

UNIVERSITY OF CALIFORNIA

Los Angeles

A Minimalist Approach to Intrasentential Code Switching:

Spanish-Nahuatl Bilingualism in Central Mexico

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy

in Education

by

Jeffrey MacSwan

1997

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1997

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1997

This Dissertation is Warmly Dedicated

to my wife, Kellie,

for encouraging me, helping me,

and making it possible;

to my son, Sander,

for playing with me during my breaks;

to my mother, Marian,

for early influence on seminal ideas;

and to the memory

of my father, Joseph,

for his love, spirit, and hard work.

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## SELECT PUBLICATIONS

- 1997 (with John Grinstead, Susan Curtiss, and Rochel Gelman) (forthcoming). "The Autonomy of Number and Grammar in Development." Paper to be presented at the Boston University Conference on Language Development, November 7-9, Boston.
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## ABSTRACT OF THE DISSERTATION

A Minimalist Approach to Intrasentential Code Switching:  
Spanish-Nahuatl Bilingualism in Central Mexico

by

Jeffrey MacSwan

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Concepción M. Valadez, Chair

This dissertation addresses grammatical aspects of intrasentential code switching and their relevance to education and schooling, focusing on ways in which a misunderstanding of code switching may lead to tacit tracking effects for language-minority children. It is argued that a better understanding of code switching in particular, and of bilingualism in general, will have a positive impact upon educational policy, teaching and curriculum.

Several findings from original experimental and naturalistic Spanish-Nahuatl code switching corpora, collected in Southeast Puebla, are presented and analyzed in terms of Chomsky's Minimalist Program. The approach taken in the analysis is minimalist in two respects: First, it is hypothesized that nothing constrains code switching apart from the

requirements of the mixed grammars, an assumption which makes use of minimal theoretical apparatus (corresponding to “virtual conceptual necessity”); second, the particular analyses developed for data presented in the dissertation are restricted as much as possible to mechanisms made available in the Minimalist Program. Other recent theories of code switching are also reviewed in terms of the Spanish-Nahuatl corpus, and each one is disconfirmed. Attention is then given to extending the approach developed here to an analysis of other corpora; in many cases, apparent conflicts in basic findings are reconciled.

Finally, an exploration of the impact of the particular linguistic conclusions on educational issues is pursued, with special attention to the education of language-minority children. In particular, it is concluded that fluent bilinguals who code switch are exquisitely sensitive to the subtle requirements of the languages they use, just as non-code switchers are. This conclusion, it is argued, indicts negative attitudes among educators and policy makers which function as tacit tracking mechanisms for language-minority children. In addition to policy issues, some attention is given to other ways in which new understandings of bilingualism might affect teaching, assessment, and curriculum. In this context, there are proposed revisions of the Threshold Hypothesis and the Linguistic Interdependence Principle, and some specific criticisms of the Language Assessment Scales (LAS) are made.

## PREFACE

Some time in 1990, when I was teaching ESL at Los Angeles High School, one of my students brought Mellow Man Ace's *Escape from Havana* to class. Jesús especially wanted the rest of us to hear "Mentirosa," a hip-hop tune in which the singer bemoans his lover's cheating and deceitful life in a mixture of Spanish and English:<sup>1</sup>

Check this out, baby  
*Tenemos tremendo lío*  
Last night you didn't go  
*A la casa de tu tío*

*Resulta a ser, ay,*  
You were at a party  
Higher than the sky  
*Y emborachada de Bacardi ...*

Now I really want to ask ya  
*Que si es verdad*  
And please, *por favor*  
Tell me *la verdad ...*

'Cause right now you're just a liar  
A straight *mentirosa*  
Today you tell me something  
*Y mañana es otra cosa*

I remember the day  
*Que tú me decías*  
Time and time again  
*Que tú me querías*

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<sup>1</sup>Sergio Reyes and Antonio González, "Mentirosa," performed by Mellow Man Ace [Sergio Reyes] on *Escape from Havana* (Capitol Records, 1989). Lyrics provided by Delicious Vinyl Music, Hollywood, California. Spanish spellings have been conventionalized. The ellipses (...) are mine and indicate omissions of text.

And at the time  
Hey, *yo te creía*  
*Porque no sabía*  
That you were a *relambía*

You're with *fulanito y menganito*  
*Joseíto y Fernandito*  
Larry and Joey  
Even his brother Chico ...

Now get some *él-que-quiera*  
Get some *cualquiera*  
Hey yo, she don't care man  
She's a *tremenda fiera* ...

'Cause you're just a *mentirosa*  
*Con tu lengua venenosa*  
Today you tell me something  
*Y mañana es otra cosa*

The song was a delight to hear. Growing up in Los Angeles, I had naturally heard plenty of code switching<sup>2</sup> before, especially between Spanish and English. However, I had never thought carefully about the interesting linguistic questions it raises. While enrolled in a seminar on language development, in winter of 1995, I was exposed to the linguistic study of code switching for the first time. Concepción M. Valadez, who conducted the seminar, and Edward P. Stabler, Jr. independently encouraged me to take up the topic in a dissertation. Following another suggestion by Claudia Parodi, I decided

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<sup>2</sup>Unless otherwise stated, "code switching" in this dissertation refers to a speech style in which fluent bilinguals move in and out of two (or conceivably more) languages. A more detailed definition is given in section 2.2 along with some examples. The term is spelled variously in the literature as "code switching" (Gumperz, 1967), "code-switching" (Milroy and Muysken, 1995), and "codeswitching" (Myers-Scotton, 1993a, 1993b). I will use the first of these spellings throughout, except where quoted material differs.

to work within a Spanish-Nahuatl bilingual community in Central Mexico where I thought I would be able to study the interaction of typologically very different languages.

Code switching struck me as a particularly interesting topic, one which might allow me to bring together my interests in education and linguistics into a single thesis. Pursuing this aim, chapter 1 addresses the relevance of the study of code switching for education and schooling, focusing on ways in which a misunderstanding of code switching may lead to tacit tracking effects for language-minority children. I conclude that a better understanding of code switching in particular, and of bilingualism in general, will have a positive impact upon educational policy, teaching and curriculum.

The unifying thesis of the work is also developed in chapter 1: If the underlying linguistic competence of code switchers is the same as that of monolinguals for the languages they use, then the stigma of code switching, together with its associated tracking effects, should be indicted. Chapter 5 confirms the antecedent, and chapter 6 discusses the consequent.

The other chapters, which I hope will be of interest in themselves, essentially set the stage for chapter 5. In chapter 2, I undertake a review of relevant literature, specifically addressing bilingualism, social and grammatical aspects of code switching, recent work in syntactic theory, grammatical studies of Nahuatl and Spanish, and the historical and contemporary language situation of Nahuatl speakers in Central Mexico. Chapter 3 addresses the research design, detailing my consultants' profiles, the experimental procedures, and the conventions used in the presentation of the data. Chapter 4 is an annotated catalogue of my findings.

Chapter 5, then, may be seen as the core of the study. Here I present an analysis of my findings in terms of a specific research program that is *minimalist* in two respects. First, in assuming that nothing constrains code switching apart from the requirements of the mixed grammars, I provide a framework which makes use of minimal theoretical apparatus (corresponding to “virtual conceptual necessity”), the core supposition of the minimalist program. Second, the analyses developed in chapter 5 are restricted to the minimalist framework, developed in Chomsky (1995a) and elsewhere, in which lexically encoded parametric variation drives overt and covert movements under the direction of an invariant computational system ( $C_{HL}$ ). On this approach, differences between languages relate to differences in the lexicon, mapped by  $C_{HL}$  into various surface forms. As in Chomsky (1995a), these parametric differences have been restricted to the functional categories of the lexicon. In this chapter I also review other theories of code switching in terms of my data, disconfirming them in each case, and I spend a little time extending my approach to an analysis of other code switching corpora.

Finally, in chapter 6, I revisit the themes of chapter 1, focusing on specific ways in which research on code switching informs our understanding of educational policy, curriculum, and teaching, particularly for language-minority children in bilingual education programs.

Although my dissertation is officially complete, in many respects I view it as a draft. I hope that further study, both my own and that of others interested in these topics, will lead to refinements, new insights, and expanded inquiry.

## 1. RATIONALE

According to figures provided by the California Department of Education, 1,323,767 limited-English proficient (LEP) students--nearly one in four (23.58%) of all enrolled students--attended California public schools in 1996. Spanish speakers made up the vast majority of these children, constituting about 79.4% of the total LEP population in California. The U.S. Census Bureau reported an increase of nearly 100% over the past decade in enrollment of LEP students nationwide (an annual growth of about 9.2%), with a total of 2.8 million such students reported in the *1993-1994 Schools and Staffing Survey*.<sup>3</sup> Given the composition of the student population in California and in the U.S., continued research on the nature of bilingualism and the conditions for academic success for bilingual children is a matter of great importance.

As one factor, teachers' attitudes about children's abilities are known to strongly impact upon their success or failure in school. In a comprehensive summary of research on "teachers' thought processes," for instance, Clark and Peterson (1986) point to ongoing psychological research which suggests that "the most important beliefs that teachers have about students are those that deal with teachers' perceptions of the causes of students' behavior or, in other words, teachers' attributions for the causes of students' performance."

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<sup>3</sup>Figures reported here are from the U.S. Census 1980 and 1990, cited in Macías (1993), California Department of Education (1996), and the National Center for Education Statistics (1997).

Specifically with respect to code switching, Ramirez and Milk (1986) found that teachers differentiate “standard American English” from three marked varieties, with “Hispanicized English” rated more favorably than ungrammatical English constructions and code switching. Of the four varieties of language differentiated in Ramirez and Milk’s (1986) study, code switching was consistently ranked “least acceptable” by teachers. The need for a better understanding of code switching phenomena among classroom teachers is emphasized by Valdes-Fallis (1978):

An understanding of code switching is especially important for those classroom teachers whose students include Spanish/English bilinguals. While a great deal has already been said concerning the importance of acceptance of the child’s home language by the teacher, such discussions have generally involved the different varieties or dialects of both English and Spanish that children bring with them to the classroom. Very little has been said about the characteristics of bilingual speakers who habitually alternate between two languages in their communities. Moreover, bilingualism itself is very poorly understood by most educators, and, for that reason, much of the literature available to the classroom teacher misrepresents language processes that are normal for bilingual speakers of every linguistic community. A typical instance is the labeling of the alternating use of English and Spanish in this country as “Spanglish,” “Mex-Tex,” or “Pocho,” and the common belief, held by many teachers, that children who code-switch really speak neither English nor Spanish [2].

If teachers believe that children who code switch have low language ability in both languages, as Valdes-Fallis (1978) suggests, then this belief may strongly influence their expectations for these children and determine curricular content and teaching practices students receive. (Also see Attinasi (1982) on teachers’ attitudes about code switching.) Thus, research which aims to change teachers’ beliefs about stigmatized language varieties in general, and about code switching in particular, is an important contribution to the fields of education and educational research.

I argue in this chapter that a climate of school failure for language-minority children arises from two intellectual traditions, prescriptivism and “semilingualism.” Rather than challenge these unfounded notions, which have the potential to harm children through tracking mechanisms, some researchers in bilingual education have at times played a role in *promoting* these false and potentially damaging ideas. Below, I present a theoretical framework in which the sociopolitical role of teachers’ beliefs about students may be assessed, and then I sketch some of the ways in which varieties of language and their associations with particular social classes have served as a basis for constructing social hierarchies around myths of “intelligence” and “cognitive skills.” Following this, I discuss the special manifestation of this dogma in work on bilingualism, focusing on code switching, and then I address the implications of the historic Ann Arbor decision for language education for bilinguals. Finally, I comment on the potential misplacement of bilingual children in special education programs as a result of a poor understanding of code switching behavior.

In closing, I propose that fluent bilinguals who code switch have the same rich linguistic competence as monolinguals for the languages they use, a notion I set out to show in the remainder of this volume. If correct, then the proposition that bilingual code switching reflects a linguistic “deficit” of some kind may be dismissed, together with tacit tracking practices associated with it.

### *1.1 Schooling, Propaganda, and Social Class*

The institutional role of teachers’ beliefs may be analyzed in sociopolitical terms, following a recent approach pursued by a number of educational researchers who study

curriculum from the perspective that schools, as the result of many social and historical forces, serve primarily to reproduce an existing social order in which people are divided, often ruthlessly, along lines of class, race and gender (Parsons, 1959; Bourdieu and Passeron, 1977; Willis, 1981; Giroux, 1983; Oakes, 1985; McNeil, 1988; Macedo, 1994; McLaren, 1994). According to Gramsci (1971) and Takaki (1979), modes of discrimination based on race and gender derive from a deeper socio-economic need in capitalist societies, namely, the need to create social classes. From this perspective, schools “process children into roles for economic production” (McNeil, 1988) and sustain class structure by using, among other devices, ideological constructs regarding the status of languages and language varieties which mark disenfranchised groups as inadequate or inferior to the dominant social class. Thus, language attitudes may be a factor in the construction of a social arrangement of the sort the anarchist Mikhail Bakunin (1970 [1883]) described long ago as promoting “the advantage of a dominant minority of exploiters against the interests of the immense majority in subjection to them.”

This view of the role of schools in democratic societies is analogous to Chomsky’s view of the media. Within Chomsky’s (1989) Propaganda Model, the media systematically distorts the news in favor of ruling elites in the U.S. This claim is empirical in nature; it can be tested by looking at the facts. Herman and Chomsky (1988) suggest three techniques which can be used to test it. First, in their work, cases which reputedly support the claim that the media is independent of corporate and elite interests are scrutinized in terms of the Propaganda Model. In a second, far more persuasive technique, paired examples of historical events are studied for discrepancies in

news coverage. Third, an exploration of the range of opinion permitted on a given topic is shown to define the boundaries of acceptable discourse in mainstream media.

It may be helpful to look at a concrete example, offered in Herman and Chomsky (1988). Consider the media's treatment of the Watergate Affair, presented as an embarrassing "domestic scandal." Seen as the zenith of investigative journalism throughout the world, the mainstream press portrayed the Nixon administration's crime as one of using a group of petty criminals to break into a room at the Watergate hotel for reasons that remain obscure. At the height of passion over Watergate, it was discovered that the FBI had been disrupting the activities of the Socialist Workers Party, a legal U.S. political party, for more than a decade. In contrast to the Watergate Affair, this event received virtually no media coverage and is today scarcely known. Similarly, after Nixon's "enemies list" was exposed in the press, it was discovered that the FBI directed the assassination of Fred Hampton, an influential leader of the Black Panthers. This incident alone completely overshadows in significance all the reported crimes of Nixon, but it again received very little media coverage. According to Herman and Chomsky, exposing Nixon's offenses falls within the range of acceptable news coverage because it constitutes no threat to the general social order. In fact, because it lends credence to the notion that the media is made up of independent news organizations, coverage of this sort only serves to further reinforce the general public view that we live in a free and just society. Many, many examples of this sort may be given.

In school curriculum, too, a particular view of the role of the U.S. in world affairs is constructed, one which favors the position of ruling elites. In history classes, for

instance, Columbus is portrayed as an adventurous explorer in search of new lands, while a look at his own notebooks reveals him to have been a murderous mercenary in search of gold and capital to repay the investment of the Queen of Spain (Zinn, 1980). Scores of examples of this sort may also be given, historical portraits that have been wildly reconstructed to conceal relationships between capitalist ventures and social injustices, or which represent U.S. interventionism as heroic self-sacrifice in the interest of spreading democracy.

This perspective on curriculum entails that the teaching function of schools is, in general, highly constrained by their control function, as McNeil (1988) and Macedo (1994) have also argued. Indeed, Chomsky (1988) reports that schools are referred to by the Trilateral Commission<sup>4</sup> as “institutions responsible for the indoctrination of the young,” places which are ideal, the Commission argues, “for imposing obedience, for blocking the possibility of independent thought,” and which should “play an institutional role in a system of control and coercion” (671).<sup>5</sup>

Prescriptivist values and negative views of particular language varieties may be viewed as serving a control function in schools, by raising expectations for children viewed in a positive light (who have speech characteristics of the privileged classes) and lowering them for those viewed negatively (who have speech characteristics of the lower

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<sup>4</sup>The Trilateral Commission is a think-tank of liberal elites formed in 1973 by Columbia University Professor Zbigniew Brzezinski with the support of David Rockefeller. Jimmy Carter, among many others, is a member. For detailed discussion, see Sklar (1980).

<sup>5</sup>See Rai (1994) for an excellent introduction to Chomsky’s political thought. For Chomsky’s particular thoughts on schooling, see Chomsky (1975), Corson (1994), and the interview with Chomsky in Olson and Faigley (1991).

classes), thus placing children of elites in a position to succeed in school. Oakes (1985) analyzes similar tacit mechanisms as leading to informal ability groupings, documenting the well-studied effects which ability labels have on teachers' expectations.

Language mixture, or code switching, is a speech style of bilinguals which has been especially stigmatized in schools, as Ramirez and Milk (1986) and Valdes-Fallis (1978) have pointed out. However, before looking more closely at some of the forces that lead to this stigma for bilinguals, a general consideration of prescriptivism may be useful.

### *1.2 Prescriptivism and the Status of Languages*

Prescriptivism, in its most general sense, is the view that one variety of language has an inherently higher value than others, and that it ought to be imposed on the whole of the speech community to maintain "standards of communication" (Crystal, 1987). Language academies employed with the task of "purifying" the regional linguistic descendants of Latin were set up as early as 1582 in Italy, 1635 in France, and 1713 in Spain. Proposals for a language academy in England were also popular in the seventeenth century (Jonathan Swift's, among them), but the suggestion lost support as it became evident that the European academies could not halt the tide of language change. (See Crystal (1987) for further discussion.)

The prohibitions on English usage which are most familiar from U.S. high school curricula, picked out of influential prescriptive grammars, typically turn on Latinate analyses advanced in the late nineteenth and early twentieth centuries and used to validate varieties of speech associated with the educated classes in England and the U.S.

(Baugh and Cable, 1978). In the thick of this tradition, which took literary and classical languages to be of greater expressive capacity and complexity, the structuralists in the U.S. sought to carry out a program of research which assumed that all languages of the world are cast from the same die. As Newmeyer (1986: 42) puts it,

As long as American structuralists confined their campaign to the languages of remote tribes, they did little to upset their colleagues in departments of modern and classical languages--in which almost all linguists were situated in the interwar years. But such was certainly not the case when they began crusading for the linguistic equality of *all* dialects of English and other literary languages, no matter how “substandard” they were regarded. This egalitarian view came in direct conflict with the long-seated tradition in the humanities that values a language variety in direct proportion to its literary output.

Indeed, as recently as 1964, the Linguistic Society of America reported to the National Commission on the Humanities that “a fair proportion of highly educated laymen see in linguistics the great enemy of all that they hold dear” (American Council of Learned Societies, 1964).

While much of seventeenth-century Europe was preoccupied with “elite language,” the *Port Royale Grammar* of 1660 advanced a very different view of language and of the human condition.<sup>6</sup> Written in French, the *Port Royale Grammar* formed part of the movement to displace Latin as an outdated mode of academic discourse. However, what marked the *Port Royale Grammar* as deeply distinct from contemporaneous approaches was its devotion to philosophical and universal properties of human language

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<sup>6</sup>Actually, many of the early notions regarding “good usage” were strongly associated with classical liberal thought, but these ideas were lost as prescriptive grammar forged an alliance with elitism. “Inevitably, schoolteachers found themselves spending more time teaching rules of usage that had no basis in the rational program of traditional grammar, but only in invidious distinctions of class and race” (Nunberg (1983), cited in Newmeyer (1986: 45)).

in descriptive terms, even developing notions of “surface structure” and “deep structure” which would not reappear until Chomsky (1964) (Robins, 1967; Chomsky, 1968; Newmeyer, 1988).<sup>7</sup> Like Chomsky, the *Port Royale* grammarians worked on the Cartesian assumption that normal human intelligence is capable of acquiring knowledge through its own internal resources, making use of the data of experience but moving on to construct a cognitive system in terms of concepts and principles that are developed on independent grounds. The fear that languages might “decay” in the process of change, or the notion that groups from different cultural backgrounds speak “diminished” or “simplified” languages when compared to Europeans, is incompatible with Cartesian assumptions since languages are held to “grow” by virtue of common human resources. (See Bracken (1984) for further discussion.)

However, early work in the sociology of language followed in the tradition which viewed culturally distinct languages as related hierarchically, with the languages of the dominant social classes at the top of the “intellectual” scale. According to Dittmar (1976), Schatzmann and Strauss (1955) were the first to formulate what he terms “the Deficit Hypothesis,” the view that the linguistic abilities of particular social groups are deficient or restricted in some way. Schatzmann and Strauss (1955) interviewed members of the lower and middle class about their impressions and experiences after the

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<sup>7</sup>Technical terms like “deep structure” and “surface structure” must be understood only within the theory in which they are embedded. What the *Port Royale* grammarians meant by a phrase which is often translated as “deep structure” was completely semantic in nature. Their theory of language was certainly not sufficiently developed to include anything like autonomous syntax, but the important distinction between surface forms and their multiple readings was clear. (Frederick J. Newmeyer, personal communication.)

occurrence of a disaster and found that the former used lots of emotional language which reputedly gave rise to “elliptical syntax.” Accordingly, Schatzmann and Strauss (1955) concluded that the lower classes only conveyed their meaning “implicitly,” while the educated classes conveyed their meaning “explicitly.”

This and other work led Basil Bernstein (1971) in 1958 to formulate a distinction between “public language” and “formal language,” later termed “restricted code” and “elaborated code.” Bernstein studied speakers of a non-standard dialect in London and characterized their speech as accessing “restricted code” but not “elaborated code.” According to Bernstein (1971), public language is characterized by “fragmentation and logical simplicity.” By contrast, “formal language” or “elaborated code” may be used to express “universal meaning.” For Bernstein, the restricted code expresses meanings which form a proper subset of the range of meanings expressed in the elaborated code. The appropriate remediation, then, “. . . would seem to be to preserve *public* language usage but also to create for the individual the possibility of utilizing a *formal* language” (1971: 54).<sup>8</sup> Since “restricted” speakers are reputedly limited to logically simple

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<sup>8</sup>Numerous commentators have portrayed Bernstein as positioned squarely within the camp of the “deficit” theorists, as I do here (Trudgill, 1974; Dittmar, 1976; Boocock, 1980; Bennett and LeCompte, 1990), while others have come to his defense (Halliday, 1995; Danzig, 1995; other papers in Sadovnik, 1995, and Atkinson, Davies, and Delamont, 1995). Bernstein himself explicitly took differences in code to be a property of performance, not competence (1971: 173), but added a decidedly Whorfian qualification: “Clearly, specific linguistic rule systems are part of the cultural system, but it has been argued that the linguistic rule system in various ways shapes the cultural system. . . . [W]hich speech codes are realized is a function of the culture acting through social relationships in specific contexts” (173-174). As Dittmar (1976) points out, what makes Bernstein’s view a species of the Deficit Hypothesis is his perspective that the speech of the educated classes is in some way *greater* (more expressive, less elliptical, so on) than the speech of poor people; that is, the characteristics of “better speech” are taken to be precisely those characteristics which poor people *lack*. In my view, Bernstein’s (1971) work is filled with many contradictory statements which leave much room for diverging interpretations of his ideas. Compare Stubbs (1980) and Hurn (1990) on Bernstein and deficit hypotheses.

expressions, many have taken Bernstein's ideas to suggest that the inability on the part of members of the lower classes to use "elaborated code" corresponds to "cognitive deficiencies," deficiencies which schools must "remedy."<sup>9</sup> However, from the perspective outlined in section 1.1, Bernstein's remarks may be taken to assign schools the task of indoctrinating members of the lower classes to believe that their speech is deficient and manifests intellectual limitations, thereby serving a control function and tacitly justifying the role of the working class as ancillary tools in the hands of corporate elites. From the perspective of the poor and working class, this should come as a very peculiar kind of remedy.

