics time is politics time and time for work is time for work.

(iii) Vosale: *Hem wetem man blong hem, tufala blong Malo*
Vosale: She and her husband, both are from Malo.

– Events or propositions serving as subjects, e.g.

(iv) Rovi: *Olgeta oli- sam oli wok, i gud.*
Rovi: They – some of them work, [and] that's good.

(v) Jackson: *Ol boe ya nao, oli stap dring. Mi luk, i no stret long tingting blong mi.*
Jackson: The boys over there, they are in the habit of drinking. I see that and in my opinion it's not right.

– *Weather verbs*, e.g. *I hot tumas* 'It was very hot'.
– *Presentational/existential sentences*, e.g. *I no gat wan man.*
– Second verb in an SVC

(vi) Dien: *Ale oli karem ol buluk i kam.*
Dien: So they brought the cattle over.

(vii) Dien: *Mi stap raet i go.*
Dien: I still write to him.

– *Intensifications with* we*, e.g.* I danis we i danis.
– Imperatives
– *Bare* girap (nao) *as a discourse marker*
– Hemia *subjects*
– Ambiguous cases

(viii) Tarip: *Gavman we i stap naoia oli save givim wok nomo long man we oli save.*
Tarip: The government we have now only give(s) work to people it/they know.

CHAPTER 17

The challenges of less commonly studied languages[1]

Writing a sociogrammar of Faetar

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The study of minority languages highlights the need for variationist approaches to grammars. This article addresses some conflicts that arise when we combine the enterprises of writing a descriptive grammar and constructing a sociolinguistic description of a language. Conflicts between conciseness and completeness on the one hand, and sociolinguistic accuracy and representation of competing variants, on the other, are addressed. As a case in point, I discuss documentation (in book and web formats) of the endangered language Faetar, spoken in a small village in southern Italy, focusing on (1) advantages and disadvantages of various data collection methods; (2) organization of examples that illustrate inter- and intra-speaker variation; (3) codification of an oral language; (4) value judgments necessitated by codification; and (5) coordination with other grammars.

Introduction

Strictly speaking, Faetar does not qualify as an indigenous language, its parent language having been brought to southern Italy approximately 700 years ago from a region of the French Alps about 700 miles away. However, Faetar has much in common with many indigenous languages: it has been, until quite recently,

1. I am grateful to the audiences at the First International Conference on Language Variation in Europe, New Ways of Analyzing Variation 2000, and the UNH Faculty Fellow Lecture Series for constructive criticism on these issues. This chapter is a revised version of Nagy (2001). The research was supported by grants from the Endangered Language Fund; the University of New Hampshire's Center for the Humanities, Center for International Education, Faculty Development Grant, Alumni Annual Gifts Fund, and the College of Liberal Arts; and three Salvatori Research grants from the University of Pennsylvania.

uncodified; it is stigmatized by many of its own speakers; speakers of Faetar are in frequent contact with a standardized, national language (Italian); it is rarely used in H situations such as school, church and writing; and it is the first language of virtually all inhabitants of Faeto and Celle, the Apulian towns where it is spoken. The parent language, Francoprovençal (FP), is very close to extinction in its original domain in France. Thus, the issues that I grappled with as I went about writing a descriptive reference grammar for Faetar are similar to those faced by scholars working with many indigenous languages.

The people of Faeto are cognizant of the historical difference between their language and the Italian dialects of the surrounding region, as illustrated by their names for their language The language is referred to variously as [lu frantʃáj] 'French', [lu provɛnsál] 'Provençal' and [lu fajdár] 'Faetar'. Prompted by pride in their foreign origin, community members asked me to produce a descriptive grammar of their language. Their motivation was preservation. They wish to document their unique and shrinking language for posterity and to have materials to teach Faetar in their school. The complementary traditions and expectations of descriptive grammars and sociolinguistic study brought up many interesting issues. As more pressure is applied to describe endangered and little documented languages (cf. Gibbs 2002; Hale 1992; Krauss 1992; and Dorian 1994), linguists with other sorts of training will find themselves in this situation more and more. Uncodified minority languages pose major challenges to traditional grammar approaches.

Traditionally, reference grammars represent a language as a relatively homogeneous entity, ignoring variation in favor of conciseness. In contrast, sociolinguists focus on linguistic variation and its correlation to culturally relevant distinctions among speakers. We are interested in the issue of representing such variation *in the grammar*. "Grammar," of course, has two distinct meanings: it may refer to a model of language or to a book describing a language. Both are relevant here. First, there has been a trend of incorporating variation into descriptions of the model for some time, stemming from Labov's earliest works and explicitly addressed in Bickerton (1971) and Bailey & Shuy (1973: xiv), cited in Rickford (1973: 162), who wrote of the need to "be rid of static homogeneous models." Wilson & Henry (1998: 1) admonish, "core linguistics may need to pay more attention than it has in the past to aspects of actual variation in order to understand the limits and range of parameters." The papers collected in the Cornips & Corrigan (2005a) volume indicate a readiness of the field to integrate variation and grammatical theory, but a practical method for doing so is still not greatly in evidence. The demonstrated interest in bringing together generative and variationist approaches to modeling grammar necessitates bringing these elements together in the second ("book") meaning of "grammar" as well. To this end, this chapter explores some of the issues which arise when a sociolinguist is confronted with

the task of writing a grammar, and shows how the traditional methods of homogeneous grammar preparation clash with sociolinguistic goals.

The biggest difference between the goals of traditional descriptive and variationist studies relates to the scope of the data. Grammars describe many (ideally, all) parts of the language but are normally based on data from a small number of speakers. In contrast, publications in the field of sociolinguistics usually address only a very narrow part of the language, but they use data from many speakers. Information is provided regarding culturally relevant distinctions such as gender, age, or attitude of the speaker toward the language and how these correlate to linguistic variation. In addition, sociolinguistic publications describe more than one way to say a certain thing, while a grammar will often prescribe (or describe) only one form per function. Sociolinguistic publications are not meant to be used as reference texts or as language-learning aids.

The goals of the generative and variationist enterprises differ as well; a generativist's goal is to circumscribe the possible forms of language, while the sociolinguist seeks to describe the actual forms. Barbiers (2005: 235) connects these approaches:

> generative linguistics and sociolinguistics are complementary in that it is the task of sociolinguistics to describe and explain the patterns of variation that occur within a linguistic community given the theoretical limits of this variation uncovered by generative linguistics.

To illustrate some of the difficulties of combining these enterprises, I discuss my sociogrammar of Faetar. This sociogrammar currently exists in two forms. First is a book which uses linguistic formalisms (Nagy 2000a). This was first published in English but a translation to Italian for non-linguists is in progress. Second is an interactive website (Nagy 2006), still under development. This is written and recorded in Faetar and Italian. People who have a personal connection to Faeto or Faetar are the intended audience.

Motivation for the grammar

There are several reasons to produce a grammar of an endangered language. The need to examine non-standardized languages as part of the enterprise to reconcile grammatical theory and empirical observation was addressed by Chambers (2000). As stated in the following quotes, reasons range from the scientific interest of seeing how a particular language informs linguistic theory to providing a tool for cultural preservation.

> At this point in the history of linguistics, at least, *each* language offering testimony for linguistic theory brings something important, and heretofore not known or not yet integrated into the theory. In many cases, data from a 'new' language forces changes in the developing theory, and in some cases, linguistic diversity sets an entirely new agenda. (Hale 1998: 194)

> Documentation of languages that are near extinction will insure that these languages can contribute to scientific inquiry and to the cultural knowledge of those who are losing their ancestral language… As language represents an important component of any culture, the loss of a language can result in the loss of cultural identity. (Goebl et al. 1996: 659)

Additionally, as pointed out by Cheshire (2005: 87), "variationists have worked almost exclusively on languages that have been heavily standardised, so the potential influence of the standard ideology on the selection of variables for analysis has been high." An uncodified language may not have agreed-on stigmatized forms (that would be an element of codification) and this necessarily changes the lens through which the linguist examines the language. These factors especially motivate the study of endangered and uncodified languages.

There are currently about 500 residents of Faeto, nearly all of whom speak both Faetar and Italian. As this is a decrease from some 5,000 speakers in the mid 20th century, it is easy to see what the future holds for Faetar and its speakers, as rural farm life becomes less and less viable. Although children continue to acquire and speak Faetar, the prognosis for Faetar in Faeto is not promising, However, there are groups of émigré Faetar speakers in Switzerland, Canada, and the U.S. who are quite interested in having their language documented and preserved. While there are several people who occasionally write brief texts in Faetar, there are no readers who do not depend on the Italian translations which accompany *all* such texts. More complete background information is in Nagy (1996, 2000a, b).

Speakers have been predicting Faetar's demise for decades and lamenting its "imperfect form," which they attribute to contact with Italian. While it is clear that Italian and the local vernaculars have influenced Faetar, some of the changes are the inevitable result of internal language change. I hope that with formal documentation of the language, speakers may recognize Faetar as a complete linguistic system, rather than an "ex-language" that has been steadily chipped away at by Italian. A standardized orthographic system, which is a necessary precursor to the development of pedagogical materials, would be an important tool in providing the necessary status to Faetar to make speakers accept it as a "real" language. This in turn may slow the decline of the language. I say this because I have observed that many children, who speak Faetar with each other, are hesitant to speak Faetar in the presence of their elders because their elders repeatedly tell them that they

do not speak it correctly. If it were possible to validate multiple ways of speaking by including them all in a grammar, which would be used in the school, the effect of this behavior might be diminished.

Currently, both young and old speakers say that young people don't use the language properly, as their ancestors did. Here are a few quotations (which I translated from Italian or Faetar). The first is written by a (recently retired) local teacher. It is from the introduction to a school project for which students interviewed their grandparents and transcribed what they said in Faetar. As many community members see this booklet, it may well have influenced the other speakers who made the statements below it.

> There is ... the phenomenon of the gradual loss (especially in the younger generations) of the most archaic vocabulary and phonetic and morphological structures which are most typical of our language, because these are too far from today's predominant reality: the Italian mass-media. There is the phenomenon of Italianization of our Francoprovençal, that is, the addition of the inflections and colorings from Italian. (*Ricerca*... 1991: 11)

> Our Faetar is already a bit Italianized. We don't speak real Provençal. Even my parents don't really speak it. They never did... They don't teach the children, so they make mistakes... so now we have a different language. (F32A, Tape 10A)

> Faetar isn't spoken like it used to be. It's more bastardized now. (M77, Tape 18A)

> Only an imperfect form of the language is learned now. (F80, Tape 17B)

These changes are not imagined by the speakers. Several variables I have investigated, such as variable subject pronoun use and variable deletion of post-tonic segments, show significant differences across the generations (Nagy & Heap 1998; Nagy & Reynolds 1997). Some changes in progress can be attributed to influence from Italian. Linguists, however, are aware that all languages contain variation. Incorporating this fact into linguistic descriptions should decrease the deleterious effects of such viewpoints. Thus, my three goals in writing a grammar of Faetar are to provide a *variable* description of the language, to serve as a form of documentation of a language whose number of speakers has been declining rapidly, and to serve as a model of a type of grammar that could be constructed for other languages.

Five challenges

Designing a pedagogical grammar highlights a significant hurdle: the lack of training in applied linguistics provided to students of theoretical linguistics (Nagy

2000b). Developing pedagogical skills for teaching people about their language is generally not a part of the training received in a graduate program in linguistics, nor an activity that is rewarded in the academy. This has been succinctly pointed out by Craig (1998: 155–156) in a discussion of the potential dissonance between the demands of the field and the demands of an academic career:

> The point to realize is that there is no division of labor in the field, that the linguists, with their formal education are the main – supposedly expert – resource for whatever project is wanted, from literacy programs to bilingual education programs, to revitalization programs, to translation of legal texts.

Additionally, there is the challenge of efficiently and effectively codifying a language without misrepresenting the facts of language change and variation. To this end, the following challenges which must be overcome for the construction of a sociogrammar are addressed:

(1) Five challenges:
1. Selection of representative data
2. Organizational procedures for representing variable data
3. Development of an orthography for an oral language
4. Value judgments (about speakers, judgments, and borrowings)
5. Coordination with other work

Challenge #1: Selection of representative data

There is a well known trade-off between the ease of collecting elicited data such as recitations of verb conjugations or word lists (which lack elements of vernacular speech) and the difficulty of procuring naturalistic speech, especially in a language in which the researcher lacks fluency (Fuller 2000). While a sociolinguist may elicit samples of particular variables in various naturalistic ways, it is not possible to employ such methodologies for every aspect of a language to be described in a grammar. Nor is it efficient to transcribe every recorded utterance and search for samples of, e.g., each form of each tense of a verb. Therefore, I used a variety of methods to collect data. Because of the trade-offs between accuracy and efficiency, illustrated in Figure 1, each example included in the grammar is annotated for how it was collected (using the underlined letters in Fig. 1). Readers may determine for themselves the representativeness of any particular example.

Especially in cases where the researcher is not fluent in the language, naturally occurring speech is more difficult to elicit, transcribe, and translate. This is partially due to the unnaturalness of speaking one's in-group language with an

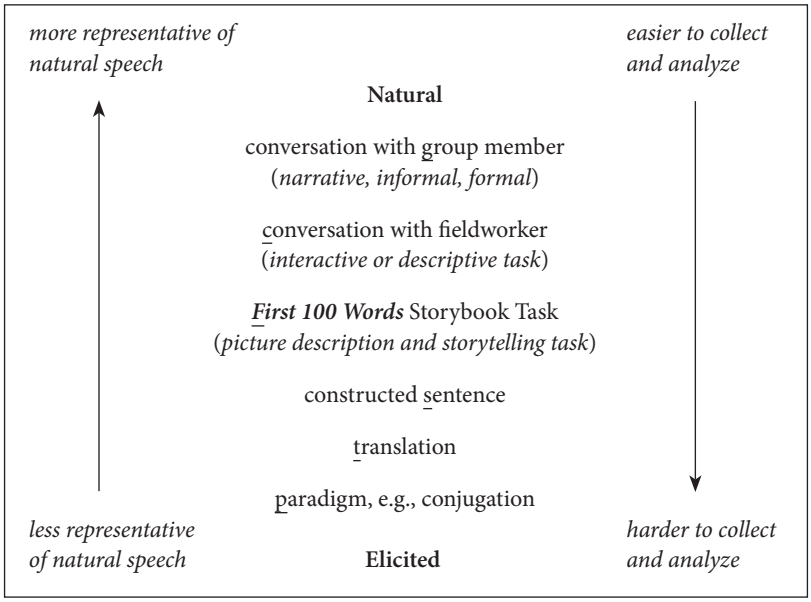

Figure 1. Types of data collected

outsider present. To mitigate these difficulties, structured tasks can be used. For example, the researcher can ask speakers to describe pictures or recount something that is already known to the researcher, such as their daily routine or the days of the week. However, this method is still problematic. To illustrate, Table 1 lists the forms that were produced in response to a request to describe a drawing of a child's dress. In the context of describing the picture, all these words meant *dress*. However, requests to two other speakers for clarification of the meanings represented by the different forms in the first column produced the definitions in the third column. The discrepancies illustrate that even a method like picture description for controlling the functions of the utterance is not foolproof.

Table 1. Defining diminutives

Utterance	Speaker(s)	Post hoc gloss
vést(ə)	F83	*dress*
la vɛstít(ə)	F9B, F26A, F27B, F40, M25A, M27B, M28A, M34A	*man's suit*
la vɛstín(ə)	F6, F27A, F32, F56B, F65A, F80, M32, M78A	*little dress*
lo vɛstətín(o)	F30, F88	*little suit for boy or girl*
la vɛstarél	F65A	*cute dress*
la vɛstiʃwól(ə)	M72A, M12, M44A, M76, M77	*cute suit for little boy*
vɛstətíəl	M47C	*suit for little boy*

Translation from a shared language to the language under study is often used to quickly elicit many forms. One obvious defect of this method is the influence that the shared language might have on the forms produced. A second problem is that, here, too, the data are not fully predictable. The following excerpt from a translation activity illustrates this. Italicized forms are my Italian prompts and forms in IPA are *expected* to be the Faetar translations. In the end, the natural communicative impulse to answer a question overrides the instructions to translate it.

(2)	NN:	*Diamo il libro al ragazzo.*	*Let's give the book to the boy.*	
	M81:	[dɛnə lu lívərə a lu kwattrá]	Give the book to the boy.	
	NN:	*Hai datto il libro alla mama?*	*Did you give the book to the mother?*	
	M81:	[ʎo]	Yes.	(Tape 43A)

Another technique is to have speakers produce paradigms such as conjugations or all possible combinations of a preposition + article. Here the data are likely to be influenced by any languages studied formally, as the speaker must draw from somewhere the knowledge of each paradigm's structure. If a speaker studied French in school, and those studies included memorization and recitation of verb conjugations, these patterns are likely to be drawn on when the speaker is asked to recite Faetar conjugations. Another shortcoming of this method is that it works only with educated speakers.

A balance of different types of data resolves such problems. Formally elicited forms can be checked against the naturally elicited data for "vernacularness" and accuracy. The formally elicited forms can, in turn, help determine the meaning and function of the naturally elicited data. This permits us to heed Cheshire's (2005: 19) advice to examine data from a variety of sources before proposing any analysis. However, once the language's grammar is understood by the researcher, more problems come to the fore.

Challenge #2: Organizational procedures for representing variable data

The traditional format of a grammar does not allow for representation of differences among forms used by different speakers, or multiple forms used by a single speaker. Even grammars that provide multiple examples do not usually indicate the type of speaker or context that produced each form. Nordhoff (2006), a wiki grammar of Sri Lanka Malay, is an example of how, using hypertext rather than the linear format required by a physical book, one can better describe variations in mapping between forms and functions. His description of the variable forms of the marker *anna-* is an example, and more will follow as the wiki develops.

Where variation has been noted, attribution of each form to a region, but not to an individual, is provided.

My Faetar grammar describes speech collected over an eight-year period from about eighty of the 500 residents of Faeto. It is important to know what sort of speaker and context produced each form. The next subsections address the organization of data from multiple speakers, in multiple styles, and relating to multiple variables.

Multiple speakers

Rather than placing all the information about the speaker and context in the text with each utterance, I relegated most of it to a table of speaker and context descriptors in an appendix and annotated every example for cross-reference. This annotation includes a code that indicates the speaker's age and sex, the type of data (cf. Figure 1), and the number of the cassette on which the recording is archived. Table 2 is an excerpt from the appendix. The "Occupation" column shows the level of education currently being pursued by students, and the occupation of people who have or did have jobs. The "Contact" columns show indices of the amount of contact with Italian the speaker has at school, work, in the family, and through residency outside Faeto, and in total. The column labeled "IV" provides a unique interview number for each recording session and the "Tape" column indicates which cassette the material is recorded on. The final column indicates the type of data recorded: conversation (conv), picture description task (FW), or grammatical elicitations (Grm) – more detail is in the actual appendix.

Although this table provides a fair bit of information on each speaker, it may not provide the factors that are relevant in accounting for all observed variation. Therefore, it is necessary to link each example to the original data so one can extract further information about the speaker and context. This allows us to avoid

Table 2. Speaker information (excerpt from the Appendix to the Sociogrammar)

Speaker	Occupation	Contact					Date	IV	Tape	Content
		S	W	F	R	T				
M6	elementary	0	–	0	0	0	9/2-4/93	69	22a, b	conv
M13C	student	0	–	0	0	0	03/29/00	75	41b	conv
M23B	student	3	0	1	2	6	08/21/93	33	20a	FW
M23B	student	3	0	1	2	6	08/23/93	48	20b	conv
M30	soldier	3	2	0	2	7	03/29/00	78	42a	conv
M44A	engineer	3	2	0	2	7	09/04/93	22	16b	conv
M81	ret. farmer	1	0	0	0	1	03/30/00	80	43a	Grm

"correlat[ing] linguistic data to preconceived categories of age, income, education etc., instead of correlating these non-linguistic variables *to* the linguistic data" (Bickerton 1971: 470). As research accumulates showing individual differences in grammar (cf. Anshen 1973: 7; Henry 2005: 110), in addition to group variation, such reporting becomes increasingly important.

While I am not aware of any grammars that attribute every example to a speaker so that correlations to social factors could be explored for any aspect of the language, some grammars do mention which types of speakers favor which variants. For example, the following types of descriptive statements are embedded in the "Phonotactics" chapter of *A Grammar of Tamambo*:

> Occasionally, older speakers articulate the prenasalised voiced stop with a slight [r] off-glide... – optionally. (Jauncey 1997: 25)

> Fricative /β/ is often realised by younger speakers (<35) as [v] as in /βe^{m}be/ → [vɛmbɛ] 'butterfly'. (Jauncey 1997: 26)

Multiple styles

I now turn briefly to style variation. As a non-native speaker and out-group member, there is a limit to the types of conversational styles I observed and could interpret, causing me to rely on elicited data to a greater degree than is common in sociolinguistic research. Again, the best that can be done at the outset of a project is to carefully report where each datum came from so that information regarding stylistic or contextual features can be retrieved when determined relevant. This information is contained in the last column of Table 2.

Multiple variables

The final element of complexity is that, unlike most sociolinguistic articles, a sociogrammar addresses the full range of the language and finds variation in many parts of it. It is not possible nor necessarily desirable to report on quantitative analyses of each variable. Therefore, it is not clear which linguistic, stylistic, or social variables are correlated to some linguistic variables. Even without that added complication, there are difficulties in organizing the different parts of the language in a clear, systematic way.

I initially attempted to model my grammar on a recently published grammar of FP, a language related to Faetar (Stich 1998). Having collected different types of data than Stich did, this turned out not to be feasible. Additionally, in the process of trying to organize my data into his paradigms, I realized that one might lose

valuable material by attempting to make one language fit into the description of another. As pointed out by Hale (1998, quoted above) and Chambers (2000), with particular emphasis on vernacular speech, one of the purposes of documenting more languages is to discover new linguistic features and structures. If we only report elements that correspond to previously described elements, we decrease the likelihood of making significant new contributions. This is clearly seen in Evans' (1995: 87–88) finding that tense is marked on nouns in Kayardild. If Evans had described that language strictly following the format of some existing description of another language, there would have been no place to note that.

The Faetar grammar has chapters on Phonology, Lexical Morphology, Inflectional Morphology, Derivational Morphology, and Syntax, three transcribed texts, the appendix containing information about each speaker, and a brief history of the language. Variation is noted where it was noticed, but no exhaustive attempt was made to collect data from all types of speakers in all contexts for all variables. It is no coincidence that "!" is the sign for both factorial combination and exasperation. The following section expands on this combinatorial problem.

Multiple tiers x multiple forms

Grammars are organized in many-tiered hierarchies. One might choose to look at the second person plural form of the indicative imperfect past of a Type 1 verb in the "Verbs" section of the "Inflectional Morphology" chapter within the "grammar" part (as opposed to the lexicon or sample texts) of a grammar book. A decision tree representing the look-up process is shown in Figure 2.

A variable grammar requires at least one more dimension in order to show the form produced by speakers in each cross-section of the relevant external factors. In addition to showing the possible forms for each cell of this many-dimensioned array, a sociolinguist is tempted to show the relative frequency of each form and which factors correlate to it. Doing this would involve a structure of the type shown in Figure 3, all fitting into the single box at the bottom of Figure 2.[2] This tree shows the decision paths followed to arrive at the second person plural past imperfect indicative forms of a Type I verb produced by three speakers from the middle age group, but differing in sex and occupation.

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2. Figures 3 and 4 are actually simplifications as they do not include a style axis and do not make allowances for multiple forms produced by one (type of) speaker. As noted by many linguists, cf. Cornips & Corrigan (2005b: 10), individual speakers do use different forms within a single style of a single dialect, so these should be included in any accurate description of a language.

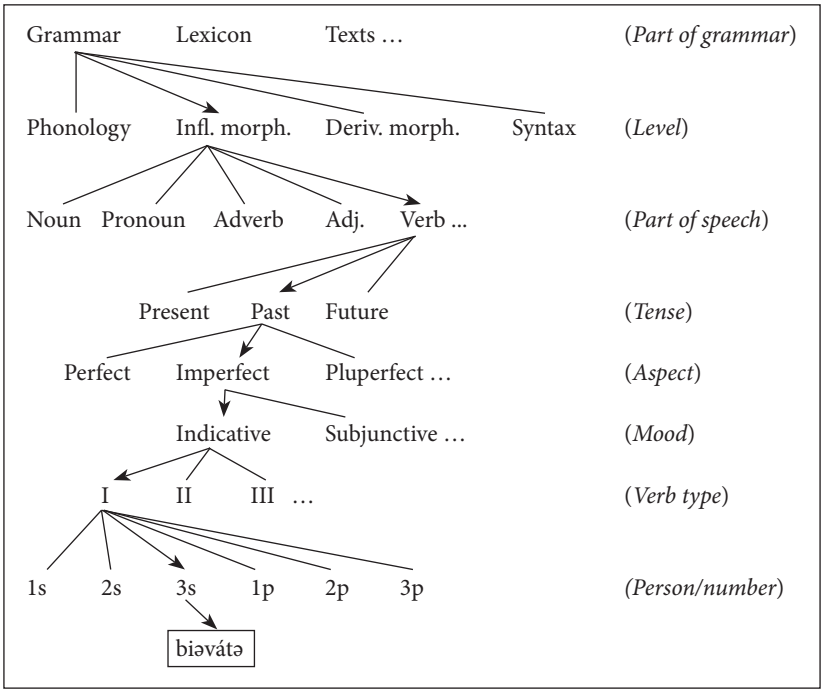

Figure 2. Hierarchy in a traditional grammar

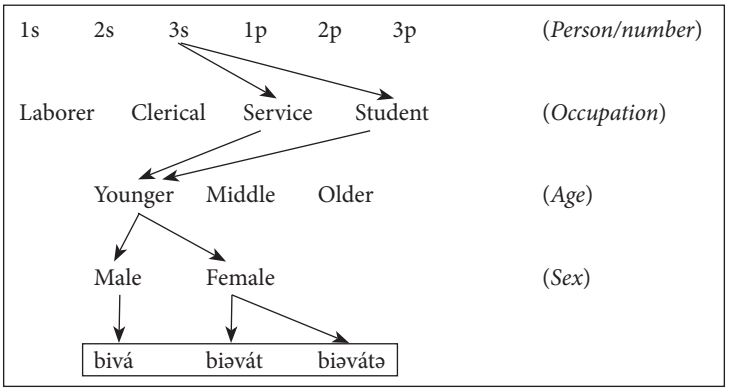

Figure 3. Continuation of hierarchy in a variationist grammar (group variation)

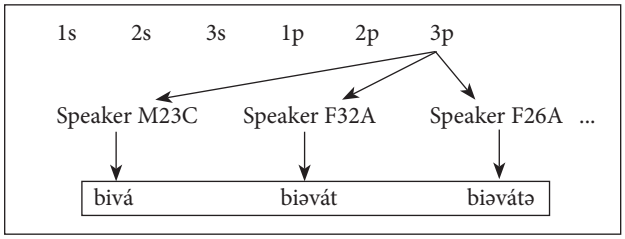

Figure 4. Continuation of hierarchy in a variationist grammar (individual variation)

To simplify the grammar, I did not make explicit claims about which forms are favored by which groups or styles. Rather, I annotate each example with a code that indicates the speaker and the context so that readers may draw their own conclusions about which factors are relevant in selecting a particular variant. Thus, the structure of the Faetar grammar is that shown in Figure 2 and continued in Figure 4: a variable but not sociolinguistically prescriptive grammar.