The "deficit" approach to the sociology of language was vehemently challenged in the 1970s by numerous educational researchers and sociolinguists, most notably by Walt Wolfram (1969) and William Labov (1970) in their excellent work on the logic and structure of nonstandard English. Despite insights gained in these studies, however, much of the current work in bilingual education proceeds in the spirit of "deficit" views about low-achieving children, confusing differences of form with differences of degree and competence.

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<sup>9</sup>Trudgill (1976) reviews studies which show that poor children are in fact *not* limited to a "restricted code." Also see Dittmar (1976). Moreover, none of the statistical data which Bernstein (1971: 5-117) uses to distinguish working class speech from middle class speech ("restricted" from "elaborated" code) is linguistically interesting. The frequency with which constructions (can) occur, apart from zero, says nothing about the underlying system of linguistic competence. More importantly, no current work in cognitive science supports the view that one group's language can express a greater range of meanings than another's.

### 1.3 Code Switching and the Ideology of “Cognitive Deficits”

Valdes-Fallis (1978), Commins and Miramontes (1989), Grosjean (1982) and Ramirez and Milk (1986) report that a widely held belief about code switching is that bilinguals engage in it as a coping strategy, a way of dealing with specific deficiencies in both linguistic systems. Indeed, Lili Rabel-Heymann, from the Department of Linguistics at the University of Calgary, contrasts her own German-English bilingualism with the “morphologically and lexically garbled language many half-educated German immigrants practice” (1978: 222). Although her criticisms of code switching are selective and naive,<sup>10</sup> Rabel-Heymann’s comments reflect a widespread and quite mistaken view, perhaps held nearly as commonly today as in the early twentieth century, that education has the effect of making (native) language “better,” with its potential for making poor people sound like members of elite groups and making ethnic minorities sound like whites.

#### 1.3.1 “Semilingualism” and Linguistic Competence

Commins and Miramontes (1989) have suggested that “a popular belief is that children who code-switch (alternately use two languages) do so because they do not command enough pieces in either language to form a complete code; thus, they are considered semilingual” (445). While some version of the semilingualism thesis has

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<sup>10</sup>Rabel-Heymann (1978) actually appears to take issue with the particular boundaries used by her “half-educated” countrymen. She gives examples of single-word borrowings and code switches at affixation boundaries as “garbled,” while her own mixtures involve switches at major phrase boundaries (salad -- *mit einem Ei* -- why not? / “salad -- *with an egg* -- why not?”). In any case, the overt prescriptivist values are quite clear and very unexpected of a linguist trained in the late twentieth century.

been endorsed by a number of educational researchers (Ringbom, 1962; Hansegård, 1968; Cummins, 1976a; Toukoma and Skutnabb-Kangas, 1977; Skutnabb-Kangas, 1981; Dunn, 1986), there remains no cogent reason to believe that any such state exists for bilinguals.

The notion of “semilingualism,” the idea that a bilingual might lack linguistic competence for any language in her repertoire, was first introduced in a 1962 radio talk by the Swedish philologist Nils Erik Hansegård (who called it *halvspråkighet*), and it was later picked up by Håkan Ringbom (1962) who conjectured that “a period of ‘double semilingualism’” occurs when an individual abandons her native language altogether in favor of a second language (267).<sup>11</sup> Throughout this dissertation, the term “second language” refers to a language acquired relatively late in life; a distinction between child second language and adult second language will be drawn when relevant.

Before discussing the details of Hansegård’s ideas, it is worthwhile to consider what sense may be given to the notion “lack of linguistic competence” entailed by the semilingualism thesis. Variations of semilingualism are used extensively in discussions of bilingualism and second language acquisition, but it is sometimes a difficult concept to make sense of.

Chomsky’s earliest publications in generative grammar (1955, 1957), concerned with the development of mathematical models of syntax, were devoted to showing that a

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<sup>11</sup>The historical sketch given here is due to Skutnabb-Kangas (1981). I am also indebted to Skutnabb-Kangas and to her translators Lars Malmberg and David Crane for the English summary of the Swedish literature which appears in Skutnabb-Kangas (1981).

hybrid generative-transformational model would be required to generate even a small portion of a human language. Given this aim, there was no need to look beyond the language most accessible to his readers (English) for examples and counter-examples. Later work (Chomsky, 1965) focused on refining the generative-transformational model.

Through the mid-1970s, however, Chomsky's (1965) conception of the "ideal speaker-listener in a completely homogeneous speech-community" caused considerable misunderstanding among a number of linguists interested in language variation, as Newmeyer (1983) has pointed out. For example, Cedergren and Sankoff (1974: 335) mocked what they took to be the generativists' futile "search for ideal speakers," and Anshen (1975: 6) complained that "one never seems to find 'the ideal speaker-hearer in the perfectly homogeneous speech community.'" Ringen (1975: 26) pointed out that "there is evidence that actual speech communities are not homogeneous."

However, Chomsky's idealization was nothing new to the study of grammar. Many others, notably Ferdinand de Saussure, Martin Joos and Josef Vachek, had proposed similar notions--never because linguists believed that languages actually do not differ, but simply because idealizations are often methodologically convenient, as in other scientific inquiry. Those who accept Chomsky's idealization no more believe that speaker-hearers are in reality "completely homogeneous" than biologists believe that pulmonary or cardiovascular systems are homogeneous across individuals; similar methodological idealizations are used in the study of these organs as well. Indeed, the same book which posits the speaker-listener idealization puts forth the notion of a "Language Acquisition Device" (LAD), the central task of which is to determine a

grammar compatible with the language data of a particular linguistic community  
(Chomsky, 1965)!

In fact, given the particular formalism of Universal Grammar, it makes sense to think of a language as a state of the language faculty that is “some accidental product of varied experience” (Chomsky, 1995a: 7). Thus, it is conceivable--quite likely, in fact--that each of us differs in *some* respect in terms of our knowledge of language or linguistic competence.<sup>12</sup> As Chomsky (1993a: 20) has said,

If my granddaughter were to say “I brang the book,” we would not hesitate to say she is following the rule for “sing-sang-sung,” contrary to “common agreement.” True, her internal language may change, replacing “brang” with “brought.” If it does not, she’ll be speaking a language that differs from mine in this among many other respects, and speaking it “correctly,” insofar as the word means anything.

In his treatment of creole variation, which I shall return to in chapter 2, Bickerton (1973a, 1973b, 1973c) avoids some of the pitfalls which Ringen and others have fallen into by casting variation in terms of “the dynamic paradigm.” On this view, it is assumed that “polylectal grammars” exist for the community as a whole, but that only a subset of such grammars is instantiated for an individual. Thus, Bickerton’s “dynamic paradigm retains the concept of the autonomous grammar-forming individual at the cost of rejecting the principle (held tacitly or explicitly by virtually all other persuasions) that individuals and community grammars are isomorphic” (1973a: 25). Unlike others interested specifically in language variation, Bickerton affirms “the independence of grammar from context” and rejects the “incorporation of social or contextual factors in

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<sup>12</sup>For some very interesting experimental work which documents individual differences among English speakers in terms of native intuitions, see Gleitman and Gleitman (1979) and Ross (1979).

grammar” (1975: 184). In addition, after noting that distinctions between realized and unrealized complementizers are overtly marked in Hawaiian Pidgin English but not in the several languages which came into contact with it, and that such markers also appear in numerous other, completely unrelated creoles, Bickerton (1982) appealed to Universal Grammar for an explanation:<sup>13</sup>

There is only one hypothesis that will account for both phenomena: the hypothesis of an innate bioprogram for language, which, instead of imposing outer limits on possible forms of language, specifies a set of highly particularized, substantive structures which are accessible to the child . . . [26-27].

Thus, if the idea that someone “lacks linguistic competence” is simply equated with a *difference* in linguistic competence (different, say, as compared with other members of the community), then it will likely be true that all of us “lack linguistic competence” in some respect. This, then, would not be a useful notion.

Nevertheless, since there are respects in which language learners may be presumed to be very much the same, by virtue of UG or the innate “bioprogram,” studies which have addressed language impairments within the context of a well-articulated theory have led to a meaningful characterization of “impairment.” Curtiss (1977), for instance, assessed the linguistic capabilities of Genie, a child who was tragically isolated in a small bedroom from twenty months of age until the age of thirteen and a half, by testing Genie’s knowledge of Ross’s constraints, *wh*-movement, closed class morphological items, and other aspects of universal grammar. In more recent work,

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<sup>13</sup>In a recent paper, Luján and Parodi (1996) present a similar example of language change in Andean and Los Angeles Spanish in the context of the minimalist program, also based upon assumptions of a biologically innate Universal Grammar.

Curtiss and Schaeffer (1997) looked for morphological evidence of certain functional categories by examining the speech of children who had undergone left or right hemispherectomies. Studies of children with specific language impairment (SLI) may be reviewed in Watkins and Rice (1994), Rice, Wexler and Cleave (1995), among many others. What these studies share is a reliance upon a precisely formulated theory which makes well-motivated assumptions about universal properties of human language.

In sharp contrast, Hansegård (1968, 1975) characterized “semilingualism” in the absence of any theory of language, as “a confused grab-bag of prescriptive and descriptive components,” as Edelsky *et al.* (1983: 2) have put it. For Hansegård, the term denoted a lack of competence in all languages an individual knows in any of six areas: (a) size of the repertoire of words and phrases which are understood or actively available in speech; (b) linguistic correctness; (c) degree of automatism; (d) ability to create or neologize; (e) mastery of the cognitive, emotive and volitional function of language; (f) richness or poorness in individual meanings (that is, whether reading or listening to a particular linguistic system “evokes lively and reverberating semantic images or not”) (Hansegård, 1975: 8; cited in Skutnabb-Kangas, 1981: 253). Skutnabb-Kangas (1981) reviews a number of attempts to test Hansegård’s definition empirically, concluding that tests for the first three criteria show that “semilingualism” has not been found to hold for any population but that little work has been done regarding the last three of Hansegård’s criteria. In fact, with the possible exceptions of (a) size, (c) automatism and (d) ability to neologize, little sense may be given to Hansegård’s grab-bag of “special linguistic abilities.”

Importantly, little sense may be made of his notion of linguistic correctness (Hansegård's criterion (b)). As I have emphasized above, since grammars may differ across individuals, it is hard to know how to count an utterance as "linguistically correct." If a person's linguistic behavior corresponds to a high degree with the linguistic behavior of a community, his behavior might be described as socially "correct," but it is "linguistically correct" if and only if it corresponds to some structural description of his individual linguistic competence. If linguistic evidence suggests a genuine impairment in a person's language faculty in the context of a precisely formulated theory of linguistic competence, then it might make sense to regard such a person as "semilingual," perhaps even "alingual."<sup>14</sup> But no such evidence is advanced for children labeled "semilingual" by Hansegård, Skutnabb-Kangas or others, and a prevalent condition of this sort would be completely unpredicted by what is known about child language acquisition.<sup>15</sup>

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<sup>14</sup> "Language attrition," a phenomenon in which an  $L_1$  takes on characteristics of a developing  $L_2$ , is studied by Kaufman (1991) and many others. However, there are very important empirical and conceptual differences between the notions of "language attrition" and "semilingualism." As in other cases, none of Hansegård's six criteria are true of children who undergo first language attrition (metamorphosis). Rather, effects of acquiring a second language include changes in the mental representation of a first language under particular conditions set by the environment (social dominance of the  $L_2$ , parental refusal to use  $L_1$ , and so on).

<sup>15</sup>It has been found, for instance, that children learn approximately 10-12 new words per day, during the most active acquisition period (ages 2 to 6), often on one exposure and in highly ambiguous circumstances, and that direct conversational interaction may be irrelevant to this learning process. In fact, children know things about elementary aspects of sentence structure for which they simply have no evidence at all, regardless of the target language involved. These facts and others have led many cognitive scientists to believe that language acquisition is directed by innate principles of universal grammar (Chomsky, 1959), or an internal "bioprogram" (Bickerton, 1981). On these assumptions, a child's failing to acquire a language should be as unusual as a child's failing to grow legs or recognize faces (compare Curtiss, 1989; Mehler and Dupoux, 1994).

Hansegård's idea that the size of linguistic repertoire<sup>16</sup> ought to factor into a notion of linguistic competence is also problematic. Attempts to calculate how many words a person knows are invariably plagued with individual and cultural differences. Judgments about vocabulary size can often be misguided, as they frequently turn on individual differences in interest and facility in talking about particular topics. That the Masai of modern Tanzania do not have a ready command of the topic of French homelife does not indicate a lack of proficiency in Masai, just as a Parisian's inability to readily discuss Tanzanian cattle herding techniques does not indicate a lack of proficiency in French. We naturally expect this difference in vocabulary, given the differences in experience.

Similarly, in regard to Hansegård's final criterion, it is hard to imagine that a person might not get "lively and reverberating semantic images" for some expressions in her languages, as best I can understand what that means. In any case, such "images" would seem to result from a complex interaction of mental faculties and would least of all be a property of the language faculty.

Valadez, MacSwan and Martínez (1997) studied three low-achieving children assessed as having "clinical disfluency," a variety of "semilingualism," and compared their language with that of a control group in terms of grammatical richness (defined in terms of variety of grammatical structures), error rates, and vocabulary. Vocabulary was

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<sup>16</sup>Hansegård actually understood "size of the repertoire" to include not just words, but also phrases, and these were apparently taken to be either "understood" or "actively available in speech" or both. In light of developments in linguistics since the 1950s, in which phrases are taken to be built up from words by a system of rules, I will construe his notion of "size of repertoire" to include vocabulary only.

tested using a subtest of the CELF (Clinical Evaluation of Language Functions) (Semel and Wiig, 1986). Using the coding and analysis system detailed in Curtiss, Schaeffer, Sano, MacSwan and Masilon (1996), this study found that the experimental group was empirically indistinguishable from the control group, with all children using a rich variety of grammatical constructions with an error rate below 3% and performing equally well on all vocabulary tasks. The results strongly support the claim that children identified by official school mechanisms as “semilingual” may in fact differ in no linguistically interesting way from other children.

In sum, then, Hansegård’s six criteria for semilingualism are advanced with no theoretical motivation. Why should his six criteria be viewed as symptoms of semilingualism any more than any other criteria (say, that the speakers use non-European languages or code switch)? Given the “bioprogram” alluded to by Bickerton (1982), and the biological basis for human language assumed in Chomsky (1959, 1993a, 1995b), Pinker (1994) and many others, an impairment of the sort Hansegård expects to find could only result from severe pathology. Since the differences which Hansegård attempted to locate for proposed “semilinguals” have not been found (while evidence to the contrary has), and since no empirical or theoretical justification has been put forth for

selecting his criteria in the first place, then the semilingualism thesis may be safely discarded.<sup>17</sup>

Finally, as Skutnabb-Kangas (1981) points out, there is a clear similarity between Hansegård's (e) cognitive aspect of language and Cummins' (1976a, 1976b) Threshold Hypothesis. This leads us to the next section.

### **1.3.2 The Threshold Hypothesis and Language Proficiency**

Cummins suggested that the level of “language proficiency” attained by a bilingual child in first and second language may affect her cognitive growth in other domains. In early work, Cummins believed that there were two thresholds, and that attainment beyond the lower threshold “would be sufficient to avoid retardation, but the attainment of a second, higher level of bilingual competence might be necessary to lead to accelerated cognitive growth” (1976a: 24). For Cummins, a child with low levels of proficiency in L<sub>1</sub> and L<sub>2</sub> may suffer “negative cognitive effects.” Once mastery in one language has been obtained, the child has moved beyond the first threshold and will suffer neither positive nor negative effects. Finally, “positive cognitive effects” obtain when a child develops high proficiency in both languages. Thus, Cummins (1976a,

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<sup>17</sup>It is important to emphasize that the semilingualism thesis advances the claim that there are (non-pathological) cases of language learners who speak no language “correctly.” To deny that such a population exists entails that all (non-pathological) children acquire at least one language as their native language, and, while there may be some differences of word choice and grammatical form, their native languages will be characteristically human. However, a second or third language, perhaps acquired later in life, may be markedly non-fluent, inexpressive, and may have a relatively impoverished vocabulary. I will return to these issues in section 2.1.

1976b, 1981),<sup>18</sup> like Toukoma and Skutnabb-Kangas (1977)<sup>19</sup> and many others, incorporates a version of the semilingualism thesis into his model, purporting that a school-age child may lack proficiency for all languages in her repertoire, a view which has not been sustained empirically.<sup>20</sup>

However, Cummins provides a more carefully considered definition of “language proficiency” than did Hansegård. Drawing from Canale and Swain (1980) and Canale (1981), Cummins unpacks language proficiency into the four basic components of grammatical competence, sociolinguistic competence, discourse competence, and strategic competence. Grammatical competence, of course, designates knowledge of syntax, morphology, phonology, and the lexicon. Cummins’ (1981) definition of “sociolinguistic competence” is essentially the same as Chomsky’s definition of “pragmatic competence,” restricted to “knowledge of conditions and manner of

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<sup>18</sup>Cummins’ (1979, 1994) well-known BICS/CALP distinction has also been criticized for ranking varieties of language into “basic-interpersonal” and “cognitive-academic,” with the underlying assumption that the latter somehow manifests greater cognitive ability. However, Canale and Swain (1980) and others’ criticisms of this distinction led Cummins to posit his famous juxtapositions of “cognitively demanding” with “cognitively undemanding” and of “context embedded” with “context reduced” (see Cummins (1981, 1994) for discussion). While these ideas made some very positive political advancements for bilingual learners who had acquired only enough English to appear fluent on the playground, considerably more work must be done to properly characterize the learning situation of bilinguals.

<sup>19</sup>In fact, Cummins (1981: 39) illustrates his Threshold Hypothesis with a figure adapted from Toukoma and Skutnabb-Kangas (1977: 29) in which he uses the phrase “limited bilingualism” where “semilingualism” is used in the same figure reproduced in Skutnabb-Kangas (1981: 223).

<sup>20</sup>Cummins (1981: 36) cites three studies which he takes to have reported findings consistent with the original model of Cummins (1976a). However, the studies he cites only find that high levels of bilingualism co-occur with strong performance on a variety of cognitive tasks. These findings do not rule out that some third factor (such as self-esteem, perceived self-efficacy, ethnic identity, personal values, so on) did not independently result in both achievements. In any event, no evidence has been found that children with “limited bilingualism” (“low level in both languages”) actually exist, much less that they suffer “negative cognitive effects.”

appropriate use, in conformity with various purposes” (Chomsky, 1978: 224). For Cummins (1981: 7), discourse competence consists in “knowledge of how to combine meanings and forms to achieve a unified text in different modes.” Finally, Cummins takes strategic competence as the “mastery of verbal and non-verbal strategies” which compensate for breakdowns in other domains of competence and for performance limitations (his examples include use of dictionaries, ability to paraphrase, and gestures). After some discussion of Canale and Swain (1980) and specific developmental issues in second language learning, Cummins (1981) settles on a framework in which “literacy is viewed as one aspect of communicative proficiency” (14).<sup>21</sup>

This view of language “proficiency” is consistent with important legal developments in bilingual education. As Macías (1993) notes,

The LEP (and non-English proficient) category was defined as a subgroup of language minority/non-English language background whose English proficiency was not sufficient for them to participate effectively in an English-only classroom. The term “limited-English speaking” ability was derived from the federal Bilingual Education Act legislation of 1968. The Bilingual Education Act amendments in 1978 added *reading and writing* English to the definition and the term became “limited-English *proficient*.” To be English *proficient*, then, meant a person had to be able to speak, understand, read and write English, not just speak it [232].

When applied to a situation in which English is a second language, it certainly makes sense to require “proficiency,” as defined here, before placing bilingual children in

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<sup>21</sup>Cummins uses the terms “language proficiency” and “communicative proficiency” synonymously (Cummins, 1981: 7, n2).

English-only classrooms.<sup>22</sup> In this case, saying that a child is proficient in a second language is simply saying that she knows it reasonably well, and that she can read and write in it.

However, a problem emerges when this notion of “proficiency” is used to describe first language ability because it suggests that literacy is a normal aspect of language development. In contrast to the way in which children learn to read and write, however, a native language is acquired effortlessly and without instruction.<sup>23</sup> As Chomsky (1993a: 29) has recently put it, “Language acquisition is something that happens to a child placed in a certain environment, not something the child does.” While considerable work has been advanced within this framework for language acquisition (see Goodluck (1991) and Atkinson (1992) for summaries), nothing suggests that children acquire the ability to read in any similar way.<sup>24</sup> Success in reading is dependent upon direct or tacit instruction, practice, and considerable effort, like success in other academic endeavors (Gough and Hillinger, 1980; Perfetti, 1985; Adams, 1994).

In addition, taking literacy as an aspect of language proficiency suggests that members of non-literate cultures and societies have relatively *low* “language

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<sup>22</sup>For a detailed discussion of the literature on bilingual education programs and their advantages, see Wong Fillmore and Valadez (1988), Macías (1989, 1993), Krashen (1996), and Rossell and Baker (1997).

<sup>23</sup>Some effort was made in the 1970s to link child language acquisition to “motherese,” a tacit form of instruction, but this research program was not successful. However, see Fernald (1985) for an interesting discussion of prosodic characteristics to which infants appear to attend especially well. See also Wexler and Culicover (1980) and Curtiss (1989) for reviews of research on “motherese.”

<sup>24</sup>Certainly lots of linguistic information is *used* in decoding text, but this fact does not comment on the way in which decoding skills are acquired.

proficiency,” whether they are monolingual or bilingual, in contrast to many “highly proficient” Western cultures. In an interesting study of the Vai, a Mande-speaking people of northwestern Liberia,<sup>25</sup> Scribner and Cole (1981) reported that literacy had very specific effects determined by the purposes to which it was put (memorizing the Qur’an appeared to improve linguistic memory skills, while knowledge of Vai script appeared to improve ability to accurately retell the rules for playing a board game); the various tasks used to study Vai literates and nonliterates found nothing “that would lead us to speak of cognitive consequences of literacy with the notion in mind that such consequences affect intellectual performance in all tasks to which the human mind is put” (70). Similarly, reading ability should no more be taken as an indicator of general “high language proficiency” than should the ability to write rap songs, decode graffiti, or commit long spoken texts to memory for retelling to children and grandchildren for generations to come. So far as anybody knows, there are no general, positive cognitive effects of literacy.

Thus, analyzing language proficiency or linguistic competence to include literacy skills is a poor way to conceptualize the learning situation of schoolchildren. Not only does such a conception lack theoretical or empirical motivation, it also has the effect of

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<sup>25</sup>The Vai constitute a unique population. As one of the few cultures to have independently invented a phonetic writing system, Vai script is transmitted without formal schooling. In Vai society, literates and non-literates share common material and social conditions, allowing “for a more direct test of the relationship between literacy and thinking than is possible in our own society” (Scribner and Cole, 1981: 62).

incorrectly characterizing the learning situation of pre-literate LEP children.<sup>26</sup> Literacy is an important aspect of school curriculum for all children. Children labeled “semilingual,” but who are in reality improperly assessed, perfectly competent LEP first-language users, are placed at a marked disadvantage when learning to read or when engaging in other academic tasks.

Despite strong criticisms (Edelsky *et al.*, 1983; McGroarty, 1988; Cummins and Miramontes, 1989; Valadez, 1995; Valadez, MacSwan and Martínez, 1997), Cummins’ views remain the dominant influence in bilingual education today.<sup>27</sup> Other species of the semilingualism thesis have also received a great deal of criticism (Labov, 1972; Shuy, 1978; Heath, 1982a), but Cummins and Miramontes (1989) assert that the doctrine is nevertheless very often used by teaching practitioners in elementary and secondary schools today as an explanation for academic failure on the part of bilinguals.

Rather than helping children, these ideas stand to do serious harm; they are ideological constructs, effectively serving to promote the interests of elite groups by promoting tracking and privileged expectations for certain majority children, as outlined in section 1.1. The view that code-switched speech corresponds to a deficit by any name, cognitive or linguistic, can no more be sustained than the nineteenth century view that

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<sup>26</sup>Given his conception of language proficiency, it may be that Cummins’ (1981: 39) version of the semilingualism thesis (“low level in both languages”) denotes a lack of literacy skills rather than an actual deficit in the language faculty. However, since no distinction is made in Cummins’ work between acquiring a language and learning to read, the Threshold Hypothesis does not guarantee this interpretation.

<sup>27</sup>For evidence of this, peruse any textbook designed for use in a bilingual teacher education program, such as Díaz-Rico and Weed (1995), or any state document regarding bilingual education, such as Leyba (1995) or Holt and Tempes (1982).

African and Native American languages are impoverished in comparison to European languages.

#### 1.4 *The Ann Arbor Decision, Code Switching, and Language Education*

Despite work by Wolfram (1969), Labov (1970, 1975) and many others, schools continue to regard the native dialects of some students as deficient. In July, 1979, a federal suit filed in the Eastern District Court in the state of Michigan provided a significant legal precedent for the determination of school districts' legal and educational responsibilities with regard to the particular issue of Vernacular Black English (also called Ebonics or African American Vernacular English [AAVE]) in public schools. The final disposition of *Martin Luther King Junior Elementary School Children et al. v. Ann Arbor School District Board* has come to be commonly called the "Ann Arbor decision."

In this case, parents charged that the school did not facilitate equal participation in academic programs for their AAVE-speaking children, and that the school had not recognized the widespread use of Black dialect and its implications for the teaching of reading and "standard" English. In court, William Labov and J. L. Dillard discussed the phonological and syntactic characteristics of Black English, in addition to educational barriers confronted by these children, "the most damaging of which is the tendency of teachers to make such speakers ashamed of their native dialect by teaching standard

English without recognizing that the child uses a dialect acceptable to his linguistic community,” according to Bountress (1982: 79-80).<sup>28</sup>

Judge Joiner directed the counsel for the school board to submit a plan for helping teachers work with students who speak AAVE. The Ann Arbor Board of Education submitted a plan that specified in-service training for teachers in the district on topics of language development, language variation, the special characteristics of Black English, the nature of bilingual code switching, and ways of using such information in helping students learn to read.

As the judge himself anticipated, the Ann Arbor decision had important implications for bilingual children as well. Proficient bilinguals<sup>29</sup> who code switch are often viewed as linguistically deficient, just as children who speak AAVE are, as comments by Valdes-Fallis (1978), Commins and Miramontes (1979), Grosjean (1982) and Ramirez and Milk (1986) affirm. The Ann Arbor decision asserts the legal responsibility of schools to understand the language situations of the children they educate, and to treat their home language as equally legitimate as the home language of any other child.

Heath (1982b) has also pointed to specific cultural dimensions of language use in the schools which may lead to inequality. Arguing that language use and socialization among primary school children in some African-American groups differ drastically from

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<sup>28</sup>Also see Straker (1980).

<sup>29</sup>See section 2.1 for a discussion of the notion of “bilingual proficiency.”

language use and socialization in the dominant culture, Heath (1982b) argued that schools frequently place such children at a marked disadvantage when the curriculum is tailored to the interests of the dominant classes. In this respect, Heath contended, the failure of these children is *anticipated* by the curriculum, and the success of children from the dominant classes is facilitated. Commins and Miramontes (1989) similarly argue that the skills of children who teachers take to be “semilingual” or limited to BICS are ignored by school curricula, and the failure of these children is often similarly constructed by the institution which purports to educate them.

Genuine language education in the schools, in which language is studied as an object of the natural world, could have the long-term effect of changing attitudes among teachers, children, and, conceivably, society at large, as suggested by O’Neil (1971). In addition, if African-Americans, bilingual children and others studied their language situations from a position of linguistic equality in the spirit of intellectual inquiry, the reflective and thoughtful use of language cherished by prescriptivists could emerge as a natural consequence. Finally, O’Neil and Honda (1993, 1994) have shown that the scientific study of language may be used to teach children about principles of science and rational inquiry, and to develop curiosity. When unfounded language attitudes and proscriptions give way to genuine linguistic inquiry in school curricula, then language education will also have the potential to take on a genuine teaching function in schools.

### *1.5 Bilingualism and Placement in Special Education*

Finally, Ortiz and Yates (1983) report that more than three times as many Latino/Latina students were classified as “learning disabled” in Texas than would be

expected from their proportion in the school population. Indeed, as Artiles and Trent (1994) point out in a survey of literature and data extending from 1968 to 1993, the overrepresentation problem has not improved. Furthermore, the misplacement of language-minority children in special education programs has often been attributed to a mistaken understanding of language and its relation to culture and intellectual ability. Cummins (1984) provides an extensive review of teacher and school psychologist referrals for special education in which failure among language-minority children is attributed to cognitive deficiency or a lack of motivation.

In contrast to the attribution of the causes for minority-student failure articulated in these referral reports, Artiles and Trent (1994) attribute this “construction of school failure” in part to values of competition and evaluation, rooted in the dominant American culture and institutionalized in schools. Indeed, it has been reported that the diagnosis of “almost 75% of mild mental retardation is linked to various SES-related environmental contingencies” (Baumeister, Kupstas and Klindworth, 1990, cited in Artiles and Trent, 1994).

Here again, greater insight into the nature of bilingualism may illuminate the concerns of special education teachers and school psychologists. Children with genuine learning handicaps may receive the special attention they need, while language-minority students, properly understood, are set free from the debilitating effects of labeling and of alienating school labor.

## 1.6 Conclusions

An enriched understanding of linguistic aspects of code switching has the potential of changing teachers' beliefs about their students' abilities and accomplishments, just as Wolfram's (1969) and Labov's (1972, 1975) work has successfully done, at least to some degree, with regard to Black English. The treatment of children by adults is, without a doubt, the most crucial variable affecting their success or failure in school (Johnson, 1969; Coates, 1972; Crowl and MacGinitie, 1974; Oakes, 1985; Clark and Peterson, 1986). Because bilinguals who code switch are frequently viewed as deficient in both their languages, they are often viewed as incapable of the sort of progress normally expected of children learning to read, write, and use language creatively. In some cases, these children are even institutionally labeled as "special education students" or "clinically disfluent" and assigned to classrooms reserved for "the learning disabled" or the "mildly retarded."

Artiles and Trent (1994) point out that

The notion of disability is concerned with atypical functioning or educational performance due to biological, psychological, and/or social factors. The level of functioning for individuals with disabilities falls in the lower portion of the normal distribution curve. The notion of disability exists because we have established parameters to judge when a person functions anatomically, physiologically, intellectually, and/or psychosocially within the limits of what is considered typical. On the other hand, cultural diversity is not defined--at least theoretically--by a standard parameter of functioning. Although it is also concerned with the idea of difference, it is not--unlike the disability construct--inherently linked to the notion of deviance [424].

This dissertation pursues the thesis that there are no definable linguistic parameters by virtue of which bilinguals who code switch may be distinguished from

monolinguals or from bilinguals who do not code switch. To demonstrate this thesis, we assume that

- (a) nothing constrains<sup>30</sup> code switching apart from the requirements of the mixed grammars; and
- (b) code switchers have the same grammatical competence<sup>31</sup> as monolinguals for the languages they use.

To the extent that (a) and (b) lead to successful analyses of code switching data in chapter 5, they may be regarded as correct.<sup>32</sup> (For present purposes, and for reasons which will be clarified in section 2.1, a “code switcher” is an individual who alternately uses two or more languages at or below sentential boundaries, and who has had continual, sustained exposure and practice in these languages since infancy.)

A possible criticism of the work on code switching reported in this dissertation is that it is highly theoretical and often quite technical, and hence possibly inaccessible to the teachers and policy makers it is intended to inform. However, in proper historical context, Labov’s work on non-standard English might have been seen as equally

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<sup>30</sup>As will be made clear in chapter 5, “constrain” is used here in a technical sense: there can be no rule or principle of grammar which refers to code switching. There are obviously pragmatic constraints, but these too may follow from the same principles which determine choice of speech register in monolingual speech.

<sup>31</sup>Here we return to the idealized notion of linguistic competence of Chomsky (1964). Again, while individual differences are expected for all members of a speech community, the assumption that the speech community is fairly homogeneous is reasonable and methodologically appropriate.

<sup>32</sup>Logically the claim is of the form ‘All Ps are Q’ (that is, the grammaticality judgments for all code-switched sentences may be explained in terms of independently motivated principles of the relevant grammars and nothing more). To prove this, we show that in a reasonable sample of Ps, all are Q. Our “reasonable sample” will consist of all the facts of the Spanish-Nahuatl corpus obtained for this dissertation, plus data from other corpora where we expect to find counter-examples. This material is presented in chapter 5.

technical, as it drew upon recent developments in abstract phonology of the sort discussed at length in Chomsky and Halle (1968).

The primary role of such work is to impact on language education research as a whole and ultimately contribute to the formation of new, improved frameworks for language education. The present work, to the extent that it leads to an enriched understanding of bilingualism, may have a positive impact upon policy, teaching and curriculum. I will return to these topics in chapter 5, drawing some connections between the basic research developed here and its impact upon practice.

## 2. LITERATURE REVIEW

Several topics should be addressed to preface the study undertaken in this dissertation. In this chapter, I review published literature from six sources. First, because code switching by definition involves bilingual speech, a review of the literature which attempts to define bilingualism will be sketched. Following this, I review some recent and influential treatments of code switching, narrowing in on grammatical aspects of code switching, the topic of this dissertation. I then touch upon important distinctions in language contact phenomena (borrowings, calques, pidgins and creoles) to help properly discriminate code switching from other contact phenomena. A sketch of recent developments in syntax is then provided, focusing on the Minimalist Program which will form the theoretical basis for the discussion in chapter 5. Finally, I briefly discuss the linguistic literature available on Spanish and Nahuatl, the languages which comprise the corpus reported in chapter 4, and then sketch the historical and social context of Spanish-Nahuatl bilinguals in contemporary Mexico.

### *2.1 What is Bilingual Proficiency?*

I will be concerned in this dissertation with what has been called “individual bilingualism,” in distinction from “societal bilingualism” (Baetens Beardsmore, 1986). The latter is concerned with language policy and the social rewards of language choice

(Ferguson, 1959; Kjolseth, 1978), while the former is concerned with the representation of language and language use in the individual who speaks more than one language.<sup>33</sup>

### 2.1.1 Some Definitions

Haugen's (1953: 7) definition of individual bilingualism is extremely inclusive and may therefore be a good starting point:

Bilingualism is understood . . . to begin at the point where the speaker of one language can produce complete meaningful utterances in the other language.

There are some difficulties, it seems, with this very generous view of bilingualism. For instance, while traveling in Paris, I was able to produce basic questions in French to find my hotel (*Où est le boulevard St. Germain?*) but would not have been able to count to ten, conjugate a single verb, or even use greetings appropriately. Similarly, if college freshmen may be described as “bilingual” after a first course in a foreign language, then it will be very important to distinguish this sort of bilingualism from others.

Halliday, McKintosh and Strevens (1970) have used “ambilingualism” to describe an individual who is capable of functioning equally well in either of his languages in every domain of activity and without any trace of one language in the other. According to Fishman *et al.* (1971), instances of bilingualism of this type are extremely rare:

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<sup>33</sup>Bilingualism is generally taken to denote the use of more than one language, rather than strictly *two* languages (but see qualifications regarding relative competence below). I will use the term with this meaning throughout.

Bilinguals who are equally fluent in both languages (as measured by their facility and correctness overall) are rarely equally fluent in both languages about *all possible topics*; this phenomenon is invariably a reflection of the fact that societal allocation of functions is normally imbalanced and in complementary distribution rather than redundant.

According to Hakuta (1986) and Romaine (1989), bilingualism is encouraged and maintained when different functions of language are assigned to different languages.

This observation is consistent with Fishman's suggestion noted above; bilinguals may be better at talking about homelife in the language they use at home and better at talking about school life in the language used at school, precisely because language is the product of varied experience. Thus, a complementary distribution often emerges with respect to a bilingual's facility in different topics.

Cummins (1981) has also introduced a typology of bilingualism in connection with his Threshold Hypothesis, discussed at some length in section 1.3.2. A "proficient bilingual," in his terms, is simply one with native-like ability in both languages. A "partial bilingual" has native-like ability in one language and partial ability in another. Cummins' view that a third sort of bilingualism exists, called "limited bilingualism," in which an individual is said to have "low ability in both languages," is disputed in section 1.3.1 and in Valadez, MacSwan and Martínez (1997).

### **2.1.2 Critical Period Effects and Language Proficiency**

Another factor influencing bilingual proficiency, often associated with partial bilingualism, is the critical period for language acquisition. A number of studies have reported extreme negative effects due to late exposure to primary linguistic data, often to the extent that universal principles of human language are inoperative.

The best known and most extensively studied case of this sort is Genie, a young girl who was tragically isolated in a small room from the age of 20 months to past 13 years. Curtiss (1977, 1989), who studied Genie’s linguistic development following her rescue, found that Genie’s speech never passed beyond “primitive syntactic and morphological ability,” essentially “stringing together content words.” Unlike normally developing children, Genie has never been able to use such functional elements as pronouns and prepositions. Examples of her utterances, excerpted from Curtiss (1989), include

- (1a) Applesauce buy store  
‘Buy some applesauce at the store’
- (1b) Genie full stomach  
‘I have a full stomach’
- (1c) Want Curtiss play piano  
‘I want you to play the piano’
- (1d) Father hit Genie cry long time ago  
‘When my father hit me, I cried, a long time ago’

Genie could understand such notions as predictions and conditionals, but she apparently expressed these only by a strategy of linear order. Despite her inability to acquire a grammar, Genie nonetheless demonstrated a “well-developed semantic ability” which included colors and numbers, shape and size terms, supraordinate, basic and subordinate class terms. In addition, she could distinguish among objects in visual and functional terms, could speak about nonpresent persons and objects, as well as past, future and imagined events.

In another study of critical period effects, Mayberry (1993) attempted to test experimentally her hypothesis that “the timing of language acquisition may have greater effects on the outcome of first-language acquisition than second-language acquisition . . .” (36). Mayberry gathered a subject population consisting of thirty-six signers who had used ASL (American Sign Language) continuously for at least 20 years, assigning each subject to one of four experimental groups according to acquisitional history. The subjects in three of these groups were all prelingually (congenitally) deaf but had acquired ASL as a first language in three different age ranges: 0-3 (native learners), 5-8 (childhood learners), and 9-13 (late first language learners). The fourth group of subjects was postlingually deafened and had learned ASL as a second language (late second language learners).

Mayberry’s (1993) subjects were presented with thirty ASL sentences on videotape. They were asked to repeat back each sentence after hearing it (“elicited imitation”); eight of the thirty sentences (randomly selected) were then transcribed, coded, and analyzed along five different variables for each of the thirty-six subjects: (a) response length and sign production rate; (b) lexical and inflectional preservation and change; (c) preservation and sequencing of syntactic constituents; (d) grammatical acceptability; and (e) preservation of sentence meaning.

No significant difference among subjects was found with respect to either response length or sign articulation rate. However, Mayberry found that native signers showed a much higher proportion of preserved lexical stems than any of the other three groups ( $m=0.72$  vs.  $m=0.56$  in each of the other three groups). The native signers also

showed a higher proportion of preserved bound morphemes, a variable on which the late second language learners did better than both the childhood learners and the late first language learners ( $m=0.42$  for the native signers,  $m=0.34$  for the late second language learners, and  $m=0.26$  for the childhood learners and late first language learners).

Mayberry found, too, that age of acquisition significantly affected recall of syntactic constituent structure. Interestingly, the responses of the natives and late second language learners mirrored the syntactic constituent structure of the stimuli to a much higher degree than did those of the childhood or late first language learners ( $m=0.71$  and  $m=0.69$  vs.  $m=0.53$  and  $m=0.47$ , respectively). Age of acquisition also affected the extent to which subjects gave grammatically acceptable responses; this finding is due primarily to the late first language learners who gave significantly fewer grammatically acceptable responses than the other groups. Also, the native learners and the late second language learners outperformed the late first language learners and childhood learners in their ability to preserve the general meaning of the stimuli. But the native language learners in Mayberry's study outperformed all groups.

Thus, if a bilingual has acquired a strong command of a second language relatively late in life, there may be reason to suspect that some critical period effects will persist throughout his life. In a careful study of English-French bilinguals who had mastered French as young adults, Coppieters (1987) found that even the best second language speakers differed in important respects from a control group of native speakers on a highly specific test of grammaticality judgments.

Bley-Vroman (1989) has put together several characteristics of first and second language differences in support of his “fundamental difference hypothesis” which purports simply that there is a fundamental difference between a first language, acquired in infancy, and a second language. Bley-Vroman’s paper is concerned with second language in early adulthood or beyond.

Bley-Vroman (1989) begins by alluding to “the poverty of the stimulus” in first language development, as classically formulated in Chomsky (1965), the notion that our knowledge of language is vastly underdetermined by our experience. In particular, Bley-Vroman is interested in the independence of first language acquisition from such matters as “intelligence, motivation and emotional state” (Chomsky, 1965: 58), none of which is characteristic of second language learning, according to Bley-Vroman. His argument, then, turns on carefully setting out specific ways in which “the logical problem of second language learning” differs from that of first language development.

First, Bley-Vroman points out that there is a lack of guaranteed success in second language learning. While  $L_1$  learners inevitably achieve “perfect” mastery of a language, (adult)  $L_2$  learners often do not. This is an important observation in the context of the question of the logical problem of second language acquisition, for it was precisely the observation that (all normal) first language learners are guaranteed success in the domain of language learning that led Chomsky and others to posit innate properties of language and learning in the first place.

Second, in addition to a lack of guaranteed success, second language learners also experience general failure. While  $L_1$  learners achieve complete success in learning a

language (a complete grammar, in some sense of “complete”), L<sub>2</sub> learners rarely or never do so, according to Bley-Vroman. This observation was made in Coppieters’ (1987) study as well.

Another dimension of difference consists in variation in success, course, and strategy of L<sub>2</sub> learning. While L<sub>1</sub> learners appear to be fairly uniform in degree of success, L<sub>2</sub> learners vary with regard to the degree of attained success in the second language. Also, L<sub>1</sub> acquisition is (basically) uniform in its course of development, but L<sub>2</sub> learners appear to follow very different paths with respect to one another (as shown in Meisel, Clahsen, and Pienemann (1981)). L<sub>2</sub> learners also differ from L<sub>1</sub> learners in terms of learning strategies (mnemonic tricks in vocabulary learning, “avoiding,” “guessing,” and so on).

Bley-Vroman also believes that second language learners differ from first language learners in terms of variation in goals. Thus, while L<sub>1</sub> learners display generally equal facility with language across a range of topics and purposes, L<sub>2</sub> learners often do not. Some L<sub>2</sub> learners develop a sort of “pidginized” language with only rudimentary grammatical devices but which suffices for communicative purposes. Other L<sub>2</sub> learners may be concerned with acquiring language appropriate to particular speaking situations (waiting on tables, lecturing, so on), while yet others may desire perfect (native-like) grammatical competence.

Fossilization is another special characteristic of second language learning. Unlike L<sub>1</sub> learners, many L<sub>2</sub> learners reach a particular level of success beyond which they apparently cannot move. Such learners, after much practice and drilling, may show signs

of success, only to return later to old habits. These sorts of “learning spurts” were also characteristic of Genie’s post-critical period language learning.<sup>34</sup>

Also uncharacteristic of first language learners, second language learners tend to have indeterminate intuitions about the target language they are acquiring. Thus, L<sub>1</sub> learners generally have clear acceptability judgments about sentences in their language (and even vary systematically with respect to the strength of judgments), but even very advanced L<sub>2</sub> learners may lack clear acceptability judgments on sentences of the L<sub>2</sub>. This observation is also consistent with Coppieters’ findings.

In addition, Bley-Vroman points out, instruction plays an important role in second language learning. It is well attested that L<sub>1</sub> learners do not need anything like direct instruction to acquire a native language; in contrast, many studies cited by Bley-Vroman indicate that instruction aids L<sub>2</sub> learning in crucial respects.

Bley-Vroman also points out that negative evidence is required of second language learners but not of first language learners; that is, L<sub>1</sub> learners achieve mastery of their target language in the complete absence of negative evidence (information regarding which sentences are ill-formed), while L<sub>2</sub> learners are dependent upon information of this type to a large degree (although, according to Bley-Vroman, empirical studies in this area are inconclusive).