One tool that can assist in the organization of so many dimensions of information is hypertext, most commonly realized in webpages. Working with the school in Faeto, I have set up a website called *Parlanne Faitare!,* "Let's speak Faetar!" (Nagy 2006) which contains lessons and interactive exercises in speaking Faetar.

Important criteria for online descriptive grammars have been summarized in Nordhoff (2006: 18) and include adjacency, or what goes together (via links), quick cross-references, a table of contents, an index, a collection of texts, text search capabilities, and a linked dictionary. In addition to being able to develop as extensive a description of each aspect of the language as necessary, make it easy to use and navigate, and update it as new information becomes available, the online format provides a means of dealing with the next challenge discussed – the initial stages of codification.

Challenge #3: Development of an orthography for an oral language

While everyone in town speaks Faetar, only a few people write the occasional short text in Faetar. These are always accompanied by an Italian translation, which is essential for reading the Faetar text – even the authors of the texts are not fluent readers. Each writer has developed a different transcription system, and the battle is heated between proponents of representing etymological patterns vs. current pronunciation, which translates into using a French-like or an Italian-like spelling system. The alternative of using a system of phonetic symbols has also been considered, but has been rejected on the grounds of difficulty of typing as well as reading.

Thinking that the intuitions of native speakers would provide a useful starting point for the development of an orthographic system, I asked several Faetar speakers to translate into Faetar and then write down the following Italian sentence:

(3) Italian: *Conosco la figlia/donna che studia/parla il faetano.*
Faetar: [(dʒi+)dʒə kwannáj la fiʎə/fen k+i stúdjə/parlə lu+faidár]
Gloss: 'I know the girl/woman who studies/speaks Faetar.'

In their responses (see (4)), there is not a single word that everyone writes alike, although there was a high rate of agreement in how this sentence was produced orally. Such complications are multiplied as different pronunciations and structures are introduced.

(4)

<G	cuanej	la	figlj	ch	i	studj	lu	faitar>	M25B
<G	quenai	la	figl	ch	i	studij	lu	faitar>	M27A
<G	quanai	n	fenn	k	i	studij	lu	faitar>	M23C
<Ji ge	quanaij	la	fenne	que	ij	studje	lu	faitare>	F24B
<Je	cuana'j	la	figl'y	k	i'	studi'y	lu	faitar>	F20A
<Je	cuanij	la	'ffenn'	ch'	i	studij	lu	fajtar>	F50E
<J	quanaj	le	figl'	ch	i	parl		faitar'>	M28B
<Je	quhnaj	le	fen	chi		parl	lu	faitar>	M20B

I circumvented this issue of making orthographic choices for the moment by linking in audio recordings (prepared by Faetar schoolchildren) of all text in the webgrammar so that speakers may listen to the information rather than having to read it. One improvement that I hope to implement is to have multiple forms of each page with orthographic alternatives. A user will be able to select a French-like, Italian-like or IPA orthographic system and then see all text written in that way. Others have grappled with orthographic issues and have made more progress. I refer the interested reader to Coulmas (1996) and Tabouret-Keller (1997).

In addition to the choice of an alphabet, there is the difficulty of constructing an orthography for a language whose pronunciation varies greatly. For example, there are variable realizations of word-initial geminates due to a sandhi process as well as highly varying amounts of post-tonic deletion. One must decide whether to represent each utterance as it was produced or to choose an invariant spelling for each word. The latter can only be developed from oral data once a complete account of rules and processes affecting surface forms has been constructed. It also requires choosing and validating a form that only some speakers use, leading us directly to the next challenge.

Challenge #4: Value judgments

It is difficult to represent multiple variants without indicating that one is more highly valued than another. To avoid constructing a prescriptive grammar, one must present the variants in as egalitarian a manner as possible. Grammars that provide one variant in the text and list others parenthetically or in footnotes implicitly indicate a preference for the first variant listed. No variant should be presented in a way that makes it seem like an "alternative" form if one does not have prescriptive goals in mind. The spatial organization of a book forces the author to act on certain value judgments, which should be made explicit. In this section I discuss three types of value judgments, relating to the status of each speaker's "authenticity," speaker's judgments, and borrowings.

Judging types of speakers

It is desirable to avoid valorizing any type of speaker over any other. Data from all community members serve a purpose. Valuable work has been done by including semispeakers (Dorian 1981) to broaden the pool of speakers that provide data for small languages. Data from older speakers provide evidence of older forms that may be approaching obsolescence. Similarly, data from young speakers provide valuable clues about new directions the language may be taking. Data from educated speakers are valuable in part due to the ease of collection by translation or grammatical elicitation. Speakers who have studied languages can also provide input about the structure of the language. Formally un- (or less) educated speakers, on the other hand, provide data that are valuable precisely because they are untainted by the influence of formal linguistic study. Monolingual speakers provide similarly valuable data, while multilingual speakers can provide parallels from other languages that may help the researcher understand the forms or functions better, and they can participate in translation tasks. Cf. also Boberg (2002), Choi (2002), and Cutler (2002). Thus, I have collected data from any person who self-identifies as a Faetar-speaker and who can speak Faetar in a relatively fluid manner.

Using data from a wide range of speakers forces the issue of organizing it. Any linear organization of forms implicitly suggests that the first variant listed is the best. If one alphabetizes the variants, the shorter forms (in Faetar, more FP-like, more typical of older speakers) get listed first. And that is only if one can construct an alphabetization schema for words transcribed in IPA. If one alphabetizes variants by speaker code, or some such, one unwittingly valorizes the first speakers listed (in my speaker-coding method, that would be the youngest girls, whose language is most Italian-like).

Table 3. Sample verb paradigm

Label	Forms				Speakers
INF	bájə *to drink*				F26A P 88, F29C P 88, F32A P 79, F12B P 76, M28C P 84
	baj̚				M74 77
PrP	bián				M28C P 84
PP	biáw				F26A P 88, F29C P 88, F32A P 79
	1–3s	**1p**	**2p**	**3p**	
PRES	bájə	biún	bií	biúnd	F26A P 88
	"	"	bíə	"	F32A P 79, M23C P 81
	"	bəvún	bəví	"	F12B P 76
			bəvé	bəvúnd	F12B P 76
	baíj (3s)				F11B F 139
IMPF	bivə	biəván	biəvátə	biəvánd	F26A P 88
	"	"	biəvá	"	F32A P 79
	"	"	bivá	bivánd	M23C P 81
PST	bií(t)	biərún	bíər (?)	biərúnd	F26A P 88
	"	"	biítəvə		F29C P 86
FUT	birá	birán			F32A P 79
CND	bírrə	biərán	biərá	biəránd	F26A P 88, F32A P 79
SBJ	biísə	biəsián	biəsiá	bivəsiánd	F26A P 88
IMP	baí	bián	biíə		F26A P 88

In my grammar, I list forms in the order that I found them in combing through my data. If several speakers provide the same variant, I attribute the form to the first few speakers I came across, with an aim to indicating the social and stylistic breadth of the form. However, providing attribution to more than one speaker makes display unwieldy in a two-dimensional text. To illustrate, a verb conjugation is shown in Table 3. It is considerably longer than that found in a typical grammar, where each tense would occupy only a single line. A web-based grammar could allow for easier navigation by operationalizing navigation through the hierarchies in Figures 2–4.[3]

3. Nordhoff (2006) offers an elegant alternative in a web-based grammar, in which a user can click progressively through the decision tree described in Figures 2–4, rather than seeing all of the data in one flat display. Linguistic descriptions in the Wikipedia (www.wikipedia.com) are organized similarly.

Table 4. Verb suffixes

Person	Conditional	Subjunctive
1s–3s	-irrə	-issə
1p	-ərán	-əsián
2p	-ərá	-əsiá
3p	-əránd	-əsiánd

Judging speakers' judgments

Another type of value judgment problem exists – that of determining the validity of explicit judgments or grammatical information provided by speakers. Research has shown that speakers are not fully aware of the range of ways that they may express a particular function (Labov 1975; Nagy & Karins 1993; Tillery 2000). In order to present the less common forms of some verbs, such as the conditional and subjunctive, I asked college-educated speakers to conjugate verbs in those forms. Speakers indicated that there is confusion about when to use each of these forms in Italian, and that evidently carried over into Faetar. The general tendency was to use the suffixes shown in Table 4.

However, in certain cases, speakers provided forms with the suffixes labeled subjunctive in response to a request for the conditional, and vice versa. This was true also for sentences produced spontaneously, suggesting that the functions (of indicating conditional and irrealis moods) are not expressed with mutually exclusive sets of forms. I classified all forms elicited with the subjunctive suffixes as subjunctive forms even if the speaker produced them in response to a request for conditionals, and vice versa. I do not feel comfortable with this decision, as it requires forcing Faetar into a mold developed for other languages and prioritizing the linguist's analysis over the native speakers'. There is an alternative: in natural speech, both types of suffixes might be used to indicate both subjunctive and conditional. Without knowing *a priori* what contexts require each verb mood, we cannot know. And, as Wilson & Henry (1998: 5) point out, "standard forms of any language are social constructs" and so cannot be objectively determined.

Judging borrowings

Borrowings form another area of value judgments in any situation of language endangerment, as there will necessarily be language contact. Aspects of Faetar are similar to neighboring Italian varieties, to varying degrees. While it is tempting to exclude all such elements from a grammar of Faetar, one must contend with the

fact that FP and Italian have shared many features for centuries, due to their common Romance heritage. Additionally, in little studied linguistic regions, the direction of borrowing cannot always be ascertained. Therefore, similarity to Italian does not disqualify a feature from being indigenous to Faetar. Due to uncertainty regarding the origins of Faetar, and the dearth of documentation of FP from the period of Faeto's original settlement, attribution of origins for many aspects of the language remain questionable. Furthermore, the alternation between indigenous and borrowed forms may be relevant to the study of the representation of local vs. broader identity, providing support for including such questionable forms in the grammar.

Challenge #5: Coordination with other work

This discussion of Faetar's similarities to neighboring varieties leads to the last challenge: the coordination of one grammar to others. To facilitate comparative research, it would be useful to note which aspects of the language resemble other languages. To do this, one must decide whether to compare geographically, typologically, and/or genetically close languages. Each such comparison would have certain effects. In the case of Faetar, highlighting similarities to Italian might be interpreted as suggesting that those aspects of the language are not native to Faetar, but rather a result of Italianization, a process feared by many Faetar speakers (see p. 401). Comparison to regional Italian varieties, which have low status, might further stigmatize Faetar. Comparisons to French might highlight the distinctive origin of Faetar in a way that would have a positive impact on the preservation of the language. Such comparisons can be made explicitly but also will be implied by the orthographic system selected. It is interesting to note that among the "naive" writers of Faetar sampled in (4), there is a fairly even split between French-like and Italian-like spelling. For example, some chose <g> to represent the [dʒ] in [dʒi] 'I', as in Italian, while others used <j> which corresponds to the closest sound in French, [ʒ]. Both of these strategies have been used in earlier writings in Faetar, highlighting the heart of this final challenge: the need for comprehensibility to language users and continuity with any previous documentation of the language, especially if it is still in use.

Summary

The sociogrammar described here represents an attempt to provide a description of an endangered language both for its speakers (and their descendents, many of

whom have requested such a resource from me) who may be interested in preservation of the language and to scholars interested in studying vernacular, Romance, oral, and/or contact languages. My training as a variationist sociolinguist influenced my production of the grammar, prohibiting me from representing any aspect of the language as invariant that might actually be variable. This brought to the forefront the following issues:

- the interplay between naturalistic and elicited speech data of various sorts
- efficiently representing competing forms that carry out the same linguistic function without devoiding them of their social function
- organizing the dimensions of linguistic, contextual, stylistic, and social variables
- the implications of codification of an oral language
- recognizing judgments related to data and speakers of different sorts
- the relation of one grammar to other grammars and how this may construct different relationships among the languages represented, and, consequently, their speakers.

The goal is for the resulting grammar (meaning "book") to provide a picture of Faetar that is faithful to the variable, ever-changing and socially-situated grammar (meaning "mental model") of the actual speakers, as one example of convergence between descriptive and variationist efforts.

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CHAPTER 18

Language variation and change in a North Australian indigenous community[1]

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Speakers in a Warlpiri community in northern Australia are participants in a complex multilingual situation in which there has been a dramatic change in the last thirty years. Children, and adults under approximately age 30, now speak a new bilingual mixed language as the language of their everyday communication. The new language, Light Warlpiri, systematically combines elements from the variety of Warlpiri spoken in Lajamanu (Lajamanu Warlpiri) and Aboriginal English or Kriol (an English-lexified creole). Both Lajamanu Warlpiri and Light Warlpiri are learned and spoken in the community. In both languages grammatical relations are indicated by an ergative-absolutive case-marking system on overt agents and a nominative-accusative system of bound pronouns, and both show variable word order. But in Light Warlpiri ergative case-marking is optional, and word order and pragmatic factors also contribute information about indicating agents. The study shows that there has been intergenerational change in the use of ergative case-marking in Warlpiri, with younger speakers using it on agents less often than older speakers. Both children and adults use ergative marking more often on agents that are postverbal, and children produce this pattern more frequently than adults do, which suggests that they are regularizing a pattern found in adult speech.

1. Introduction

Speakers in the multilingual community of Lajamanu, a Warlpiri community of approximately 600 people in northern Australia, are participants in a complex multilingual situation in which there has been a dramatic change in the last thirty years.

1. I am indebted to Jane Simpson, Melissa Bowerman, Penelope Brown, Bhuvana Narasimhan and Patrick McConvell for discussions of the ideas in this paper. This chapter is a revised version of chapters from my PhD thesis from the University of Sydney.

Children, and adults under approximately age 30, now speak a new bilingual mixed language, which systematically combines elements from the heritage language, the variety of Warlpiri spoken in Lajamanu (Lajamanu Warlpiri) and Aboriginal English or Kriol, an English-lexified creole (AE/Kriol) (O'Shannessy 2005: 31).[2] The new language, Light Warlpiri, is called a bilingual mixed language because neither of its source languages can be considered to be the sole parent language (Bakker 2003: 1) – both types of source language make substantial contributions to its structure and lexicon.

Speaking styles in the community typically include considerable code-switching, between Lajamanu Warlpiri and AE/Kriol, and between Lajamanu Warlpiri, Light Warlpiri and AE/Kriol. Since there are several ways of speaking in one community, and changes to a new way of speaking have been rapid, there might be considerable variation between speakers in producing each of the two main languages, Lajamanu Warlpiri and Light Warlpiri. The emergence of Light Warlpiri was brought about by one age group, who are now young adults in the community, so there might be systematic variation within languages between age cohorts of speakers, for example, between younger and older adults or between children and adults.

The area of most interest is in how speakers encode grammatical relations in each language. Two systems for indicating grammatical relations, word order (in AE/Kriol, nominative-accusative pattern) and case-marking (in Lajamanu Warlpiri, ergative-absolutive pattern), are in contact. The contact between systems invites two questions: (a) how is each system used in the new language? And (b) has contact between languages influenced how the case-marking system is used in the traditional language? In discussing core arguments of verbs, I use the distinction of Dixon (1979) between A arguments (subject arguments of transitive verbs), O arguments (non-subject direct arguments of transitive verbs) and S arguments (arguments of intransitive verbs). In Lajamanu Warlpiri, and to a lesser extent in Light Warlpiri, grammatical relations are indicated through an ergative–absolutive case-marking system – A arguments are marked with a case-suffix, but O

2. When people from the Lajamanu community speak to non–Warlpiri people from other communities, they speak a code which could be categorized as either Aboriginal English or acrolectal Kriol (Kriol with relatively more properties from English, as opposed to basilectal Kriol, which has relatively more properties from heritage languages). Some lexical, phonological and syntactic elements occur in both Kriol and Aboriginal English, which means that when some elements are inserted into a Warlpiri clause, it is unclear whether the source language of the elements is Kriol or Aboriginal English. For this reason I label the source of elements which could be from either of these languages AE/Kriol, although I am aware that Aboriginal English and Kriol are considered separate languages, with distinct origins (Malcolm & Kaldor 1991).

and S arguments are not marked.[3] In contrast, in varieties of English and Kriol, grammatical relations are indicated through word order in a nominative-accusative system – both S and A arguments occur before the verb, and O arguments occur after the verb.

The two systems meet in Light Warlpiri and compete for the function of indicating grammatical relations – both case-marking and word order take on the role to some extent. So does the competition between the two systems in Light Warlpiri influence how the same speakers speak Lajamanu Warlpiri? For instance, do speakers in all age groups apply ergative case-marking obligatorily on A arguments in Lajamanu Warlpiri? Or do younger speakers apply it less often, as they do in Light Warlpiri? Do all speakers of each language use ergative marking and word order patterns according to the same criteria? For example, do speakers apply ergative marking more often when the risk of argument ambiguity is high, perhaps because both core arguments are overt, or because both core arguments are animate?

This paper examines variation in ergative case-marking and word order within the two main languages spoken in the community along the parameter of age, examining speech from adults in several age groups and from children. Children are included because they are the children of the group of young adults who made the dramatic shift to speaking Light Warlpiri, raising the question of whether they are pushing language change even further with their own innovations or maintaining stability by reproducing the patterns their parents use.

In the next section I sketch the sociolinguistic situation in the community. Following that I explain why variation studies in language contact situations and involving children are useful, then outline the data collection and methodology for the studies in Lajamanu Community which I report on. I then examine ergative case-marking and word order patterns across age groups, first in Lajamanu Warlpiri only, then through a comparison of Lajamanu Warlpiri and Light Warlpiri.

2. Sociolinguistic background

Until the 1930s most Warlpiri had lived a traditional hunter-gatherer lifestyle, moving freely through a large area of the Tanami Desert in Central Australia. There had been very little contact with non-Indigenous people, but there was some through the establishment of gold mines and cattle stations in the area.

3. Ergative marking is obligatory on A arguments except for first and second person singular pronouns (Bavin & Shopen 1985: 152) – it can be omitted from a preverbal pronoun, but is rarely omitted from a postverbal pronoun (Laughren, p.c.).

From the 1940s government agencies set up welfare-oriented communities throughout Central Australia and Indigenous people were forced to abandon their traditional life style and live within government controlled communities. In the case of Lajamanu this involved of a section of the larger Warlpiri population being separated from their families and moved to a site far from other Warlpiri communities, approximately 600 kilometers from the area where other Warlpiri are settled. Until 1967 people in Lajamanu lived under a system of government welfare, receiving rations in lieu of payment for work, but now the community is self-governing. However there is still little opportunity for paid employment in the community and most people rely on welfare payments. Traditional activities such as hunting for food continue, but are a supplement to food bought in the local store. The nearest commercial centre is a town 570 kilometers to the north, so the community is fairly socially isolated. Nevertheless the Warlpiri often travel to the commercial centers in the north and to the other Warlpiri communities in the south to visit family and participate in cultural activities, for example, ceremonial practices and sports carnivals.

People in the community speak Lajamanu Warlpiri, Aboriginal English or Kriol (an English lexified creole), Standard Australian English, and the newly emerged bilingual mixed language, Light Warlpiri. Older Warlpiri speakers, over approximately thirty years old, mainly speak Lajamanu Warlpiri, but typically code-switch between, and borrow from, Kriol and English. Younger adults now speak the new language, Light Warlpiri, as their main language, and also code-switch into Lajamanu Warlpiri and English or Kriol. Children learn both Light Warlpiri and Lajamanu Warlpiri from birth, but they target Light Warlpiri as the language of their everyday interactions, and they speak it almost exclusively until 4 to 6 years of age, when they begin to speak Warlpiri as well, in some contexts. The extent to which children speak Warlpiri when they are young appears to vary between families.

Light Warlpiri has arisen from contact between Lajamanu Warlpiri, Kriol, and varieties of English. Most verbs and the verbal morphology are from Aboriginal English or Kriol, while most nouns and the nominal morphology are from Warlpiri. It has an innovative auxiliary paradigm, which is derived from Warlpiri and Kriol auxiliary systems (O'Shannessy 2005: 39).

Grammatical relations in Lajamanu Warlpiri are indicated through case-marking in an ergative-absolutive pattern, and word order has no syntactic function. Light Warlpiri functions differently. Grammatical relations are indicated in Light Warlpiri partially through ergative case-marking, partially through word order and partially through pragmatic strategies. In both languages the most common word order pattern is SVO.

The following examples show how Light Warlpiri combines elements from Lajamanu Warlpiri and AE/Kriol. In the examples, elements drawn from classic or Lajamanu Warlpiri are in *italics*, and those from Kriol, Aboriginal English or Standard Australian English are in plain font. The auxiliaries are underlined. Example (1) shows Lajamanu Warlpiri, (2) shows AE/Kriol, and (3) shows Light Warlpiri.

(1) *karnta-jarra-rlu* *ka-pala-ø* *wajilipi-nyi* *kuuku*
girl-DUAL-ERG IMPF-3DL-3SG chase-NPST monster
The two girls are chasing the monster. (Lajamanu Warlpiri)

(2) det tu gel dei jeis-im monsta
DET two girl they chase-TR monster
Those two girls are chasing the monster. (AE/Kriol)

(3) de-m jeis-ing it *kuuku* det tu *karnta-jarra-(ng)*
3PL-NFUT chase-PROG 3SG monster that two girl-DUAL-ERG
Those two girls are chasing the monster. (Light Warlpiri)

All three examples are similar in meaning. The diagnostic of Warlpiri is the use of a Warlpiri verb and auxiliary, as in (1) above, and the diagnostic of Light Warlpiri is the use of an AE/Kriol verb and Light Warlpiri auxiliary, as in (3). Example (3) has an AE/Kriol verb, a Light Warlpiri auxiliary, and Warlpiri nouns. Note that ergative case-marking, realized as *-ng*, is optional on the A argument NP, *karnta-jarra*, 'girl-dual'.

An example of an adult code-switching between Light Warlpiri and Warlpiri is given in (4).

(4) a. an i-m krai-in *nana*
CONJ 3SG-NFUT cry-PROG DIS
It is crying, you know.

b. *yula-mi* *mayi*
cry-NPST INTERR
Is it crying? (A31:C04.2.1)

In (4) a woman is telling a story from picture stimulus to her daughter. She produces a clause in Light Warlpiri, (4a), which includes an AE/Kriol verb, 'crying', and a component drawn from Warlpiri, *nana* – a discourse marker which can be loosely glossed as 'you know'. She then switches to Warlpiri in the next clause, (4b), with 'Is it crying?'.

I refer to Warlpiri as described in the literature (Granites & Laughren 2001; Hale 1973, 1982; Hale, Laughren, & Simpson 1995; Laughren 1982, 2002;

Laughren, Hoogenraad, Hale, & Granites 1996; Nash 1986; Simpson 1991; Simpson & Bresnan 1983; Swartz 1982, 1991) as "classic Warlpiri." Lajamanu Warlpiri differs a little from classic Warlpiri, mainly with regard to phonotactic constraints, including whether words can end in consonants as well as vowels. Lajamanu Warlpiri is distinct from the new language, Light Warlpiri – Lajamanu Warlpiri can be thought of as classic Warlpiri with some sound changes. From here on I will use the term Warlpiri to include either classic or the Lajamanu variety of Warlpiri, except where there is a need to be specific about which variety is referred to. I use the term "code-switching" to mean using elements from more than one language in a string of speech, either intra- or inter-sententially. I use "borrowing" to mean that a single word from another language is inserted into a clause and is a typical insertion for most speakers.

3. Language variation in language contact and child language settings

The apparent time construct of Labov (1963) shows that synchronic differences between age groups can herald diachronic change. Significant differences between age groups reflect diachronic change, while homogeneity between age groups reflects stable variation. The apparent-time construct has been shown to be robust for both phonological and grammatical features in monolingual communities (Bailey 2002: 320), although not yet for communities such as Lajamanu in which there is rapid change.

Language contact situations have been the focus of relatively little variationist work because the variation in multilingual communities is greater than in monolingual and majority language communities (Sankoff 2002: 640). Nevertheless studies in these situations have identified minority-language influences on the dominant societal language and also influences of the dominant language on the minority languages (Fortescue 1993; King 2000; Kroskrity 1978; Matras 1998; Poplack 1997; Prince 1988; Sankoff 2002; Sankoff et al. 1997; Silva-Corvalan 1994, all cited in Sankoff 2002).

There are also relatively few studies of variation in child speech. Those conducted concentrate on when children reproduce particular patterns of variation and the constraints on children's learning of them (Roberts 2002: 336). Roberts (1997) found that three- and four-year-old English-speaking children produce systematic phonological variation in patterns similar to those of their parents, showing that children can discern stable variation patterns in phonology when they are quite young. Roberts and Labov (1995) examined the phonology of English-speaking pre-school children in a context in which some of the properties affecting adult variation are in the process of change. The children showed differ-

ent patterns from the adults for some properties of the changing sounds. This suggests that the children were becoming active participants in the language change process. The finding that children can be active agents of change is important, as it shows that they are sensitive to socially influenced variation and that their agency can have important consequences in language change as they mature and become adult speakers (Roberts 2002: 339).

The methodology of my study differs from that of other variationist studies in that I am not analyzing a spontaneous speech corpus. The reason is that to investigate the phenomenon of ergative case-marking a very large corpus would be needed, but is not available at present. Instead I examine a set of elicited narratives, as explained below.[4]

4. Data collection and methodology

The studies focus on ergative case-marking on A arguments and on the order of A and O arguments relative to the verb. But a problem arises because crosslinguistically A arguments are more likely to occur as pronouns, or to be elided in null-subject languages, than to occur as lexical NPs (Du Bois 2003: 25). In both Lajamanu Warlpiri and Light Warlpiri, core argument NPs can be omitted and subject information is provided by bound pronouns. If the A argument is omitted, ergative case-marking cannot occur, so analysis can only take place on data with overt A arguments. The elision of overt A arguments means that in spontaneous speech it is unlikely that there will be many overt A arguments, so an enormous amount of data would need to be collected to extract enough data points for analysis.

To solve the problem I used an elicited production technique for data collection, developing three picture books in which the pictures form stimuli for speakers to tell narratives. The pictures are designed so that throughout the narratives the speaker must use overt NPs in order to disambiguate the protagonists, providing a higher number of overt NPs in the narratives than is typically found in spontaneous speech. Although the stimulus tool leads the speaker to use overt NPs, it does not force the speaker to use an overt NP as an A argument as opposed to an S argument, which could distort a speaker's distribution of overt versus non-overt

4. Data collection was funded by the Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands, and The University of Sydney, Australia. I am grateful to Elaine Johnson Nangala, Elizabeth Ross Nungarrayi, Agnes Donnelly Napanangka, Valerie Patterson Napanangka, Tanya Hargraves Napanangka, Leah Johnson Napaljarri, Sabrina Nelson Nakamarra, Lajamanu Community Education Centre staff and other members of Lajamanu Community for help with data collection and transcription.

NPs, for example, according to Du Bois' (2003) Preferred Argument Structure. For instance, if the stimulus picture shows a woman picking up a dog, there is nothing to stop the speaker from (re-)introducing the woman as an intransitive actor (e.g. "the woman comes"), and then using a null or pronominal form for the A argument (e.g. "and (she) picks up the dog"). The stimulus tool itself simply makes it necessary for a speaker to use an overt S or A argument instead of a null form. In some languages the animacy of the A argument affects the occurrence of ergative case-marking (Gaby 2008; McGregor 1992, 1998, 2006; Verstraete 2005), and might do so in these languages too, so the stimulus stories were constructed so that pairs of A and O argument referents involve different combinations of animacy.