Finally, an important role is played by affective factors for second language learners which seem to be far less important for first language learners. Success in L<sub>1</sub>

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<sup>34</sup>Susan Curtiss (personal communication).

does not depend on matters of personality, socialization, motivation, attitude or the like in any important respect, but it has become a standard belief among language instructors that affective factors like these play a very important role for L<sub>2</sub> learners.

In light of these several characteristics which distinguish second language learning from first language development, Bley-Vroman concludes that “the same language acquisition system which guides children is not available to adults” (49). Hence, “the logical problem of foreign language acquisition then becomes that of explaining the quite high level of competence that is clearly possible in some cases, while permitting the wide range of variation that is also observed” (49-50). For other discussions of critical period effects in L<sub>2</sub>, see Johnson and Newport (1989) and Strozer (1991).

Working within a particular tradition in second language research, Bley-Vroman’s basic idea is that L<sub>2</sub> is governed by cognitive strategies outside of the language faculty. Thus, a second language learner might obey just those principles of UG that have been instantiated in the L<sub>1</sub>, suggesting that the L<sub>2</sub> is parasitic in some way upon the L<sub>1</sub>. If Bley-Vroman’s basic idea is on the right track, as I will assume here, then it makes sense to speak of “low” or “high” bilingual ability, since one of the languages in question may be highly dependent upon mechanisms external to the language faculty.

Despite the work of Bley-Vroman and others, however, it is important to stress that for many researchers the question of a critical period for language acquisition is still an open one. For a consideration of arguments and evidence which attempt to explain “interference” in L<sub>2</sub> without appealing to a critical period, see papers in Gass and

Schachter (1989) and the excellent discussion in Epstein, Flynn and Martohardjono (1996).

### 2.1.3 Identifying Proficient Bilinguals

One method of determining bilingual proficiency could involve the use of norm-referenced instruments such as those used in Coppieters' (1987) study.<sup>35</sup> However, another adequate indicator may be a simple case history which considers such factors as (a) language dominance and loss, (b) age of onset of exposure to L<sub>1</sub> and L<sub>2</sub>, (b) continued, sustained exposure to both languages, (c) functional specificity for each language, and (d) general verbal fluency.

As mentioned in section 2.1.1, various typologies of bilingualism have been proposed in the literature, ranging from the *ideal bilingual* (or *ambilingual*) to the *marginal bilingual*; depending upon the particular interests of the researcher, these categories are naturally altered and re-focused (for a review, see Skutnabb-Kangas, 1981; Baetens Beardsmore, 1986; Hakuta, 1986; Romaine, 1989). For my purposes here, I will refer to the *native bilingual* or the *proficient bilingual* as one who is relatively evenly dominant in both languages, has actively used both languages since infancy, has had continued, sustained exposure to both languages, and appears to have generally high verbal fluency. These are sufficient, not necessary conditions of "proficient bilingualism"; in other words, while I will take these factors to characterize native or

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<sup>35</sup>However, see Valdés and Figueroa (1994) for an excellent discussion of general problems in the use of testing for bilingual assessment.

proficient bilinguals, I recognize that an individual may be highly bilingual (even just as proficient as a native bilingual) without some or perhaps even all of these conditions being met. In addition, I will refer to an *adult second language bilingual* as one who has mastered one of her languages after the critical period (essentially, after puberty).

Naturally, it is desirable that subjects used in research on code switching have a high degree of bilingual ability (ideally, that they be fluent bilinguals), and that they be selected from communities in which code switching is a socially acceptable speech style. I will return to this discussion in the context of my research design in chapter 3.

## 2.2 Code Switching

Code switching is a speech style in which fluent bilinguals move in and out of two (or conceivably more) languages, as illustrated in the Spanish-English examples in (2) and (3), taken from Belazi, Rubin and Toribio (1994).

- (2) This morning *mi hermano y yo fuimos a comprar* some milk<sup>36</sup>  
This morning *my brother and I went to buy* some milk
- (3) The student brought the homework *para la profesora*  
The student brought the homework *for the teacher*

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<sup>36</sup>As is conventional in the literature, I will signal code switching boundaries by a change from regular to italicized text or vice versa. However, researchers on code switching sometimes use the notions of “embedded” versus “matrix” language and italicize the embedded strings. Since these notions do not play an important role here, and may at times be difficult to define (as when the structure of an example is not sufficiently understood to allow an uncontroversial structural description, or when an ungrammatical example may have no structural description), I will simply use italics/regular text as a toggle to signal switches between languages. Also, in this section, I will provide glosses and translations (the latter appearing in single quotes) unless the gloss happens to be identical with the translation, in which case the latter will not be presented.

Code switching has been studied from a number of perspectives. While some have focused on social dimensions of language use among code switchers, others have taken an interest in the grammatical properties of code switching. Although the latter aspect is central to my topic here, I will briefly sketch some of the pioneering work on the social dimensions of code switching before looking more closely at the literature on its grammatical aspects.

### **2.2.1 Social Aspects of Code Switching**

Myers-Scotton (1993a) credits Blom and Gumperz (1972) with sparking interest in sociolinguistic dimensions of code switching. Blom and Gumperz (1972) studied code switching between dialects of Norwegian in Hemnesberget, a Norwegian fishing village. Although the topic was actually introduced in previous work (Gumperz and Hernandez-Chavez, 1970), the piece by Blom and Gumperz received considerably more exposure because it was included in Gumperz and Hymes' (1972) edited collection which became a standard textbook in the many new sociolinguistics courses created in universities in the 1970s.

In early work, Gumperz analyzed code switching as “situational” or “metaphorical,” adding “conversational” code switching in Gumperz (1982). A situational switch involves a change in participants and/or strategies, whereas metaphorical code switching involves a change in topical emphasis (Gumperz and Hymes, 1972: 409). These switches appear to be motivated by speaker-external factors, according to Gumperz.

Gumperz (1982) proposes six major functions for conversational code switching: (a) quotation; (b) addressee specification; (c) interjection; (d) reiteration; (e) message qualification; and (f) personification vs. objectification. Valdés (1981) posits two additional ones: (g) mitigating the illocutionary effect of speech acts and (h) aggravating the illocutionary effects of speech acts. Hill and Hill (1986) found Gumperz' (1982) and Valdés' (1981) categories for code switching very useful in their analysis of the social aspects of Spanish-Nahuatl code switching in the communities on the western and south-western slopes of the Malinche Volcano in the Valley of Puebla-Tlaxcala. In particular, Hill and Hill (1986) observed high frequencies of code switching regarding topics of religion, money, counting and mathematics.

Gumperz' model focused on micro-level sociolinguistic analysis, using naturally occurring data from small-group interactions as the core data source. Whereas Labov and other sociolinguists tied language use to sociological variables, Gumperz considered language use to be a function of the dynamics of interaction. Thus, for Gumperz, language choice conveys intentional meaning of a sociopragmatic sort:

Detailed observation of verbal strategies revealed that an individual's choice of speech style has symbolic value and interpretive consequences that cannot be explained simply by correlating the incidence of linguistic variants with independently determined social and contextual categories [Gumperz, 1982: vii].

Thus, Gumperz views language choice as a *discourse strategy*. In Gumperz (1970, 1976), grammatical dimensions of code switching are also considered.

In some respects, the influence of Gumperz's views may be seen in the development of Myers-Scotton's (1993a) Markedness Model, which posits that "speakers have a sense of markedness regarding available linguistic codes for any interaction, but

choose their codes based on the persona and/or relation with others which they wish to have in place” (Myers-Scotton, 1993a: 75). After displaying a transcription of a Swahili-dominated code-switched conversation in Swahili, English and Kikuyu at a parking lot in Nairobi, Myers-Scotton (1993a: 76-79) claims that Swahili is the unmarked choice for conversational interaction for public transactions of this sort.

Modeled after Grice’s (1975) cooperative principle, Myers-Scotton (1993a: 113) posits a “negotiation principle” which underlies all code switches:

- (4) *The negotiation principle*  
 Choose the *form* of your conversation contribution such that it indexes the set of rights and obligations [the RO set] which you wish to be in force between speaker and addressee for the current exchange.

The RO set is indexed by features. Speaking English in Nairobi, for instance, “may be indexical of any of a set of attributes, including most prominently ‘plus high educational level/socio-economic status’, ‘plus authority’, ‘plus formality’, and ‘plus official’” (86).

In other words, people make assumptions about others based on how they speak, and the choices they make in conversation may signal particular social relationships which they seek to establish. These are interesting facts about language use and are certainly worth noting, but notions such as ‘rights and obligations,’ ‘formality,’ ‘official’ and so on are extremely difficult to factor into a theory of human interaction in terms of the sort of model which Myers-Scotton (1973a) seeks to develop. Essentially, her model translates an observation which is storable in very simple terms into one which uses an unconstrained, proliferating inventory of features which bear on social interaction. (Other interesting work on the social aspects of code switching appear in papers in Durán (1981) and Amastae and Elías-Olivares (1982).)

There is little hope, it seems, that a set of explanatory principles can reliably be developed which predict when and how people will say what, as Chomsky (1959) argued nearly forty years ago. Gumperz also agreed that, while social motivations for code switching can be catalogued and described in interesting and informative ways, theoretical constructs of general or universal use may be quite beyond our reach. This perspective is echoed in Lipski (1978: 261):

Indeed, since the role of individual idiosyncratic factors seems to be an important aspect of code-switching, in that among groups of approximately equal bilingual abilities, some code-switch more than others, a complete determination of the sufficient conditions for code-switching probably lies beyond the reach of the behavioral sciences. With regard to the linguistic constraints, however, the path toward an eventual model seems more clearly indicated.

### 2.2.2 Grammatical Aspects of Code Switching

Although Labov (1971) characterized code switching as “the irregular mixture of two distinct systems,” more recent work on the topic has shown that the mixture is in fact quite regular. Consider, for instance, the examples shown in (5) and (6).

(5) \*I saw *lo*  
‘I saw it’

(6) \*Los estudiantes habían *seen the Italian movie*  
‘The students have seen the Italian movie’

The fact that (5) and (6) are ill-formed and (2) and (3) well-formed suggests that code switching exhibits grammatical structure.

The remaining question is what the underlying structure is. As the references in Table 1 (page 68) indicate, much has been written on this topic. The earliest proposals regarding the grammatical properties of code switching began to appear in the 1970s with

Gumperz (1970, 1976), Timm (1975), Wentz (1977) and Pfaff (1979). In a study of Spanish-English code switching, Timm (1975) noticed that a code switch may not occur between a subject pronoun and a verb or between a verb and its object pronoun. Pfaff (1979) noticed additional constraints on code switching involving adjectives and nouns. These early studies were concerned with the basic facts of code switching and did not attempt to provide anything approaching an explanation of grammatical phenomena in code switching.

Below I will outline some popular and influential approaches which have attempted to explain code switching behavior; in particular, I will focus on Poplack (1980, 1981); Joshi (1985); Di Sciullo, Muysken and Singh (1986); Mahootian (1993); and Belazi, Rubin and Toribio (1994). I will also briefly discuss “speech-processing” approaches before summarizing the basic findings in the code switching literature.

### ***2.2.2.1 Poplack’s (1980, 1981) approach***

Poplack (1980, 1981) and Sankoff and Poplack (1981) propose constraints which govern the interaction of the language systems, deemed a “third grammar” approach by Mahootian (1993). Specifically, Poplack proposes the Equivalence Constraint and the Free Morpheme Constraint, defined in (7) and (8).

- (7) *The Equivalence Constraint*  
Codes will tend to be switched at points where the surface structures of the languages map onto each other.
- (8) *The Free Morpheme Constraint*  
A switch may occur at any point in the discourse at which it is possible to make a surface constituent cut and still retain a free morpheme.

The idea in (7), given Poplack's examples, is that code switches are allowed within constituents so long as the word order requirements of both languages are met at S-structure; (8), stated differently, tells us that a code switch may not occur at the boundary of a bound morpheme. To illustrate, (7) correctly predicts that the switch in (9) is disallowed, and (8) correctly disallows (10).

(9) \*told *le*, *le told*, *him dije*, *dije him* [Poplack, 1981: 176]  
 told *to-him*, *to-him I-told*, *him I-told*, *I-told him*  
 '(I) told him'

(10) \**estoy eat-iendo* [Poplack, 1980: 586]  
 I-am eat-ing

Like the descriptive accounts, Poplack's constraints do not attempt to explain the facts described in (7) and (8), if indeed they are facts. In addition, because (7) and (8) are taken to be principles of the grammar, this approach suggests that code switching is governed by a sort of "third grammar" which constrains the interaction of the two systems in mixture, a topic I will return to in section 5.1. In addition to these theory-internal difficulties, (7) and (8) do not hold up to empirical tests. For instance, although the constructions in (11) are not disallowed by either of Poplack's constraints, informants for Belazi, Rubin and Toribio (1994: 225) regarded them as unacceptable.

(11a) \*The students had *visto la película italiana*  
 The students had *seen the Italian movie*

(11b) \*Los estudiantes habían *seen the Italian movie*  
 The students had *seen the Italian movie*

Other counter-examples will be presented in section 5.2.1 using data obtained during fieldwork for this dissertation. However, in section 5.3.1.5, I will argue that (7) is an essentially correct generalization.



example in (15) (Mahootian, 1993) and the Italian-French example in (16) (Di Sciullo, Muysken and Singh, 1986).

- (15) Anyway, I figured *ke* if I worked hard enough, I'd finish in the summer  
 'Anyway, I figured that if I worked hard enough, I'd finish in the summer'
- (16) No, *parce que* hanno *donné des cours*  
 no, because have given of the lectures  
 'No, because they have given the lectures'

Other counter-examples will be presented in section 5.2.1 using data obtained during fieldwork for this dissertation.<sup>37</sup>

### 2.2.2.3 *Di Sciullo, Muysken and Singh's (1986) approach*

Di Sciullo, Muysken and Singh (1986) propose that there is an anti-government requirement on code switching boundaries. Their constraint is shown in (17).

- (17) *Government Constraint*<sup>38</sup>
- a. If  $L_q$  carrier has index  $q$ , then  $Y_q^{\max}$ .
  - b. In a maximal projection  $Y^{\max}$ , the  $L_q$  carrier is the lexical element that asymmetrically c-commands the other lexical elements or terminal phrase nodes nominated by  $Y^{\max}$ .

The proposed constraint in (17) has the virtue that it refers to an independently motivated principle of grammar (government), while proposals considered in sections 2.2.2.1 and 2.2.2.2 do not. However, it falls short of the basic requirement of descriptive adequacy. Because government holds between a verb and its object and between a preposition and

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<sup>37</sup>As pointed out by Susan Curtiss, the example in (16) also serves as counter-evidence to Poplack's Equivalence Constraint since a switch occurs between French *que* and Italian *hanno*, a juncture where surface structures differ (since Italian is a *pro*-drop language and French is not).

<sup>38</sup>Government and related syntactic relations will be discussed in more detail in section 2.4.2.

its object, (17) predicts that a verb or preposition must be in the language of its complement. This is shown to be incorrect by examples in (2) and (14), repeated here.

(2) This morning *mi hermano y yo fuimos a comprar* some milk  
This morning *my brother and I went to buy* some milk

(14) J'ai joué avec *il-ku:ra*  
I.have played with the-ball  
'I have played with the ball'

Again, other counter-examples will be presented in section 5.2.1 using data obtained during fieldwork for this dissertation.

#### 2.2.2.4 Mahootian's (1993) approach

Mahootian (1993) and Mahootian and Santorini (1995) propose an account which focuses on the complement relation in phrase structure. Thus, as Mahootian (1993) put it, the operative principle is (15).

(15) The language of a head determines the phrase structure position of its complements in code switching just as in monolingual contexts.

Mahootian (1993) used a corpus of Farsi-English code switching data which she collected in naturalistic observations. In Farsi, objects occur before the verb, contrasting with basic word order in English. Mahootian (1993) observed that in code switching contexts the language of the verb determines the placement of the object, as in (16).

(16) You'll buy *xune-ye jaedid*  
you'll buy house-POSS new  
'You'll buy a new house'

In Mahootian and Santorini (1996), this mechanism is applied to Nartey's (1982)

AdãNme-English code switching data to derive the following:

- (17) E wo *green dress* ko  
 he/she PAST tone wear green dress ART  
 ‘(S)he wore a green dress’

Since in AdāNme the determiner *ko* is postnominal, it follows the NP *green dress*.

In their commentary on Belazi, Rubin and Toribio’s (1994) work, Mahootian and Santorini (1996) slightly modify (16) to focus on more general properties of syntactic heads:<sup>39</sup>

- (17) Heads determine the syntactic properties of their complements in code switching and monolingual contexts alike.

While the new formulation continues “focusing on phrase structure position ..., the syntactic properties referred to in ([17]) include other grammatical features such as syntactic category and finiteness” (472).

This approach also has some problems. Mahootian (1993) uses a tree-adjointing grammar (TAG) formalism which she stresses is an implementation of general work in the GB tradition. However, note that (16) and (17) are predicted by (15) or (17) only if the *branching direction* of the complement is encoded in the head. TAG formalisms encode branching direction by positing the existence of “auxiliary trees,” partial structures which represent a complement on the left or right of its head, as appropriate to the language under consideration. However, classical GB Theory has long argued against encoding branching direction (Stowell, 1981; Chomsky, 1981), and current work in this

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<sup>39</sup>Pandit’s (1990) formulation, cited by Mahootian and Santorini (1996), is similar: “Code switching must not violate the grammar of the head of the maximal projection within which it takes place” (43).

tradition posits a universal base in which all complements branch to the left (Chomsky, 1995a).

In addition, there are well-known counter-examples to the formulation in (17). In both English and Spanish, it is generally assumed that Neg(ation) selects a tensed verb to its right. Despite the adherence to (17), the code switches in (18) are strongly deviant.

(18a) \*El no *wants to go*  
 he not want to go  
 ‘He doesn’t want to go’

(18b) \*I never *voy a terminar*  
 I never AUX PRT finish  
 ‘I’ll never finish’

Joshi’s (1985) example presented above in (13), repeated here, is also a counter-example to (17). Although the complement of the Marathi postposition *war* appears on the right of the phrase, as required, the construction is ill-formed.

(13) \*some chairs-*war*  
 some chairs-on  
 ‘on some chairs’

There are a number of other counter-examples to Mahootian and Santorini’s system, but such examples are rejected as spurious by these authors because they do not come from naturalistic corpora. The basic argument for doing so relies upon the assumption that code switching is a socially stigmatized behavior, so code switchers may be influenced by this stigma in rendering judgments on sentences (Mahootian, 1993). However, the basic premise here is incorrect. Code switching is not universally stigmatized; indeed, in many cultures it is regarded as a prestigious display of linguistic talent. Conversely, there are individual languages which are extremely stigmatized in

some places (modern Nahuatl in Central Mexico, for instance), but linguists have fruitfully studied such languages using traditional elicitation methods for many years.

In addition, the requirement that only naturally occurring data be used poses many serious problems for linguistic theory. Mahootian (1993: 2) states that the goal of a linguistic theory is to “account for the natural occurrences of the data for which it has been constructed.” However, at least within the generative linguistic tradition in which Mahootian works, it is crucially *not* the goal of linguistic theory to account for the set of naturally occurring utterances. First, this is an impossible task, since the set of structures which a syntactic theory accounts for is infinite, due to the recursive properties of the generating function, and could therefore never be finitely enumerable for inspection under natural circumstances. Second, there is a large range of (native) speech errors which occur naturally but which no linguistic theory seeks to represent (slips of the tongue, coughs, false starts, lapse of attention, interruptions, and on and on). Also, constructing a linguistic theory with this arbitrary limitation makes the investigation of *relative* judgments on acceptability utterly impossible, and such relative judgments have proven very useful in the investigation of syntactic phenomena (consider, for example, treatments of strong and weak crossover effects in *wh*-movement). Finally, and perhaps most problematic, naturalistic data do not contain sentences marked as ill-formed at all, so many hypotheses are untestable; specifically, no claim regarding what cannot occur can be properly evaluated.

Other counter-examples to Mahootian’s approach will be presented in section 5.2.1 using Spanish-Nahuatl data obtained during fieldwork for this dissertation.

However, having made some specific criticisms, I should point out that (17) captures some basic insights which I will pursue in section 5.1.

#### 2.2.2.5 *Belazi, Rubin and Toribio's (1994) approach*

Belazi, Rubin and Toribio (1994) propose the Functional Head Constraint, arguing that it emerges from principles independently motivated in the grammar for other phenomena. According to these researchers, the descriptive facts are these:

- (19) A code switch may not occur between a functional head and its complement.

To explain the facts in (19), Belazi, Rubin and Toribio (1994) appeal to “feature checking,” independently motivated to be at work in numerous other phenomena.

However, Belazi, Rubin and Toribio (1994) also add an additional item to the feature stack. According to them, an additional *language feature*, such as [+Spanish] or [+English], is checked together with other features. If the features do not agree (a Spanish functional head with an English complement, or vice versa), then the code switch is blocked. They formulate their constraint as in (20).

- (20) *The Functional Head Constraint*  
The language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of that functional head.

Since (20) applies to f-selected configurations only, switches between lexical heads and their complements are not constrained. (See Abney (1987) for a discussion of f-selection.)

Belazi, Rubin and Toribio (1994) also noticed that modification structures provide a special challenge, since these do not involve functional categories. Thus, they posit the

Word-Grammar Integrity Corollary to account for code switching phenomena in these structures.

- (21) *Word-Grammar Integrity Corollary*  
A word of language X, with grammar  $G_X$ , must obey grammar  $G_X$ .

Some of the descriptive facts mentioned in (20) are in dispute, as Mahootian and Santorini (1996) point out, a matter I will return to in section 2.2.2.7. For now I will simply discuss this proposal in terms of its own internal weaknesses, putting aside empirical evidence.

First, the operation of (20) requires a language feature such as [+Spanish] or [+Greek]. Since this proposed “language feature” is not independently motivated for any other linguistic phenomenon, it serves only to re-label the descriptive facts. In addition, linguists take particular grammars to be derivative in nature, not primitive constructs, since primitives are by definition part of universal grammar. A particular language is a set of parameter values over the range of variation permitted by universal grammar, so positing a label for a particular language as a primitive in syntactic theory leads to an ordering paradox.<sup>40</sup>

Also, note that features generally have a relatively small set of discrete values, such as [+finite] or [-past]. By contrast, there are infinitely many particular languages (Keenan and Stabler, 1994), and the dividing lines between them are often quite obscure. Thus, a language feature might be set to [-Greek] as easily as it is set to [+Greek], introducing extreme computational complexity. The feature [+Chinese] would

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<sup>40</sup>On the derivative nature of language in linguistic theory, see Lightfoot (1982).

presumably include all the mutually unintelligible languages of China, and [+Norwegian] would exclude Swedish even though Swedish and Norwegian speakers generally understand each other.