To encourage the adults to tell the narratives in a speech style that they typically use when speaking with other community members, a specific task design was implemented. The speaker told the narrative to a listener, and the listener used toys and dolls to "act out" the narrative while she heard it being told. Each speaker chose the person with whom they would perform the task, so that she was speaking directly to someone with whom she felt comfortable and with whom she often talked. This was to encourage the person to speak as naturally as possible, within the constraints of a contrived task.

The same picture stimuli were used with the children, but without a speech partner acting out the narrative. Pilot sessions showed that the children were not able to narrate the story for a partner; rather, they tended to give instructions as to how to move the toys, resulting in a series of imperatives. So the children narrated the stories to the researcher, having been asked to talk in either Lajamanu Warlpiri or Light Warlpiri.[5] To help the children cue into the language they were asked to speak in, they watched a short video clip of a child telling a story in the target language of the narrative before performing the task. The narrative in the video clip was unrelated in content to the target stimuli and included transitive and intransitive verbs and some overt S and A argument NPs. After the children watched the video clip they were asked to tell the story in the picture book in the same way as the child in the video.

Narratives were collected in Lajamanu Warlpiri from three age groups of adults (20, 30–50, 60+ years) and two age groups of children (mean ages 6;11 and

5. I tried to have children tell the story to a Lajamanu Warlpiri-speaking adult, but some children were either reluctant to talk to the adult because of family relationships or reluctant to talk in Warlpiri, whereas they would talk to me in Lajamanu Warlpiri. I think some children were reluctant to talk to a Warlpiri adult in Lajamanu Warlpiri because they have a conventional way of talking to community members – usually in Light Warlpiri – and to change that convention felt uncomfortable to them. Although the children know me well, I fall outside the community conventions so within-group constraints do not apply.

Table 1. Number of speakers, age groups and languages from whom narratives were collected

Age in years	7	9	20	30 to 50	60
Lajamanu Warlpiri	8	8	4	7	7
Light Warlpiri	8	8	5	n.a.	n.a.

8;11), and also in Light Warlpiri for the three groups who speak it (mean ages 20, 6;11 and 8;11). All adult speakers are women. Children aged six and above were selected because at that age they are confident enough to tell a story in both Lajamanu Warlpiri and Light Warlpiri.[6] The mean ages of the two groups are 6;11 and 8;11, so for convenience I will call the age groups ages 7 and 9 from now on.

Table 1 shows the languages, number of speakers and age groups from which narrative data were collected. In this section a subset of narrative texts – ages 7, 9, 20, 30–50, 60+ – is used to examine variation within Lajamanu Warlpiri across age groups. In the following section a partially overlapping subset – ages 7, 9, 20 – is used to examine systematic differences between Warlpiri and Light Warlpiri. The stories were transcribed by me in CHAT format (MacWhinney 1987; MacWhinney & Bates 1978) with the help of a speaker of Lajamanu Warlpiri or Light Warlpiri. Clauses which were partly unintelligible were deleted. All remaining clauses were coded for language, age group, speaker identification code, transitivity (+/– transitive), and if transitive, whether or not the A argument can host an ergative case–marker. In both languages, A arguments which can host ergative marking include lexical NPs (from either source language in Light Warlpiri), free Warlpiri pronouns and Warlpiri demonstratives, so I call arguments which can host an ergative marker "host" A arguments.

5. Ergative marking and word order in Lajamanu Warlpiri and Light Warlpiri

5.1 Ergative marking and word order in Lajamanu Warlpiri

The total number of transitive clauses with overt host A arguments included in the analysis of Lajamanu Warlpiri in this section is 560. Table 2 shows the percentage of transitive clauses with ergatively marked A arguments and whether they are preverbal or postverbal, for each age group.

6. Some younger children can tell a story in both languages, but not all can, so for ease of comparison I chose age 6 as the minimum age.

Table 2. Child and adult Warlpiri narratives: number of transitive clauses with host A arguments and percentages with ergative marking for each word order, per age group

Age	7	9	20	30 to 50	60+	Total
Trans clauses	66	95	59	128	212	560
% ergative	80	79	86	89	100	Mean: 90
% AV order	51	83	79	68	67	
% Erg AV order	64	77	91	88	100	
% Erg VA order	96	87	66	90	100	

Table 2 shows that in each age group there are far more host A arguments with ergative marking than without. The 60+ age group contributes many more transitive clauses than the other groups and always uses ergative marking on A arguments.

5.1.1 *Ergative marking in Lajamanu Warlpiri*

A multilevel logistic regression analysis with a binomial link function was conducted.[7] The dependent variable is ergative marking. Animacy of the A argument referent is included as a potentially explanatory factor because it has been shown to influence the occurrence of ergative marking in other languages (Gaby 2008; McGregor 1992, 1998, 2006; Verstraete 2005). The other factors listed below are included because they might influence ergative marking by playing a role in disambiguation of core arguments. Only transitive clauses with host A arguments are included in the analysis, and they were coded for the following properties, which are entered into the analysis as independent variables: +/– A argument is preverbal, +/– A argument is animate, +/– O argument is animate, +/– O argument is overt, Age group of speaker (7, 9, 20, 30 to 50). Text (book a, b or c of three stimulus books) and speaker are included as random effects. The 60+ age group was removed from the analysis because speakers in this group use ergative marking on all A arguments, so the questions of how ergative marking is distributed and conditioned do not apply to them. In the remaining groups, there is a lot of within-group variation in when ergative marking is used – the standard deviation is 0.77 – so differences between the age groups are difficult to see. To solve this problem the two remaining adult groups (ages 20 and 30 to 50) were collapsed together as one new group of adults and the two children's groups (ages 7 and 9) were joined as one new group of children.

7. I am indebted to Professor Harald Baayen, Radboud University Nijmegen and Max Planck Institute for Psycholinguistics, Nijmegen, for his assistance with these analyses.

The results[8] show that overall A arguments are more likely to have ergative marking when they are postverbal ($p = 0.003$), or animate ($p = 0.046$). But preverbal A arguments are more likely to have ergative marking when the speaker is an adult than when the speaker is a child ($p = 0.004$). In other words, children mark postverbal arguments significantly more often than adults do.

5.1.2 *Word order in Lajamanu Warlpiri*

Previous research on Warlpiri shows that A arguments that are prominent for some reason tend to be in preverbal position (Hale 1992; Mushin 2005; Simpson, to appear; Swartz 1991). Research on other flexible word order languages shows that elements that are newsworthy or important are positioned early in the string (Givon 1988; Mithun 1987). In this section Lajamanu Warlpiri narratives from children and adults are analyzed to see whether the word order patterns vary across age groups and how word order is conditioned. Table 2 above provided an overview of the word order patterns in the Lajamanu Warlpiri narratives, showing the number of transitive clauses for each age group and the percentage of those with preverbal A arguments.

The following factors are independent variables in the analysis: +/– A argument is animate, +/– A argument is new, +/– Ergative marking is present, +/– O argument is overt, +/– O argument is animate. As in the analysis of ergative marking, age groups are collapsed to form a single group of adults and a single group of children, but the 60+ age group is included in the adult group in this analysis, because it is about variation in word order. The same statistical procedure as in the previous analysis was used. The dependent variable is Preverbal A arguments, the independent variables are the factors listed above, and speaker and text (book a, b, or c of three picture books) are random effects.

The results show that there is a lot of variation between speakers in each group, but there is still considerable systematicity. Overall, A arguments are more likely to be preverbal when they do not have ergative marking ($p < 0.001$), or are newly introduced into the discourse ($p < 0.001$). A arguments are more likely to be preverbal and to have ergative marking when the speakers are adults than when they are children ($p = 0.002$). These findings are consistent with the findings for the conditions of ergative marking in Lajamanu Warlpiri – that postverbal A arguments are more likely to be ergatively-marked, and that children's narratives show a stronger correlation between ergative marking and word order than adult narratives do.

8. Details of the statistical output are included in the Appendix.

5.1.3 *Interim discussion*

Labov's (1963) apparent time construct is useful in interpreting the variation between adult groups in how often host A arguments have ergative marking. Although the analysis of ergative marking did not include the oldest group, the difference between always applying marking and not always applying it is an important one. The difference between generations in this synchronic study reflects a diachronic change, from obligatory to non-obligatory ergative marking on A arguments. The most likely reason for the change is contact with English and Kriol. The oldest group of speakers came into contact with English speakers first in adolescence, but at that time contact was only minimal. As they grew older there was increasing contact with English speakers, although not intensively.

This group of adults worked on cattle stations and in government community organizations and were exposed to varieties of English from a small number of individuals, but they did not attend school or become literate in English (with one exception, who is not a participant in the study). The next age groups, in contrast, were in contact with English speakers from a younger age, and the contact was more intensive, because they were taught in English at school. The group that had more intensive contact with English from a younger age is the group that first shows non-obligatory ergative marking.

The difference seen in the children's patterns, that of marking postverbal A arguments more often than preverbal A arguments, may also reflect diachronic change, but this cannot be confirmed until the children are adults. For the moment I can say that the children have tuned in to a pattern found in adult speech, and reproduce it with even greater regularity than the adults do. Children can be active agents of change by reproducing one pattern more frequently than other patterns found in the input (Roberts 2002: 339), and they might be agents of change in Lajamanu Warlpiri.

In Lajamanu Warlpiri, animate A arguments are more likely to be ergatively marked than inanimates, a pattern which runs counter to that found in many other languages, including those in which ergative marking is optional, in which inanimates are marked (Comrie 1989; Gaby 2008; McGregor 1992, 1998, 2006; Silverstein 1976; Verstraete 2005). The difference can be explained by examining the antecedent to the current pattern. The oldest speakers always mark A arguments, and younger speakers mark A arguments slightly less often, so the language as spoken in this community is changing from being a language in which all A arguments are marked to one in which not all A arguments are marked. But the percentage of marking is still quite high – around 90%. If we assume that obligatory ergative marking means marking the more agentive arguments (A arguments as opposed to S or O arguments), then, when marking is less than obligatory, it seems reasonable to continue to mark the more agentive arguments – the

A arguments that are higher in animacy. If some A arguments are not going to be marked, they are the less agentive ones – those lower in animacy.

Turning now to word order, in adult Lajamanu Warlpiri more A arguments are preverbal than postverbal overall, suggesting that preverbal position is becoming the canonical position for A arguments. Animate A arguments are more prototypical A arguments than inanimates (Hopper & Thompson 1980: 253), and a more prototypical A argument is likely to be in the canonical position, that is, preverbal position. When ergative marking is applied to less than 100% of A arguments, those A arguments in what could be considered to be in non-canonical-A position can be seen to be most in need of morphological marking to indicate their subjecthood. The proportion of preverbal A arguments in the narratives in this study is similar to the figures given by Swartz (1991: 62) for another set of Lajamanu Warlpiri narratives (in which AV order occurs two times as often as VA order), so I consider AV order to be a stable pattern. In the data in my study, A arguments are preverbal more often when the referents are new to the discourse, or animate. Positioning A arguments that are new to the discourse preverbally is consistent with word order pragmatics of other flexible word order languages (Givon 1988; Mithun 1987) and with the observation that prominent arguments are positioned preverbally in classic Warlpiri (Hale 1992; Mushin 2005; Simpson, To appear) and Lajamanu Warlpiri (Swartz 1991: 45).

The correlation of ergative marking and word order found for the age groups under age 60 (i.e. that postverbal A arguments are more likely to be marked than preverbal A arguments), suggests that word order in Lajamanu Warlpiri spoken by younger adults and children is less variable than that for the oldest group of speakers. The finding that children reproduce this pattern more than adults do suggests that the correlation might become stronger over time, as the current cohort of children grows older. If the current children's group maintains the relationship between case-marking and word order as they grow older, and if their patterns form the input for the next generation of child learners, then the pattern will become more entrenched.

5.2 Ergative marking and word order in Light Warlpiri and Lajamanu Warlpiri compared

The question for this section is whether the children recognize the subtle morpho-syntactic difference between the two languages as they are spoken by adults – specifically, different distributions of ergative marking in each language. To a large extent the same allomorph of the ergative marker, *-ng*, is used in both languages in adult speech. Other allomorphs of the ergative are also used, *-ngi/-ngu, -ngki/*

Table 3. Warlpiri and Light Warlpiri narratives: number of A arguments, percentage ergative marking, percentage preverbal A, per age group

Age	7		9		20	
Language	Light Warlpiri	Lajamanu Warlpiri	Light Warlpiri	Lajamanu Warlpiri	Light Warlpiri	Lajamanu Warlpiri
A arguments	78	66	81	95	66	59
% Ergative	58	80	44	79	65	86
% AV order	60	51	74	83	81	79
% Erg AV order	48	64	41	77	66	91
% Erg VA order	70	96	52	87	58	66

-ngku (and in Lajamanu Warlpiri *-rli*/*-rlu* are used), but the *-ng* variant is the most common. The only other way that ergative marking varies between languages is in its distribution.

The analyses make a two-way comparison. They compare the patterns 20-year-old adults and children produce in Light Warlpiri with the patterns they produce in Warlpiri, and they examine the extent to which the children are adult-like in how they distribute ergative marking on host arguments in each language. The same procedure with the same set of stimulus picture books as described in the previous section was used. Three age groups – adults aged 20 and children of ages 7 and 9 – told narratives in both Light Warlpiri and Warlpiri. In the adult group two different sets of speakers each told the stories in one language only. The children each told the stories twice, once in each language, with two or more weeks between each story-telling session. The order in which they told a story in one language or the other was counter-balanced.

Table 3 presents the number of transitive clauses with A arguments that can host ergative marking, the percentage of ergative marking and the percentage of A arguments that are preverbal. The table shows that speakers in all age groups use ergative marking in Lajamanu Warlpiri narratives more often than in Light Warlpiri narratives, but that the percentage of preverbal A arguments does not differ much between languages.

5.2.1 *Ergative marking in both languages*

The statistical procedure and the potentially explanatory factors are the same as those used in my previous analysis of ergative marking in Warlpiri only, except that in this second study the language in which the story was told is also a potentially explanatory factor. The factors entered into the analysis as independent variables are: Language (Warlpiri or Light Warlpiri), Age group of speaker (7, 9 or 20), +/– A argument is animate, +/– A argument is preverbal, +/– O argument is overt, +/– O

Table 4. Warlpiri and Light Warlpiri, ergative marking, summary of statistical analysis results

Ergative marking, Warlpiri and Light Warlpiri	
More ergative marking in Warlpiri than in Light Warlpiri	$p = 0.001$
Across both languages	
7 yr olds use more ergative marking in VA order than AV	$p < 0.001$
9 yr olds use slightly more ergative marking in VA order than AV	$p < 0.055$

argument is animate. Again, the dependent variable is ergative marking and speaker and text (book a, b, or c of three picture books) are random effects.

The results, summarized in Table 4, show that for all age groups, when a story is told in Warlpiri, there is more ergative marking on A arguments than when it is told in Light Warlpiri ($p < 0.001$). Children aged 7 mark postverbal A arguments in both languages more often than children aged 9 and adults ($p < 0.001$). Children aged 9 are approaching significance in marking postverbal A arguments in both languages more often than the adults ($p = 0.055$).

5.2.2 *Word order in both languages*

Turning now to word order, the purpose of the statistical analysis is to see if children and young adults show differences between Lajamanu Warlpiri and Light Warlpiri in word order preferences when genre and age are held constant. The independent variables are the same as those used in the previous analysis of word order patterns, except that in this analysis language is also a potentially predictive factor. The factors entered into the analysis as independent variables are: Language (Warlpiri or Light Warlpiri), Age group of speaker (7, 9 or 20), +/– Ergative marker is present, +/– A argument is animate, +/– A argument is new, +/– O argument is overt, +/– O argument is animate.

The results, summarized in Table 5, show that children and adults use similar word order strategies in both languages – there is no main effect of language, nor any interaction effect of language and another variable. Across all age groups there is more AV order when A arguments are new ($p < 0.001$), or animate ($p < 0.001$), or the O argument is inanimate ($p = 0.004$). Both groups of children use AV order less often than the adults (age 7: $p < 0.001$, age 9: $p = 0.001$). Both groups of children position inanimate A arguments preverbally more often than adults do (age 7: $p < 0.001$; age 9: $p = 0.006$). Ergative marking only plays a role for the seven-year-olds, who position A arguments preverbally most often when they are not marked ($p = 0.01$).

Table 5. Warlpiri and Light Warlpiri, word order, summary of statistical analysis results

Word order, Warlpiri and Light Warlpiri	
Across both languages, there is more AV order when:	
A argument is new	$p < 0.001$
A argument is animate	$p < 0.001$
O argument is inanimate	$p = 0.004$
And,	
7 yr olds use more Erg when VA order than other groups do	$p = 0.01$
7 and 9 yr olds use more VA order than adults do	$P < 0.001$, $p = 0.001$
7 and 9 yr olds use more AV order when A is inanimate	$P = 0.001$, $p = 0.006$

6. Discussion

There is a clear difference between languages in how often A arguments are ergatively marked overall, and children show adult-like patterns in distributing marking in different quantities in each language. But the children use the same strategy in both languages for choosing when to mark A arguments, which is to mark postverbal A arguments more often than those which are preverbal. Recall that the analysis of Lajamanu Warlpiri narratives showed that postverbal A arguments are marked more often across all age groups. That pattern did not emerge for the adults in this second analysis – only the children mark postverbal A arguments more often. This might be because there are only 4 to 5 adults in each of the adult groups in the study and there were not enough data points for the adult pattern to emerge. In another study of ergative marking that includes spontaneous Light Warlpiri speech as well as elicited speech, the pattern of marking postverbal A arguments more often than preverbal A arguments is seen in adult speech also (O'Shannessy 2006: 143). So the children appear to be tuning in to a pattern found in adult spontaneous speech and reproducing it. The youngest children produce a pattern in both languages that is not present in adult Light Warlpiri speech in this data set, but is seen in another data set that includes adult spontaneous speech.

With regard to word order, across all age groups, there is more AV order when A arguments are animate, or O arguments are inanimate. The most natural kind of transitive construction is one in which the A argument is high in animacy and definiteness and the O argument is lower in animacy and definiteness (Comrie 1989: 128). The word order patterns in the data suggest that the unmarked word order for transitive clauses in this type of speech event in both languages is AVO. A arguments that are new to the discourse are also more likely to be preverbal, correlating with the same finding for Lajamanu Warlpiri narratives across all age groups.

The results for the children are interesting – the youngest group, the seven-year-olds, shows a correlation between word order and ergative marking that is not shown in this data set for the other age groups – they mark postverbal A arguments significantly more often than preverbal A arguments. This group of children seems to be spearheading a regularization of the relationship between word order and ergative marking in both languages. A correlation of word order patterns and ergative marking was also found in the set of Lajamanu Warlpiri-only narratives that included the older adults, ages 30 to 50. The correlation is not as strong for adults' speech as for the children. An explanation invoking language contact processes seems likely. Adult word order strategies in both languages might be in flux. In Lajamanu Warlpiri they might be changing under the influences of English, Kriol and Light Warlpiri; and in Light Warlpiri they might not be stable because patterns in the language are still being formed. The children receive variable input in the sense of hearing a range of word order patterns. Their response to the variation in the patterning appears to be to regularize the patterns in their own production.

7. Summary

In Lajamanu Warlpiri there has been a shift between generations of speakers from obligatory to non-obligatory ergative marking on A arguments. Adults distribute ergative marking differently between Lajamanu Warlpiri and Light Warlpiri – they use it more often in Lajamanu Warlpiri, and less often in Light Warlpiri. But their word order patterns are similar in both languages. The children are adult-like in that they also distribute ergative marking differently in each language. And they are similar to adults by producing similar word order patterns in the two languages. But the children differ from the adults in a systematic way – they show a stronger correlation of ergative marking and word order in both languages than the adults do in either language. The children see the emergent correlations between ergative marking and word order in adult speech in both languages and reproduce the patterns even more often than the adults. So the children's strategies are more similar in each language than the adults' strategies are.

All age groups use similar word order patterns in both languages to some extent – an A argument is more likely to be preverbal when it is animate, or new, or when the O argument is inanimate. In contexts of potentially high ambiguity, such as when there is an animate O argument in the clause, all age groups use ergative marking for disambiguation, but they do not all use word order for that function. The seven-year-olds prefer to mark VA order with ergative marking more often than the other groups – if they continue to use this pattern as they grow older it

will develop into a more stable pattern of $A^{\emptyset}V$ and VA^{ERG} in both languages in the future. It remains to be seen whether their patterns change as they mature.

In sum, in the Lajamanu community there is a complex linguistic situation in which several languages are spoken. Code-switching between the languages is common, and as a result a new language has emerged very rapidly, spoken by young adults and children. Two systems for indicating grammatical relations are in contact – ergative case-marking and SVO word order. The questions are whether these two systems are used in the same way by different age groups of speakers within each language, and whether they differ between languages. In Lajamanu Warlpiri there has been a substantial shift in the use of ergative case-marking from obligatory to less than obligatory use – for the oldest group of speakers ergative case-marking is obligatory on host A arguments (with certain categorical exceptions) but for younger speakers it is not. But all age groups of younger speakers, including children, apply ergative marking to about the same proportion of A arguments, and according to the same conditioning factors, as each other, such that there is a correlation of word order and ergative marking. All age groups of Light Warlpiri speakers, including children, apply ergative case-marking in Light Warlpiri less often than in Lajamanu Warlpiri. The youngest group of children applies ergative marking more often to postverbal A arguments than to preverbal A arguments (and the next age group up is approaching significance in using this pattern). Future research will be needed to address the questions that now arise. Will the correlation of word order and ergative marking patterns in both languages in the current cohort of children's speech become more stable as the children grow into adults? Or will their patterns conform to those of the current cohort of adults? If the children's patterns remain stable, they will clearly be the agents of language change. If their patterns alter to resemble those of their parent generation, then their current patterns will be interpreted as intermediate stages on the path of language acquisition. Only empirical analyses will provide the results.

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Appendix

Table A1. Lajamanu Warlpiri: Narratives, ergative case-marking

Multilevel logistic regression analysis **Data: Lajamanu Warlpiri narratives, ages: 7, 9, 20, 30–50, 60** **Dependent variable: ergative marking**				
Fixed effects	Estimate	Std. error	Z value	Pr
(Intercept)	3.1207	0.66571	4.6870	2.773e-06
Preverbal A	–1.97682	0.66121	–2.9897	0.002793
Inanimate A	–0.72901	0.36683	–1.9873	0.046884
Adults	–1.20025	0.78848	–1.5222	0.127951
Preverbal A and adults	2.36584	0.82293	2.8749	0.004042

Table A2. Light Warlpiri and Lajamanu Warlpiri: Narratives, ergative case-marking

Multilevel logistic regression analysis **Data: Warlpiri and Light Warlpiri narratives, ages: 7, 9, 20** **Dependent variable: ergative marking**				
Fixed effects	Estimate	Std. error	Z value	Pr
(Intercept)	–0.10640	0.50574	–0.2104	0.8333614
Language Warlpiri	1.38081	0.24684	5.5938	2.221e-08
Age 7	1.18136	0.65400	1.8064	0.0708601
Age 9	0.40337	0.66339	0.6080	0.5431612
Preverbal A	0.75114	0.52125	1.4411	0.1495705
Age 7, Preverbal A	–2.30100	0.68683	–3.3502	0.0008076
Age 9, Preverbal A	–1.30666	0.68319	–1.9126	0.0558030

CHAPTER 19

Ethnicity, bilingualism, and variable clitic marking in Bishnupriya Manipuri

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This paper discusses variable patterns of overt marking in Bishnupriya NP structure. The main interest of the paper lies in the use of animacy-based classifier clitics (clf) which may be located on the head of a noun phrase, on one or more dependents, on both the head and the dependent(s) or on neither (i.e., zero marking). The variation in marking appears to be intimately linked with the structure of NP, variability in word order of NP constituents (i.e., head and the dependents), and the occurrence of the pronominal/numeral clitics (cl). The presence of cl itself is variable. The connection between the variable patterns of marking (of both clf and cl) and the variation in the ordering of head and dependent is explained in terms of bilinguality that is deeply embedded into the linguistic structure of Bishnurpriya. The duality of structure, it is argued here, serves as the symbolic marker of dual linguistic and ethnic identity of the Bishnupriyas as Bishnupriya Manipuri.

1. Introduction

Bishnupriya, though it originated in Manipur, is now spoken primarily in the south of Assam. Its total population is estimated to be around 55,647, which is about 0.43% of the total population of the state of Assam,[1] and about 1.2% of the total Bengali speaking population of the state (*Census of India* 1991). Despite being few in number and bilingual in the local dominant language (Bengali), Bishnupriyas have not only been able to survive but also continue to maintain their linguistic and cultural identities. This is contrary to the situations commonly discussed in

1. South of Assam (also known as Barak Valley) is primarily a Bengali speaking area, as opposed to Brahmaputra Valley which is the Assamese speaking area. In south of Assam, Bengali is also the official language, whereas in Brahmaputra valley, Assamese is the official language. In addition, it is also home to several Tibeto-Burman languages, especially the Bodo group.

the language endangerment discourse, where a majority is often seen as a threat, and minority groups' language and culture become extinct by increasingly assimilating to the majority language and culture (but see Mufwene 2002).[2] Losses have occurred, in the sense that Bishnupriyas who were once bilingual in Bishnupriya and Meitei (a local minority language and the official language of Manipur) are now bilingual in Bishnupriya and Bengali. This transformation, however, has not affected the outcomes of their earlier bilinguality, which are amply preserved in linguistic structure, in cultural memory, and in assertions of self-identity.

The concept of bilingualism/bilinguality as viewed in this paper is therefore broadened to include bilingual structure rather than being defined solely on the basis of the existence of two independent languages actively in use (that is, in terms of a bilingual grammar arising out of earlier active bilingualism). Ever since Labov's influential study of Martha's Vineyard (1963), there has been a growing body of research available within sociolinguistic studies of speech communities which suggests that languages, including those of smaller groups, have been able to survive by successfully continuing aspects of their own development, innovating in directions away from the dominant languages while at the same time also participating in limited ways in the changes affecting local dialects (cf. Wolfram et al. 2000).

We first present a brief history of the contact (Section 2) in order to situate it in its socio-historical context and to highlight the processes that gave rise to Bishnupriya. We also discuss the rise of conflicts and the identity movement between the Bishnupriyas and Manipuris. In Section 3, we discuss the constituent order of NP structures and other related facts of Indo-Aryan and Tibeto-Burman from a typological perspective. We also discuss the role of classifiers and the sources of classifiers in the region. Against this background, we then move on to present the various constituent orderings of NPs in Bishnupriya. In Section 4, we briefly discuss the variability in overt marking in NPs and the constraints on it. In Section 5, we turn to the role of social forces that are responsible for continuing and maintaining the patterns of linguistic structure in Bishnupriya. In support of our claims of continuity, we provide diachronic data from the first linguistic survey of India (Grierson 1903).