As Bickerton (1982) and others have stressed, the rules of grammar are independent of sociolinguistic factors. Chomsky (1995a: 11, n6) has also noted this fact in another connection:

Thus, what we call “English,” “French,” “Spanish,” and so on, even under idealizations to idiolects in homogeneous speech communities, reflect the Norman Conquest, proximity to Germanic areas, a Basque substratum, and other factors that cannot seriously be regarded as properties of the language faculty.

However, the analysis is greatly improved if we regard [+English] to be a collection of formal features which define “English,” as Jacqueline Toribio (personal communication) has suggested. On this view, names for particular languages act as variables for bundles of features which formally characterize them. The ordering paradox disappears, because language features like [+English] or [+Spanish] are no longer taken to be primitives in the theory of syntax.

This now gives the Functional Head Constraint (FHC) in (20) new empirical content. In particular, to evaluate the FHC, particular hypotheses about which features of English, being distinct from features of Spanish, result in a conflict. No such hypotheses are presented or evaluated in Belazi, Rubin and Toribio (1994). In addition, the idea that head-complement configurations are checking domains must be independently motivated. If current approaches are correct in assuming that only head-head and head-spec configurations are checking domains (Sportiche, 1995b; Chomsky, 1995a), then the FHC

could not be correct, even if “the language feature” were given the empirical content it now lacks.

In addition, that (21) should be viewed as a “corollary” to (20) is far from obvious. To be a corollary, it should be incidentally shown in proving (20), or it should be some natural consequence of (20). Since (20) crucially depends upon a language feature in a functional category and (21) involves no functional categories, it is difficult to see how it might count as a corollary.

Some counter-examples to Belazi, Rubin and Toribio’s (1994) approach will be presented in section 5.2.1 using Spanish-Nahuatl data from chapter 4, and conflicts between their data and those of other studies will be taken up in section 5.3.

Again, having made some specific criticisms, I nonetheless see a crucial insight in (20) and (21); it is the idea that lexical properties alone, expressed in terms of feature matrices, determine the code switching facts. I will return to this idea in section 5.1.

#### **2.2.2.6 *Speech-planning approaches***

Finally, I should briefly discuss a class of proposals made within a speech-planning framework, exemplified in work by Azuma (1991, 1993), de Bot (1992) and Myers-Scotton (1993b, 1995). These approaches rely upon work on sentence production by Fromkin (1971) and Garrett (1975) and frequently use Levelt’s (1989) *Speaking* model.

According to Azuma (1993) and Myers-Scotton (1993b), the matrix language defines the surface structure positions for content words and functional elements. Thus,

we expect (22a) to be well-formed but not (22b) since in (22b) the determiner *the* is not in the surface position of the matrix language (Azuma, 1993).

- (22a) Uchi wa *whole chicken* o kau noyo  
 we TOPIC *whole chicken* ACC. buy TAG  
 ‘We buy a whole chicken’
- (22b) \*Watashi ga katta *the* hon wa takai  
 I NOM. bought *the* book TOPIC expensive  
 ‘The book I bought is expensive’

As best I can tell, this approach is equivalent to the Equivalence Constraint in (7) and subject to some of the same criticisms. In particular, it is subject to the same counter-examples, such as those presented in (11), repeated here.

- (11a) \*The students had *visto la película italiana*  
 The students had *seen the Italian movie*
- (11b) \*Los estudiantes habían *seen the Italian movie*  
 The students had *seen the Italian movie*

Notice that (11) is ill-formed even though the matrix language, whether it is English or Spanish in this case, has correctly defined the positions of content words and functional categories. I will present other counter-examples from the Spanish-Nahuatl corpus in section 5.2.1.

On theory-internal considerations, it is not obvious that code switching has the same character as other processing phenomena, such as limitations on center embedding and lengths of sentences. From the examples in (11), it is clear that unacceptability in code switching cannot be accounted for in such terms. While speech processing models invariably assume a uniform mechanism across languages, the examples in (11) do not differ at the surface from monolingual sentences except with respect to the phonetic

shape of some of their constituents. Yet they are ill-formed, a surprising fact if the parser is responsible.

In addition, a much more precise way of talking about processing of such constructions, perhaps along lines explored in Stabler (1994), should be employed if code switching boundaries are to be successfully defined in such terms. Myers-Scotton (1993b: 19) describes the level at which code switching boundaries are defined as “an even more non-representational level in message construction,” but the non-representational character of this system is not made precise. Thus, before a theory of code switching can be successfully worked out in terms of a parsing theory, a much more precise theory will be required. (On the limitations of non-representationalist theories, see Fodor (1981), Chomsky (1991), and Wexler (1991).) However, just as parsing considerations are sufficient to rule out *some* monolingual constructions, they may be sufficient to rule out *some* code-switched constructions. I will discuss this matter in connection with some specific examples in section 5.3.1.1.

#### ***2.2.2.7 Summary of basic findings in code switching corpora***

There is some disagreement regarding code switching boundaries in the literature. Much of Mahootian and Santorini’s (1996) criticisms of Belazi, Rubin and Toribio (1994), for instance, are concerned with the accuracy of the data captured in (19). In Table 1 (page 68), I summarize the descriptive facts of the code switching corpora reported in the literature, and indicate if and where these facts have been challenged, as

Table 1: Summary of Basic Findings in Code Switching Corpora

<i>Item ref #</i>	<i>Descriptive boundaries (+ = code switch)</i>	<i>Reported in ...</i>	<i>in disagreement with ...</i>
1a	<i>because + CP</i>	Gumperz (1976)	Poplack (1981) Sankoff and Poplack (1981) Mahootian (1993)
1b	<i>conj + CP</i>	Gumperz (1976)	Poplack (1977) McClure (1981)
2	<i>that + IP</i>	Belazi, Rubin and Toribio (1994)	Bentahila and Davies (1983) Mahootian (1993)
3a	<i>have + VP</i>	Belazi, Rubin and Toribio (1994)	Di Sciullo, Muysken and Singh (1986)
3b	<i>modal + VP</i>	Belazi, Rubin and Toribio (1994)	Di Sciullo, Muysken and Singh (1986)
3c	<i>to + V</i>	Timm (1975)	Lipski (1978) Poplack (1981) McClure (1981)
3d	<i>Aux + V</i>	Timm (1975)	Lipski (1978) Poplack (1981) McClure (1981) Mahootian (1993)
3e	<i>Neg + V</i>	Timm (1975)	undisputed
4a	<i>Q + NP</i>	Belazi, Rubin and Toribio (1994)	Bentahila and Davies (1992) Mahootian (1993)
4b	<i>Demonstrative + NP</i>	Belazi, Rubin and Toribio (1994)	Nishimura (1985) Bentahila and Davies (1992) Mahootian (1993)
4c	<i>Article + NP</i>	Belazi, Rubin and Toribio (1994)	Brown (1986) Bentahila and Davies (1992) Mahootian (1993)
4d	<i>Complex D + NP</i>	Wentz (1977)	Poplack (1981)
5a	<i>N + Adj (Adj from Adj-N language, N from N-Adj language)</i>	Gumperz (1976) Lipski (1978) Belazi, Rubin and Toribio (1994)	Bokamba (1989) Mahootian and Santorini (1996)
5b	<i>Adj + N (Adj from N-Adj language, N from Adj-N language)</i>	Belazi, Rubin and Toribio (1994)	Poplack (1981)
6a	<i>Subject pronoun + V</i>	Timm (1975) Gumperz (1976) Lipski (1978)	Poplack (1981) Mahootian (1993) Bentahila and Davies (1983)
6b	<i>V + object pronoun</i>	Timm (1975) Gumperz (1976) Lipski (1978)	Poplack (1981) Mahootian (1993)
6c	<i>clitic + V or V + clitic</i>	Timm (1975)	undisputed
6d	<i>Gapping constructions with Aux second V switched (marginal)</i>	Gumperz (1976)	Poplack (1981)
7	<i>A switch involving a bound morpheme</i>	Poplack (1981) Sankoff and Poplack (1981)	Nishimura (1985) Mahootian (1993) Myers-Scotton (1993b)

best I know.<sup>41</sup> As will be discussed in chapter 3, Table 1 provided considerable guidance for my own fieldwork.

Despite problems in the proposals I have reviewed in this section, considerable progress has been made in our understanding of the descriptive facts of code switching, and a number of excellent attempts have been made to explain the distribution of these facts. In my view, the general approaches pursued by Belazi, Rubin and Toribio (1994) and Mahootian (1993) are the most promising avenues for success. Although both proposals are overly concerned with the complement relation in phrase structure, there are insights in both regarding the important role of syntactic heads, the lexicalization of parametric variation, and (in the former) feature checking theory. I will argue, too, that Poplack's Free Morpheme Constraint is essentially descriptively correct, but it must be refined and shown to relate to more primitive mechanisms of grammar (some suggestions are made in section 5.3.1.7).

After a discussion of important language contact phenomena, intended to aid in the development of a proper understanding of code switching data, I will review relevant topics in the theory of syntax as a way of pointing to the particular theoretical direction that the present study will take.

### *2.3 Language Contact Phenomena*

Code switching is most likely to occur in bilingual communities -- that is, in communities in which languages have come into contact with one another. It is

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<sup>41</sup>I am grateful to Jacqueline Toribio and Shahrzad Mahootian for comments on a draft of Table 1.

important in research on code switching to carefully distinguish code switching, in which two distinct language systems interact, from language contact phenomena in which one language influences the lexicon and perhaps the grammar of another.

### 2.3.1 Borrowings and Calques

Borrowing often occurs wherever languages come into contact; however, the degree to which speakers are aware of the non-native character of borrowed words may differ with each borrowed item. For instance, a monolingual English speaker might use the term *pork* without the slightest awareness that it was borrowed from French during the Norman Conquest. On the other hand, a speaker might use the expression *tour de force* fully aware that the expression is of French origin. In this latter case, the English speaker may have some grasp of the internal structure of the phrase without having a fully productive knowledge of the internal structure of French DPs. An English speaker who encounters the French word *genre* may also have difficulty pronouncing the word with a palatal fricative in initial position, since English phonology does not permit this.

Thus, it may be useful to think of lexical borrowing as a matter of degree. For most speakers, the French word *porc* is fully incorporated into English (spelled *pork*). Its only native properties are its phonetic features, its syntactic category, and aspects of its original meaning. In contrast, *genre* has retained all of these properties in addition to its peculiar phonology (for some English speakers). The phrase *tour de force* may have even kept some of the original syntactic properties spelled out within its maximal projection. However, since the monolingual speaker imagined here does not have a fully

productive linguistic system for French, these aspects of borrowing should not be regarded as cases of code switching.

Indeed, most researchers on code switching have emphasized that borrowing must be carefully distinguished from code switching (Pfaff, 1979; Sankoff and Poplack, 1981; Belazi, Rubin and Toribio, 1994). However, Hill and Hill (1986: 345) note that code switching and borrowing are often difficult to separate:

In practice, it is quite difficult for linguists to distinguish between cases of borrowing and cases of code-switching. Since code-switching occurs in situations where two languages are in contact, foreign material in the usage of bilinguals can be of both types. It is not possible to divine the nature of speaker self-consciousness about foreign materials, so linguists have generally tried to distinguish between borrowing and code-switching on strictly linguistic grounds.

Borrowed words are often assumed to be marked by *morphological nativization*.

Spanish words borrowed into Nahuatl, for instance, are marked with the thematic suffixes *-oa* (transitives), *-(i)hui* (intransitives), and *-lia* (applicatives). Hill and Hill (1986: 158) provide examples:

(23) quin-costar-*oa* trabajo  
 them cost-TRNS work  
 ‘It costs them work’

(24) costar-*ihui* in nêca trabajo  
 cost-INTRNS the that work  
 ‘That work is costly’

Unlike verbs that are borrowed from Spanish, nouns are not morphologically marked in any similar way, as (23) and (24) show (*trabajo* in these examples has the same morphological shape as the Spanish word *trabajo* ‘work’). However, the Nahuatl plural suffix *-tin* or *-meh* is often attached to Spanish nouns. Notice, for instance, that the

speaker uses both Nahuatl (*-tin*) and Spanish (*-s*) morphology in a single utterance in (25) to pluralize the Spanish(-origin) word *persona* ('person').

- (25) Pues, cateh *persónahtin*, âquin cmatih [Hill and Hill, 1986: 165]  
 tlahtôzqueh, *personas* cpiah ocachi edad.  
 'Well, there are people who know how to speak,  
 people who are older'

In (25), both *personas* and *persónahtin* may be word-level code switches, or they may suggest that *persona* has been borrowed into Nahuatl. This case illustrates the difficulty of distinguishing between borrowing and word-level code switches in bilingual speech communities. While Spanish *trabajo* appears to be fully incorporated into Nahuatl in (23) and (24), *persona* in (25) is in one instance morphologically coded for Spanish and in another for Nahuatl.

It is also possible to borrow only pragmatic or morphosyntactic properties while using the phonetic material of the native language; this is the case of calques, also called "loan translations." These are special instances of borrowing in which the phonetic properties of words from one language are used in combination with pragmatic or morphological properties of words from another. For instance, (26a) is the Nahuatl expression for 'I am hungry,' used universally in the towns around the Malinche Volcano and attested in dictionaries of the classical language from the earliest period, according to Hill and Hill (1986). Nonetheless, Hill and Hill (1986: 140) report that one speaker insisted on (26b), a reflection of Spanish usage, as the "legitimate" and "correct" form.

- (26a)           nimayana  
                   I am hungry
- (26b)           nicpia apiztli  
                   I have hunger

While (26b) is well formed from the point of view of grammar (just as English “I have hunger” is well-formed), we might think of this loan translation as *pragmatically*, or maybe *stylistically* dispreferred.

Hakuta (1986: 55) reports a similar case of loan translation from Leopold’s notes of his German-English bilingual child who uttered (27), an expression composed of English words (except for German *man* ‘one’), but which uses German syntax in the subordinate clause.

(27) Which grade is *man* in when *man* nine years old is?

However, although (27) is characterized as a loan translation, it is not the clear case that (26b) should be. It may be, on some analysis of (27), that *man* introduces features into the derivation which can only be satisfied with the V-final construction observed here, in which case (27) would be an example of code switching and its peculiar syntax would be explained. Analyses in this vein will be presented for Spanish-Nahuatl code switching in section 5.2.2.

Finally, Suárez (1977) presents twenty common words used in nearly all modern dialects of Nahuatl which have been borrowed from Spanish. These are given below in (28) (where the glosses are my English renditions based on Suárez’ explication). In addition to these, Nahuatl of southeast Puebla, where I collected data, also productively uses *kuando* ‘when,’ from Spanish *cuando* (Alva Hernández, 1996; see also section 4.2.12).

The forms listed in (26) have replaced their classical equivalents in nearly all modern dialects of Nahuatl. There are also numerous “content” words borrowed into

Nahuatl from Spanish (perhaps as many words have been borrowed from Nahuatl into Spanish) (Hill and Hill, 1986). The extent of these content-word borrowings varies considerably from dialect to dialect.

(28)	<i>Spanish word</i>	<i>Nahuatl spelling</i>	<i>English gloss</i>
	antes	antes	before
	cada	kada	each
	como	komo	like, as
	de	de	of, from
	desde	desde	(ever) since
	después	despues	after
	entonces	entonses	so, then
	hasta	asta	until
	(lo) que	loke	that which, the one who
	más	mas	more (comparative)
	más que	maske	although
	mientras	mientras	while
	ni	ni	neither
	o	o	or
	para	para	in order to
	pero	pero	but
	por	por	because (of)
	porque	porke	because
	pues	pues	well (interjection)
	si	si	if

While these facts serve as very interesting data for the study of the bilingual lexicon, in the present context they suggest a challenging project of data collection. Nevertheless, despite the great influence of Spanish on Nahuatl, the languages are still sufficiently different to distinguish genuine cases of code switching. I will return to particular ways in which I will control for these factors in chapter 3.

Shaffer (1978) insists that all cases of language mixture involving the use of an individual lexical item should be regarded as cases of borrowing in the study of code switching, if only as a methodological precaution. The judgment as to whether a

particular piece of data represents borrowing or code switching will sometimes be a very complex matter, involving consideration of many different factors. As mentioned in section 2.3.1, phonological and morphological incorporation, as well as a comparison with monolingual speech, will be some of the factors which aid in making this determination. In section 5.3.1.7, I will attempt to make sense of this idea in terms of the architecture of the bilingual language faculty. In chapters 4 and 5, I will refer to words that have been lexically, syntactically, morphologically and phonologically incorporated into a host language as “fully borrowed” items, distinguishing them from “partial borrowings” (like *tour de force* and *genre* in English) and calques.

### **2.3.2 Creoles and Pidgins**

Under particular social conditions, creoles and pidgins emerge when languages come into contact with one another. A pidgin is a simplified language mostly made up of the substantive categories (nouns, verbs, adjectives, adverbs) from two languages which come into contact among adults who do not know each other’s languages. In many situations, these pidgins become first languages for children raised in environments where they are spoken, resulting in the formation of *creole* languages, significantly different from the pidgins to which their speakers were first exposed.

Pidgins are characterized by a severely reduced lexicon, a sharp reduction in grammatical complexity, including the dropping of inflectional morphology, and a minimal syntax which is linearly ordered (Holm, 1988). By contrast, creoles exhibit complex structure, and, to an astonishing degree, a vast range of similarities may be found among the world’s creoles, geographically separated by thousands of miles.

Consider, for instance, the similarities between Guyanese Créole, a French-based creole, and Krio, an English-based creole, gleaned from Todd (1985: 24):

<i>French</i>	<i>Guyanese</i>	<i>Krio</i>	<i>English</i>
Mangez	Mãðe	Chüp	Eat
J'ai mangé	Mo mãðe	A chüp	I ate
Il/Elle a mangé	Li mãðe	I chüp	He/She ate
Je mange/Je suis en train de manger	Mo ka mãðe	A de chüp	I am eating
J'avais mangé	Mo te mãðe	A bin chüp	I ate/had eaten
Je mangeais	Mo te ka mãðe	A bin de chüp	I was eating
Je mangerai	Mo ke mãðe	A go chüp	I shall eat
Il/Elle est plus grand que vous	Li gros pas u	I big pas yu	He/She/It is bigger than you

These and many other similarities among the world's creoles provide strong evidence for the existence of Universal Grammar, the innate "bioprogram" of which Bickerton (1981) wrote, a view also reflected in Naro (1971), Kay and Sankoff (1974) and many others.

Macedo (1986) suggests that the similarities between the world's creoles reflect the unmarked values of core grammar, set to their default values in the presence of unstable and highly limited pidgin data.

In a study of thirteen creoles of various influence (French-based, English-based and Iberian), Taylor (1971) found the common properties listed in (29).

- (29) Taylor's (1971) list of common features of creoles he studied
- a. The third person plural pronoun serves as nominal pluralizer.
  - b. The combination of the markers of past and future expresses the conditional.
  - c. The word for 'give' also functions as the dative preposition 'to' or 'for.'
  - d. Plural 'which thing/person/time/place?' are employed to express 'what?', 'who?', 'when?', 'where?'
  - e. A prepositional phrase is employed to express the possessive absolute ('mine', 'ours', 'the man's', etc.)
  - f. The demonstrative pronoun is postponed to its referent ('house this').
  - e. The definite article is postponed to its referent ('house the').
  - g. The pronominal determinant is postponed to its referent ('house my').
  - h. '(My) body' serves to express '(my)self.'
  - i. The iterative (habitual) function is merged with the completive, the progressive, and the future.
  - j. *na* is a locative preposition ('at, by, from, in, on, to').
  - k. *ma* is 'but.'

Hancock's (1971) Map of Creoles and Pidgins notes the existence of a "creolized Nahuatl-Spanish" used in Nicaragua in the sixteenth century, now extinct. However, from the discussion in Hancock's source (Elliott, 1884), it is far from clear that this Nahuatl-Spanish hybrid was either a creole or a pidgin. Unlike a pidgin, Elliott's Nicaraguan variety had a complex system of inflectional and derivational morphology, including diminutives and patronymics. Also, unlike a creole, which would generally have numerous properties which neither donor language possessed, it exhibits in its syntax "only a few phrases of construction that separate this dialect from the present Castilian." Elliott (1884: 66) concludes,

In the majority of cases ... the Spanish construction has been adhered to; in truth, this has been carried out so faithfully in so many instances, and the sequence of tenses so scrupulously maintained, the strikingly idiomatic expressions of Spanish used so naturally and fluently, that one might almost be led to believe it the language of a Spaniard himself.

What marks this Nicaraguan dialect as unusual is its heavy incorporation of Nahuatl vocabulary. As Elliott suggests, this Nicaraguan dialect is a variety of Spanish which has been heavily influenced by the native vocabulary of the Aztecs, not a creole at all.

Code switching may be safely distinguished from pidgins and creoles in at least two ways. First, the linguistic system under analysis will exhibit properties in common with creoles if it is a creole, and properties in common with pidgins if it is a pidgin. Code switching does not exhibit the functional reduction of a pidgin, nor does it evince the well-studied properties of a creole. Rather, in code switching, a structure emerges which has properties of *both* language systems. As the data in chapter 4 show, sometimes code switching leads to the formation of structures which neither language, taken alone, would permit; however, these constructions do not have the properties of pidgins or creoles discussed in this section.

Secondly, unlike the communities in which code switching occurs, communities in which creoles are spoken are usually home to monolinguals. If some set of constructions taken to be code switching were used by monolinguals, then there would be a possibility that a creole or a heavily lexically influenced dialect had been mistaken for language mixture. However, 2.37% of the Mexican population is monolingual in Nahuatl (INEGI, 1993), and although there is heavy Spanish influence on its lexicon, the constructions produced as code switching between these languages have nothing in common with creole or pidgin languages, and do not form a subset of either monolingual Nahuatl or monolingual Spanish (as shown in chapter 4 of this dissertation; see also Hill and Hill (1986)).

Because creoles and pidgins typically result from particular social conditions, and because they have unique linguistic properties as well, it should be relatively easy to distinguish them from code switching. In particular, consultants used in my study should be able to speak a local variety of Spanish to monolingual speakers of Spanish and a local variety of Nahuatl to monolingual speakers of Nahuatl. If either of these local varieties had the social or linguistic character of a creole or a pidgin, there would be grounds for concern. However, in fieldwork in Southeast Puebla, no such characteristics were observed.

## 2.4 *The Theory of Syntax*

Below I present the theoretical framework for my study, first considering some general advantages of linguistic formalism. The minimalist program, discussed in 2.4.3, comprises the particular theoretical framework I will use in chapter 5.

### **2.4.1 Some Advantages of Formalism in the Study of Grammar**

Efforts to construct formal theories of grammar have a long history in linguistics and are rooted in general principles of science developed during the Enlightenment. As Chomsky pointed out in the Preface to *Syntactic Structures* (1957: 5), the use of formalism in linguistics has a number of concrete advantages:

The search for rigorous formulation in linguistics has a much more serious motivation than mere concern for logical niceties or the desire to purify well-established methods of linguistic analysis. Precisely constructed models for linguistic structure can play an important role, both negative and positive, in the process of discovery itself. By pushing a precise but inadequate formulation to an unacceptable conclusion, we can often expose the exact source of this inadequacy and, consequently, gain a deeper understanding of the linguistic data. More positively, a formalized theory may automatically provide solutions for many problems other than those for which it was explicitly designed.

In addition, theories which lack the precision possible through formalism may be too vague to properly evaluate. In *Discourse on Bodies of Water* (1612), for instance, Galileo refuted an anonymous Jesuit opponent in a discussion of the nature of sunspots by pointing out that his arguments were so vague as to be true in all conceivable situations (tautological), hence not falsifiable. Galileo turned to the formal language of mathematics in order to express his claims in explicit terms, thus establishing an account of physical phenomena in a precisely formulated way. In linguistics too, “obscure and intuition-bound notions can neither lead to absurd conclusions nor provide new and correct ones, and hence they fail to be useful in two important respects” (Chomsky, 1957: 5).

Of course, there are lots of important and interesting academic pursuits which may not be amenable to the language of science. Such matters as art, politics, the human will, and certain aspects of language use may be quite beyond the grasp of a scientific model. This observation is only demeaning if we assume that scientific modes of understanding are the only valuable modes, a view which has not been seriously entertained since the end of Logical Positivism (Morrow and Brown, 1994).

Thus, in the present study, the theoretical framework will consist of generative grammar, broadly construed to include any precisely formulated model of language structure. In particular, the project of Chomsky (1957) onward, culminating in Chomsky (1995b), will form the basis of analysis for data presented here.

#### **2.4.2 Generative Grammar Before the Minimalist Program**

Chomsky's (1955, 1956, 1957) early work argued that the syntax of human language could not be properly modeled by either a generative context free grammar (such as those which underlie the languages of elementary arithmetic and formal logic) or a context sensitive grammar (one which makes reference to constituents in strings). Hence, he proposed a hybrid generative-transformational grammar as a plausible model of human language. Because his model took advantage of recent developments in the study of the foundations of mathematics (recursive function theory), Chomsky was able to make sense of Humboldt's (1836) characterization of language as "the infinite use of finite means."

Later work on syntax focused almost entirely on the transformational component of the grammar, the component that was least constrained. However, Chomsky (1970) argued that work in syntactic theory should focus on phrase structure rather than transformations, a proposal which resulted in the formulation of X-bar Theory (elaborated in Jackendoff (1977)). Eventually linguists proposed that the transformational component of the grammar be essentially eliminated, reduced to a single movement rule (called Move- $\alpha$ ).

Shortly after the elimination of transformations as such, Stowell (1981) noticed that phrase structure rules were redundant with subcategorization specifications in the lexicon which had been proposed in Chomsky (1965). Stowell (1981), Chomsky (1981) and others thus proposed that the phrase structure grammar also be eliminated, replaced by a rich set of interactive modules or subtheories which serve to constrain movement and phrase structure.

$\bar{X}$  Theory played an important role in this collection of subtheories, capturing aspects of the internal constituent structure of sentences. In  $\bar{X}$  Theory, lexical and functional categories are abbreviated as N for noun, V for verb, A for adjective, P for preposition, Adv for adverb, I for inflection, and C for complementizer. X (or Y or Z . . .) is a variable over these categorial constants (such that X is either N, V, A, P, Adv, I, or C). In a tree diagram, a word, which specifies its category as part of its meaning, expands to an appropriate X; X expands to  $\bar{X}$ , the intermediate level, which in turn expands to XP, the phrasal level. Spec(ifier) may be filled by any XP (or maximal projection). In analogy to a genealogical tree, the  $\bar{X}$  schema specifies a tree structure in the way expressed in (30).

- (30) *The  $\bar{X}$  Theory*  
 XP is the mother of Spec, the sister of  $\bar{X}$   
 $\bar{X}$  is the mother of  $\bar{X}$ , sister of YP  
 $\bar{X}$  is the mother of X, sister of YP

The schema expressed in (30) was believed to be part of the learner's innate mental capacity in early GB Theory. The particular order of elements dominated by any node, a factor which falls out from the interaction of other modules of the grammar, is not

intended by the schema in (30). Rather, (30) simply defines the hierarchical arrangement of nodes in a tree (Stowell, 1981).

In addition, in the version of generative grammar which emerged in the 1980s, grammatical relations such as “government” and “binding” played very important roles, leading to the new collection of developments being dubbed “government-binding” or GB theory. Constraints were eventually reformulated in terms of grammatical relations defined on syntactic trees. It was discovered, for example, that many of the constraints individuated for various constructions could be usefully explained by appealing to a simple c-command relation,<sup>42</sup> defined in (31) in terms of dominance of nodes in trees.

- (31) c-command  
 X c-commands Y if and only if  
 (a) X does not dominate Y and Y does not dominate X; and  
 (b) the first branching node dominating X also dominates Y.

This notion is re-deployed in defining the relation of *government* in (32).

- (32) Government  
 X governs Y if and only if  
 (a) X is a governor; and  
 (b) X c-commands Y and Y c-commands X.<sup>43</sup>

In (31) and (32), X and Y correspond to any phrasal head (N, V, P, A, . . .). More recent proposals differentiate between lexical heads (N, V, P, A, Adv) and functional heads, as will be discussed in section 2.4.3.

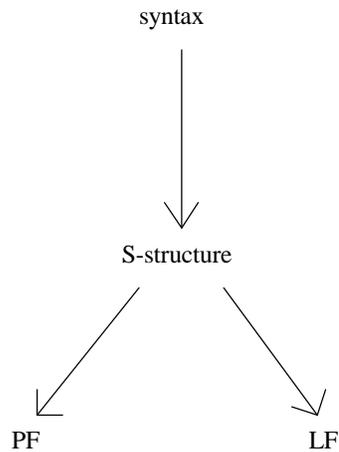
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<sup>42</sup>Originally constraints on rules were presented as a list of descriptive facts. Ross (1967) is credited with discovering the central corpus of constraints which defined the research program in generative grammar into the 1980s.

<sup>43</sup>For examples of these principles at work, and for a definition of governor, used in (32), see Haegeman (1991) or Webelhuth (1995).

The classic GB framework may be illustrated in Figure 1, from Chomsky (1981: 17). The rules of the syntax generate S-structures (surface structures). Interpretive components then map S-structure to PF (phonetic form) and to LF (logical form).

Figure 1: The GB Framework



In this system, Universal Grammar (UG) was taken to be comprised of principles, invariant for all languages, and of parameters, switches which define the hypothesis space for children acquiring their language. In GB theory, parameters were assumed to be options within the computational component of the grammar. For instance, in discussing the *pro*-drop parameter, Hyams (1986) proposed that children assume their language to be a *pro*-drop language (that is, to allow sentences with phonologically null subjects, like Spanish and Italian) until positive evidence to the contrary is obtained, as when English-speaking children observe the use of pleonastic subjects like *it* and *there*, absent from *pro*-drop languages. The acquired parameter setting applies to the computational system, determining whether or not a subject may be null.

As linguists struggled to further remove highly redundant and unconstrained machinery from the theory of syntax, this conception of parameters was significantly revised. An idea was developing that all variation, and hence all learning, was associated with abstract and concrete morphological properties of the lexicon.

### 2.4.3 The Minimalist Program

Chomsky (1991: 23) commented on the promise of a syntactic theory in which parameters are restricted to the lexicon:

If there were only one human language, the story would essentially end there. But we know that this is false, a rather surprising fact. The general principles of the initial state evidently allow a range of variation. Associated with many principles there are parameters with a few--perhaps just two--values. Possibly, as proposed by Hagit Borer, the parameters are actually restricted to the lexicon, which would mean that the rest of the I-language is fixed and invariant, a far-reaching idea that has proven quite productive.

Restricting parameters to the lexicon means that linguistic variation falls out of just the morphological properties (abstract and concrete) of the lexicon (Borer, 1983). In this model, then, there are two central components:  $C_{HL}$ , a computational system for human language, which is presumed to be invariant across languages, and a lexicon, to which the idiosyncratic differences observed across languages are attributed. In addition, note that the suggestion that the I-language is fixed and invariant in this way introduces a version of the Universal Base Hypothesis, the idea that phrase structure does not vary across languages; surface differences in word order relate only to the re-arrangement of elements in the syntactic tree as the result of movement operations, triggered by lexically encoded morphological features.

Even phrase structure is derived from the lexicon in the minimalist program. An operation, which may be called *Select*, picks lexical items from the lexicon and introduces them into the numeration, an assembled subset of the lexicon used to construct a derivation. Another operation, *Merge*, takes items from the numeration and forms new, hierarchically arranged syntactic objects. The operation *Move* applies to syntactic objects formed by *Merge* to build new structures; it forms  $\Delta$  from  $\kappa$  and  $\alpha$  ( $\kappa$  the target of movement and  $\alpha$  the element affected by movement) by replacing  $\kappa$  with  $\{\Gamma, \{\alpha, \kappa\}\}$  ( $=\Delta$ ) (Chomsky, 1995b) (see Stabler (1997b) for a slightly different minimalist model). Hence, in the Minimalist Program, phrase structure trees are built derivationally by the application of the three operations *Select*, *Merge* and *Move*, constrained only by the condition that lexically encoded features match in the course of a derivation. Phrase structure, along with configurationally defined intermediate and maximal projections, therefore has no independent status in  $C_{HL}$ , eliminating (30) of section 2.4.2.

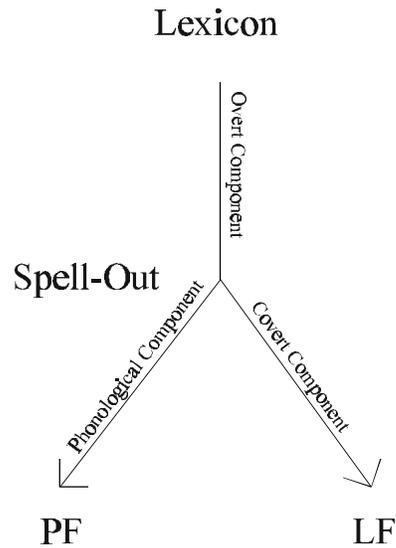
Movements are driven by feature checking, and may be of two types: A head may undergo *head movement* and adjoin to another head, or a maximal projection may move to the specific position of a head; in either case, the element moves for the purpose of checking morphological features of case, number, person, and gender. In addition, its movement may be *overt* or *covert*. Overt movements are driven by *strong* features and are visible at PF (*phonetic form*, formally known as “the surface structure”) and LF (*logical form*, the interpretive level). Covert movements, driven by *weak* features, are visible only at LF.

Principles of Economy select among convergent derivations. One such principle, Full Interpretation (FI), requires that no symbol lacking a sensorimotor interpretation be admitted at PF; applied at LF, FI entails that “every element of the representation have a (language-independent) interpretation” (Chomsky, 1995a: 27). Thus, uninterpretable features (denoted -Interpretable) must be checked and (in some proposals) deleted by LF. Such features include case, person, number and gender. Other Economy Principles will be discussed in the exposition in chapter 5.

A derivation is said to *converge at an interface level* (PF or LF) if it satisfies FI at that level; it *converges* if FI is satisfied at both levels. A derivation that does not converge is also referred to as one that *crashes*. If features are not checked, the derivation *crashes*; if they *mismatch*, the derivation is canceled (that is, a different convergent derivation may not be constructed).

At some point in the derivation, an operation Spell-Out applies to strip away from the derivation those elements relevant only to PF; what remains is mapped to LF by a subsystem of  $C_{HL}$  called the *covert component*. The elements relevant only to PF are mapped to PF by operations unlike the covert component, operations which comprise the *phonological component*. The phonological component is also regarded as a subsystem of  $C_{HL}$ . The subsystem of  $C_{HL}$  which maps the lexicon to Spell-Out is the *overt component* (often called overt syntax). Figure 2 outlines the relationships between these components in the Minimalist Program, in analogy to the schematic of GB Theory presented in Figure 1 (page 84). Note that the various components (overt, covert, phonological) are all part of  $C_{HL}$ , the computational system for human language.

Figure 2: The Minimalist Framework



The Minimalist Program, although extremely promising in many respects, should be regarded as a developing research program. As such, a number of proposals have been made in which some of the details of the system proposed in Chomsky (1995a) are reworked. Of particular interest are Lasnik (1995a, 1995b, 1995c), papers in Abraham, Epstein, Thráinsson and Zwart (1996), Ferguson (1997), Ura (1997), Stabler (1997b), among others. Radford (1997) provides an excellent introduction to core topics.

Of course, just as in other milestones in linguistic research, the Minimalist Program is based upon a long history of work in the theory of syntax, much of which has served as an important transition to the new framework. In chapter 5, I will discuss proposals relevant to the data of chapter 4, focusing on minimalist approaches and, where possible, testing competing theories with the newly discovered data.

A very important aspect of minimalism is that all learning is lexical, and all parameters are microparameters associated with individual lexical items. This makes a

rather different conception of bilingualism possible, since it is no longer necessary to regard grammars as compartmentalized in some way in the language faculty. In the minimalist framework,  $C_{HL}$  is invariant across languages, and the Lexicon does not need to be privy to sociopolitical distinctions like Spanish, Nahuatl, and Chinese. The difference between an SVO language like English and an SOV language like Korean, for instance, is defined in terms of the strength of features in the object DP (weak in English, strong in Korean); apart from this sort of parametric variation, there are no differences in the rules of syntax, allowing a great simplification in our conception of bilingualism.

But the Phonological Component, responsible for mapping the numeration to PF, is of a very different character. These rules build structure in a way that syntax does not, and in doing so they often refer to specific morphological material with its phonetic content. The impact of these facts will be explored extensively in chapter 5.

## *2.5 Nahuatl and Spanish*

It will also be of some value to gain a preliminary sense of what resources are available for the grammatical study of Spanish and Nahuatl. Here I will also address the historical and genetic relationships between the two languages before reviewing the linguistic literature relevant to each.

### **2.5.1 Genetic and Typological Relationships**

After applauding the development of “a substantial data base with respect to both the formal and functional aspects of codeswitching,” McClure (1981) notes an important concern:

This data base is affected by one problem. It is heavily skewed toward studies involving alternate use of Spanish and English in the United States. Studies involving other languages, particularly non-Indo-European ones are necessary in order to test the cross-linguistic validity of the constraints which have been formulated [69, n1].

The Spanish-Nahuatl corpus presented in chapter 4 represents code switching data involving a genetically and typologically unrelated pair of languages, and may indeed provide additional insights regarding the theory of code switching.

Linguists have classified languages according to their genetic (or *historical*) closeness as well as their typological similarities.<sup>44</sup> The genetic method is concerned with historical relationships between languages, while typologists are interested in similarities between language groups regardless of their historical connections. For instance, English is historically close to modern German, but typologically it may be much closer to other analytic languages like Chinese or Samoan with which it has no known historical relationship. A look at the historical and typological relationships between Spanish and Nahuatl may be useful in light of McClure's comments quoted above.

According to Lamb (1964), Nahuatl is a member of the Uto-Aztecan family, which extends geographically over a vast area of Mexico and the United States, and contains the subfamilies of Numic, Tubatulabal, Hopi, Takic, Pimic, Taracahitic, Corachol, and Aztecan. The northernmost Uto-Aztecan language, Paiute, may be found

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<sup>44</sup>Areal classifications group languages according to their similarities established within geographical areas, such as "the Scandinavian languages" or the "London-influenced dialects." This system of classification, preferred by some, intersects with both the historical and typological systems which I will focus on here. (See Comrie (1981) and Crystal (1987) for discussion.)

as far north as Idaho and Oregon, and members of the Aztecan subfamily are spoken in Central Mexico and as far south as Nicaragua. The Aztecan subfamily contains Pochutla and Classical Nahuatl. It is estimated that Proto-Uto-Aztecan has a time depth of about 5000 years, about the same time depth assumed for Proto-Indo-European (Langacker, 1977).

Although it is generally thought that Uto-Aztecan is a distant relative to the Kiowa-Tanoan family, Langacker (1977) reports that other connections are regarded as highly speculative. As is well known, Spanish is a member of the Romance subfamily of Indo-European in the Italic branch. Thus, there is no known historical relationship between Spanish and Nahuatl, although these languages have influenced each other's vocabulary following the Conquest; I will return to this topic in section 2.5.3.1.

Typologically, Spanish is usually classified as a synthetic language, one in which such features as case and agreement are marked morphologically. Nahuatl, on the other hand, is a polysynthetic or incorporating language; in languages of this type, a single word may express the subject, verb and object of a proposition. Sapir (1921), who did pioneering work on polysynthetic languages in America, described them as a class of languages in which

The elaboration of the word is extreme. Concepts which we should never dream of treating in a subordinate fashion are symbolized by derivational affixes or "symbolic" changes in the radical element [the stem], while the most abstract notions, including the syntactic relations, may also be conveyed by the word [128].

Baker (1996) characterizes a polysynthetic language as one with productive and full noun incorporation (NI) *and* full and obligatory agreement paradigms for both

subject and object. These properties are built into his Polysynthesis Parameter, a topic I will touch upon in chapter 5. Nahuatl, as Baker (1996) points out, is a clear member of the class of languages he defines as polysynthetic. So far as I know, all of the modern dialects of Nahuatl, as well as the classical language, share these properties (see section 2.5.3.1).

The degree to which languages are viewed as typologically distinct is, of course, very much a function of the analysis of their morphological and syntactic structure. On Baker's (1996) approach, polysynthetic languages are radically different in structure from Romance languages, particularly on the assumption that all NPs are adjuncts in the polysynthetic group. However, taking the rich verbal morphology of polysynthetic languages to be reflexes of clitics and/or agreements, the peculiar properties of polysynthetic languages significantly diminish in number.

Table 2, which is based on some of the properties listed in Baker (1996: 498-499) for polysynthetic languages, presents some descriptive characteristics of Spanish and Nahuatl typology. The intention here is to provide a sense of important language differences and similarities which will play a role in the discussion in chapter 5.

Table 2: Some Typological Characteristics of Spanish and Nahuatl<sup>45</sup>

<i>Property</i>	<i>Spanish</i>	<i>Nahuatl</i>
syntactic noun incorporation	no	yes
object agreement obligatory	no	yes
subject agreement obligatory	yes	yes
free pro-drop	yes	yes
SVO word order	yes	yes
NP reflexive	yes	yes
true quantifiers	yes	yes
obligatory wh-movement	yes	yes
true determiners	yes	yes
infinitives	yes	no

Notice that, with regard to the properties listed, Spanish and Nahuatl only differ in terms of productive noun incorporation, object agreement morphology, and the availability of infinitival constructions. There are certainly other differences, but these are fairly basic.

### 2.5.2 The Spanish Language

Spanish is one of the most extensively studied languages in the world. Claudia Parodi, for instance, has written two full volumes surveying recent studies in Spanish linguistics by Mexican linguists alone (1981, in press), and Linguistic Abstracts lists

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<sup>45</sup>Although a detailed discussion is beyond the scope of this dissertation, I disagree with many of Baker's (1996) views regarding the descriptive typological characteristics of Nahuatl. For instance, although Baker classifies Nahuatl as favoring V-initial word order, my experience with Guerrero and Southeast Puebla Nahuatl suggests a strong SVO preference with considerable freedom for dislocation (see section 2.5.3). Also, virtually every modern variety of Nahuatl has fully borrowed the Spanish quantifier *cada* 'each' (see section 2.3.1), so it is incorrect, at least for the modern varieties, to claim that Nahuatl has no true quantifiers. The difference in views may in part be due to dialectal differences, particularly between the modern and classical varieties, or it may follow from disagreements in analysis among the descriptive grammarians whom Baker relied upon in his study. In any event, the typological characteristics in Table 2 are at odds in some respects with Baker's Table 11-1.

more than 350 articles on Spanish written just since 1985.<sup>46</sup> In chapter 5, I will draw upon these and other resources as necessary in my discussion of the data.

### 2.5.3 The Nahuatl Language

Hill and Hill (1986) characterize Nahuatl as the most extensively studied indigenous language of Mexico. Southeast Puebla Nahuatl has productive noun incorporation; the verb takes an object prefix and a subject prefix, and tense is marked variously with a prefix (*o-*, PAST, for example) or suffix (*-s*, FUTURE). Both the subject and object may be dropped. Agreement and tense are marked on complement clauses as well as matrix clauses, distinguishing Nahuatl and other polysynthetic languages from languages which use tenseless (infinitival) verb forms in embedded IP complements.

Consider, for instance, the Nahuatl expression in (33a).

- (33a) Nikneki nikoas tlakemetl  
 ni-k-neki ni-k-koa-s tlake-me-tl  
 1S-3Os-want 1S-3Os-buy-FUT garment-PL-NSF  
 ‘I want to buy some clothes’

Subject agreement is marked on the matrix verb as well as the embedded verb with *ni-*. Transitive verbs also require object agreement, so the prefix *k-* is used for both verbs (‘want’ and ‘buy’). Here the idea is that the act of buying will take place in the future, so future tense is marked on the verb of the IP complement. Nouns, which are not marked for case, often take an absolutive (or default) suffix *-tl*, denoted NSF here (for ‘noun suffix,’ following Baker (1996)).

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<sup>46</sup>The electronic version of Linguistics Abstracts is available from the Blackwell web page at <http://www.blackwellpublishers.co.uk/labs/>.

Nahuatl also productively uses noun incorporation (NI), like many polysynthetic languages. In (33b), for instance, the noun stem *tlake* ‘garment’ is incorporated into the verb, displacing the object agreement prefix *k-*.

- (33b) Nikneki nitlakekoas  
 ni-k-neki ni-tlake-koa-s  
 1S-3Os-want 1S-garment-buy-FUT  
 ‘I want to buy some clothes’

A comparison of the constructions in (33) indicates that NI is optional in Nahuatl. (These examples are from my data; see Merlan (1976) and Hill and Hill (1986) for others.)

In addition, as (33a) suggests, Southeast Puebla Nahuatl is an SVO language; however, VSO word order also sometimes occurs, as in Spanish. Tuggy (1979), Brockway (1979), and Sischo (1979) characterize Nahuatl as an SVO language too, and Brockway adds that the “order of major constituents is relatively fixed ...” (146). Beller and Beller (1979), on the other hand, classify Huasteca Nahuatl as “most commonly” VSO with flexibility for SVO and even VOS. Launey (1992: 36-37) similarly regards classical Nahuatl as VSO, adding that topicalization of the subject (SVO), object (OVS) or both (SOV) is also possible. Hill and Hill (1986) view Malinche Nahuatl as VSO; however, SVO, OVS and SOV also occur in their data (VSO = 5, SVO = 6, OVS = 3, and SOV = 1).