The study is based on natural speech data drawn primarily from a single location[3] in Assam, which has the largest concentration of the Bishnupriya speak-

2. Also see Fishman (2002) and other articles that appeared in *IJMS* 4, 2.

3. The location, *Balupur* (a pseudonym), is a semi-urbanized village. We consider it semi-urbanized because there is a town not very far from the place of our investigation. In addition, the town itself is semi-urban in character. With the exception of one speaker, the rest are all from Balupur. A few have spent several years in the town but have connections with Balupur; they

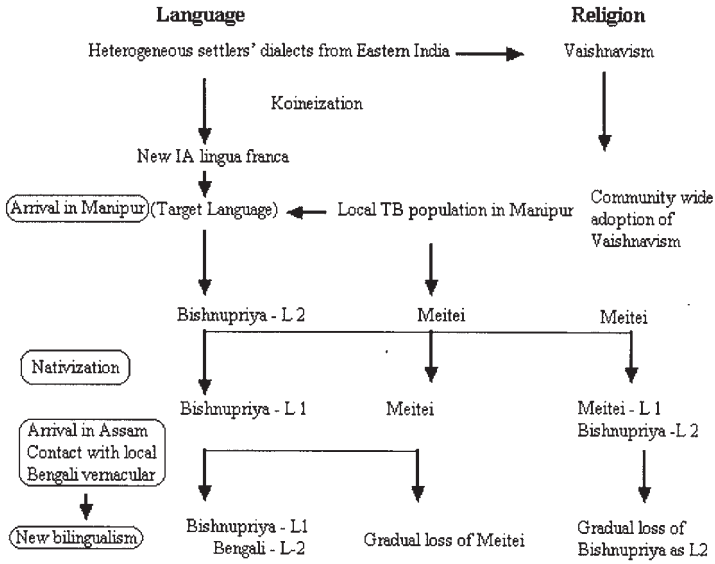

Figure 1. Outcomes of contact

ers. The sample comprises of about 29 speakers and the total data set analyzed is roughly 18–20 hours of speech. Quantitative analysis is based on Goldvarb 3.0b3.

2. History of Bishnupriya

In this section, we discuss the circumstances under which Bishnupriya emerged. Bishnupriya is a new language that emerged as a result of contact between speakers of two typologically distinct language families, Indo-Aryan (IA) and Tibeto-Burman (TB). Meitei, a Tibeto-Burman language commonly known as Manipuri, was especially influential. Bishnupriya was born sometime in the late seventeenth or early eighteenth century in Manipur as a result of the arrival of Vaishnavism (a sect of Hinduism) from Eastern India and its adoption by the Meitei kings.

Figure 1 provides a brief account of the contact situation and the resulting new language and bilingualism.[4]

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were interviewed while visiting their relatives in Balupur. Balupur is surrounded by Bengali-speaking villages on three sides and a Meitei village on one side.

4. For details see Satyanath & Laskar (2008a). Also see *Census of India* 1903, Wise 1883 and *Administrative Reports of Tripura.*

2.1 Languages of the settlers

Though the language developed sometime in the 18th century in Manipur, almost the entire community of Bishnupriya speakers is now located outside Manipur, in parts of southern Assam, Tripura, and adjoining Bangladesh. This exodus of the Bishnupriyas from Manipur is often attributed to the Burmese invasion of Manipur in the first quarter of 19th century (roughly 1819–1826).[5]

The extremely small minority of Bishnupriyas who remained behind in Manipur chose to assimilate to the dominant majority: Meitei. The Bishnupriyas in Manipur do not overtly emphasize themselves as Bishnupriya, and the majority Meiteis do not acknowledge their existence. This is amply evident in the census records in which the Bishnupriyas continue to be conspicuously absent. In contrast, Bishnupriyas in Assam continued to maintain a distinct identity (despite becoming bilingual in Bengali), the assertion of which grew stronger as the conflict with the Meiteis grew stronger. Bengali bilingualism has not been a problem as the British patronized Bengali in the colonial period. There is in fact no conflict with Bengali since Bengali serves functions in a domain outside the home and outside their community.

2.2 Ethnicity, identity and conflict

The majority of Meiteis are Vaishnavite, but any attempt by the Bishnupriyas to add Manipuri next to their name is strongly resisted by the Meiteis. While the Bishnupriyas consider themselves to be Manipuri, as evident in their self-references, the Meiteis refuse to acknowledge even the existence of the Bishnupriyas or that their language and their past have anything to do with Meitei or Manipur. For their part, the Bishnupriyas see themselves as Manipuri, both culturally and historically. The conflict appears to be several decades old, going back to the period just before Indian independence (1947). The roots of the conflict seem to lie in the competition among the social leaders of the two minority groups in Assam, each wishing to gain a larger share in the power structure of their states and the differential social positions enjoyed by them in the states of Assam and Manipur (cf. Arun (n.d.) and Sinha (n.d.)).

The conflict picked up momentum again in the 1960s with the passage of the official Language Act, which declared Meitei to be the language of the Manipur

5. See Singh (1997). Bishnupriyas were not the only ones who fled Manipur; a large number of Meiteis and Muslims also fled along with Bishnupriyas and settled down in adjoining Assam, Tripura, and East Bengal (now Bangladesh). In fact, in many parts of Assam, one can still find Bishnupriyas, Muslims, and Meiteis living in separate but adjacent villages.

state. The name of the state remained unchanged, and the status of religion remained unchanged as well. Meitei was reinterpreted as ethnic identity (tribal and Tibeto-Burman) referring to both the language and people of Manipur, thereby leaving Bishnupriya out (whose leaders were busy constructing an Aryan identity in Assam based on being Hindu).

The rise of linguistic identity in India is a recent phenomenon that has replaced earlier cultural and geographic identities. The process was already in place during the pre-independence nationalist movement in various parts of the country, resulting in linguistic redistribution of the states in the 1960s. India in general and Assam in particular have seen the rise of language movements and the demand for the creation of separate states on linguistic grounds during this period, resulting in the creation of seven states carved out of Assam.

The conflict grew stronger with the Meiteis objecting to Bishnupriyas' use of the term Manipuri to refer to themselves and also contesting the demand of the Bishnupriyas for an O.B.C. (Other Backward Caste) status, which the Meiteis enjoy. These issues have seen the two groups locked in court battles for several years. The Bishnupriyas finally won both the cases and have managed to introduce their language in their own schools and media (cf. Arun (n.d.) and Sinha (n.d.)).

The result is the fragmentation of an earlier larger Manipuri identity into two: a cultural identity 'Bishnupriya Manipuri' and a new linguistic and ethnic identity, 'Meitei'.[6] The Bishnupriyas continue to see themselves as associated with the state of Manipur (where Bishnupriya took its birth) and hence Manipuri as their legitimate identity. Meiteis, for their part, see it as an attempt to dilute their own identity and as an access to rights and privileges.

The conflict has left Bishnupriyas even more aware of their identity as Manipuri. The closer ties that the Bishnupriyas once enjoyed with the Meiteis in Assam have been slowly affected over the decades, resulting in greater social distance and also disruption in the continuation of Manipuri bilingualism. Though the Bishnupriyas have lost bilingualism in Meitei, bilinguality is still deeply rooted in their language and culture. This is despite the fact that they have been out of Manipur now for over 100 years and located in a predominantly Bengali speaking region (the south of Assam). This is perhaps the reason why they neither show any strong signs of assimilating into the local Bengali vernacular nor any indications of losing their Manipuri identity.

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6. The term Meitei is hardly ever used to refer to either people or the language outside Manipur. Outside Manipur, both Bishnupriyas and Meiteis are referred to as Manipuri. Only when there is a need to separate the two are the Meiteis ever called Khaiya Manipuri, literally 'Burmese Manipuri' (based on our observations and as reported in the speech community). In the pre-independent India, region was much more of an important source of identity than language.

3. Variation in NP structure of Bishnupriya

In this section we turn to the NP structure of Bishnupriya, which, we argue, exhibits properties of both Indo-Aryan and Tibeto-Burman. We first briefly discuss the contributions to NP structure that can be attributed to the two language families.

3.1 The role of the contributing languages to the NP structure of Bishnupriya

3.1.1 *Word order*

The Indo-Aryan and Tibeto-Burman languages responsible for the formation of Bishnupriya are both verb-final languages, but they differ crucially from each other in terms of the order of the NP constituents. In Indo-Aryan, numerals, adjectives, quantifiers, demonstratives, and genitive markers all precede the head noun. In contrast, the nominal modifiers in Tibeto-Burman languages have a tendency to follow their head nouns. However, Tibeto-Burman does not constitute a homogenous group. A quick survey of Tibeto-Burman languages (Grierson 1903) suggests prevalence of more than one pattern and variability across languages. Our survey suggests variability with respect to the adjectives and genitive markers, which may precede or follow. Greater uniformity exists in the use of numerals and demonstratives, which almost invariably follow the noun.[7] Though modifiers can either precede or follow in Bishnupriya, they tend to lean towards the Tibeto-Burman pattern; the numerals and demonstratives favor post-nominal position, and the adjectives favor pre-nominal position (discussed below). Thus Bishnupriya, despite having an OV word order, shows variability in morpheme order in NP.

3.1.2 *Classifiers*

Though classifiers are used in several Tibeto-Burman languages, Bishnupriya has inherited its classifiers through the Eastern Indo-Aryan languages.[8] However, unlike its lexifier languages, the Bishnupriya classifiers *go* and *han* classifiy nouns in

7. Dryer (in press) also talks about variability in modifier-head order in Tibeto-Burman. One does find numerals following nouns sometimes in Eastern Indo Aryan languages: Bengali in particular. However, this is a minor tendency. The dominant pattern is clearly [xn], where the modifiers precede the nouns.

8. We may add that the classifiers in India and its neighbourhood are primarily a characteristic of Austro-Asiatic, Tai, and Mon-Khmer languages, and are found in a handful of Tibeto-Burman languages (but not in all, such as Meitei). The classifiers in Bishnupriya are due to its Eastern Indo-Aryan inheritance, which Eastern Indo-Aryan in turn received through contact and diffusion with non Indo-Aryan languages.

terms of animacy. A third classifier *ta* occurs generally in plural contexts irrespective of the animacy of the referent noun. We think that it is unlikely to be a dental replica of the alveopalatal Indo-Aryan *Ta*. Rather, it appears to be of Tibeto-Burman origin. Except for a few lexical exceptions, *go* occurs with singular animate nouns, *han* with inanimate nouns, and *ta* (dental) which has multiple functions; it occurs with both animate and inanimate nouns as well as with both singular and plural, but more frequently with plurals.

3.1.3 *Pronominal clitics*

Finally, an NP may contain one of several pronominal clitics, such as *e*, *u, ou, o*, derived from demonstratives and third person morphemes. There is a tendency in some analyses to gloss such clitics as determiners (cf. Grierson 1903), yet they are not determiners but rather clitics that are anaphoric in nature (as in (1)). Such clitics occur widely across Tibeto-Burman and Austro-Asiatic languages (spoken in India and Nepal) but not in Indo-Aryan.

(1) *taanu-r ningal-**o**-go-re*
3pl-gen girl-cl-clf-dat
'to their girl' (lit. 'their girl to her')

3.2 NP structure of Bishnupriya and variable classifier marking

Against this backdrop, we now discuss the issues relating to the NP structure and variability in the classifiers, *go*, *han*, and *ta*. First of all, an NP may comprise a noun alone (N), a noun and a modifier (X) occurring on either side of the noun (as in (2)), multiple modifiers occurring on either side, or distributed on both sides with one or more pronominal clitics (cl) and a classifier (clf) (as in (3)–(6)).

(2) a. *ama-r gor*
I-gen house

b. *dar-han tanu-r*
fear-clf 3pl honourific-gen

c. *banak khulli-go-r*
sister younger-clf-gen

d. *beyak jetha*
brother elder

e. *kani hin*
little hardship

f. *mehnat niyam*
hard.work much

g. *kotha e-han*
story this-clf

h. *ak-go sau-go*
one-clf male-clf

i. *e-han karon*
this-clf reason

(3) *mo-r* *khulla* *dada*
1sg-gen younger brother
'my younger brother'

(4) *mo-r* *mami-nak* *dui-number*
1sg-gen aunt-my two-number
'my second aunt'

(5) *judda* *jobordast* *e-han*
warrior great cl-clf
'great warrior he'

(6) ***ou*** *Kirtan-**u**-han-ar* *maanu-taa*
dem devotional.music.group-cl-clf-gen people-clf
'members of the Kirtan group they'

As investigated in detail below, the presence of a classifier is variable in an NP. Only when a modifier alone comprises an NP (*kun-go* 'who-clf'; *e-go* 'one-clf') is a classifier invariably present. Such cases are therefore excluded from discussion.[9] We have suggested elsewhere that a variety of nominal elements can be marked by classifiers in Bishnupriya, and that the marking is determined by a variety of lexical and semantic factors (cf. Laskar 2003; Satyanath & Laskar 2003). In this paper we propose that the classifiers under discussion are essentially morpho-syntactic, as these directly inflect for case (when present) instead of the head noun. Further, in a full NP, the overt marking by the classifiers may be located on the head of the noun phrase, on one or more dependents, on both, or on neither. The classifiers in Bishnupriya are actually clitics and are subject to a number of structural constraints. Except in Table 1, discussion in this paper concerns itself with the modified NPs only.

3.3 Patterns of classifier marking across NP types

As shown in Table 1, the rate of overall marking varies across NP types. The bare NPs appear to be the least marked of all the NP types. Among the modified NPs, the double modified NPs attract much higher marking in comparison with the single modified nouns.

One possible reason for the lowest rate of marking of the bare NPs is that the bare NPs can only be head marked, and therefore, the marking is primarily

9. For a detailed discussion, see Laskar (2003).

Table 1. Overall rate of classifier marking across NP types*

	Bare NPs**		Single Modified NPs		Double Modified NPs	
	Marked	Unmarked	Marked	Unmarked	Marked	Unmarked
%	24	76	53	47	83	17
N	303	948	958	854	465	93
Total	1251		1812		558	

* Figures are rounded off to the nearest full digit.

** The bare NPs were not coded for all the speakers. However, the results, even when compared for individual speakers, are fairly consistent.

Table 2. Head and dependent marking in modified NPs*

Types of NPs	Dependent	Head	Head and dependent	Unmarked
Single modified NPs:	35%	16%	2%	47%
(Total: 1812)	637	286	34	855
Double modified NPs:	77%	4%	3%	17%
(Total: 558)	427	24	14	93

* Figures are rounded off to the nearest full digit.

subject to lexical and semantic constraints.[10] Unlike bare NPs, the modified NPs can be either head marked or dependent marked or both. However, the rate of marking is not uniform across the two categories of modified NPs, despite similar choices available to both. In fact, there is 30% greater marking in the case of double modified NPs, as shown in Table 1 above.

A comparison of the head-dependent marking patterns among the modified NPs in Table 2 reveals that the two categories of NPs behave differently with respect to the choices made regarding the head and dependent marking.

On the whole, there is a tendency towards greater dependent marking in the modified phrases. In comparison, head marking alone or combined with a dependent is very low. The head marking in modified phrases is much lower compared to the unmodified NPs. In cases of double modified NPs, the dependent marking is twice that of the single modified NPs. Thus it is the rate of the dependent marking that appears to maximally differentiate the single and the double modified NPs.[11] Compared to dependent marking, there is very little head marking

10. For a detailed discussion on lexical constraints, refer to Laskar (2003) and Satyanath & Laskar (2003).

11. We also explored the possible role of discourse-level information structure, but we did not find any systematic influence that could be attributed to information structure.

and zero marking among the double modified NPs. The differences in the greater marking in the case of double modified NPs are attributed to greater dependent marking.

4. Constraints on variable head, dependent, and zero marking

In the following, we briefly discuss the linguistic constraints on marking that are salient to account for such variability. The constraints of space do not allow us to provide all the details; however, readers are guided to Satyanath & Laskar (2008b) for a detailed discussion of the linguistic constraints on classifier marking. We will discuss the single modified NPs and double modified NPs separately.

4.1 Single modified noun phrases

The two constraints on variable marking that appear to be the most important are the constituent ordering of NP and the category of the dependent itself. Firstly, it is the [nx] (i.e., post-modified) NPs that are maximally marked (94%) as opposed to the [xn] NPs (pre-modified) (32%). As much as 91% of the total marking in [nx] NPs occurs on the dependent alone. In contrast, the [xn] NPs are either not marked (68%) or are head marked (22.4%) with even lesser marking on the dependent (6.4%) and on head and dependent both (3%). Thus an [nx] order favours dependent marking, whereas an [xn] order favours zero marking or head marking.

Secondly, though the [nx] NPs attract greater marking compared to the [xn] NPs, the rate of marking further varies across a variety of dependents. The maximum marking occurs on the numeral one and demonstratives, which are nearly categorically marked in post-nominal position. The possessors (both pronouns and nouns) and adjectives attract the least marking, with even lesser marking in pre-nominal position. Unlike adjectives and possessors, higher numerals attract greater marking both post-nominally and pre-nominally, though much higher post-nominally.

4.2 Double modified noun phrases

In the case of double modified NPs, the pronominalized NPs (with a pronominal clitic as in (5)) and NPs with full numeral forms (*tor bebuni dugo* 'your two sisters'; *aag-go jelaa sau* 'one daughter'), referred to here as numeral NPs, behave dif-

ferently from the non-pronominalized NPs (as in (3) and (4)).[12] The pronominalized NPs and numeral NPs are categorically marked, accounting for 89% of total classifier marking. The instances of zero marking are contributed entirely by the non-pronominalized NPs, which show very little marking (11%). The marking in non-pronominalized NPs appears to be significantly conditioned by the order of the NP constituents, with [xxn] favouring either zero marking or more head marking and [xnx] favouring greater dependent marking on the post-nominal modifier. This is parallel to the effect seen in the single modified NPs.

The categorical marking of the pronominalized NPs is attributed to the categorical marking on the clitics and numerals, which alone attract maximum marking. The categorical marking on clitics is explained in terms of the clitic boundaries which coincide with the post-nominal positions that favour classifier marking. In this sense, there is actually a great parallel in classifier marking patterns among different categories of NPs.

4.3 Lexical and semantic constraints

Apart from the linguistic constraints discussed above, three lexical and semantic factors also turned out to be important for head marking and zero marking. These are lexical category, linguistic source of the lexicon, and animacy of the head noun. For instance, nouns referring to body parts, kinship terms, and collective/mass/plural attract the least dependent marking but favour head marking and zero marking. Similarly, nouns of Indo-Aryan origin favour head marking more than nouns of Tibeto-Burman origin; nouns of English origin, including hybrid ones, favour zero marking. Inanimate nouns favour dependent marking more than head marking or zero marking.

Many of the lexical and semantic constraints that seemed somehow salient (qualitatively) in Laskar (2003) when dealing with bare NPs do not work as clearly with full NPs, as the marking occurs on the dependent, thereby overriding the

12. Though the clitics were treated as modifiers (as in single modified NPs) for the purposes of identifying double modified NPs, these were not considered for the purposes of identifying the word order. For instance, [x (x) n cl] is considered a double modified and a pre-modifying NP, excluding the clitic. [xnx cl] is a distributed NP and [nx(x)cl] is a post-modified NP. It is possible to argue that many cases of the demonstratives and numeral one in single modified NPs are pronominal clitics as well. In the case of demonstratives, a majority of those occurring pre-nominally are either attributive or pronominal, whereas those occurring post-nominally are pronominal clitics. However, given one modifier, it was more important to assign them to the category of the modifier at first. Further, clitics can occur at any phrase boundary but demonstratives and numerals cannot.

lexical constraints. For instance, lexical items (as bare nouns) pertaining to day, time, and month which are generally unmarked do appear marked on the dependent, e.g., *din e-han* 'day one-clf'. Similarly, many plural nouns and proper nouns are also marked in full NPs. This is contrary to the suggestion that "for nouns with animate reference, semantic assignment often overrides morphological or other principles" (Aikhenvald 2000: 27). Presence of a clitic also renders lexical constraints ineffective as a clitic can occur on any NP.

4.4 Relationship between dependent marking and word order

There appears to be no independent structural explanation for the differential marking in [nx] and [xn] NPs and the favorable effect of the post-nominal position. Available literature on classifiers, as surveyed in Aikhenvald (2000), does not provide any parallels to what we have observed in Bishnupriya (however, see Derbyshire & Payne 1990; Payne & Payne 1990; Sauvageot 1967; all cited in Aikhenvald 2000). Even in Austroasiatic, Chinese, Nung, and Tai languages that use classifiers across a variety of morpho-syntactic environments like Bishnupriya, the factors for assignment across different morpho-syntactic categories differ (Conklin 1981: 188 in Aikhenvald 2000: 227). A survey of classifiers in Eastern Indo-Aryan languages (Barz & Diller 1985) also suggests no parallels with the assignment principles that we have seen working for Bishnupriya with respect to the NP structure.

5. How is Bishnupriya different from other Eastern Indo-Aryan dialects?

The constituent order of NP, the presence of pronominal clitics, and the principles of classifier assignment most resolutely separate Bishnupriya from all of its Eastern Indo-Aryan kin, including the local Bengali vernacular, which has its roots in the same Eastern Indo–Aryan varieties as Bishnupriya. The dominant word order for all modifiers, including numerals and demonstratives, is [xn] in local Bengali.[13] Further, classifiers in Bengali dialects spoken throughout Eastern India generally occur on nouns and numerals. In modified NPs, except for numerals, classifiers generally occur on the noun alone and not the dependent (see Grierson

13. This is based on Bengali data provided by Kakoli Dey from her field recordings of Bengali spoken in the south of Assam.

1903; Barz & Diller 1985). The distinct system of classifier assignment based on morpho-syntactic grounds seems to be an internal innovation of Bishnupriya.

Additionally, classifiers that are frequently used across speech varieties in Eastern India are *Ta* (alveo-palatal), *jon*, *khan*, and *go*/*gua*. In contrast, Bishnupriya uses *go*, *han*, and *ta* (dental). Bishnupriya *ta* is not only phonologically distinct from Bengali *Ta*, but also behaves differently (Laskar 2003). Further, the classifiers in Bishnupriya categorise nouns in terms of animacy. In Eastern Indo-Aryan, apart from marking human nouns with *jon*, the usage of classifiers is different. We must also add that when Bishnupriya speakers switch to Bengali or occasionally use the Bengali *Ta* classifier, it never occurs with a pronominal clitic, thereby keeping the Bishnupriya classifier grammar distinct from that of Bengali.

As in any contact language, and given that none of the relevant speech varieties have been studied or well documented, it is difficult to go beyond what our sources permit us to say. That clitic-like usages are conspicuously absent in earlier Eastern Indo-Aryan in both Grierson (1903) and in modern local Bengali would suggest a strong possibility of these being contact induced but internal innovations.[14] Traces of pronominal clitic-like usages, though different, can be found in Meitei as well (Chelliah 1997). Grammaticalization of pronouns as subject clitics is also not uncommonly attested in languages of the world (see Michaelis 2000). The post-nominal word order in NP is clearly the outcome of contact with Tibeto-Burman as post-nominal orders are not characteristic of Indo-Aryan in general, and [nx] word orders, though attested in limited ways, are extremely infrequent in Eastern Indo-Aryan varieties.

While it is not possible for us to explore this issue any further, the grammar of Bishnupriya classifiers does seem to be different from all its Eastern Indo-Aryan kin in both semantics as well as in principles of classifier assignment.[15]

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14. *go*/*ge* is used as plural as well as dative in some eastern dialects (*e-ge*, *a-ge* 'him', *mor-go*, *amar-go* 'of us, to us', *ma-ge* 'to me') (Grierson 2003). In Silchar Bengali, though *go*/*gu* is not commonly used, we were able to find one speaker with a few tokens of *gu* with demonstratives and interrogatives (*ho-gu-e* '3rd sg-clf-nom (he)', *kun-gu* 'who', *o-gu* 'he', *e-gu-Ta boi* 'one book'). There is only one instance of *janos ni gan-o-gu* 'do you know this song?'. The speaker is an eleven year-old child and a Muslim. In any case, the function of *o-gu* appears to be demonstrative and not that of a pronominal clitic in the sense as discussed in earlier sections.

15. We found that one of the constraints with reference to classifier marking of lexical items pertaining to money and age in Bishnupriya (Laskar 2003) is the same as reported in Diller and Barz (1985) for a variety of Eastern Indo-Aryan languages.

6. Diachrony of clitics and classifier marking

We now provide a brief comparison with the data available from earlier Bishnupriya (the only earlier specimens documented in Grierson 1903). A comparison with four earlier specimens of Bishnupriya points to remarkable stability of word order and marking patterns. Given the size and the nature of Grierson's texts, it would not be fair to draw comparisons in an absolute sense; however, major trends are very comparable. This is shown in Tables 3a, b, and c.

Single modified [nx] NPs attract greater marking than [xn] NPs in both sets of data. There is also greater dependent marking than head marking among [nx] NPs in both sets of data. Among the double modified NPs there is continuity in the patterns of marking as well. The pronominalized and numeral NPs are categorically marked, whereas the non-pronominalized NPs are maximally unmarked and alone account for all instances of zero marking.

The word order patterns have also remained unchanged over time; in both data sets the dominant order is [xn] for possessives, adjectives, and quantifiers, but [nx] for demonstratives and numerals. It is perhaps for this reason that the overall patterns of marking haven't really changed over time.

Table 3a. Single modified NPs in earlier and modern Bishnupriya

Marking across time	**[xn]**	**[nx]**
2006: Marked % (N)	32% (381/1197)	94% (576/615)
1900: Marked % (N)	26% (12/46)	94% (49/52)

Table 3b. Head and dependent marking in real time

	2006		**1900**	
	[xn]	**[nx]**	**[xn]**	**[nx]**
Dependent % (N)	20% (77/381)	97% (560/576)	33% (4/12)	100% (49/49)
* Head+(dep) % (N)	80% (304/381)	3% (16/576)	67% (8/12)	0% (0/49)

* Head+(dep): This includes cases of head marking alone as well as cases of additional but variable marking on the dependent.

Table 3c. Marking patterns in double modified NPs in real time

Total marked	**Non-pronominalized NP**	**Pronominalized NP**	**Numeral NP**
2006: marked % (N)	11% (53/465)	85% (394/465)	4% (18/465)
1900: marked % (N)	2% (1/47)	89% (42/47)	9% (4/47)
2006: zero marking % (N)	100% (93/93)	0% (0/93)	0% (0/93)
1900: zero marking % (N)	100% (9/9)	0% (0/93)	0% (0/93)

We would not like to attach significance to the increase in marking over time since, first of all, the small size of specimens does not allow representation of a variety of lexical items and NPs. Secondly, there is no evidence of change in marking in apparent time, though the marking is not uniformly distributed across speakers.

7. Role of social forces in maintaining continuity

We now discuss the social factors that turned out to be salient to maintaining and continuing a new linguistic and cultural identity; Bishnupriyas enact diachronic bilingualism while at the same time keeping distinct from the possible assimilatory impact of synchronic bilingualism with Bengali.

7.1 Role of gender in dependent marking in single modified NPs

Among the single modified NPs, in addition to the two linguistic factor groups (NP word order and category of modifier), the role of gender and birth year both turned out to be significant. Women on the whole favour overall greater dependent marking compared to men in single modified NPs, as shown below in Table 4. To this extent it would suggest a greater role for women in the continuity of Bishnupriya. Overall, marking is higher among women than men, but the role of gender is significant only for dependent marking alone. It is also not significant for double modified NPs.

However, considering that marking is constrained by the word order of NP, a breakdown of marking across [xn] and [nx] NPs (Table 5) suggests a more interesting pattern.

The results in Table 5 suggest that men and women respond differently to marking in two sets of NPs. Women show greater dependent marking in [xn] NPs; men respond differently by showing greater head marking or zero marking in [xn] NPs (in fact, men on the whole show greater head and zero marking; see Table 4). The groups are hardly differentiated in the crucial [nx] NPs that attract maximum marking. If an increase in marking in [xn] emerging from the comparison of marking across time is real, it is contributed by women.

How do we interpret this increase? It can't be a sign of assimilation due to Bengali influence since there is no decrease in marking of [nx] NPs. On the contrary, greater dependence marking even in [xn] NPs is contrary to the Indo-Aryan classifier marking patterns. In fact, women show greater marking across all categories of modifiers, as shown in Table 6.