I studied five short essays written by residents of San Sebastián in order to gain a clearer sense of Southeast Puebla Nahuatl basic word order; these findings are presented in Table 3.<sup>47</sup>

Table 3: Frequencies of Nahuatl Basic Word Orders in Five Texts from San Sebastián Zinacatepec, Puebla

<b>Word Orders</b>	<b>Text #1</b>	<b>Text #2</b>	<b>Text #3</b>	<b>Text #4</b>	<b>Text #5</b>	<b>Totals</b>	<b>Relative Frequencies</b>
V	17	28	27	32	9	<b>113</b>	<b>42.80%</b>
VO	7	11	19	19	7	<b>63</b>	<b>23.86%</b>
SV	1	6	24	4	1	<b>36</b>	<b>13.64%</b>
SVO	0	10	23	5	4	<b>42</b>	<b>15.91%</b>
VS	5	1	1	0	2	<b>9</b>	<b>3.41%</b>
VSO	0	0	1	0	0	<b>1</b>	<b>0.38%</b>
<b>Totals</b>	<b>30</b>	<b>56</b>	<b>95</b>	<b>60</b>	<b>23</b>	<b>264</b>	<b>100.00%</b>

Texts used: (1) "Sej Welta Onia Acapulco," by Lidia Cedillo Hernández; (2) "Sej Welta Onechmak Tokes," by Jaime Pablo Ignacio; (3) "David iwan Galiat," by Antonia Cortés Hernández; (4) "Pancho Loko," by Arnulfo Prado Bernardo; (5) "Chokotzi Non Okinekia Tekitis," by Isaias Feliciano Santiago.

As in Hill and Hill (1986), Vs occurred very frequently without an overt subject or object, making it difficult to detect a basic word order. However, subjects occurred with verbs in SV, SVO, VS and VSO constructions preverbally nearly 90% of the time and postverbally only about 10% of the time, as shown in Figure 3. Objects *never* occurred before verbs. When subject, verb and object were all overtly present, SVO occurred about 98% of the time and VSO about 2% of the time (Figure 4).

<sup>47</sup>Constructions involving *wh*-elements, negative QPs, passives and *be* were excluded since these exhibit syntactic peculiarities. Complement clauses and quoted speech were counted as objects of their verbs.

Figure 3: The Relative Frequencies of Word Orders for Subjects When Overt in Five Nahuatl Texts from San Sebastián Zinacatepec

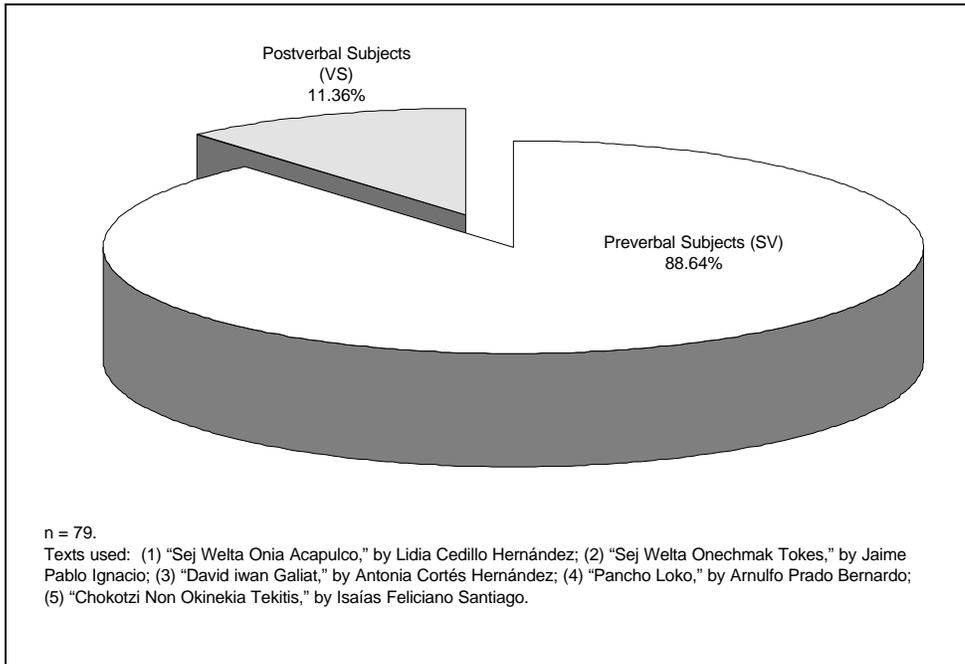
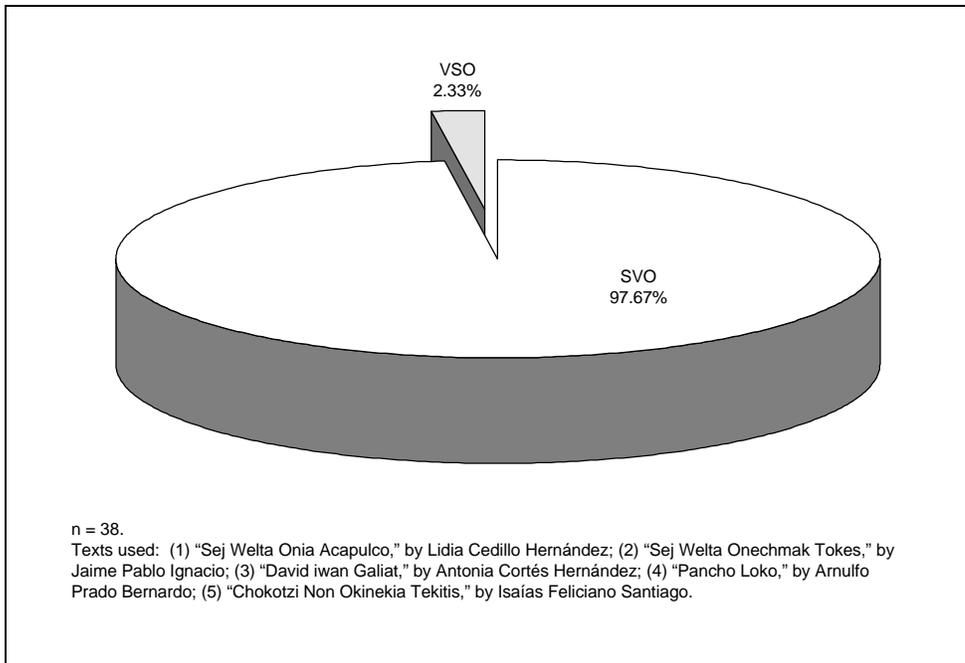


Figure 4: The Relative Frequencies of Word Orders for Subject, Verb and Object When Overt in Five Nahuatl Texts from San Sebastián Zinacatepec



Native speakers of Southeast Puebla Nahuatl also confirm this basic idea. The SVO order in (34a) is said to be “most natural,” while VSO in (34b) and SOV in (34c) were judged to be possible for focus or contrast only. OVS in (34d) is unacceptable.

- (34a) Ne niktlasojtla in Maria  
 ne ni-k-tlasojtla in Maria  
 I 1S-3Os-love IN Maria  
 ‘I love Maria’
- (34b) Niktlasojtla ne in Maria  
 ni-k-tlasojtla ne in Maria  
 1S-3Os-love I IN Maria  
 ‘I love Maria’
- (34c) Ne in Maria niktlasojtla  
 ne ni-k-tlasojtla in Maria  
 I 1S-3Os-love IN Maria  
 ‘I love Maria’
- (34d) \*In Maria niktlasojtla ne  
 ne ni-k-tlasojtla in Maria  
 I 1S-3Os-love IN Maria  
 ‘I love Maria’

I will therefore follow Tuggy (1979), Brockway (1979), and Sischo (1979) and take modern Nahuatl to have a basic SVO word order but also to allow a postverbal subject, like Spanish and other European languages, and a contextually restricted use of object focus, as in (34c). Of course, there may also be dialectal variation on this point, but all of the data in Table 3 are consistent with this view, so it appears quite reasonable at least with respect to Southeast Puebla Nahuatl.

This picture of Nahuatl word order is consistent with a conventional analysis of its phrase structure, departing from proposals in Jelinek (1984) and Baker (1996). There, Nahuatl is presumed to have non-configurational properties (free word order) which

might be easily explained if its NPs are assumed always to occupy adjunct positions. Since Nahuatl word order is in fact relatively fixed, the core motivation for this assumption is lost. In this dissertation, then, I will presume Nahuatl to have phrase structure that is minimally different from Spanish, English and other well-studied languages.

### 2.5.3.1 *Varieties of Nahuatl*

Nahuatl has undergone a process of dialectalization throughout Central Mexico, to the extent that many varieties are only marginally mutually intelligible (Egland, Bartholomew and Cruz Ramos, 1978). Relying upon common characteristics of Nahuatl dialects, Yolanda Lastra de Suárez (1986) tentatively suggests an area typology of four major dialects. In her system, the West Periphery consists of the subareas of the West Coast, Western Mexico State, and Durango-Nayarit. The East Periphery consists of the Puebla Mountains, Istmo, and Pipil. Huasteca, regarded by Una Canger (1980) to be part of the Central dialect, is a discrete dialect area with no subareas in Lastra de Suárez' (1986) system. The Central dialect consists of the "subárea nuclear," Puebla-Tlaxcala, Xochiltepec-Huatlatlauca, Southeast Puebla, Central Guerrero, and Southern Guerrero.<sup>48</sup>

Differences between dialects are often present even in very basic vocabulary. In Central Guerrero, for instance, the singular personal pronouns have the form *nehua* 'I', *tehua* 'you' and *yehua* 'he/she,' while Southeast Puebla Nahuatl uses the reductions *ne*, *te*

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<sup>48</sup>The labels used here for dialect areas are my translations of terms used in Lastra de Suárez' Spanish-language discussion. See her work for the original text.

and *ye*, respectively. García Escamilla (1993-1995), incidentally, lists these forms, together with *nehuatl/tehuatl/yehuatl*, as variants used in classical times as well. Flores Farfán (1992) provides an interesting discussion showing surprising differences in the pronunciation of basic vocabulary even among the geographically close varieties of the Alto Balsas region.

There are some small syntactic differences as well. The Central and Southeast Puebla dialects use *amo* for negation, placed before the verb, but in Central Guerrero negation is expressed using a verbal prefix *x-* (also available as *mach-* in Southeast Puebla). Also, as pointed out to me by David Tuggy (personal communication), Tetelcingo and Orizaba Nahuatl have different preferences for ordering of a possessed noun and a nominal possessor (so, *ikni Juan* or *Juan ikni* is "John's brother" in Tetelcingo Nahuatl, but in Orizaba Nahuatl *ikni Juan* means "his brother John" and *Juan ikni* means "John's brother"). Tuggy also provides the example of relative clauses; in Tetelcingo Nahuatl, these usually involve an overt subordinator *ke*, but *tli(n)*, *aaki* or *lo ke tli(n)* are also available; Orizaba Nahuatl can use *tlen* or *akin*, but also has a range of clauses unmarked or only marked with *n* (reduced from *in*). Other kinds of subordinate clauses are also often unmarked or marked differently. The preferred order of some of these clauses with respect to the main clause also may be different.

While these differences are of some interest, they do not indicate far-reaching typological differences across dialects. In all modern varieties of Nahuatl, subject agreement morphemes are obligatorily marked on verbs, object agreement morphemes on transitive verbs, and NI is fully productive for the special subset of nouns known to

undergo NI in other polysynthetic languages. As mentioned in the previous section, there is a small amount of evidence that there may be differences in basic word order across dialects, but this claim is so far unsubstantiated and I suspect false.

The influence of Spanish on Nahuatl is also worth discussing. Hill and Hill (1986) argue that Nahuatl has undergone a “syncretism” with Spanish. Specifically, they suggest that, where there are options allowed by its morphology and syntax, Nahuatl has gone the way of Spanish, favoring the Spanish construction type whenever possible. A Spanish “way of talking” has emerged for many Nahuatl bilinguals, according to the Hills, but this different style does not reflect morphological or syntactic changes in Nahuatl grammar per se; so, for them, Nahuatl *speech* has become like Spanish, but the language itself has not changed in terms of its morphology or syntax.

The Hills offer noun incorporation (NI) as an example of an optional construction which now favors the Spanish pattern in Malinche Nahuatl (that is, according to the Hills, these speakers now tend to use unincorporated structures, as in Spanish). In the Hills’ data, only 126 verbs exhibited NI in a total of 16,025 verbs in their corpus. However, NI in polysynthetic languages is known to be severely restricted, as the Hills note; in particular, only non-specific, inanimate nouns in object position may undergo NI (Baker, 1988). Therefore, a more telling measure of NI productivity would be the ratio of NI to non-NI constructions which involve non-specific, inanimate object nouns. Thus, it is not clear that Nahuatl has changed even in this stylistic way. NI is still allowed by every variety of Nahuatl; moreover, if the language did begin to use only unincorporated, SVO constructions, we could not safely conclude that the change has resulted from contact

with Spanish since polysynthetic languages tend to become analytic over time regardless of language contact phenomena (Dressler, 1988).

Suárez (1977), on the other hand, in the spirit of Boas (1966) and others, has studied “the effect that the borrowing of grammatical words has produced in the structure of the [Nahuatl] language” (115; translation mine). He examines the structural effects of twenty Spanish functional elements, borrowed into Nahuatl.<sup>49</sup> The borrowed functional items, however, generally reflect phonological changes as the result of contact with Spanish. For instance, while precolonial Nahuatl used *in* to mark complement clauses, as in (35), many modern varieties use Spanish *ke*, as in (36) (examples from Suárez (1977: 146-147; translations mine)).

(35) Okittak *in* ye itatla  
‘He saw *that* it was burning’

(36) Kineltokakeh *ke* inon se toteko  
‘They believed *that* he was a god’

However, modern varieties of Nahuatl allow *ke* to be omitted, much as English does with *that*; this is also like precolonial Nahuatl *in* and *unlike* Spanish *que*, indicating that Nahuatl borrowed the phonetic shape of the Spanish complementizer but not its morphosyntactic properties. Thus, while many of Suárez’ very interesting examples show that Nahuatl obtained new lexical resources as a result of its Spanish borrowings, they do not seem to suggest far-reaching changes in the syntactic and morphological systems of the language.

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<sup>49</sup>Suárez’ (1977) list of items is presented in section 2.3.1.

Other works on Nahuatl dialectology, involving a detailed and fascinating analysis which goes beyond the scope of this dissertation, include Dakin (1975, 1976) and Valiñas (1979, 1982, 1997). On historical changes in Nahuatl, especially its phonology, see Dakin's extensive studies (1982, 1995).

### ***2.5.3.2 Nahuatl Courses and Linguistic Studies***

There have been many recent publications of Nahuatl courses, grammatical sketches, and various other linguistic studies. Courses focusing on various modern dialects include Beller and Beller (1976, 1979), Horcasitas (1977), Calarza and López Avila (1987), and Tuggy (1990). Grammatical sketches of some modern varieties have been provided by Whorf (1946), Tuggy (1977), Beller and Beller (1977), and Wolgemuth (1981). Andrews (1975), Launey (1981)--translated into Spanish as Launey (1992)--Campbell and Karttunen (1989), and García Escamilla (1993-1995) are introductions to the classical language. The latter is designed essentially for children and consists of fifteen small booklets.

Siméon (1996 [1885]) and Karttunen (1983) are excellent dictionaries of classical Nahuatl. Brewer and Brewer (1971) and Matias Alonso and Medina Lima (1996) have put together *vocabularios* of Tetelcingo and Guerrero Nahuatl respectively. Alva Hernández (1996) has constructed a dictionary of Coxcatlán Nahuatl, the only work known to me which deals specifically with Southeast Puebla Nahuatl, the dialect presented in this dissertation. In addition, the Summer Institute of Linguistics has produced several translations of the New Testament into a number of modern varieties; apart from these, there are few texts of the contemporary language available.

León-Portilla (1988) has put together an impressive annotated bibliography of nearly everything written on Nahuatl language and culture. Volume 1 of his work is a historical discussion of scholarly work on Nahuatl, and volume 2 consists of 2,961 annotated references on various aspects of Aztec life and Nahuatl language.

More narrowly focused discussions of various aspects of Nahuatl grammar may be found in Merlan (1976) and Baker (1996). Launey (1994) advances the notion that the key typological distinction between Nahuatl and other languages is that its phrases are all predicates. These discussions rely heavily upon the more extensive, general literature on polysynthetic languages which I will discuss, together with other relevant proposals, in chapter 5.

### ***2.5.3.3 Nahuatl Orthography***

As one might expect, there is no uniform convention for writing modern Nahuatl. Originally the Aztecs wrote their language in hieroglyphics, where each hieroglyph represented a full word, and had amassed an extensive collection of historical and administration literature by the time of the Conquest, most of which was destroyed by Spanish clergymen for its “satanic” content. One example, the Codex Mendoza, survives in the Bodleian Library in Oxford. See Coulmas (1996: 29-33) and León-Portilla (1988) for additional information and examples of Aztec hieroglyphics.

Contemporary Nahuatl is written within two distinct traditions, with some communities mixing these. Many of the classical scholars use fifteenth-century Spanish orthography, while others have been influenced by the International Phonetic Alphabet (IPA) used by fieldworkers and/or a desire for distance from Spanish culture. As an

example of the difference in orthography, the letter *c* is often used for /k/ and /s/ by those who prefer the Spanish system, while many others simply use *k* and *s*. However, even among the Spanish-influenced orthographies many Nahuatl borrowings are spelled with *k* (*ke* < *que* ‘that,’ *kuando* < *cuando* ‘when,’ *porke* < *porque* ‘because,’ and others; see Suárez (1977)). For an example of the traditional, Spanish-influenced system, see García Escamilla (1993-1995); for an example of the IPA-like system, see Beller and Beller (1976, 1979). In section 3.3.3, I will discuss the conventions used by my consultants, preserved in the transcriptions of data in chapter 4.

## 2.6 Spanish and Nahuatl in Central Mexico

Although Nahuatl is now a minority language throughout Mexico, it was once the *lingua franca* of a vast empire. In contemporary Mexico, the great achievements of art and architecture of the precolonial world are publicly displayed in federal museums, while the indigenous people themselves inhabit the poorest and least developed parts of the country. A review of the historical and political circumstances leading up to Spanish-Nahuatl bilingualism today appears in section 2.6.1, followed by a look at some of the relevant demographics of Spanish and Nahuatl in contemporary Mexico in section 2.6.2.

### 2.6.1 The Aztecs and Hernán Cortés<sup>50</sup>

Nahuatl, also known as Mexicano or Aztec, was the language of the Aztec Empire, which dominated Central and Southern Mexico from the fourteenth to the

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<sup>50</sup>The historical sketch presented here derives from Turner (1911), Katz (1981), Fuentes (1992), Casó Villegas (1996), Zinn (1995), and Chomsky (1993b).

sixteenth century. Following the fall of the Toltec civilization, waves of northern immigrants from Aztlan (possibly located in modern-day Arizona), whose tribes were called Nahuatlaca or Mexica,<sup>51</sup> flooded into Mexico's central plateau area around Lake Texcoco. As the Aztecs grew in number, they established superior military and civil organizations. Finally, by 1325, they founded the city of Tenochtitlán, now called *México* or Mexico City.

The Aztecs formed military alliances with other tribes, creating an empire that extended from Central Mexico to the Guatemalan border. In the early fifteenth century Tenochtitlán jointly governed with the city-states of Tlatelolco and Texcoco. However, within a century of the triple alliance, the Aztecs seized complete control; while kingships remained in the other city-states, these eventually became mere honorary titles.

The Aztec Empire was theocratic, with the high priest functioning as the seat of absolute authority. In ritual religious ceremonies, prisoners of war (and volunteers!) would climb the steps of the pyramid where priests stretched them across a convex stone and sliced their hearts out with a sharp knife. Children, too, especially twins, were sacrificed to the gods, often in the cruelest manner imaginable. On one occasion, in an effort to stave off the end of the world, sixty-thousand prisoners were brutally sacrificed to the Sun in a single day; the blood is said to have filled the streets of the city.

The Aztecs built enormous constructions with stone tools and human labor, developed a pictographic writing system inscribed on paper and animal hides, a calendar

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<sup>51</sup>[mɛʃika]

modeled on Mayan achievements, an irrigation system, and developed a number of important mathematical concepts. However, near the end of the empire, the Aztec leaders, whose people's language was used throughout their vast conquered territories as a *lingua franca*, began to find it extremely difficult to suppress local rebellions.

When a bearded white man and his entourage arrived in large sea vessels, in 1519, clad in iron and riding strange, mysterious beasts (horses), Montezuma II, the Aztec emperor, mistook him for Quetzalcóatl, the legendary man-god who had died three hundred years before with the promise to return.

In fact, this man was Hernán Cortés. He had come from Spain on an expedition financed with the capital of merchants and landowners in search of unprotected gold and biddable slaves. Starting in Veracruz, he began on a death march, moving from town to town, "killing with the kind of deliberateness that accompanies a strategy--to paralyze the will of the population by a sudden frightful need" (Zinn, 1995: 11).

In addition to spoils, Cortés also took many prisoners and slaves along the way. Among them was Malinche, whom Cortés made his lover and spokeswoman. As he overtook native populations on his way to Tenochtitlán, their armies were conscripted by the Spanish. Of these the Tlaxcalans, enemies of the Aztecs, became the most important conquest.

Montezuma pursued an irresolute course of action during Cortés' massacre of neighboring civilian populations under his control. Finally, he decided not to oppose the Spanish invaders but to wait for them at the Aztec capital and learn more about their purposes. On November 8, 1519, Cortés and his small force, including around six-

hundred Spanish conscripted soldiers, entered the city and set up headquarters. Received with the honor due Quetzalcóatl, Cortés' soldiers were allowed to roam the city freely, finding gold and many other treasures in the storehouses.

Cortés then seized Montezuma as hostage and forced him to swear allegiance to the king of Spain and to provide an enormous ransom in gold and jewels. Meanwhile, back in Cuba, the Spanish conqueror Velázquez had become increasingly concerned about Cortés' loyalty and personal ambitions, so he sent a Spanish expedition to investigate. When Cortés received word that challengers were arriving, he left two hundred men at Tenochtitlán under Pedro de Alvarado, and marched with a small force to the coast, attacking the Spanish camp at night and inducing the majority of the soldiers to join his forces.

Meanwhile, the harshness of Alvarado's treatment inspired a popular revolt against the Spaniards and the imprisoned ruler Montezuma. Upon re-entering Tenochtitlán, Cortés and his men were surrounded and attacked. Cortés subsequently persuaded Montezuma to address the people in an effort to quiet the rebellion; however, the angry crowd stoned Montezuma, and he died three days later. On June 30, 1520, the Spanish and their conscripts were driven out of the city by a group of Aztecs, led by Montezuma's nephew Cuauhtémoc, on the *Noche Triste* ("Sad Night"), as the Spanish historians would later call it. The Aztecs pursued the retreating Spanish troops, many of whom drowned in the waters surrounding Tenochtitlán, too heavily weighted down with gold and silver plunder to escape.