Table 4. Contribution of men and women towards dependent marking

	Group factor weight dependent marking/total	Applications/ total application	Input and weight	Head marking + zero marking/total
Women	.565	0.38	0.27	.433
Men	.422	0.32	0.17	.580

Table 5. Contribution of men and women towards head, dependent, and zero marking

	Dependent		Head		Zero	
	[xn]	[nx]	[xn]	[nx]	[xn]	[nx]
Women	9% (55/632)	90% (318/352)	24% (153/632)	3% (10/352)	67% (424/632)	7% (24/352)
Men	4% (22/565)	92% (242/263)	27% (151/565)	2% (6/263)	69% (392/565)	6% (15/263)
Total N	77	560	304	16	816	39

Table 6. Marking across dependent categories by men and women*

Dependent marking	Women	Men	Total
All adjectives/possessors	7% (34/516)	2% (7/437)	41/953
Numerals	96% (150/156)	94% (132/140)	282/296
Demonstratives	59% (151/256)	48% (107/221)	258/477
Higher numerals	68% (38/56)	60% (18/30)	56/86
Total N	373	264	637/1812

* The frequency of dependent marking is calculated as dependent/dependent+head+zero marking.

The opposite behaviour of men and women with respect to marking is interesting as the two groups respond differently to marking. Thus, women respond favourably by showing greater dependent marking on the [xn] NPs (see Table 5); men respond by showing greater head marking on [xn] NPs and greater dependent marking on [nx] NPs, though only marginally higher.

Among Indo-Aryan languages, classifier marking occurs primarily on numerals and to some extent on head nouns in NPs (in full or modified NPs containing a noun and a modifier). Generally, the existing sociolinguistic research has commented on the role of women and men as opposing but unidirectional (see Labov 1990, 2001 and numerous studies cited therein). Here is a case which presents mutually opposing behaviour by following different paths or strategies in their pursuit of the same goal. Women's behaviour is certainly not assimilatory, as women use more *ta* (59 tokens) than *Ta* (1) compared to men who use *Ta* (6)

and *ta* (18). What could be possible factors which might account for differential behavior of men and women? More women are either confined to the village or have moved to the village after marriage and have settled here. In contrast, more men have greater contact with the town.

7.2 Role of birth year on marking

A second factor that turned out to be significant for both single and double modified NPs (for both pronominalized and non-pronominalized NPs) is birth year. Table 7 and Figure 2 provide the probability of dependent marking in single modified NPs and the probability for both pronominalized and non-pronominalized NPs in double modified NPs in terms of the period during which speakers were born.

The results presented in Table 7 and Figure 2 are suggestive of both inter-speaker variability as well as internal changes that have affected the marking patterns across NPs over the past few decades. In the case of single modified NPs,

Table 7. Marking according to year of birth

Birth year	Dependent marking in single modified NPs	Double modified NPs: pronominalized NPs	Double modified NPs: non-pronominalized NPs
1. Before 1947	.562	.509	.487
2. During 1948–1960	.636	.391	.610
3. During 1961–1980	.285	.571	.432
4. After 1981	.462	.553	.448

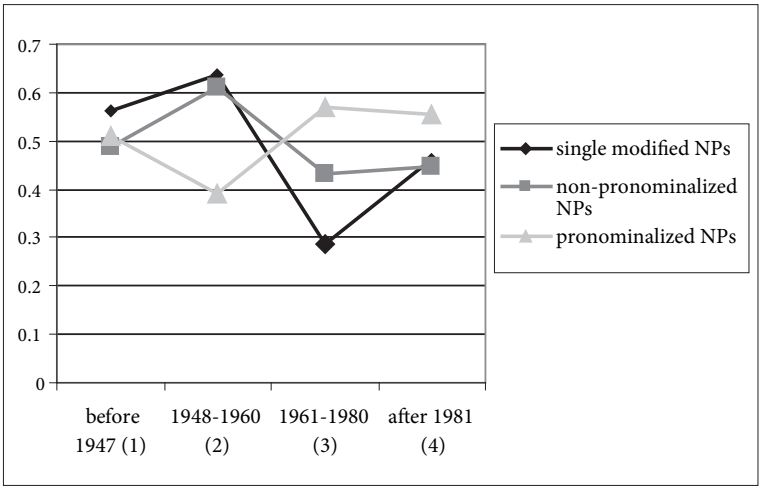

Figure 2. Changes in marking patterns across time

there is an increase in dependent marking among those born after independence. A similar shift is noticed in the case of non-pronominalized NPs, which also seem to behave like the single modified NPs as discussed in earlier sections. In contrast, marking in pronominalized NPs has gone up among those born after 1960, suggestive of a new change. The increase is accompanied by a corresponding decrease in direct dependent marking.

The significance of the shift in marking patterns over time rests in the development of the Bishnupriya identity movement over time and the contribution of various groups in building that movement, and even more importantly, maintaining identity. Though there is no straightforward and simplistic correlation between year of birth and its positive effect on the use of differential marking across NPs, we can make the following observations.

First, the oldest group includes those who were born in the pre-independent India. This is essentially the pre-conflict period and also the period during which the Bishnupriyas and the Meiteis forged a single Manipuri identity as distinct from Assamese or Bengalis. The third group includes a generation that grew up during the Bishnupriya/Meitei conflict period, when the conflict was at its peak. This, then, is the period during which the new identity took shape and new leaders came to the fore.

The second group is really at the transition period and perhaps the identity movement is at its relatively quiescent period. This period is marked by a number of other important developments such as independence and the partition of Bengal, which clearly occupied all those in Assam and Eastern Bengal. Much of Eastern Bengal became East Pakistan (and later Bangladesh) and parts of it remained with southern Assam where the Bishnupriyas are located. This period saw pro-Bengali movements in this part of Assam resulting in recognition of Bengali as the state language as opposed to Assamese. Therefore it is reasonable to assume that this period saw the questions of Bishnupriya taking a back seat.

It was only in the aftermath of 1961, when the linguistic redistribution of states happened, that the issue of Bishnupriya versus Manipuri came to the centre stage once again and an identity movement started building up. This is also the period which produced new leaders. The youngest group that was born after 1980 includes primarily those in the age group of 5–23 (in our sample). A majority of these are within the age group of 15–19. Among these, those who have passed high school and are taking an active role in the movement happen to show much higher amounts of marking (in pronominalized NPs, which accounts for the new change). This generation has contributed new student leaders to the movement. Others in this age group are either not particularly concerned about the movement or are simply mired in enjoying other good things of life such as bikes, music, films, frequenting town, and other activities that are characteristic of this age group.

Now the second and the third groups are the people who are more closely related to the Bishnupriya identity movement, and it is these groups who were in their 20s at the two crucial junctures of the movement. Therefore, many of those born before 1960 are the ones who must have been active in the first set of developments taking place prior to 1980. The third group is the one who likewise must have been at the forefront in continuing the movement even more aggressively in the post-1980 period. In contrast with the older groups, there is much convergence in the marking patterns among those born after 1980.

There is also much variability within each group, with some people showing very high amounts of marking compared to others. Though we did not test the social significance of the marking patterns, inferences can be drawn from the attitudes of the members of the community and their families' involvement in the movement. Higher marking occurs with those who have been actively associated with the movement either in a personal capacity or in terms of family involvement. For instance, the youngest group is mostly represented by students of both sexes. In this group two graduate students have the highest amount of marking, between 93% and 84%. A young boy, merely 11 years old, who comes from a politically active family, also has a very high percentage of marking (75%).

Like any other identity movement, the Bishnupriya identity movement is essentially a movement from above and led by the middle class (Bucholtz & Hall 2004). Almost every section of the community has participated in the movement. The four occupational groups who have the highest scores include government employees, self-employed people, students, and teachers, but also housewives and military men, as shown in Table 8. A majority of these must have been students at the height of their involvement in the movement.

The differential ranking of occupational groups across two categories of NPs (Table 8) suggests that while the participants are the same, their role and the composition of the society has been changing over time. Thus the earliest generation includes several government employees, who also command the highest status.

Table 8. Contribution of occupational groups towards marking

Occupations	Single modified NPs	Double modified NPs
Government employees	0.705	0.545
Students	0.624	0.504
Self-employed	0.501	0.683
Teachers	0.510	0.462
Housewives	0.376	0.550
Military men	0.510	0.545
Unemployed	0.441	0.151

They are all college-educated and hold important positions in various Bishnupriya cultural organizations. Some of these are also creative writers. Many have retired and have settled back in their villages.

However, the community has also undergone changes. While many Bishnupriyas continue to hold important positions in the government, we also find a shift towards other professions. Teaching jobs, especially in schools, are not very rewarding monetarily anymore. More and more people are joining the army (but holding on to their values). There are also people opting to set up their own businesses. These are also the people who have resources to support the movement. Many of the housewives are wives of important government employees actively involved in the movement.

In a nutshell, both of these linguistic developments, namely an increase in dependent marking in single modified NPs and marking of the pronominalized NPs, constitute key factors that separate Bishnupriya from local Bengali vernaculars that are part of their Indo-Aryan inheritance. The post-nominal word order of NP constituents and its association with classifier marking are both contact induced, internal developments that take Bishnupriya closer to Tibeto-Burman in typological characteristics than Indo-Aryan. In this sense they have become the covert markers of ethnolinguistic identity of Bishnupriya, thus providing links between language and ethnic identity. We may also add that Bishnupriya people use Bishnupriya at home regardless of where they live. This is an important factor that has contributed to the continuation of the language and its association with identity. In addition to language, there is also much cultural continuity in terms of cuisine, weaving, and cultural performances. Further, the self-assertion of identity is amply immortalized in the numerous casual self-references as 'Manipuri or Bishnupriya Manipuri' and to the Meiteis as 'Manipuri' and sometimes as '*Khaiya* (Burmese) Manipuri'. Bishnupriyas also claim that their eyes make them look more beautiful than 'Khaiya Manipuries,' irrespective the colour of their skin. At the same time, Bengalis are referred to as 'Bengali' or 'Hindu.' All these factors together have ensured long-term ethnic distinctiveness of Bishnupriya; Bishnupriyas thus know who they are. They do not want to become Meitei, but they are also not Bengali. Once an ethnic language carries cultural content, it is less expendable in this role.

10. Summing up

What we have shown above is that Bishnupriya shows a bilingual word order in its NP structure. While the [xn] NPs are typical of Indo-Aryan, the [nx] NP order is

more typical of Tibeto-Burman. Its overall NP word order is more akin to Tibeto-Burman, including Meitei.

Though inherited through eastern Indo-Aryan speech varieties, the classifiers occur across a variety of morpho-syntactic categories, and the principles of their assignment are non-Indo-Aryan in nature. The post-nominal word order and pronominal clitics separate Bishnupriya most resolutely from the Indo-Aryan speech varieties spoken in its neighbourhood as well as elsewhere in Eastern India.

The continuation and separation of Bishnupriya from Indo-Aryan, in particular Bengali, even more than 100 years after moving to Assam, and the remarkable unity of the structure in various specimens drawn from both Manipur and outside Manipur is possible only because of the awareness that Bishnupriyas have of their own identity. Finally, despite the fact that Bishnupriyas have lost active bilinguality in Khaiya Manipuri/Meitei, the influence of language contact is nonetheless amply preserved, for instance in their NP structure. The variability in NP structure together with classifier marking then provides linguistic expression in support of a dual cultural and linguistic identity.

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CHAPTER 20

Clan as a sociolinguistic variable

Three approaches to Sui clans[1]

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As lesser studied minority languages are added to the purview of quantitative variationist sociolinguistics, we naturally expect to see lesser studied sociolinguistic variables brought to the forefront. One such variable is *clan*. Among the Sui people of southwest China and in many other societies, clan has a powerful sociolinguistic influence. Therefore, following in the tradition of "age as a sociolinguistic variable" (Eckert 1997), "gender as a sociolinguistic variable" (Meyerhoff 1996; Wodak & Benke 1997) and so on, the present article suggests that clan, too, may be viewed as a key player in variationist sociolinguistics. Using insights from Sui and other communities, this chapter investigates clan as a sociolinguistic variable in terms of each of the three approaches to language and identity outlined by Mendoza-Denton (2002): "Sociodemographic category-based identity," "practice-based identity," and "practice-based variation." Clan is shown to be a highly relevant and meaningful sociolinguistic variable from all three perspectives.

1. Introduction

Clan-level social distinctions may be less evident in urban, majority societies, yet clan plays a crucial role in the sociolinguistic experience of many rural indigenous minority communities. Clan variables are often just as influential as other more commonly studied sociolinguistic factors such as social class, gender, ethnicity, region, and age. Therefore, in order to develop a more inclusive theory

1. I would like to thank the many Sui people who taught me their language and customs and welcomed me into their villages. I would also like to thank Dennis Preston, David Dwyer, Grover Hudson, Yen-Hwei Lin, Norma Mendoza-Denton, Tim and Debbie Vinzani, Bob and Alli Burcham, Faith Nibbs, and David Rosales. I'm also grateful for comments from various audiences, including *New Ways of Analyzing Variation 34*, *Linguistic Society of America Summer Meeting 2006*, and the *106th Annual Meeting of the American Anthropological Association*.

of language variation and change, the sociolinguistic role of clan should be thoroughly investigated.

Many rural indigenous societies are largely egalitarian (cf. Ochs & Schieffelin 1982; Jackson 1983: 164; Smith & Johnson 1986). However, a fine-grained analysis of such societies may uncover the presence of an "organized diversity" (Gumperz 1982: 24) that bears some resemblance to the stratification and segmentation found in majority societies (see also Clarke, this volume). For residents of a rural indigenous community where broad-based factors of socioeconomic class and ethnicity are less relevant, social distinctions can be found on other levels. Among the Sui people of southwest China, the Nganhcara of Cape York, Australia (Smith & Johnson 1986), the Yan-nhaŋu speakers of Arnhem Land, Australia (Bowern 2008), and other societies, distinct linguistic variants bearing socially meaningful contrasts are found on the clan level. Since these clan-level variables often represent relatively stable differences within a single speech community, research of such variables naturally follows in the long tradition of quantifying variation (e.g. Labov 1963, 1966; Trudgill 1974). After all, anthropologists have long recognized the role of clan, but this variable has not been carefully examined in the paradigm of variationist sociolinguistics. This chapter sets out to help fill that gap.

2. Sui clan exogamy and dialect contact

The Sui people in rural areas of Guizhou Province in southwest China preserve their own customs, worldview, and language. According to Sui clan exogamy, the wife and husband are required to originate in different clans, and the wife moves to the husband's village upon marriage. Sui clan members view themselves as having descended from a single ancestral family through male lineage, thus corresponding to the common definition of clan as "a consanguineal kin group constructed by unilineal descent in which members cannot actually trace their descent to the common, often mythological, ancestor (Fortes 1953)" (Kang 1979: 88, citing Fortes 1953: 25; see also Broude 1994: 66; Birx 2006: 516; and Radcliffe-Brown 1950: 40, cited in Madan 1962: 66).

Subtle dialect differences are found between Sui clans, although the dialects are mutually intelligible. Therefore, as a result of the immigration required by exogamous customs, Sui married women often have dialect features that differ from their husbands' villages. By contrast, the speech of the men, children, and unmarried women of each clan is locally considered to be a homogeneous variety.

A notion of place also interacts with this clan ideology; many clans are considered to be roughly isomorphic with some particular region (e.g., the *Ljaj* region is primarily occupied by members of the *Lu* clan). However, the relationship

between place and clan is not always straightforward; villages change over time and do not necessarily match local notions of correspondences between place and clan (Stanford forthcoming). Furthermore, individual clan members maintain their original dialects regardless of mobility, as explained below. For the analysis presented here, then, the notion of clan dialect is considered fundamental, rather than regional dialect.

The immigration and dialect contact resulting from Sui marriage customs lead to intriguing linguistic situations where, for example, a woman uses a different 1st person singular than her own husband and children. Dialect features vary between clans in cognate and non-cognate lexical items and in phonetic variables (diphthong variables and lexical tone variables).

Sui married women maintain their original clan dialects (henceforth *clanlect*) to a very high degree, even after a decade or more of married life in the husband's village (Stanford 2007, 2008a). In this way, each Sui person continually performs and constructs his or her clan identity linguistically. Likewise, the very notion of clanlects is continually constructed as each person associated with a given clan performs a set of linguistic features.

3. Other examples

Clan-based exogamy with linguistic effects is not limited to the Sui people, of course. A well-known case of exogamy is found in the Vaupes region of the Amazon where "linguistic exogamy" is reported (e.g., Jackson 1974, 1983; Aikhenvald 2002: 219; Gomez 1986 inter alia); i.e., the spouses' fathers must speak different languages. However, unlike Vaupes linguistic exogamy, the linguistic differences between Sui wives and husbands are an epiphenomenon of clan exogamy, not a requirement. Sui wives and husbands differ in terms of clan origins but not necessarily linguistically. Moreover, since nearby clans do not always have significant dialect differences, in many Sui households the wife and husband have few or no distinctive dialect differences. Secondly, across the Sui communities in the current study, the variation is clearly dialectal, unlike the Vaupes region where differences are viewed as language-level distinctions. For the Sui clans in this study, contrast is observed only in a relatively small set of features, and all speakers agree that the varieties in the current study are easily mutually intelligible.

Nonetheless, there are likely to be similarities between the Sui and Vaupes regions' linguistic experiences. For example, Vaupes researchers (Jackson 1983: 165; Aikhenvald 2002: 17) report that language use is a "badge of identity" in the exogamous cultures of the region. Such identity issues appear to be influencing the Sui linguistic behavior described in the current study. Jackson reports Vaupes

consultants saying, "My brothers are those who share a language with me. Those who speak other languages are not my brothers, and I can marry their sisters" (1974: 62). Jackson further notes that residents of the Vaupes community identify themselves with their father's language alone (Jackson 1983: 164), and this resembles Sui sociolinguistic attitudes as well.

Thus, the Vaupes region shares some similarities with the Sui experience. However, an exogamous situation in northern Australia provides a much closer parallel to Sui clan exogamy. Smith & Johnson (1986) investigate the Nganhcara people of Cape York Peninsula who have an exogamous system where the wife and husband must be from different clans (see also Sutton 1978). The situation is closely parallel to Sui in the following respects: (1) Dialect contact is an epiphenomenon of clan-based exogamy (unlike Aikhenvald's linguistic exogamy 2002: 11). (2) The linguistic varieties involved are mutually intelligible dialects. (3) Dialect features are one of the means by which clans are distinguished; the communities are consciously aware of many dialect markers between the clans, thus giving rise to a notion of clanlect. (4) The society lacks stratification by socioeconomic class. Instead, the clan system provides meaningful social groupings.

In addition, Smith & Johnson report that clanlect differences are centered primarily around lexical variables. They find few phonological, morphological, or syntactic variables. Similarly, in Sui many of the differences are lexical (such as highly salient pronoun variables), while no morphosyntactic differences are apparent (to date). However, in Sui the differences do extend significantly beyond lexical items since tone and vowel variables are observed.

Smith & Johnson report that Nganhcara children identify with the father's dialect rather than the mother's, which is the same effect found among the Sui people (Stanford 2008b), and also in the Vaupes region for that matter. Further, Smith & Johnson determine that linguistic markers such as salient lexical differences are prominent features precisely for the reason of identifying groups (p. 40). They suggest that lexical variables are under more conscious control than other linguistic levels and therefore provide "a more suitable source of sociolinguistic markers in the learning situation of the Nganhcara children, who must consciously learn to use their father's clan dialect in a polyglot environment" (p. 40).

Other examples of clan-based distinctions have been reported as well. Bowern (2008) observes clan-level variation among three exogamous clans of Yan-nhaŋu speakers in Eastern Arnhem Land, where lexical, morphological, and phonological variants are used to distinguish clan membership. David A. Peterson (p.c.) reports evidence suggesting clan-level variation in a Kuki-Chin language of Bangladesh. In Oroqen, a moribund language of northwest China, older speakers report that clan-level variation once existed, although such distinctions have now been lost as

the Oroqen-speaking community has dissipated in contact with Chinese (Lindsay Whaley p.c.).

Thus, among these diverse societies and languages, from the Amazon to Australia to Bangladesh to China, linguistic marking on the level of clan plays an important social role. As Smith & Johnson conclude, "It should not come as any surprise to find that social groups as important as the Nganhcara patriclans [patrilineal clans] should be marked linguistically" (Smith & Johnson 1986: 39). Clan, therefore, is a significant sociolinguistic variable.

4. Clan in variationist sociolinguistics

Given these robust clan-level ties between language, identity, and social organization, how should clan be approached in variationist sociolinguistics? Following Mendoza-Denton's (2002) outline of three approaches to language and identity,[2] the role of clan as a sociolinguistic variable is considered here with respect to (1) "sociodemographic category-based identity," (2) "practice-based identity," and (3) "practice-based variation" (Mendoza-Denton 2002: 479).

4.1 Clan as a sociodemographic category

The first approach described by Mendoza-Denton (2002), "sociodemographic category-based identity," has been very effective in describing "large-scale patterns of variation" (cf. Labov 1994, cited in Mendoza-Denton, p. 481). Mendoza-Denton notes many successful studies in this framework and recognizes its achievements, but she also cautions that this approach generally assumes that identities are "relatively stable" (p. 482), and one must also be careful to avoid the potential pitfall of assuming that Euro-American analyses of identity categories (age, class, gender, etc.) can be directly transferred and applied to other communities (p. 478). Moreover, studies in this first approach often have broad-based viewpoints that aim for large-scale patterns, so it is harder to see variation on the level of small communities and the role of small-scale interactions of individuals.

In the current study the Sui consultants made it clear from the beginning that clan is a highly meaningful category in variation, and so one possibility would be to simply add clan to the traditional list of independent variables of age, class,

2. In a related vein, Eckert (2005) defines three "waves" of variationist sociolinguistics as (1) "the survey era" or "developing the big picture," (2) "developing the local picture", and (3) "the stylistic perspective."

gender, region, and ethnicity. After all, it would be unwise to allow the list of independent variables to be "frozen prematurely into a standard list – class, age, ethnicity, region" (Chambers 1993: 143, quoted in Hazen 2002: 241). Otherwise, the field of sociolinguistics could overlook fundamental social factors in many lesser studied communities. The present chapter suggests, then, that clan should receive this level of variationist sociolinguistic attention as well.

From this demographic perspective, perhaps the clan-level social organization of such indigenous societies could be viewed as a subset of the category of ethnicity. For example, a Sui villager views him or herself as a member of the Sui ethnic minority, i.e., a member of an ethnic group within mainland China (Sui is one of the 55 official ethnic minorities of mainland China). But each Sui person also views him or herself as a member of a particular clan within Sui society, a level which might be considered "micro-ethnicity." Such clan membership closely resembles the social construct of ethnicity in general, having all the traits identified in Giles & Johnson's (1987: 95) analysis of ethnolinguistic identity. Giles & Johnson determine that "stable pluralism" (cultural and linguistic) is achieved between ethnic groups when

> ethnic group members identify relatively strongly with their ethnic group *as well as* the society of which they are a part; perceive the norms and values of their ethnic boundaries to be hard and closed; and perceive the vitality of their ethnic group to be relatively high. These conditions may be considered to provide relatively stable and secure support for ethnicity, enabling constructive contact with ethnic outgroups. (p. 95, emphasis in original)

The Sui clan construct appears to meet all of Giles & Johnson's criteria for an ethnic division with stable pluralism: The Sui people identify strongly with their own clans and with the larger Sui society as well; they perceive their clan memberships to be "hard and closed" boundaries; and they report a high degree of vitality on the clan level.

In this way, a variationist study of Sui or another clan-based society would have a demographic category of ethnicity (e.g., Sui ethnicity in contrast to the majority Han Chinese ethnic group or nearby minorities), as well as the subcategory of "micro-ethnicity," namely, clan membership. A "sociodemographic category-based" sociolinguistic study yields meaningful patterns under this paradigm. In an initial survey of clan-related features, Bowern (2008) finds evidence suggesting contrasts among different clans of Yan-nhaŋu speakers in Eastern Arnhem Land, where "clan, kinship and language are culturally extremely salient." (1) shows examples for "Clan A" and "Clan B."

(1)		Clan A	Clan B
	'tobacco'	[ŋarali]	[ŋawurrku]
	'pipe'	[luŋiny]	[badjikali]
	vowel nasalization	pre- and post-nasalization	none
	consonant glottalization	pre-glottalization	post-glottalization

Sui clans illustrate similar contrasts.[3] First, I compiled a set of lexical variables based on my own research as well as a dialect survey in *Shuiyu Diaocha Baogao* (1956).[4] In Table 1, results are given for lexical variation among members of two clans located about 10 miles apart, labeled here as the "North Clan" and the "South Clan." Speakers were asked to identify simple objects or physical actions and produce the word in a short phrase, repeating several times. In the *Words* column, the first number represents the number of words produced in the North clan dialect, while the second number represents the number produced in the South clan dialect. Thus, *0:12* indicates that there were 12 words produced in the South variant and zero words in the North variant. Similarly, in the *Tokens* column, the first number represents the number of tokens in the North variant, while the second number represents the number in the South variant. For the teenagers, the mother's home clan is listed if known.

As Table 1 shows, most speakers produced the lexical variables expected of their clans. The few exceptional tokens were primarily found in teenagers' speech, and such a result is not surprising due to lingering effects of their mothers' speech during upbringing. In the whole data set, teenagers produced 28 such tokens (5 words) of the opposite clanlect (i.e., variants that didn't represent their fathers' clanlect), but there were only 3 such exceptional tokens for the adults.

In addition to lexical differences, two diphthongs vary between the North and South clans, in words such as *mia* 'hand' and *ʔdua* 'salt'. The phonetic variants of the diphthongs in the two clanlects are given below. In (2) the two diphthong variables are designated (ia) and (ua).

3. All members of Sui society, mobile and non-mobile, participate in the construction and differentiation of clanlects through their daily use of clanlect features that identify themselves with their home clans (Stanford 2007, 2008a, forthcoming). Nonetheless, for the purpose of establishing clanlect features for comparison here, non-mobile speakers' dialect features are used in order to control for possible effects of mobility.

4. "Report on Investigations of the Sui Language," an unpublished Chinese manuscript acquired through the help of Jerold Edmondson.

Table 1. Results for lexical variables (both cognate and non-cognate; in phrase-list style) (Stanford 2007, 2008b)

Speaker	Words North:South	Tokens North:South
South non-mobile speakers:		
23 year-old male	0:12	0:52
16 year-old female	0:12	0:63
16 year-old female	0:14	0:87
14 year-old female	0:14	0:75
27 year-old male	1:13	1:30
42 year-old male	0:13	0:31
55 year-old male	0:14	0:30
39 year-old male	0:11	0:23
North non-mobile speakers:		
16 year-old female (South mother)	12:1	53:4
15 year-old female (South mother)	14:0	64:0
15 year-old male (South mother)	12:1	48:8
14 year-old male (South mother)	14:0	61:0
16 year-old female (Northeast mother)	11:1	46:4
15 year-old female (South mother)	11:2	60:12
30 year-old male	13:1	62:1
28 year-old male	13:0	28:0
45 year-old male	13:1	28:1
24 year-old male	12:0	23:0
40 year-old male	11:0	22:0

(2) (ia): North South
[-iə] ~ [-iɑ]

(ua): North South
[-uə] ~ [-uɑ]

In an impressionistic analysis, the North and South non-mobile speakers showed very precise correspondence to the (ia) and (ua) variants expected of their respective regions (Stanford 2007). In fact, there was only one instance where a non-mobile speaker was observed not using the diphthong variant of the home clan; one 16 year-old North girl pronounced 'female' *ʔbiak* with the South variant five times and with the North variant four times. No other non-mobile speaker was observed to deviate from his or her home clanlect. Since the results of the non-mobile speakers are so overwhelmingly categorical, a table of results is not provided. In addition, acoustic analysis confirms this clanlect contrast in the (ua) diphthong (Stanford 2007); the /-a/ element of the (ua) diphthong in words such

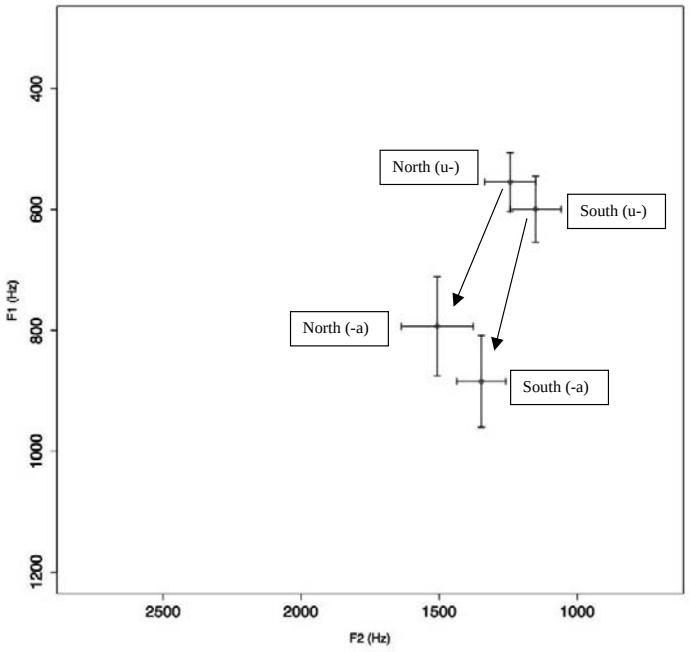

Figure 1. F1 and F2 of the (ua) diphthong variable for North and South non-mobile speakers. Normalized following Nearey (1977). Crosshairs represent the standard deviation for the beginning and ending points of the diphthongs. Intersections of crosshairs represent the means (Stanford 2007)

as *ʔdua* 'salt' was shown to be significantly different between the North and South clanlects. Figure 1 illustrates the two different trajectories of the (ua) diphthong in terms of formant values.

Finally, clan-level variation manifests itself in lexical tone as well. Among the six phonemic tones of Sui, two tones vary between the North and South clans (Stanford 2008a). Figure 2 shows the clan contrast in "Tone 1" (henceforth T1), and Figure 3 shows the clan contrast in the other tone variable, "Tone 6" (henceforth T6). (The tone numbering system is based on J. Zhang 1980; Zeng & Yao 1996; and Edmondson & Solnit 1988.)

In Figures 2–3, each line represents the mean of all the tone tokens of T1 or T6 for a given speaker. The tones are plotted in semitones,[5] and the time axis is normalized for time (as 600 "relative time" points for the duration of each syllable).

5. One (logarithmic) semitone is a half-step in the musical scale; there are 12 semitones in an octave. Such a scale makes it possible to normalize speakers who have different pitch ranges (see Zhu 1999: 47, 78).

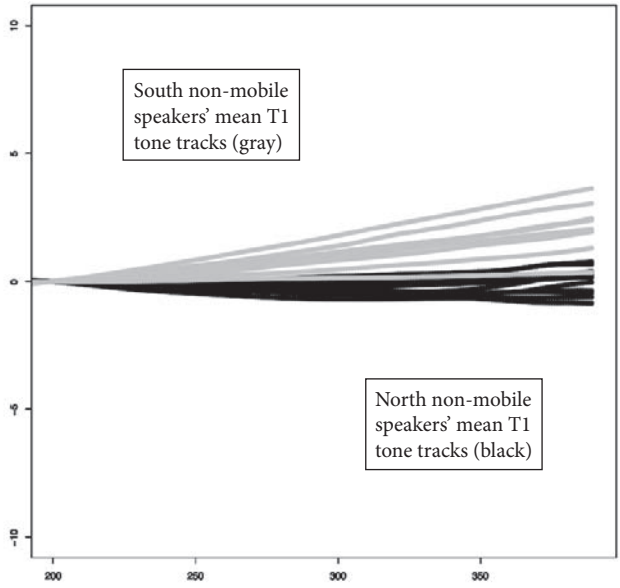

Figure 2. Clan variation in the contour of Tone 1, N = 417 (Stanford 2008a)

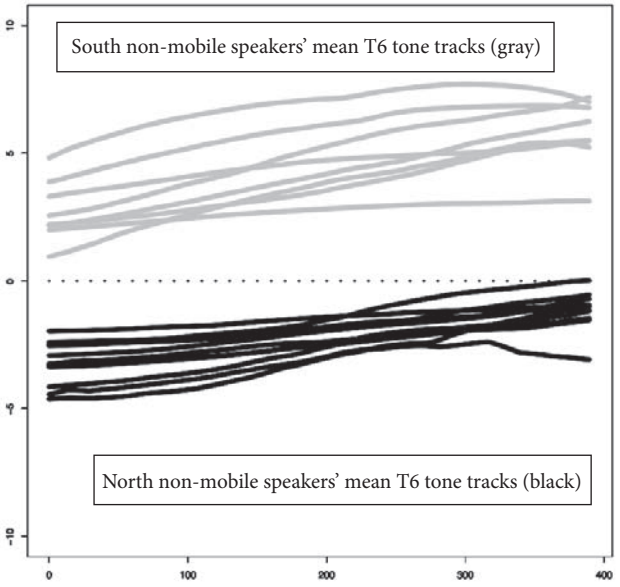

Figure 3. Clan variation in the pitch of Tone 6, N = 309 (Stanford 2008a)

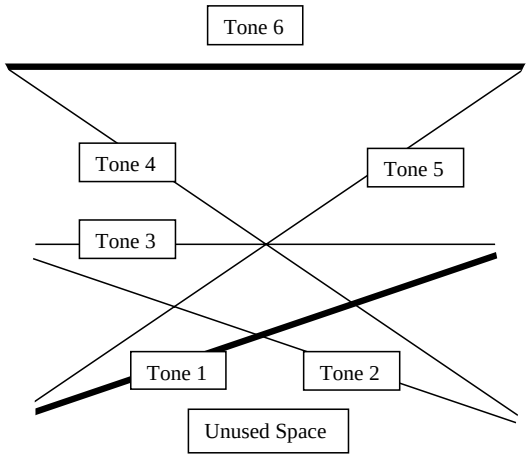

Figure 4. South clanlect phonemic tone system

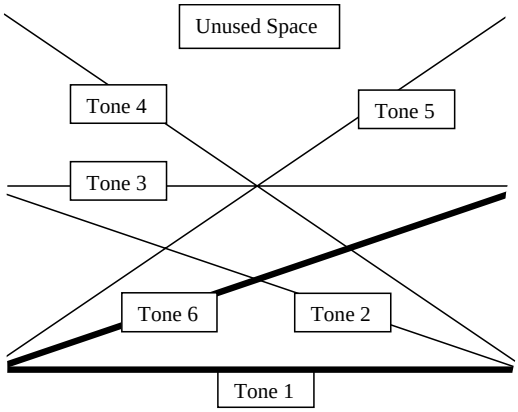

Figure 5. North clanlect phonemic tone system

As for pitch normalization, Figure 2 investigates a contrast in contour (slope), so a particular point in relative time (time = 200) is set to 0.0 semitones for all speakers. Figure 3 investigates a contrast in pitch, so the mean of speakers' mid-level Tone 3 is set to 0.0 semitones. The figures both focus on time ranges within the syllable that illustrate the relevant clanlect contrast in the given tones.

Rather than minor differences, these clanlect distinctions affect the tone system at a deep structural level. Figures 4–5 provide phonemic models of the tone spaces for all six tones in the two clanlects. Tone trajectories and symmetry are idealized in order to show phonemic contrasts. Notice the (boldface) dramatic shifts in T1 and T6, and the shift in unused space. One might also speculate about

a chain shift involving T1 and T6, i.e., the low rising South T1 is perceptually similar to the low rising North T6. In sum, the examples provided in this section show quantifiable variation with respect to the category of clan, illustrating a "sociodemographic category-based" approach (Mendoza-Denton 2002) to clan.

4.2 Clan as "practice-based identity"

Clan is more than just a demographic category. Whether considered a subset of ethnicity ("micro-ethnicity," as described above) or some other demographic category, clan is tightly woven with the identity of each speaker. Sui clanlects and clan identities are continually (re)constructed through daily performances of clan-level linguistic features.

The notion that clan identity is continually being performed and constructed leads to the second approach that Mendoza-Denton outlines: "practice-based identity" (2002: 486). Mendoza-Denton cites such work as Bourdieu (1978, 1991), Wenger (1998), Eckert & McConnell-Ginet (1992), and Le Page & Tabouret-Keller (1985), and she notes that this approach has the advantage of allowing for "evolving conditions" and putting the focus at "the level of the construction of social relationships." Such a perspective has been especially effective in communities where traditional class and other hierarchical notions cannot be applied in a straightforward manner. Exemplified by Le Page & Tabouret-Keller's (1985) model of *acts of identity*, this approach involves group-oriented patterns but at the same time considers individual agency and the social construction of identity; it therefore may be applied to the Sui situation described here.

From this perspective, in-migrant married Sui women are viewed as performing clan identity through meticulous adherence to the linguistic variants of their home clans, even after a decade or more in the husband's village. As shown below, the married women's lexical variants corresponded closely to their original clanlects, as did diphthong variants and tone variants.

Most other investigations of immigration and dialect contact have shown that immigrants tend to acquire some of the dialect features of a new region to a significant extent, whether viewed as convergence, new dialect formation, or individual acquisition, cf. Munro, Derwing, & Flege (1999), Shockey (1984), Chambers (1992), Wells (1973, cited in Chambers 1992: 157), Kerswill (1994, 2002), Trudgill (1986: 13–21), Bortoni-Ricardo (1985), Payne (1976), Vousten & Bongaerts (1990), Watt (2002), Dyer (2002), and Britain (2002). Moreover, the strong human tendency for linguistic accommodation is well-documented, e.g., Giles (1973, 1984), Giles & Smith (1979), Giles, Bourhis, & Taylor (1977), Giles, Mulac, Bradac, & Johnson (1987), Bell (1984), Coupland (1980, 1984), and Rickford & McNair-Knox (1994).

Yet in-migrant Sui women maintain their original clanlects to a very high degree. Among 12 such married women, significant acquisition of the husband's clanlect was observed in only one woman, a 59 year-old woman who had been married 40 years (Stanford 2007, 2008a). Even in her case, most of her dialect features still firmly matched her original clanlect (see discussion of Speaker 15 below). From this perspective, one could say that Sui speakers' linguistic construction of clan identity outweighs linguistic accommodation, even in the face of close, long-term inter-clan contact. Sui married women are performing acts of identity through choices of linguistic features that have social meaning on the level of clan, and such linguistic acts of identity are maintained even after many years living in another clan.

Most married women claimed they hadn't changed their dialect features. Other community members agreed that married women maintain their original clanlects even after migrating to the husband's region. When pressed, some consultants recalled rare cases where an older woman might begin to acquire a few features if she had been married a very long time. But the overall consensus in the community was that all clan members (non-mobile men, in-migrant women, and children) retain their original clanlects for life. When asked what would happen if a woman accommodated to the dialect of the husband's village, consultants often mentioned community criticism and ridicule: "Other people would laugh at you. Laugh a lot!"

4.2.1 *Empirical investigation*

The reliability of such comments is borne out in an empirical investigation of the married women's dialect features. First, the in-migrant married women's lexical results are given in Table 2. As with Table 1, in the *Words* and *Tokens* columns, the first number represents the number of words or tokens produced in the North clan dialect, while the second number represents the number produced in the South clan.

Comparing the North and South in-migrant married women (see also the non-mobile speakers in Table 1), it is clear that the married women produced the lexical variants expected of their home clans to a very precise degree (Stanford 2008b). In addition to the elicited words above, in free speech the women also produced 1st singular according to their original clanlects (North *ɛj* and South *ju*). Moreover, a distinctive South discourse marker *ja* ('like', 'so', 'then', 'like that', etc.) appeared in the speech of non-mobile South speakers and South married women, but never in the speech of non-mobile North speakers and North married women (Stanford forthcoming). One South married woman used *ja* 23 times in a span of just six minutes of free speech.

Table 2. Results for married women's lexical variables (cognate and non-cognate; in phrase-list style) (Stanford 2008b)

Speaker	Words North:South	Tokens North:South
South married women:		
41 years old, married 20 years	0:16	0:69
52 years old, married 35 years	0:14	0:85
36 years old, married 12 years	0:15	0:60
40 years old, married 16 years	0:15	0:59
29 years old, married 10 years	0:14	0:68
59 years old, married 40 years	1:13	1:62
38 years old, married 17 years	0:13	0:29
41 years old, married 23 years	0:13	0:28
71 years old, married 43 years	0:12	0:28
North married women:		
35 years old, married 11 years	11:0	26:0
40 years old, married ~20 yrs	13:0	28:0
47 years old, married 17 years (Northeast clan)	12:0	24:0

Secondly, the in-migrant married women maintained their original clanlects with respect to the (ia) and (ua) diphthong variables. The impressionistic analysis of (ia) and (ua) for the married women showed perfect correspondence with each speaker's home clan. The North married women's diphthongs were all realized as the expected North variants; the South married women's diphthongs were all realized as the South variants. An acoustic analysis of the (-a) vowel in the variable (ua) also supports this conclusion (Stanford 2007). The in-migrant Sui married women closely maintain their original clanlects' (-a) variant even after more than a decade in the husband's region.

As for tone, Figure 6 shows how the South married women maintained their original clanlects with respect to the Tone 1 (T1) variable. The South married women's mean T1 tone tracks are plotted as gray lines, and the North non-mobile speakers' mean T1 tone tracks are plotted as black lines.

Comparing Figure 6 with Figure 2 above, the graphical evidence strongly suggests that the South married women have not significantly acquired the T1 contour of the North (their husbands' region), and Stanford (2008a) gives statistical support for this conclusion.

The results for T6 were similar. The South married women's T6 tone tracks are plotted in Figure 7 along with the North non-mobile speakers. Comparing Figure 7 with Figure 6, notice that the South married women have maintained the North-South contrast in T6 very accurately. One exception is a 59 year-old

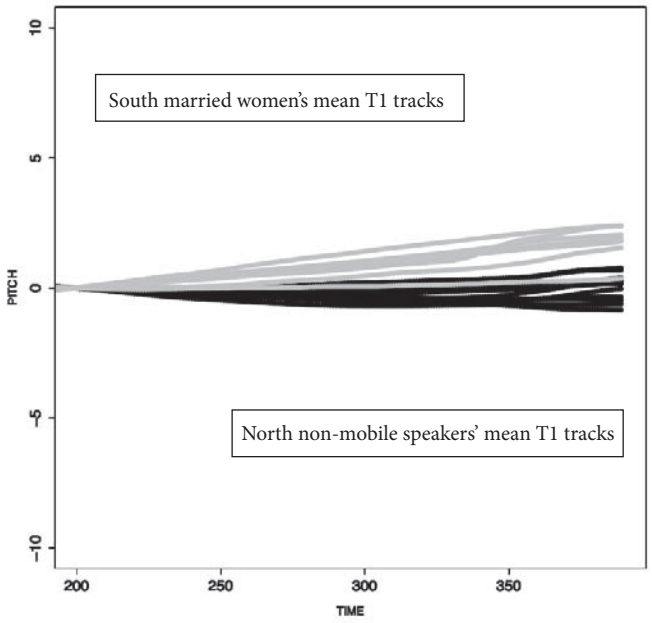

Figure 6. North non-mobile mean T1 tracks (black) and South married women's mean T1 tracks (gray), N = 435, plotted in semitones, pitch = 0.0 semitones at t = 200 (Stanford 2008a)

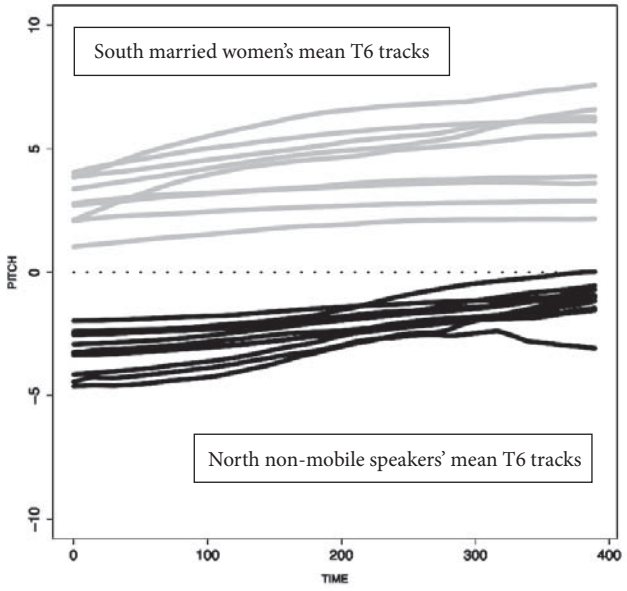

Figure 7. North non-mobile speakers' mean T6 tracks (black) and South married women's (gray), in semitones, normalized for mean T3 and duration, N = 326 (Stanford 2008a)

woman, "Speaker 15," who had been married for 40 years. Her mean T6 tone track is represented by the lowest gray line in Figure 7. She appears to show signs of lowering her T6 pitch in the direction of the low North variant.

This conclusion was also borne out by a classification tree analysis (Stanford 2008a). However, even with Speaker 15, the acquisition was quite limited; her lexical variables, diphthong variables, and other tone results all matched her original clanlect. In fact, Speaker 15 matches the expectations of the local folk understanding; consultants report that married women do not normally acquire the husband's clanlect. They report that in rare cases, a woman may begin to acquire some features if she has been married a very long time.

The overall conclusion from the empirical study is that Sui married women maintain their original clanlects very accurately, despite spending a decade or more in the husband's region (Stanford 2007, 2008a–b). Such a finding is in contrast to the accommodation and dialect acquisition observed in prior studies of other communities, and so the Sui result suggests that the women are involved in ongoing linguistic identification with their original clans.

Le Page & Tabouret-Keller (1985: 14) view linguistic behavior as "a series of *acts of identity* in which people reveal both their personal identity and their search for social roles." Similarly, the Sui married women are performing acts of clan identity as they maintain their original clanlect features regardless of long-term daily interaction with members of the husband's village. They are not mechanically absorbing the dialect around them (unlike models of dialect acquisition as a simple function of density of social interactions). Each linguistic act by a speaker associated with a given clan serves to (re)construct the community's notion of a particular clanlect. As these linguistic acts are multiplied over many speakers, the clanlect maintains its integrity in the face of contact with other varieties in the village. The case of Sui exogamy and clanlect contact, then, shows an example of the role of clan-level linguistic variables in a "practice-based identity" approach. Such an approach should, however, be tempered with moderation and cultural sensitivity. As Stanford (forthcoming) points out, many situations previously described by practice-based models have assumed the presence of highly flexible, individualistic, gradient variation. By contrast, clan-related linguistic features are usually performed with a much more stable sense of collective, lifelong loyalty.

4.3 Clan as "practice-based variation"

Lastly, Mendoza-Denton describes a third approach, "practice-based variation," which moves ever more into the realm of fine-grained study of behavior at the level of individual variation. For example, she cites the work of Johnstone & Bean

(1997), who point out the importance of recognizing subjects' "self-expression and individuality" in variationist research (Mendoza-Denton 2002: 490). A further example of this viewpoint is given in Johnstone, Andrus, & Danielson's (2006: 78) description of the speech and attitudes of five Pittsburgh residents, a study conducted at a "very fine-grained level of particularity." This approach is especially effective in investigating "moment-by-moment dynamics of interaction" (Mendoza-Denton 2002: 489) as speakers reflect and construct their identities linguistically. Mendoza-Denton (2002: 491) also notes that her own research of Latina gang members in California follows such an approach as well (1997, 1999).

For the clan-level variation investigated in the case of Sui, the majority of adult speakers maintained their respective home clanlect features almost categorically, both among in-migrant married women as well as non-mobile speakers in their respective home clans. Future research using more naturalistic recordings may yield more fine-grained variation, especially if a large set of natural conversations could be recorded in the daily life of Sui households. The present data contain examples where speakers voice other clans using clan-level *stereotypes* (Labov 1972). For example, members of both clans can choose to perform the South clanlect with the (otherwise meaningless) phrase *ja-ju*, which is a combination of the discourse marker *ja* 'this, like this' (a lexical item that indexes South clan speakers) placed adjacent to *ju*, 1st singular in the South clan. Both clans also perform clanlect differences with phrases like (3). Such phrases and lexical items are used agentively to mimic and index speakers as belonging to a particular clan.

(3) ɛj fən ɛj nja fən ju
1st-North say 1st-North 2nd say 1st-South
I say "I" (North); you say "I" (South)

For example, in one interview, two women reported that they occasionally playfully mimic each other's clanlects. During the recording, each woman produced some stereotypical words and phrases to tease her counterpart, sometimes receiving a measure of playful reproach and pronunciation corrections as a response from the other woman. Both women in (4) had been living in the same village for many years, but they originated in two different clans. Note how they creatively manipulate the norms of clan-level features in order to construct and reflect friendship.

(4) Speaker A: *If I feel like joking around, then I speak like her. If we aren't joking around, then each of us speaks our own way.*
Speaker B: *Each person speaks [like] their own place.*
Speaker A: *Only if I want to have fun with her and speak [like] her place, that's when I speak [like] her place. If she wants to have fun and*

speak like me, then she speaks like me. She [normally] says "Like I…" <Imitates Speaker B's clanlect features>*, so I say, "Where are you going?"* <Uses Speaker B's clanlect features>
I say it like that to her. If she likes me, she might say, "Where are you going?" <Uses Speaker A's own clanlect>
She'd talk like that to me…

Speaker B: *She says, "Where are you going?"* <Imitates some of Speaker A's features but uses Speaker B's high variant of Tone 6>

Speaker A: *[No] Our place says, "Where are you going?"* <Uses Speaker A's own features, including the lower Tone 6>

Speaker B: <laughs> "*Where are you going?"* <Uses Speaker A's features, including the lower Tone 6>

Further investigation of the specific motivations and uses of such mimicry in naturalistic settings would lead to additional insights into identity and clan, helping to determine fine-grained meanings and strategies of clan-level linguistic choices.

A dynamic, moment-by-moment "practice-based variation" approach to clan variables will provide significant insights in clan-based societies.

5. Conclusion

The sociolinguistic variable of clan has been shown to play a key role in all three of the approaches that Mendoza-Denton (2002) outlines ("sociodemographic category-based identity," "practice-based identity," "practice-based variation"). Thus, clan-level sociolinguistic effects are useful as the variationist researcher (1) looks at relatively broad-based demographic categories to draw general conclusions, and also (2) examines practice-based social relationships, and then (3) moves on to "fine-grained particularity" in moment-by-moment interaction.

In study after study of comparatively well-known language communities, sociolinguists have observed linguistic variation with respect to the social factors relevant for each given community. As quantitative variationist sociolinguistics continues to expand into lesser studied languages, it is natural to expect that the types of relevant sociolinguistic variables will expand as well. Clan clearly plays an important sociolinguistic role in many close-knit communities around the world with strong lineage traditions. Therefore, with clan as a sociolinguistic variable, the quantitative sociolinguist has many new avenues to explore.

Finally, clan has significance beyond the relatively small rural societies discussed here. First, clan relationships are not limited to rural indigenous minority communities. Hmong immigrant communities in the U.S. maintain strong

clan loyalties despite urban environments and dispersion (Keown-Bomar 2004; Stanford 2008c), and other communities around the world with strong patri- or matrilineal traditions may share similar patterns. Secondly, the clan-oriented sociolinguistic patterns currently observed in many rural indigenous communities may hint at a deeper history of human social and linguistic development. After all, much of human society as a whole traces back to rural and agrarian communities, and exogamy at some level is generally considered to be a universal (e.g., Radcliffe-Brown 1950: 40; Kottak 1991: 45, 114). It may well be that some of the structures of other modern languages – even major world languages – have their roots in ancient clan-level distinctions much like those discussed here.

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CHAPTER 21

Language loss in spatial semantics

Dene Sųłiné[1]

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This paper presents a cognitive semantic description of the ongoing process of language loss in the encoding of spatial topological relations in a Northern Athapaskan language, Dene Sųłiné.[2] Using the *Topological Relation Markers* elicitation tool (Pederson, Wilkins & Bowerman 1998), results are presented that show a difference in the encoding of spatial topological relations between younger and elder speakers. This difference becomes visible through selected data points that show elder speakers encoding spatial topological relations on a higher degree of specificity than younger speakers. This is reflected by a larger inventory of morpho-syntactic and semantic choices. In addition, younger speakers produce rather restricted and often ungrammatical utterances; their inventory for linguistic variety is limited or simply not available. As I will argue in this paper, this limitation is due to ongoing language loss and the influence of English as the dominant way to communicate.

1. I am grateful to the speakers of the Cold Lake First Nations, especially to Valerie Wood for her profound help in the transcription and translation of the data. I also thank Sally Rice at the University of Alberta for introducing me to the language and the very generous speakers of the Cold Lake Community. This research has been supported by the Social Sciences and Humanities Research Council of Canada (Daghida Project; Sally Rice and Valerie Wood). In addition, I would like to thank Ray Jackendoff and Tufts University, and the TOPOI project cluster at the Max Planck Institute for the History of Science (Excellence Cluster E II) for enabling me to finish this paper. Any errors of analysis or interpretation are my own.

2. Following Cook (2004), the diacritic under *u* and other vowels indicates nasalization.

1. Introduction

This paper presents data indicating the ongoing process of language loss in the encoding of topological spatial relations in Dene Sųłiné (formerly known as Chipewyan), a highly endangered Northern Athapaskan language. In comparing elder (age 65 to 85) with younger speakers (age 45 to 55) of Dene, the latter show crucial effects of language loss in the description of simple spatial situations. This assumption is based on the results of the elicitation tools used in my dissertation (Thiering 2007). The results of the younger speakers show a rather restricted set of spatial morphemes compared to elder speakers, who do not use spatial morphemes in general. Moreover, the process of language loss is indicated by the fact that younger speakers do not produce full verb paradigms (including the relevant grammatical particles) and that most of their expressions are rather ungrammatical. On the other hand, elder speakers of Dene construe and categorize topological spatial relations by using fine-grained morpho-syntactic and semantic encoding patterns. These morpho-syntactic affordances, i.e., the correlation between the environment and the functional characteristics of objects and the human being, are on the verge of extinction since the younger speakers are not able to account for these patterns in their descriptions of various spatial scenes.

I have been able to elicit data using three different tools, two developed at the Max Planck Institute in Nijmegen and one by myself.[3] All three are perceptually based tools, i.e., either static black-and-white drawings or videos are shown as stimuli. The general idea is to present certain topological relationships between objects, such as a boat on water, and to ask speakers to give a description of these relationships.

In this paper, I will only present data from the first elicitation tool I used, the *Topological Relational Markers* series (TRM) (Pederson, Wilkins & Bowerman 1998), which consists of a set of 71 simple line drawings as exemplified in the various figures below. The general idea of the TRM series is to identify how various languages encode the system of spatial relations and to determine what the semantics of these spatial systems are. As suggested by the authors of the TRM study, three speakers are the minimum number necessary to gain first insights into spatial marking, while 10 speakers are necessary for a cross-linguistic elicitation

3. In the research for my dissertation, I used the *Topological Relations Markers* (Pederson, Wilkins & Bowerman 1998), the *Caused Position* (Hellwig & Lüpke), and the *Spatial Categorization Elicitation* (SPACE; Thiering 2005) qualitative elicitation tools to delimit the semantic scope of topological spatial relations in Dene and other languages. The data presented here are solely from the TRM test. However, the intermediate analysis of the other two tasks strengthens my argument that younger speakers show crucial effects of language loss.

of any valid and testable data. In my study, 13 speakers of Dene were interviewed. They were individually asked (either in English or in Dene) to relate the displayed objects by answering the question 'Where is object X'?

TRM enables a comparison of the grammatical marking of topological relations in a wide array of languages. It enables an open-ended exploration of how speakers of different languages use their linguistic resources to carve up the domain of topological spatial relations. The line drawings are intended to evoke discussion on how the depicted relationships between objects are linguistically encoded. As Pederson, Wilkins, and Bowerman (1998) suggest, spatial descriptions can be suited to locate grammatical distinctions that are not strictly spatial in nature.[4]

2. A sketch of the Dene Sųłiné grammar

Dene Sųłiné Cold Lake dialect is an endangered Athapaskan language spoken by about 2,000 speakers in the Canadian subarctic region. It is closely related to Slave, Beaver, Sekani, and Dogrib, as well as its more well-known cousin Navajo. Only about 200 speakers use the language on a daily basis and can be called fluent speakers.

The typical Dene verb is polysynthetic and fusional in its morphology. The language features a predominant and consistent classificatory verb system including adverbial and directional prefixes as well as a postpositional inventory creating a relational predication cohort (cf. Li 1946; McDonough 2000; S. Rice 2002 on the general structure of the Athapaskan verb stem system). Such verbs have different morphological forms depending on the object to be encoded. Hence, their stems change in terms of shape, animacy, and/or physical features of the object being located or handled (Rice 2002b: 69). Cook argues that Dene has about 36 postpositions that morphologically behave like nouns. They inflect with pronominal prefixes (Cook 2004: 92). Cook also highlights the fact that the determination of a postposition's meaning is as notoriously difficult as in English or any other language. Hence, it is often impossible to determine the precise meaning out of context. However, these postpositional prefixes are widely acknowledged as modifying the meaning of the verb stem and grammatical function (Cook 2004: 286; S. Rice & Wood 1996).

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4. This is indeed the case in Dene and, as it turns out, the 'Where'-question (Dene: 'edlásı́') proposed by Pederson et al. (1998) implies or even forces a topological spatial relation which does not necessarily make for a natural description of a scene for a Dene speaker, hence a task effect or response bias tended to occur frequently.

The general focus here is on the motivation of certain semantic construction types and the encoding of the FIGURE-GROUND asymmetry as modified by the cohort.

> The choice of a particular verb stem from the appropriate set of verb stems has the effect of assigning to the noun of the sentence certain qualities of number, shape, texture, or purpose. If these qualities are semantically inappropriate to the noun, another verb stem must be used. (Carter 1976: 24; see also S. Rice 1997: 103ff.)

These stems profile existential situations or actions of certain categories of objects (Davidson et al. 1963). Table 1 summarizes the four classificatory verb categories.

I want to present an example of how a particular stem ('to give') changes according to the quality of the FIGURE, i.e., what is actually transferred. Depending on the actual object being transferred from one person to another, the stem changes accordingly as shown in Table 2.

Obviously, the Dene verb stem changes according to the quality of the FIGURE, i.e., the shape, size, and (in)animacy of the objects to be encoded determine the choice of verb stem.

As stated above, the Dene verb is polysynthetic and has fusional characteristics in its morphology with a rich prefix system. The usual word order is SOV, but the Dene verb also has propositional character, i.e., subject and object

Table 1. The different classificatory verbs

1. Posture or locative verbs	no movement involved, e.g., 'sit', 'stand', 'lie', 'be in position/location'
2. Verbs of handling, manipulation, continuing manual contact	e.g., 'give', 'hand', 'take', 'put', 'handle', 'bring', 'carry'
3. Verbs of partially controlled action (+ agent)	e.g., 'toss', 'throw', 'hang up', 'set down', 'drop', 'lose', 'push over'
4. Verbs of free movement, independent of agent	e.g., 'fall/tip over'

(S. Rice 1997: 103; see also Davidson et al. 1963; S. Rice 2002)

Table 2. Variations on the theme 'I transferred **X** to him/her'

a. *be–gha–n–i–ɬ–tı̨*	'I gave ANIMATE BEING to him/her'
b. *be–gha–n–i–ʔą*	'I gave ROUND/HARD OBJECT to him/her'
c. *be–gha–n–i–tą*	'I gave STICK-LIKE OBJECT to him/her'
d. *be–gha–n–i–ɬ–chúdh*	'I gave FLAT OBJECT to him/her'
e. *be–gha–n-į–la*	'I gave PLURAL OBJECTS to him/her'
f. *be–gha–n–i–ką*	'I gave OPEN CONTAINER to him/her'
g. *be–gha–n–i–chu*	'I gave UNSPECIFIED OBJECT to him/her'

Note: *be-* = 3sg.S; *-gha-* = 'to'; *-n-* = momentaneous; *-i-* = 1sg.S; *-ɬ-* = classifier (Dene has 4 classifiers: zero, *-d-*, *-ɬ-*, and *-l-*. The function of these classifiers is to profile the transitivity of the verb).

Table 3. Template rendering of the Dene verb prefixes including the verb stem

PP	ADV	ITER	INCORP	PRON 3S	OBJECT	MODE	ASPECT	1/2S	CLASSIFIER	STEM
1	2	3	4	5	6	7	8	9	10	11

(Li 1946; McDonough 2000; S. Rice 2002; see also Kari 1989)

Table 4. Prefix slots

1. Incorporated postposition	7. Modal prefixes
2. Local and adverbial prefixes	8. Aspectual prefixes
3. Iterative prefix (distributive)	9. 1st/2nd person pronominal subjects
4. Incorporated noun stems	10. (Valency) Classifiers
5. 3rd person pronominal subjects	11. Stem
6. Pronominal objects	

(Li 1946; McDonough 2000)

prefixes are fused within the verb (S. Rice 2002: 66ff.). According to traditional accounts, the Dene verb consists of a verb theme (the basic lexical entry made up of a stem and one or more thematic prefixes) and additional prefixes (Li 1946; S. Rice & Wood 1996; K. Rice 2000). A general, idealized schema of the Dene verb plus stem pattern is given in Table 3. Explanations of the prefix abbreviations are given in Table 4.

McDonough divides the verbal complex into a bipartite structure: Positions 1–4 are the satellites, and positions 5–10 are defined as the stem position (McDonough 2000; K. Rice 2000).

The positions (1–4) (= disjunctive prefixes) and (5–6) (= pronominal subjects/objects) are part of the disjunct or lexical zone and have derivational function; positions (7–10) are called the conjunct or grammatical zone and include obligatory inflectional categories such as tense, aspect, modality, subject agreement, or valency (Li 1946: 409). Classifiers encode the transitivity of the verb (Broschart 1997). They mark the valency of the verb. With regard to the following analysis, the stem plus the positions 8–10, as well as position 1, are of primary importance.

I argue that Dene provides semantic information not in a way that is aligned with lexical units or parts of speech in a specific morpho-syntactic order, but in a more scattered fashion in which semantic cohorts are distributed throughout the phrase (Thiering 2007). Hence, the template above is only an idealized decomposition into discrete morphemes.[5]

5. This assumption is in line with Li's very insightful sketch of a Dene grammar. Li claims that the Dene verb "is a complicated structure, consisting of a stem and a number of prefixes" (Li 1946: 404). Furthermore, he states that it is not possible to parse verbs into, e.g., prefix and stem to determine the meaning. For example, the verb 'to dream' is composed of the prefix *ná-* and

3. Topological relations

Topological relations are static locations between objects which specify an objective space relying on geometrical properties that are deemed to be speaker-neutral.[6] In English, they are expressed by prepositions to encode verticality, e.g., 'over', 'under', 'on', horizontality, e.g., 'beside', 'right', 'left', or the inner space, e.g., 'in', 'inside', as opposed to the space outside, e.g., 'at' (Herskovits 1986; Svorou 1993). They are assumed to be cross-linguistically universal and neutral regarding scale and orientation. Pederson et al. (1998: 1) point out that topological relations have certain characteristic features, such as +/– contact, +/– inclusion, +/– adjacent and so-called functional relations like +/– support and +/– containment. In addition to these features, the data below show that Dene speakers construe spatialized events by focusing on the shape, size, and material of primary and secondary objects. Moreover, Dene encodes functional features of the FIGURE, i.e., the primary object, as opposed to the secondary object, the GROUND. As will be presented below, these features are not sufficient in the description of the affordances of Dene since additional components are encoded that are not topological in the strict sense.

For illustrative purposes of a canonical topological spatial relation, examples (1a–e) give some typical descriptions of a drawing (Figure 1) from the TRM elicitation tool in German, Norwegian, French, and Spanish. Speakers of these languages generally encode the given situation as a static topological relation between the cup and the table expressed by a copular or posture verb and a preposition.

Figure 1. Cup on table (Prompt: *Where is the cup?*)

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the stem *-te*. The former means something like 'here and there, about' and the latter 'a living being lies around'. Li argues that parsing *náste* 'I dream' into its components does not result in the English understanding of dreaming from the morpheme's meanings (-s- is 1st Sg).

6. Linguistic topology, regarded "[…] as the most general science of spatial relations, can be based on the relationship between 'part' and 'whole' or in other words on the concepts of 'being-included-in'. Closely related to these concepts is that of the 'surrounding' of a 'point'. [...] Topologically there is no difference between a circle, an ellipse, a regular or irregular polygon with any number of sides. [...] [L]ikewise, there is no difference between a sphere, a cube, cylinder, and a cone. Differences in size are also disregarded in topology" (Lewin 1936: 87–88).

(1) a. *Die Tasse steht auf dem Tisch* German
the cup stand on the table
'The cup stands on the table.'

b. *Kopp-en er/står på bord-et* Norwegian
cup-the is/stand on table-the
'The cup is/stands on the table.'

c. *La tasse est sur la table* French
the cup is on the table
'The cup is on the table.'

d. *La taza está en/sobre la mesa* Spanish
the cup is on(top.of) the table
'The cup is on/on top of the table.'

e. *bek'esh'ich'elyi ke tsałiteli da-the-tą* Dene
table on cup up-IMPF.3SG.S-RO.be.situated[7]
'The cup is up on the table.'

The examples in (1a–d) encode the cup – the FIGURE – as being located on the table – the GROUND.[8] In all the different examples, a positional or existential verb and a preposition marks the location of the cup as being situated on the table, but the verb itself does not give any additional semantic information about the material or shape of the object.

By contrast, speakers of Dene describe the scene in Figure 1 in slightly but significantly different terms (1e). In Dene, no physical object or FIGURE can be specified without reference to its inherent qualities like its shape or configuration (e.g., round, stick-like), its material (e.g., flexible), its animacy, or any functional values associated with it. A classificatory verb stem system provides this very detailed qualitative information (Davidson, Elford & Hoiyer 1963; Li 1946; S. Rice 1997).

Example (1e) indicates that in Dene, the scene is indeed encoded as a static topological 'on'-relation between the FIGURE ('the cup') and the GROUND ('the

7. The following abbreviations are used: * = ungrammatical form, [?] = unidentifiable morpheme meaning, AM = amorphous mass, AO = animate object, LOC = locative, CL = classifier, CV = classificatory verb, FIG = FIGURE, FO = flat, flexible object, GND = GROUND, IMPF = imperfective, INC = inceptive, MM = 'mass of mushy matters', e.g., lard, butter, or honey, PERF = perfective, NEUT = neuter verb, RO = round, hard or compact objects, 3SG.S = third person singular subject, SO = a single 'rigid stick-like object', e.g., pen, scissor, table, chair, key, canoe, car, VOM = verbs of free movement.

8. Languages construe different concepts in invoking a reference point and a referent. Two main cognitive operations based on physiological properties can be established: the FIGURE as the variable element or positive space and the GROUND as the reference element or negative space (Hofstadter 1980; Talmy 1978, 1983, 2000c).

table'). However, (1e) also indicates that the Dene verb stem in itself expresses more than just the encoding of a static locative relation. It specifies that the FIGURE in the situation is a compact round object in a perspectivized 'up'-relation to the ground (here meaning the earth as reference point) as opposed to the non-specified perspective in the examples in (1a–d). The postposition expresses a very generic spatial relation. A topological spatial relation is marked in addition to the classificatory verb stem and its directional prefixes, not by a postposition only, i.e., we see an interacting system that goes as expected beyond strict word boundaries, as presented by the template above. Semantic information about the FIGURE is conflated into the verb stem in Dene, in contrast to the generic encoding the FIGURE samples receive in the European languages above.

In general, Dene requires postpositions, directional prefixes, and often FIGURE-based classificatory verbs to express spatial relations as locational relationships between objects. In addition, some of these systems encode rather perspectivized constructions, i.e., deixis, and dynamic motion events as opposed to static topological relations. Moreover, a certain degree of specificity, e.g., being situated 'up' and 'on', can be obtained in the spatial encoding, which is again different from the Germanic or Romance examples. This degree of specificity is related to the amount of semantic detail with which spatial relations are described in various languages. Svorou argues that, e.g., the expression 'on the door' has a lower degree of specificity than 'on the left side of the door' (Svorou 1993: 6–8). The latter specification encodes further partitions of the door into smaller regions. Dene speakers are required through language-specific affordances to depict a scene in a highly specified and often perspectivized and contextualized fashion. Therefore, many of the presumed static and idealized situations used in the elicitation tool are indeed encoded as dynamic and therefore in a non-idealized manner. Finally, although not at the center of this paper, the idea of deixis is crucial. I agree with Levinson (2003) that deixis is not necessarily spatial:

> Deixis concerns the relativization of reference to properties of the speech event. Many aspects […] have nothing to do with spatial conception. But deixis is involved in the interpretation of spatial expressions in many different ways. […] [M]any statements of location and motion make overt reference to deictic parameters, as in *It's over there* or *He's coming here*. […] [D]eixis is simply a means of providing a rather special ground or reference point, namely the location of the speech participants. (Levinson 2003: 70)

I will use the term deixis as an element that has no stable referent but receives its semantic content from the situation or context of an utterance (Bal 1996: 72). The next section presents the actual results of the elicitation.

4. General summary of methods and results

4.1 Subjects, equipment, and materials

Native speakers of Dene Sųłiné, solicited primarily from the Cold Lake First Nations Reserve, served as paid language consultants for this project. Two groups of Dene-English bilingual speakers (total: 13 speakers) were interviewed. The first group (A), the younger speakers, consisted of six speakers, five female and one male, with an average age of about 45 to 55 years. The second group (B), the elder speakers, included seven speakers, four female and three male, with an age range from about 65 to 85 years old. Each speaker was presented with the drawings of the TRM. The recordings of these field sessions were transcribed by hand by a Dene-speaking consultant and myself on a score sheet. In addition to the pencil and sheet notes, the sessions were digitally recorded by means of Sound Studio (on a G4 Power Book). The transcriptions were confirmed by the consultant and by using an electronic Dene-to-English dictionary (Department of Linguistics, University of Alberta).

4.2 Overall results

Group (B), the elder speakers, used a richer and a more elaborated range of (spatial) expressions in describing the drawings than the younger speakers, group (A). Moreover, elder speakers tended to contextualize the abstract drawings by adding extralinguistic knowledge, which was often accompanied by certain deictic gestures. Table 5 presents the overall frequency account of the total usages.

The table shows that the most frequent patterns (both 21.5%) are (1) usages with FIGURE and CLASSIFICATORY VERB but without a locative and (2) those with a FIGURE-GROUND reversal pattern (the language uses an SOV pattern) without a locative. Note that these two most frequent patterns are produced by the elder speakers only. 62% (264/426) of the answers given by the younger group were encoded via a static and non-perspectivized locative construction as indicated by the usage of a locative postposition, while only 38% (162/426) were without locative usages. [9] Also, the elder speakers reversed the FIGURE-GROUND asymmetry to a large extent (i.e., Construction Type 2 was used for 39% (204/522) of the elder

9. Here we see a clear contrast between the variation of usages and encodings in determining contextualized perspective. Nearly 90% of the younger speakers' utterances do not encode perspective as opposed to about 100% of the elder speakers. If we take into account that all elder speakers opted for a construction without the usage of a locative, the difference is even more drastic.

Table 5. Overall frequency count (13 speakers, 948 total tokens)

	Construction type	Elder speakers: % of 948 total tokens	Young speakers: % of 948 total tokens	+/− use of Locative
1	FIGURE-CLASSIFICATORY VERB (CLV)	21.5 % (204/948)	0	−LOC
2	GROUND-FIGURE-CLV	21.5% (204/948)	0	−LOC
3	FIGURE-GROUND-LOC-CLV	0	17.7% (168/948)	+LOC
4	FIGURE-GROUND-CLV	12.0% (114/948)	3.2% (30/948)	−LOC
5	GROUND-FIGURE-CLV	0	11.4% (108/948)	−LOC
6	FIGURE-LOC-GROUND-CLV	0	6.3% (60/948)	+LOC
7	GROUND-LOC-CLV	0	2.5% (24/948)	+LOC
8	FIGURE-CLV-GROUND	0	1.3% (12/948)	−LOC
9	FIGURE-LOC-CLV	0	1.3% (12/948)	+LOC
10	FIGURE-CLV-GROUND	0	1.3% (12/948)	−LOC
Σ		522	426	

speakers' tokens). This implies that the reference point is chosen according to the contextualized dynamics of the situation, rather than "natural" shape or size. For example, in (6) below, we will discuss a case where the prompt is "Where is the butter?" in a picture displaying a butter on knife. Here the elder speakers focus on the knife and how it came into its position, rather than simply placing the butter (the natural FIGURE). For these speakers, the larger object serves as the FIGURE. Again, using Talmy's taxonomy the relation should be vice versa.

The emphasis of dynamicity and perspective in the descriptions of presumably static situations indicates that group (B) encoded more semantic details. I argue that those details might be based on the language-specific affordances in Dene. These affordances impose a specific spatial semantic system onto the speaker's choice of expressions. As opposed to the speakers of group (B), the speakers of group (A) showed a less elaborated encoding system. Among other things, the examples of this group included ungrammatical sentences that violated word order and syntactic constraints, e.g., subject agreement (see below for examples). This might be due to the lack of Dene language input and the vast impact of English being spoken at school, in public, or at home in the Cold Lake First Nation Reserve. Hence, the effect might be the result also of the influence of English grammar on the Dene structures.

The initial results support the hypothesis of an ongoing process of semantic loss in Dene which goes beyond the encoding of topological spatial relations. This process indicates that Dene is an endangered language; the influence of English as a daily communicative language affects Dene by reducing the semantic potential for expressing spatial topological relations. There is a striking difference between

the two age groups in encoding the events as presented by the drawings. Whereas speakers of group (A) tended to encode the events on the basis of the predominant English language in the community, the elder speakers used a much richer and less anglo-centric perspective in contextualizing the drawings.

It is inevitable for the elder speakers to express topological spatial predications with a rich and stable classificatory verb system that includes additional directional prefixes.[10] The FIGURE is not only given as a nominal construction, but is actually specified by the verb cohort or verbal predication. In addition, a single locative spatial morpheme does not provide sufficient semantic information on the FIGURE-GROUND asymmetry, but expresses only the general spatial location. It turned out that in Dene, space and Euclidean geometry are not the only parameters in encoding the topological spatial relations indicated by the 71 drawings. Indeed, it seems evident that spatial parameters are often only secondary in the construal of presumed spatial topological relations.

As indicated above, some of the Indo-European languages tend to encode spatial relations by using spatial morphemes, i.e., adpositions. The descriptions of the relations between static FIGURES and GROUNDS are not similarly coded in Dene by a simple postpositional phrase. Instead, if spatial encoding is used, it is in favor of a more dynamic and contextualized construal as opposed to a static and idealized one. Besides this fact, elder speakers frequently reversed FIGURE and GROUND elements, i.e., the presumed larger background does not necessarily serve as reference point; it is not a speaker-independent and objective parameter. In addition, elder speakers also frequently left out any explicit mentioning of the GROUND, i.e., the GROUND was inferred.

Many descriptions of the drawings lead to the assumption that the given situations are mainly described in terms of the characteristics of the specific FIGURE, i.e., its texture, material, size, shape, and containment, in relation to the GROUND. The expressions are not based on any inherent, i.e., speaker-independent, semantic information. However, the elder speakers instead tended to contextualize the situations given in the drawings. For example, the drawing of a boat on water was described by elder speakers as a boat *floating* (on water), and, in addition, the causation of movement was profiled, i.e., the fact that the boat is moved by the wind (the prompt in the TRM test was "Where is the boat?"). Not only is a spatial relation expressed by a locative (if this is the case at all), but also the causation of the motion is encoded by the classificatory verb and the aspectual prefix.

10. Note that German speakers frequently use posture verbs in addition to adpositions. Posture verbs also encode specific features of the figure, i.e., only certain objects can 'sit', 'stand', or 'lie'. In other words, only FIGURE-GROUND relations involving specific objects can be encoded by those verbs.

This causation is not indicated by the static drawing itself, but is based on the experiential knowledge of the speakers. The speakers imposed an extralinguistic context to the drawings, showing the language-specific semantic affordances of Dene as opposed to most Indo-European languages.

5. Results for specific spatial topological relations in Dene Sųłiné

The next sections present selected examples of presumed topological spatial relations. Basically, the predominant role of non-linguistic influences on spatial cognition, and especially spatial semantics, is at issue here; specifically, the orientation of the FIGURE in relation to the GROUND. Such information is more frequently encoded by elder speakers than by younger speakers. The different sections are subdivided into several functional, topological, and projective notions and relations.[11]

5.1 Similar expressions of topological relations

The focus in this section is primarily on similar encoding patterns between younger and elder speakers in expressing the general location of the FIGURE to the GROUND as encoded by the postposition in addition to the verb. The data in (2) present the topological relation of contiguity and support in which the GROUND supports the FIGURE from below as already introduced in example (1).

(2) **Group A**

a.	GND	LOC	FIG	POST[FIG]
	bek'eshelyǐ k'e		*eriht ʔischenĕ*	*da-the-tą*
	table	on	pencil	up-IMPF.3SG.S-SO.situated

'The pencil is up on the table.'

Group B

b.	FIG	GND	LOC	POST[FIG]
	eriht ʔischenĕ	*hąlzuzi*	*k'e*	*da-the-tą*
	pencil	office.desk	on	up-IMPF.3SG.S-SO.situated

'The pencil is up on the desk'.

11. The semantic distinction of the classificatory verb stems follows Davidson et al. (1963: 33ff.) and S. Rice (1997: 106). These stems profile existential situations or actions of certain categories of objects (Davidson et al. 1963).

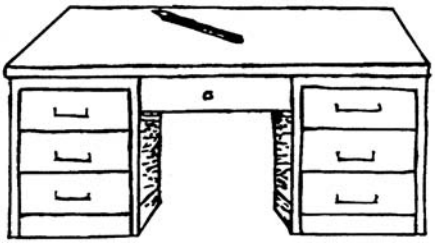

Figure 2. Pencil on desk (Prompt: *Where is the pencil?*)

In (2a–b) the locative encodes the general location of the FIGURE being in contact and in an attachment relation to the GROUND. All elder speakers used the construction presented in (2b), whereas only 3 (50%) of 6 of the younger speakers used the construction in (2a). The other 3 were ungrammatical constructions (i.e., both morpho-syntactically and semantically ungrammatical). In both examples (2a–b), the horizontal GROUND – the 'table' – supports the FIGURE – the 'pencil'. The directional prefix *da-* profiles a deictic location of the inanimate FIGURE in addition to the postposition. The salient reference point is similar to an expected English or German description, i.e., the desk or table. Both age groups are consistent in encoding a static topological spatial 'on'-relation.

The following set presents the inanimate FIGURE coincident and attached to the GROUND in a vertical position.

Figure 3. Tree on top of mountain (Prompt: *Where is the tree?*)

(3) **Groups A and B**

GND	FIG	POST[FIG]
shéthlaé	*el*	*ná-ghe-ʔa*
hill-at.the.summit.of	spruce.tree	upright-IMPF.3SG.S-SO.stand

'The tree stands upright on top of the mountain'.

Speakers of both groups expressed a physical contact between figure and ground using the classificatory verb expression *nágheʔa* (100%). Hence, a GROUND-based vertical dimension is the spatial coordinate or frame of reference. The topological

location is specified by a locative static verb and the postposition expressing the figure's general vertical position in relation to the GROUND.

5.2 Differences in spatial marking between younger and elder speakers

As opposed to the congruent examples between younger and elder speakers above, I now want to present some cases of semantic differences in describing presumably topological static scenes. These examples indicate the ongoing process of semantic loss in Dene since the younger speakers show a limited range in their encoding patterns as opposed to the elder speakers.

The following examples in (4) and (5) indicate that the inanimate FIGURE relates to the GROUND in terms of an attachment relation. Topological relations like contiguity and support are encoded, and all situations are point-to-point attachments (Bowerman & Choi 2001). Moreover, the data implies that not only a general topological relation is profiled, but also a temporal frame. This process is indicated by the use of a classificatory verb implying a movement that is inferred by the speaker's general knowledge, e.g., that leaves have grown out of a twig.

Figure 4. Leaves on twig (Prompt: *Where are the leaves?*)

(4) **Group A**

a.	GND	LOC	FIG	POST[FIG]
	**dechen*	*kʼe*	*etʼą́chághe*	*há-ghį-s-hą*
	tree	on	leaves	out.from-[?]-PERF.3SG.S-FO.grow

'Out from one tree the leaves grew.'

Group B

b.	FIG	POST[FIG]
	etʼą́chághe²z	*dá-nį́-s-hą*
	little.leaves	3PL.S-move.up-PERF-FO.grow

'The (little) leaves have grown.'

Figure 5. Fruit on tree (Prompt: *Where is the fruit?*)

(5) **Group A**

a. GND LOC FIG POST[FIG]
**jiedechene k'e jie the-ʔą*
fruit.tree on fruit IMPF.3SG.S-RO.situated
'The fruit is (situated) on the tree.'

Group B

b. FIG POST[FIG]
jiechok da-the-ʔą
fruit.big up-IMPF.3SG.S-RO.situated
'The big fruit is situated (up there).'

Group B

c. FIG POST[FIG]
jiechok da-nį́-s-hą
fruit.big up-move.up-PERF.3SG.PL-RO.grow
'The big fruit grew up (there).'

The inanimate FIGURE in (4a) and (5a) (100% of the younger speakers used these expressions) is profiled by a locative marker determining the FIGURE as being situated in a topological relation to the GROUND by means of the postposition *k'e*. In (5a) the verb stem is missing the locational prefix *da-* as given in (5b) (three elder speakers produced 5b), indicating a general 'up there' location. This morpheme correlates with a neuter verb expressing and conflating the FIGURE and its general location. The FIGURE's semantic specification, i.e., its location in a growing upright position, is conflated into the verb stem. The younger speakers failed to name the twig and instead used the general word for tree. Besides, they reversed the FIGURE and GROUND. In addition, the younger speakers should have used the verb stem used in (b) with the prefix *da-*.

In an additional session with elder speakers, I presented the different data sets and asked them for a translation. Compared with group (A), the results of group (B) (4b, 5b–c) indicate an event, i.e., a dynamic process of growing. Note

that the prefix *da-* in (5c) (used by three of the elder speakers) encodes the FIGURE as being plural. The salient feature is not only the location of the FIGURE in an attached point-to-point relation to the GROUND as expressed by the supported-by-hanging relation in (4a, 5a–b), but the motion event. This is indicated by the fact that no postposition is used. It is not sufficient to express a static, contact and attached/contiguity relation of the FIGURE to the GROUND. A dynamic perspective is taken to support the idea of the FIGURE's motion, as implied by the expression of a 'growing-out-of' movement.

In example (6), the substance of the FIGURE determines its relation to the GROUND, leading to a reverse relation of the FIGURE-GROUND asymmetry in the case of the elder speakers. In addition, the postposition gives only a general location.

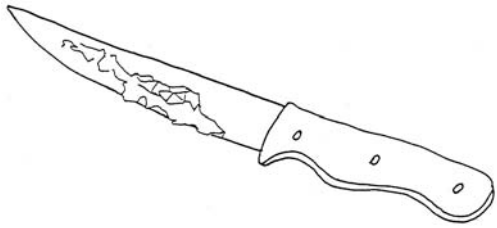

Figure 6. Butter on knife (Prompt: *Where is the butter?*)

(6) **Group A**

a. FIG LOC GND VOM[FIG]
**bes k'e thless he-ɬ-tth'er*
knife on greasy.substance IMPF.3SG.S-CL-SO.fall.into
'The knife falls into the butter.'

Group B

b. FIG GND LOC POST[FIG]
**bes thless yaghe hé-ʔą*
knife greasy.substance under/cover IMPF.3SG.S-SO.situated
'The knife is covered by the butter (somebody greased in the knife).'

Group B

c. FIG GND LOC VOM[FIG]
beschok thless yaghe he-ɬ-tth'er
knife.big greasy.substance under/cover PERF.3SG.S-CL-SO.fall.into
'The big knife fell into the butter (it is under and covered by the butter; it got greased in).'

In example (6a–c) the fact that the knife is a stick-like object and the butter a wet or smeary substance is profiled. Four of the younger speakers used the construction

in (6a); three speakers could not produce the right classificatory verb. In (6a), the butter is the FIGURE, which is supported by the horizontal GROUND, i.e., the knife. In addition, however, the result of a dynamic event – the knife 'falling into' the butter – is expressed as well. In (6b–c) (three elder speakers used the classificatory verb profiling the general location of the knife, and four elder speakers expressed the action of the knife falling into the butter), there is a reversed FIGURE-GROUND asymmetry where the larger object – the knife – is in an occlusion relation with respect to the butter. The locative plus the classificatory verb encode the FIGURE as being inseparably related to the GROUND. The general location of the FIGURE is expressed by a containment-by-encircling-the-GROUND relation, to use Pederson's et al. (1998) terminology. The verb of handling, as expressed by 'greasing it in', provides an aspectual and therefore dynamic usage event, and the particular manner as well. This set indicates a dynamic FIGURE-GROUND relation by profiling a 'falling into' process. It can thus be claimed here that it matters what kind of material the objects are made of and how they are usually handled. This has an impact on the encoding process, because Dene requires additional semantic information on the involved participants. This is in clear opposition to a purely topological and static relation between a small entity and its 'natural' larger reference point.

As a concluding comment, one can see that elder speakers seem to profile the actual dynamic event in many cases and rather ignore the prompt. Younger speakers seem to focus more on the actual topological relation; dynamicity, if encoded at all, is only secondary.

5.3 Superior and interior relations

The example in (7) presents the FIGURE as being superior to the GROUND. In general, the spatial predication expressed by the preposition 'over' or 'above' indicates that the location of the primary object is "in the sphere of" the reference object (Talmy 1983: 248).

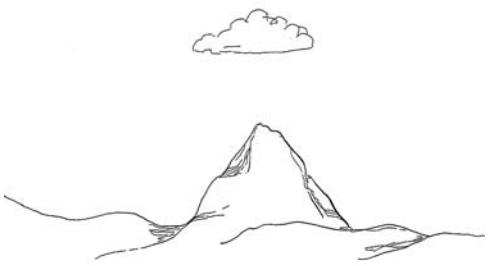

Figure 7. Cloud over mountain (Prompt: *Where is the cloud?*)

(7) **Group A**

a. GND LOC FIG POST[FIG]
**ttheshéth tethe yak'odh hu-t'i*
rock.hill over cloud IMPF.3SG.S-AM.liquid.moving.by (lots.of.clouds)
'The cloud(s) above the mountain moves.'

Group B

b. GND LOC FIG POST[FIG]
ttheshéth daghe yak'odhaz ghe-sheł
rock.hill above cloud-small IMPF.3SG.-uncontrolled.motion/blown.by.the.wind[12]
'The small cloud above the mountain moves because of the wind.'

In both cases, a "partially controlled action" is encoded (S. Rice 1997: 103). In example (7a), the FIGURE is described as moving or floating over the GROUND, and thus does not express a purely static topological location of the FIGURE above the GROUND. Two of the young speakers could not produce the appropriate classificatory verb stem at all, but they knew that the cloud should be encoded as a moving entity. The other four young speakers produced the ungrammatical utterance as presented in (7a). In addition, the verb stem cannot be used with objects like clouds that are amorphous masses moving in an uncontrolled fashion. What is to be noted here is that the younger speakers use a verb stem that is supposed to be used for liquid objects, not for clouds. In other words, they do not use the appropriate verb here. Still, the encoding of the spatial relation is basically a motion event implying, but not expressing, the cause of the movement. The cause is the wind, which drives the motion of the cloud. This is again not the right form. It can be stated that the younger speakers do understand the concept and how it ideally should be encoded, but they do not seem to have the verbal inventory available.

As opposed to the ungrammatical sentence in (7a), the expression in (7b), used by all elder speakers, profiles the wind as the cause of the FIGURE's motion. When asked, the elder speakers clearly argued that the FIGURE simply cannot be in a non-moving static position above the GROUND, i.e., both objects are not just vertically aligned or "in the sphere of" each other, as in an idealized static situation. Instead, the encoding of this scene primarily relies on the description of the floating event as a dynamic situation as opposed to the static situation captured by the idealized picture. The appropriate locative is used to indicate that the general

12. The verb plus prefix *he²é* means 'to move' (various things differently) such as 'clouds', 'ice', 'sticks floating'.

location of the cloud is above the mountain. The diminutive suffix *-az* specifies the cloud as a small one.

In the elicitation session, I asked the speakers specifically whether they could describe the relation between FIGURE and GROUND in the scene as a static one, i.e., the cloud above the mountain. According to them, the inherent motion characteristic of the FIGURE could only be deleted by an artificial or decontextualized answer stating that the cloud is over or above the mountain in an English-to-Dene translation. Again, this expression is rather unlikely in Dene and speakers refused to express a static location of the cloud above the mountain. Any form of idealization of the scene locating the FIGURE above the GROUND does not reflect the speakers' knowledge of their experiential world where clouds are continually in motion. Such extralinguistic information is indeed relevant for the Dene speakers and therefore the presumably static scene is encoded as a dynamic event.[13]

The next set (8) provides examples of the encoding of an animate FIGURE located in an interior relation to the GROUND. The schema for spatial relations like this follows the idea that the GROUND does not only surround the FIGURE, but rather encloses and thereby contains it.

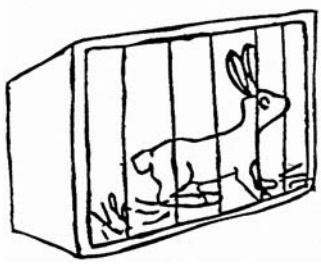

Figure 8. Rabbit in cage (Prompt: *Where is the rabbit?*)

(8) **Group A**

a.

GND	LOC	FIG	NEUT[FIG]
dechentili	*ye*	*gah*	*na-dher*
box	in	rabbit	in.place.of.3SG.S.IMPF-AO.be.in.location (lives.in.a.wooden.box)

'The rabbit is located/lives in a wooden box.'

13. Note that of course English or German speakers can produce such a rather dynamic expression, but they naturally encode the scene as static following the prompt "Where is the cloud?". They easily decontextualize the scene.

Group B

b. FIG FIG
gah *be-dá-rí́-tą*
rabbit 3SG.S(its)-sitting.position-along.its.side-AO.locked.in[14]
'The rabbit is locked in (is in jail/something is in the way of the rabbit).'

The animate FIGURE in (8a) is located in the GROUND (the 'wooden box'), i.e., a full inclusion is encoded by the postposition. Two of the six younger speakers did not know the term for rabbit or the appropriate classificatory verb stem. All seven of the elder speakers produced the sentence in (8b), where the dynamic process of closing in the FIGURE is emphasized, as opposed to a simple 'in'-location of the FIGURE. The verb phrase conflates the specific location of the FIGURE and no postposition expresses any topological relation. The elder speakers expressed that something is 'in the way of' the rabbit. The concept of capturing a rabbit seems rather unnatural, and therefore it can be assumed that speakers construed an expression that matches the actual scene where a rabbit is locked in, as an English speaker would likely do.

5.4 Projective FIGURE-GROUND relations

This section provides several encoding patterns defined as projective relations. These examples are of particular interest since they challenge a general projective orientation, e.g., a right-left asymmetry, of the FIGURE in relation to the GROUND. The examples below present four cases where the orientation is contextualized in terms of perspective. This depends on the focal point of the speaker and/or intrinsic features in the FIGURE-GROUND asymmetry. Strictly speaking, these relations are not topological, but they show the effect of semantic loss as well.

The examples in (9) illustrate an anterior location as indicated by the tree standing 'in front of' the church.

(9) **Group A**

a. FIG LOC GND POST[FIG]
kʲes *gáh* *yatikǫ́* *ho-ʔą*
poplar near church 3SG.S.IMPF-SO.exist/location(consuming space)
'The tree is (located) near the church.'

14. The modal prefix *-ri-* also encodes a local relationship (Li 1946:415).

Figure 9. Tree in front of church (Prompt: *Where is the tree?*)

Group B

b.

FIG	LOC	GND	POST[FIG]
k'es	*ʔuzį*	*yatikǫ́*	*ho-ʔą*
poplar(s)	out.of.sight	church	3SG.S.IMPF-SO.exist/location (consuming space)

'The poplar blocks the church which is out of sight (on the other side of the church).'

Group B

c.

GND	LOC	FIG	POST[FIG]
ytikǫe	*hogáh*	*k'escho*	*na-ghi-ʔa*
church	space.beside/vicinity.of	tree.big	in.place/in.front.of-3SG.S.IMPF-SO.location

Group B

d.

GND	LOC	FIG	POST[FIG]
laeskǫe	*tsų-k'edhe*	*k'es*	*na-ghi-ʔa*
church	[?]-alongside	poplar	in.place/in.front.of-3SG.S.IMPF-SO.location (upright)

'The tree stands in front of/alongside of the church.'

The results in (9c–d) consistently indicate the speakers' use of a particular kind of contextualized orientation (Levinson 2003). It is not simply an 'in front of' relation between the primary and secondary object. Elder Dene speakers ascribe certain intrinsic features to the church, i.e., the church serves as the reference point. As for the younger speakers, in (9a) we see, as opposed to (9b), an ungrammatical form, syntactically and semantically.[15] Four speakers used the ungrammatical form, and one could not produce the appropriate classificatory verb for a solid object. There was only one (elder) speaker who used (9b). Example (9c) (two

15. I asked elder speakers about this sentence, and they indicated that the right form is *k'es naghį́ʔa gáh yatikóé hoʔá*. Hence, 'the tree is near the church' (*gáh* = 'near').

elder speakers opted for this description) encodes the tree as blocking the sight of the church.[16] In other words, the tree is described as being located between the viewer and the church. This example indicates that the secondary reference point serves as a geometric focal point that singles out a certain portion of the FIGURE located nearest to the reference point (Talmy 1983: 150). The elder speakers encoded a more specific classification of the FIGURE as being in an upright position in relation to the geocentric reference point (two elder speakers used the form in (9c); three used (9d)). Besides, in (9c), speakers encoded the relation between FIGURE and GROUND from the perspective of the viewer ('in front of') and also specified the proximity between FIGURE and GROUND. In (9d), the 'in front of' relation as well as the fact that the tree is situated 'alongside' or parallel to the church is encoded, i.e., the perspective of the viewer as well as the intrinsic characteristic of the church having a side are taken into account here.

To sum up, not only did some of the younger speakers encode the scene in an ungrammatical way, their description also included less information than the descriptions given by the elder speakers. A similar example is given in (10), but now the asymmetry is between two animate objects, and there is a secondary reference object involved.

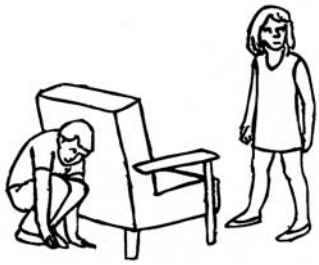

Figure 10. Boy hiding (Prompt: *Where is the boy?*)

(10) **Group A**

a.	GND	LOC	FIG	CV[FIG]
	edáchene	*t'azį́*	*deneyuaze*	*hehé-ɬ-ʔį*
	chair	behind(going.the.other.way)	boy	3SG.S.IMPF-CL-AO.hide.oneself[17]

'The boy hides behind the chair.'

16. Such an expression is called 'non-biased geometry' as opposed to a 'biased geometry' (Talmy 1983: 240).

17. A probably related stem is *-edaghé* meaning 'position' (held by a person).

Group B

b.

GND	LOC	FIG	LOC
edáchene	*ʔuzį*	*ts'eěkwaz*	*chʔa*
chair	on.the.other.side(out.of.sight)	little.girl	away.from

CV[FIG]
hehé-ɬ-ʔį
3SG.S.IMPF-CL-AO.hide.oneself
'The boy hides from the girl behind the chair.'

The distinction between a primary reference object and a secondary reference object is not sufficient in the scene. Talmy describes such additional semantic information as necessary in terms of two further categories: the reference objects encompass the primary reference object and those outside of the object (1983: 245). The main semantic function of such additional reference objects is the specific location of the FIGURE. The younger speakers (four) produced sentence (10a), and two speakers did not know the appropriate classificatory verb. They also did not mention the girl. As opposed to this reduction, all of the elder speakers framed not only the primary point of reference (the chair), but also the secondary point of reference (the girl). Hence, they gave a more specific description of the location of the referent objects than the younger speakers did.

In example (11), the FIGURE is in a lateral position with respect to the GROUND. In both data sets, the FIGURE is encoded via the verb stem profiling a general orientation of the FIGURE as being in a 'sitting' position towards the earth as GROUND. In (11a), the lateral specification is encoded by the postposition *gáh*. All of the six younger speakers used this expression with one reference point to anchor the FIGURE in a proximity relation to the GROUND.

Figure 11 Boy next to fire (Prompt: *Where is the boy?*)

(11) **Group A**

a. GND LOC NEUT[FIG]
kón gáh the-da
fire near/at IMPF.3SG.S-AO.sit
'An animate object sits near/at the fire.'

Group B

b. FIG GND_2 GND_1 NEUT[FIG]
chilikwi kón nih the-da
young.man fire ground IMPF.3SG.S-AO.sit
'The young man sits by the fire.'

The boy is situated in a lateral or proximity locational relation expressed by the basic orientational positional verb plus prefix. In (11a) the postposition expresses a rather specific proximal relation. The elder speakers emphasize a rather unspecified location of the reference points. Hence, here the younger speakers are actually more specific. Interestingly, elder speakers were reluctant to give an English 'beside' or 'next to' translation. Instead, in (11b) *nih* encodes that the boy sits 'in the vicinity of' or even 'in the light/heat of' the fire. It is crucial to highlight that the English morphemes do not capture the ambiguous connotations *gáh* and *nih*. However, as we can see, the younger speakers used a different pattern in which the relation of the FIGURE to the GROUND is only expressed by the classificatory verb.

5.5 Miscellaneous FIGURE-GROUND relations

This final section provides a handful of examples of various construction type patterns showing several different spatial relations between FIGURE and GROUND. The data presented here again give evidence that certain so-called spatial relations are not purely based on topological coordinates in Dene, and that elder speakers use a different semantic range in their expressions than younger speakers do.

Figure 12. Balloon on stick (Prompt: *Where is the balloon?*)

(12) **Group A**

a. FIG GND CV[FIG]
**beyeju'laze* *dechen* *héhe-ched-tų*
balloon stick INC-3SG.S.IMPF-FO.tie.itself.to.something
'The balloon is tied to the stick.'

Group B

b. GND LOC FIG CV[FIG]
dechen *beląghe* *beyejuli* *héhe-ched-he*
stick end.of.it balloon INC-3SG.S.PERF-FO.tie
'The balloon was tied to the end of the stick.'

This example is interesting because I got six different answers from the younger speakers. The example in (12a) was closest to the target sentence in (12b). One problem for the younger speakers was the encoding of 'balloon'. Another problem occurred in relating the FIGURE to the GROUND. In (12a), we see an ungrammatical construction due to the rather obscure verb form. Besides, the prefix *heh(e)-* they used is in conflict with the aspectual *-the-* prefix.[18] The chosen form would imply that a third person singular subject has tied itself to an object. In both cases, the FIGURE is not encoded as being supported by the GROUND, but as attached or, more specifically, tied to it. In (12b), however, the stick is tied to the balloon in a passive construction; moreover, the specific location of the balloon, i.e., the fact that it is tied to 'the end of' the stick, is expressed by the elder speakers. The verb only encodes a general tied-to relation and in both cases no locative is used.

In example (13), a seemingly simple scene is encoded as the result of a motion event profiling the FIGURE's motion 'through' the GROUND. Again, as we have just seen, six younger speakers produce six different versions. The utterance in (13a) is again close to the idea represented by the scene. Interestingly, the FIGURE is profiled as being speared through the GROUND. The location is conceptually secondary as opposed to the direction by which the FIGURE has come to its position. Hence, the concept of poking through is at focus, but the younger speakers simply lack the necessary morpho-syntactic inventory.

(13) **Group A**

a. FIG GND CV[FIG]
**ʔasi* *bedzaghé* *húh-gor*
thing 3SG.his/her.ear 3SG.S.PERF-SO.spear
'The stick-like object was speared through his/her ear.'

18. The prefix *heh(e-)* marks not only the inceptive, but also functions as a peg element.

Figure 13. Earring in ear (Prompt: *Where is the earring?*)

The example in (13a) is an attempt to express that something was poked (through). The elder speakers in (13b) (three produced this utterance) express this motion event as well, while the elder speakers in (13c) (four produced this utterance) also add the FIGURE's hanging position in relation to the GROUND. While the FIGURE is encoded as a stick-like object in (13a) and (13b), thereby emphasizing the 'poking through' motion event, in (13c) its being a round metallic object is encoded.

(13) **Group B**

b. GND CV[FIG]
bedzaghé *ghą-ghe-ge*
ear toward-3SG.S.PERF-SO.poke[19]
'The ear was poked by a stick-like object.'

Group B

c. GND CV[FIG] LOC FIG
bedzaghé *ghą-ghe-ge* *k'e* *tsątsánébądhaz*
ear toward-3SG.S.PERF-SO.poke on round.iron.thing
CV[FIG]
na-ghe-ge
in.place.of-3SG.S.PERF-RO.hang
'The earring (hang on the ear) was poked through (his/her ear).'

These examples show that the bare description – *earring on ear* – of a spatial topological relation is not at issue here, but rather the process of how the FIGURE came into its location. It may seem to speakers of other languages that the static drawing in itself does not evoke the semantic event of a process or motion event, but it seems necessary for the Dene speakers to express the idea of dynamicity – 'poked through'. In example (13c) the FIGURE is supported by hanging, while the motion

19. Due to a phonological process *-ghe-* changes to *he* in certain environments.

event in which the cause is implied is profiled as well. Strictly speaking, these expressions are not topological in the core sense since the scene is described as inherently dynamic.

The figure in (14) implies that, at least for speakers of Germanic languages, the crack is in a topological 'in' relation to the cup. However, Dene speakers describe the scene quite differently. The FIGURE cannot be separated from the GROUND in terms of a topological relation as indicated by the English proposition 'crack in cup', in which the crack is encoded as the FIGURE and the cup as the GROUND.

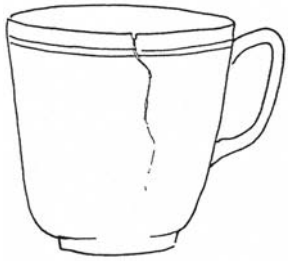

Figure 14. Crack in cup (Prompt: *Where is the crack?*)

(14) **Group A**

a. GND CV[FIG]
tth'áí ná-ghe-té
dish move.downwards[?]-3SG.S.PERF-break (any kind of dish)
'The dish broke.'

Group B

b. GND CV[FIG]
lidittth'aí ghe-ta-a
cup 3SG.S.PERF-CL-crack (only certain things can break because of tension)
'The cup cracked (because of tension).'

In both cases, no explicit spatial relation was encoded; the relation between FIGURE and GROUND was inferred. Dene speakers encoded both objects as being inseparably amalgamated. Even when asked several times, the speakers of both age groups used this pattern to encode the (result of the) process of cracking of a container. In addition, example (14b) profiles the general cause (tension), i.e., how the cup has come to its state of being cracked. In spite of the similarities, however, the younger speakers in (14a) used a rather generic verb form to describe the dish. It should be added also that only two produced this utterance. The other four did not know the appropriate classificatory verb. By contrast, all of the elder speakers

produced (14b), describing the cup as well as its specific material (being breakable) by using a particular verb form.

The last example in this paper presents several construction type patterns of one scene. The FIGURE is not only situated or supported by the GROUND, but its moving event is profiled as well. With the exception of (15b), the GROUND and thus the topological relation between FIGURE and GROUND are inferred, i.e., the description of the scene only implies a physical contact between FIGURE and GROUND.

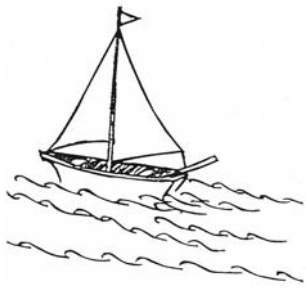

Figure 15. Boat on water (Prompt: *Where is the boat?*)

(15) **Group A**

a. FIG CV[FIG]
**ts'i* *ghe-ʔú*
boat 3SG.S.PERF-SO.float(no control)
'The boat floated.'

Group A

b. FIG LOC GND NEUT[FIG]
**ts'i* *tusí* *the-tą*
boat into.water IMPF.3SG.S-SO.situated
'The boat is in the water.'

In (15a) (three young speakers used this expression) only the movement of the boat is profiled. The GROUND is inferred and the location of the FIGURE as floating (on or in water) is expressed by the classificatory verb stem only. The expression in (15b), however, does locate the boat as being in water (two young speakers used (15b); one young speaker could not produce the appropriate classificatory verb stem for either the sail or the boat in motion). The postposition profiles and conflates the location and the GROUND on liquid surface. As opposed to (15a), no motion is indicated. While the example in (15a) already encodes a certain movement, the following two examples (15c–d) even encode the cause of the motion.

(15) **Group B**

c. GND FIG GND CV[FIG]
ts'i *nibáli* *t'a* *ts'i* *ghe-sheł*
boat canvas because boat IMPF.3SG.S-motion.because.of.air [20]
'The boat canvas (sail) moves because of the wind.'

Group B

d. GND FIG LOC CV[FIG]
ts'i *nibáli* *kʼe* *ghe-sheł*
boat canvas on IMPF.3SG.S-motion.because.of.air
'The canvas (sail) moves because of the wind.'

The drawing presents the FIGURE as being located in a topological 'on'-relation with the GROUND, i.e., supported by it. In the expresions in (15c–d) (three elder speakers used expression (15c), and four used (15d)), a different FIGURE-GROUND relation is profiled. The elder speakers profile the cause of the motion on the basis of extralinguistic knowledge, implying that a sailing boat is prototypically moved on the water by the wind in its sail. This is encoded and profiled in the examples. A default spatial predication is given through the implication that the FIGURE – the boat – is typically moving on a liquid surface. This information is not necessary for an English or German speaker; s/he tends to neglect the fact that the motion event had a cause. The direct comparison of the examples in this set nicely shows that the speaker's salient reference point varies according to the profiled entities in a perspectivized context, i.e., experiential knowledge of the world is crucial to describe the situation.

This section indicates that Dene speakers in the elicitation test contextualized certain events as dynamic which speakers of other languages might view as static spatial situations. For example, the profiling of the cause or the source of a motion event was predominant, as in (15c–d). Topological spatial relations that are by definition neutral in terms of the speaker's perspective or contextual knowledge do not contain sufficient semantic parameters for describing the scenes presented by the drawings. Not only was the FIGURE often described as dynamic in some of the examples, we also saw that elder Dene speakers used a different range of expressions as opposed to the younger speakers. This might be due to the influence of English, which often is the first language nowadays, i.e., younger speakers are

20. The stem encodes a flexible object that is moved by the wind as confirmed by the following elicited example:

holąnįbale *ghe-sheł*
flag IMPF-3SG.S.motion.because.of.air
'The flag is moving/fluttering (caused by the wind).' (See also: *heshi* 'wave' (in the wind): 'It waves in the wind.')

simply not exposed to Dene in their daily lives as much anymore. Analyzing the data of younger versus elder speakers, we can observe a striking semantic loss in one of the dominant parameters for human cognition, i.e., spatial cognition and semantics.

6. Concluding remarks

This paper presented an initial cognitive semantic description of presumably topological spatial relations in Dene with a focus on the impact of language loss. Using the *Topological Relations Markers* series developed by Pederson et al. (1998), an initial approach to the semantic scope of certain spatial topological relations in Dene was outlined. The data generally indicate a considerable richness of semantic scope in the encoding of topological space in Dene, especially in the examples given by elder speakers. However, the data also reveal the impact of language loss. The younger speakers used a more restricted, and less detailed specifying range of expressions than the elder speakers did. In some examples, a postposition expressed a general topological relation in a way that was analogous to an English description, rather than the additional verbal information generally used by elder speakers. Moreover, the attempts by younger speakers to produce an appropriate expression often failed with respect to grammatical restrictions of the language, e.g., subject agreement or word order. The elder speakers specified the scenes in more detail than the younger speakers, giving additional information on the characteristics and location of FIGURE and GROUND as well as their relations to each other.

The differences between younger and elder speakers may be related to the impact of English and the relatively late age at which younger speakers learn Dene nowadays. The lack of hearing and speaking Dene in school or at home and the non-written tradition of the language also impacts the younger speakers. Since written Dene documents are not available, the process of revitalization is even more difficult. Against this background, the current research is not only a contribution to the vast area of spatial semantics, but also an attempt to record Dene data in order to counter the ongoing semantic loss in an endangered language.

In using the TRM series as developed by Pederson et al. (1998), I have shed light on the complex interplay between conceptual reasoning, language, culture, and contextual factors. Moreover, another outcome of the current research is that in Dene, space in general and topological relations specifically are not sufficiently described in terms of topological geometry only (Vandeloise 1991). They are often encoded as contextualized events depending on the speaker's extralinguistic experiences, e.g., 'boat on water' or 'cloud above a mountain'; hence they are not encoded as static topological relations only. Rather, many older speakers described

the scenes as dynamic. Besides, the FIGURE-GROUND asymmetries cannot always be traced back to a 'natural' larger background, i.e., they turned out to be reversed in a number of cases. This reversal pattern puts emphasis on the importance of both 'salient' entities and the functional component of the primary and secondary objects involved. Texture and material, as well as shape, size, and animacy of the FIGURE and GROUND, matter in the encoding process. And, finally, the act of contextualization implies different orientations of the entities based on the focal point of the speaker or the object, e.g., 'tree alongside' or 'in front of' a church.

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