On July 7, 1520, after defeating a very large force of Aztecs, Cortés managed to reach Tlaxcala. The Tlaxcalan territory was surrounded by the Aztec Empire but was never actually conquered by its rulers. Cortés convinced the Tlaxcalans to form an alliance with him against the Aztecs. He was thus able to reorganize his army, also benefiting from some reinforcements and equipment from Veracruz. He then returned to the capital, capturing Aztec outposts on the way. On August 13, 1521, after a desperate siege that lasted three months, Cuauhtémoc, the new emperor, was captured, and Tenochtitlán fell.

Cortés ordered that Tenochtitlán be leveled to the ground, and upon its ruins he built Mexico City, capital of New Spain. The Spanish destroyed pyramids and other religious edifices of all types, erecting churches for their new flocks to attend. Virtually every artifact of Aztec culture was assaulted, often eradicated.

For the next four hundred years the indigenous people would live as serfs and wage slaves under the rule of the Spanish and the *criollos*, the white Mexicans of pure European descent who led the War of Independence against Spain. Between 1877 and 1911, under the dictatorship of Porfirio Díaz, large communal lands which the Natives used for agriculture were granted over to wealthy plantation owners. When the Natives complained, they were sold into peonage.

Meanwhile, Emiliano Zapata, Pancho Villa and others were engaged in armed revolts. By 1917, a Constitution was drafted which provided for a labor code, prohibited a president from serving consecutive terms, expropriated all property of religious orders, restored communal lands to the Natives, and curbed foreign ownership of mineral

properties and land. A period of instability followed, however, as the United States and Europe waged a “secret war in Mexico,” as Friedrich Katz (1981) has called it, to guarantee access to wealthy businessmen for the purpose of plundering Mexico’s natural resources for their gain.

Finally, in 1932, the Partido Nacional Revolucionario (PNR) came to power on the promise that it would develop a cooperative economic system “tending toward socialism.” In 1937, the Mexican railway system was nationalized, as were the subsoil rights of the oil companies. In 1936, an expropriation law was passed enabling the government to seize private property whenever necessary for public or social welfare, and when foreign-owned oil companies refused to pay higher wages to striking workers, the Mexican government expropriated the oil properties. A government agency called *Petróleos Mexicanos*, or Pemex, was created to administer the nationalized industry.

This socialist spirit of the early PNR, however, soon began to disappear. In recent examples, Carlos Salinas and the PNR, which had changed its name to the Partido Revolucionario Institucional (PRI) in 1949, accepted the North American Free Trade Agreement (NAFTA) which effectively assigns Mexico the role of providing the U.S. and Canada with cheap labor for assembly plants, where harsh working conditions, low wages, and the absence of environmental controls offer exceptionally profitable conditions for foreign investors, and little chance for workers to organize (Chomsky, 1993b: 188-189). Similarly, under pressure from the World Bank, Mexico has recently begun to privatize its public holdings, selling off public television stations and setting the stage once again for foreign takeovers of its petroleum resources.

Despite noble beginnings, the PRI has tended to implement only as much social reform as necessary to gain support from the poor and to impede peasant revolts. In 1968, in the presence of CIA “observers,” the PRI government ordered the massacre of thousands of peaceful demonstrators, citizens of the republic, just days before the Olympic Games. This was carried out in the middle of Mexico City, and the event was completely ignored by U.S. and Mexican media (although the Games, of course, were fully covered). Today, similarly, under the PRI government, the Mexican White Guard conducts terrorist attacks against civilian peasants in Chiapas, presumed to be part of Marcos’ “rabble,” who are once again demanding agrarian reforms. Notwithstanding widespread discontent, the PRI has never lost a presidential election in Mexico. Power is maintained by massive vote fraud, intimidation, bribery, and murder. Thus, despite the facade presented in mainstream U.S. and Mexican media, modern Mexico, much less the PRI, is not a genuinely democratic entity, and no trace of its radical origins is now evident.

Recently, on July 6, 1997, Cuauhtémoc Cárdenas, leader of the Partido Revolucionario Democrático (PRD), was elected as Mayor of Mexico City, the second most important political post in the country and a platform from which to campaign for the next presidential election. Although Cuauhtémoc is widely expected to implement pro-social, democratic reforms, some have claimed that his sympathy for workers and

ordinary people is no greater than that of his former colleagues in the PRI.<sup>52</sup> Only time will tell.

The native people of Central Mexico have lived a long history of oppression, first at the hands of the Aztec rulers and later by the Spanish conquerors. Today, the indigenous peoples of Mexico are among the poorest and most marginalized in their country, and working wages continue to fall, increasingly so since NAFTA (\$1.38/hour in 1982, \$0.45/hour in 1990).<sup>53</sup>

Since the arrival of Hernán Cortés, the *indígenas* and their cultures, stigmatized as the lowest caste of society, have become increasingly outnumbered by their “minority of exploiters,” to use Bakunin’s (1970 [1883]) phrase. For instance, by 1895, the year of the first general census, just 16.27% of the Mexican population spoke an indigenous language; by 1990, only 6.5% did (INEGI, 1994a). Of the seventy known indigenous languages of Mexico, two--Cuitlateca and Chiapaneco--have now become extinct, and others are nearing extinction (Castañeda, 1990). In section 2.6.2, the contemporary language situation of Spanish-Nahuatl bilinguals will be discussed.

### **2.6.2 Spanish and Nahuatl in Contemporary Mexico**

Nahuatl, like Spanish, is spoken in every state in contemporary Mexico. As indicated in Table 4, Puebla has more speakers of Nahuatl than any other state, with

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<sup>52</sup>See “Mexico: For Workers Revolution” in *Workers Vanguard*, number 672, 8 August 1997.

<sup>53</sup>Data cited in Chomsky’s (1993b: 188) excellent history of U.S. aggression in Latin America and other regions. Compare INEGI (1994a: 195-337) data on workers’ earnings since 1877.

nearly one-third of the national total. The cultural/geographical area known as Huasteca, which consists of the states of Puebla, Veracruz, Hidalgo, Tamaulipas and San Luis Potosí, is home to 79.6% of the Nahuatl speakers in modern Mexico, with the state of Guerrero hosting 9.8%. The remaining 10.6% is scattered throughout the republic with concentrations above 10,000 in the state of Mexico, the Federal District, Tlaxcala, and Morelos. (In this section, the term “federal entities” refers to the Mexican states plus the Federal District, as intended in Mexican government publications.)

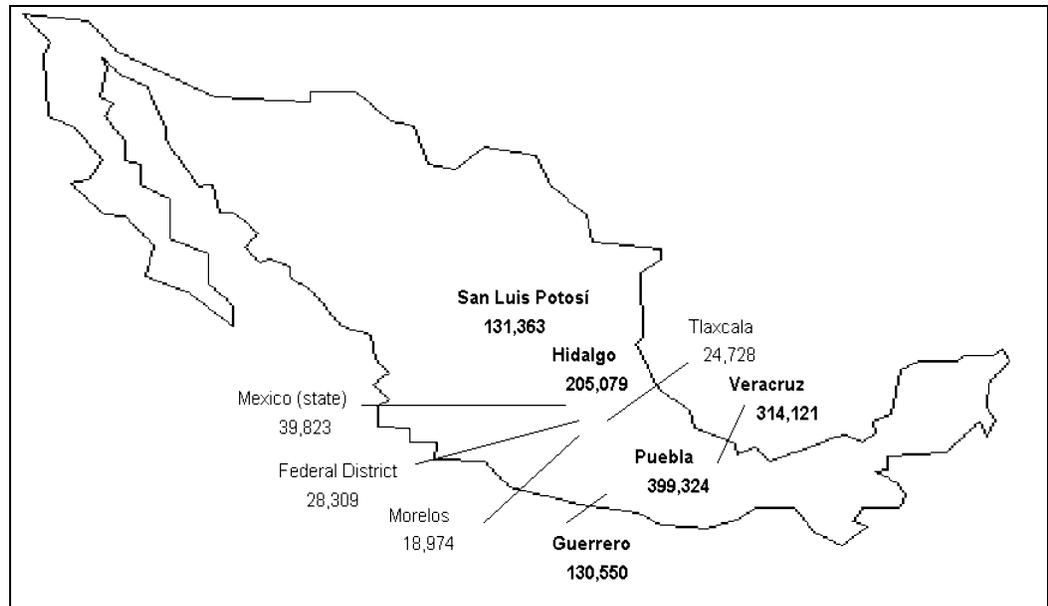
Thus, while the *lingua franca* of the Aztec world may be found throughout Mexico, it is strongly concentrated in Central Mexico, running from the northern coastal city of Veracruz through Mexico City, up to San Luis Potosí and down to the Sierra Madre del Sur in Guerrero. It is by far the most populous indigenous language in Mexico, its speakers making up nearly 23% of the population of speakers of indigenous languages in 1990 (INEGI, 1994a: 139). See the map in Figure 5.

Table 4: Nahuatl Speakers by Federal Entity in Mexico (Ranked by Population), 1995

<i>Mexican Federal Entity</i>	<i>Nahuatl Speakers</i>	<i>Mexican Federal Entity</i>	<i>Nahuatl Speakers</i>
Puebla	399,324	Tabasco	719
Veracruz	314,121	Durango	691
Hidalgo	205,079	Colima	686
San Luis Potosí	131,363	Querétaro	655
Guerrero	130,550	Quintana Roo	639
Mexico (state)	39,823	Guanajuato	492
Federal District	28,309	Nayarit	478
Tlaxcala	24,728	Coahuila	380
Morelos	18,974	Sonora	364
Oaxaca	9,158	Chiapas	355
Tamaulipas	5,072	Campeche	314
Jalisco	3,580	Baja California Sur	288
Nuevo León	3,560	Chihuahua	265
Michoacán	2,785	Zacatecas	173
Sinaloa	1,129	Aguascalientes	153
Baja California Norte	1,106	Yucatán	127
<i>Total speakers (age 5 and older)</i>		<i>1,325,440</i>	

Mexican census data (INEGI, 1997: 154-171).

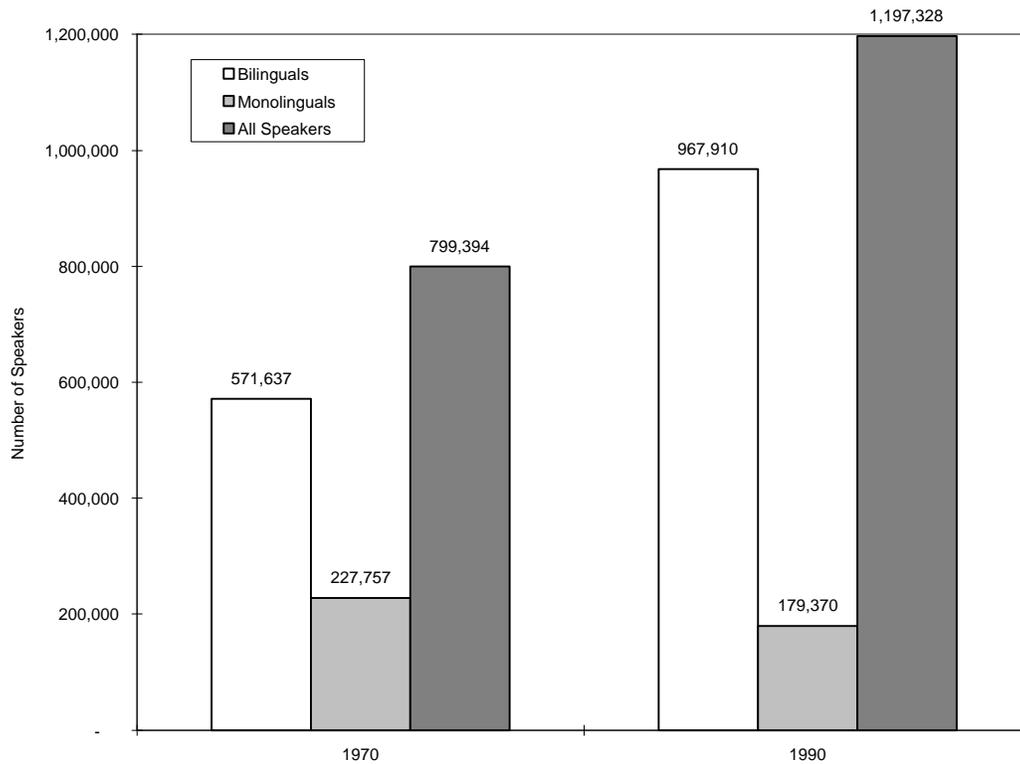
Figure 5: Map of Mexico Showing Federal Entities with 10,000+ Nahuatl Speakers, 1995



Mexican census data (INEGI, 1997: 154-171) (compare Table 4).

In fact, viewed just in terms of raw numbers, Nahuatl speakers in Mexico have been steadily increasing, with bilingualism particularly on the rise, as shown in Figure 6. In 1970, the census office reported that there were 799,394 Nahuatl speakers nationwide, while the most recent census, in 1990, found 1,197,328. Of these, 71.51% were bilingual in Spanish and Nahuatl in 1970, increasing to 80.84% bilingualism by 1990.

Figure 6: Nahuatl Monolingualism and Spanish-Nahuatl Bilingualism, 1970 and 1990

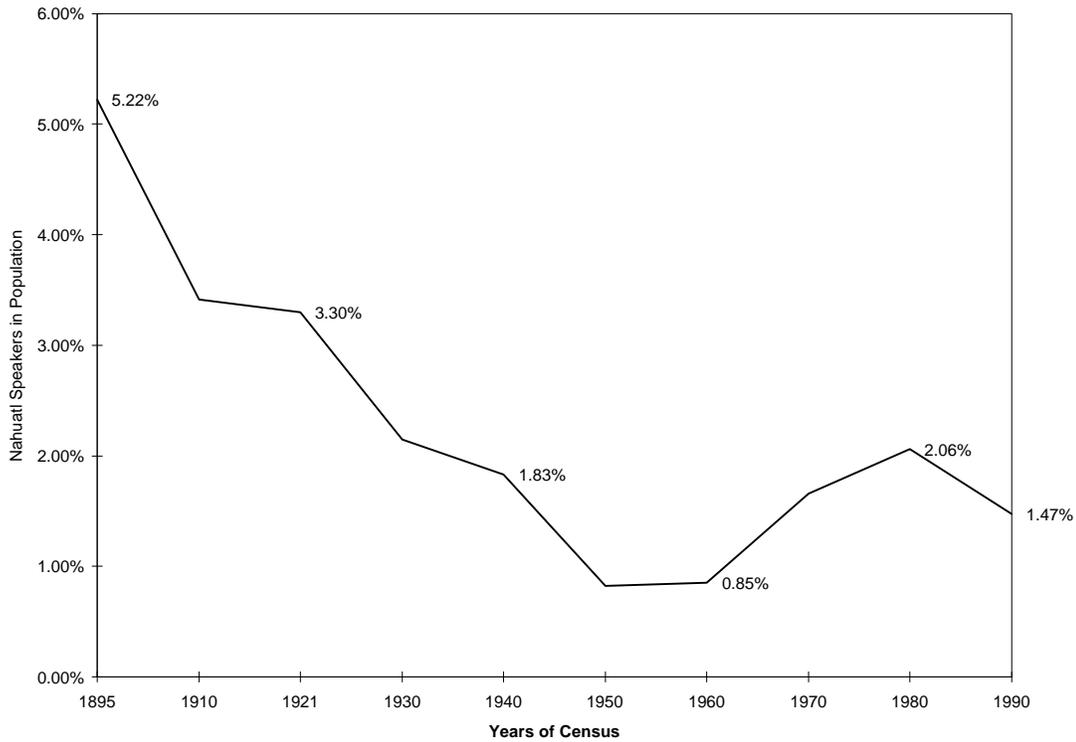


Mexican census data (INEGI, 1993: 17).

(Note: 50,048 Nahuatl speakers did not specify whether they knew Spanish or not in 1990 and are therefore not included in the 1990 monolingual/bilingual breakdown.)

However, the *proportion* of Nahuatl speakers in the entire Mexican population has been steadily declining. Census data, available from 1895 to 1990, indicate that the percentage of Nahuatl speakers in the Mexican population went from 5.22% in 1895 to 1.47% in 1990, as shown in Figure 7.

Figure 7: Percentage of Nahuatl Speakers in Mexican Population, 1895-1990



Mexican census data (INEGI, 1994a: 13, 136-139).

Of course, these figures alone do not suggest *causes* for the decrease. Because populations grow exponentially, it is to be expected that over time the relatively small proportion of Nahuatl speakers would decrease, even if nobody in their communities ever moved away or stopped speaking Nahuatl. A question arises, then, as to whether these data suggest that Nahuatl may one day become extinct, like Cuitlateca and Chiapaneco, or simply proportionally decrease in number of speakers as the general population grows at a faster rate.

Conklin and Lourie (1983) list numerous factors which contribute to language loss cross-culturally; these include occupational shifts requiring migration from rural to

urban areas, denial of ethnic identity to achieve vocational mobility, and lack of mother tongue institutions (mass media, schools, leisure activities). Although their work deals with immigrant rather than aboriginal languages, much of their discussion applies to both situations.

Although many rural Nahuatl speakers are still able to make a living on hereditary plots of land, they face a crisis of shrinking agricultural resources. There is relatively high emigration from Nahuatl areas, and relatively high immigration into the large urban and industrial centers in Mexico. The five states with the greatest number of Nahuatl speakers, for instance, lost a total of 1,513,873 people between 1970 and 1980, and 1,757,682 between 1980 and 1990, due to internal migration (see Table 5). These population shifts, presumably caused by a need for work and/or higher education, cause the sort of population shift which Conklin and Lourie (1983) believe contributes to language loss.

Table 5: Internal Emigration from the Five Most Populous Nahuatl States, 1970-1990

<i>Five Nahuatl States</i>	<i>1970-1980 Net Population Loss</i>	<i>1980-1990 Net Population Loss</i>
Guerrero	-307,187	-392,755
Puebla	-376,961	-384,812
San Luis Potosí	-352,689	-353,675
Hidalgo	-348,222	-336,285
Veracruz	-128,815	-290,155
<b>Total</b>	<b>-1,513,874</b>	<b>-1,757,682</b>

Mexican census data (INEGI, 1994a: 50-51).

Similarly, there may be something of a denial of ethnic identity in order to achieve a degree of social mobility, Conklin and Lourie's (1983) terms. My consultants reported to me that there is great social stigma attached to speaking Nahuatl in the city, where many monolingual Spanish-speakers live. Like some speakers of other indigenous

languages, many Nahuatl speakers are ashamed to speak their language in public places. indigenous languages are commonly referred to as *dialectos* in Mexico, regarded as inferior to Spanish and other European languages. To this day, speaking Spanish is called “speaking Christian,” in contrast to the heathen tongues used in indigenous cultures, leaving these indigenous languages with an additional religious stigma in their predominantly Catholic country. In addition, my consultants had no idea that Montezuma and the Aztec Empire spoke their very same language, although they knew all about the great Spanish Conquest and the triumph of Christian religion. In order to survive in the culture of the Conquistadores, the *indígenas* have assimilated and come to see an advantage to hiding their indigenous roots in many social and economic circumstances, and intensive propaganda in the schools and mass media have robbed them of the linguistic and ethnic heritage of their communities.

There is also a great lack of mother tongue institutions for Nahuatl speakers, another factor which Conklin and Lourie (1983) claim may lead to language loss.

In towns I visited, it was scarcely known among the indigenous people that their language could be written, just like Spanish. There are virtually no texts available in Nahuatl, apart from the translations of the New Testament provided by missionaries of the Summer Institute of Linguistics.

Partly due to recent peasant uprising--in Chiapas, in particular--the Mexican government has begun to implement a bilingual education program reputedly aimed at maintaining indigenous languages while introducing the Spanish language among monolinguals. Even in places where the hereditary language has died out, the new

maintenance programs advocate teaching it along with Spanish in public schools. For this purpose, the government has begun to produce textbooks for indigenous children in their native languages, generally focused on the development of basic skills in reading and writing.

These programs may indeed help the indigenous languages to regain some of their social prestige and hence also promote the continued use of the languages in communities where they have nearly died out. However, unless Nahuatl speakers are allowed to regain productive control of their lives within their communities and schools, revitalizing Nahuatl cultural expression and invention, these efforts may have little effect.<sup>54</sup>

In addition, there are severe implementation problems in the bilingual programs, involving typical political corruption; children in remote areas often do not receive supplies, and teachers from more urbanized towns have been threatened and intimidated by local political bosses. In one case, a bilingual teacher was said to have been murdered for criticizing local party officials involved in embezzlement in the town to which he had been sent to teach.<sup>55</sup> Such obstacles further weaken any hope for language revitalization in schools.

Thus, while Figure 7 may reflect nothing more than the natural consequences of population growth, Figure 6 suggests a transition to Spanish-Nahuatl bilingualism,

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<sup>54</sup>Regarding the Mexican bilingual education programs, see SEP (1994); for an assessment of the promise of the new bilingual programs to create additive bilingualism, see MacSwan and MacSwan (1997).

<sup>55</sup>The difficult political situation and the severe problems of implementation were reported to me in interviews with anonymous officials in the Mexican Secretaría de Educación Pública (SEP); the case of a murdered teacher was reported by a student who lives and works in the region. See MacSwan and MacSwan (1997) for discussion.

perhaps from there to Spanish monolingualism; this transition, it might be conjectured, is largely due to social and economic pressures imposed (or arranged) by Spanish-speaking corporate and industrial elites in urban centers.

Nonetheless, at the moment both languages are alive and well in towns I visited in the Tehuacán Valley. In particular, San Sebastián Zinacatepec, the town in which data in chapter 4 was collected, is about 65% bilingual in Spanish and Nahuatl and about 31.5% monolingual in Spanish, with 68% of the population able to read and write in Spanish. Only 271 residents (about 3.9%) are monolingual in Nahuatl. (See INEGI (1994b).) More specific detail regarding the town and my consultants will be provided in chapter 3.

Finally, a note on the term *Nahuatl* may be appropriate here. As mentioned, there are three words commonly used to refer to the language--Nahuatl, Mexicano, and Aztec. According to Hill and Hill (1986), the term *Nahuatl* did not begin to appear widely in scholarly work until the end of the nineteenth century. Among the Aztec people of Mexico, *Mexicano* is much more widely used, although *Nahuatl* is also known in some communities. In some indigenous communities, the preference for the term *Mexicano* is often reported to be related to a desire to sustain the memory that Mexico belonged to the speakers of Mexicano, or that they are the aboriginal Mexicans. *Nahuatlaca* was the name given to the tribes which came from Aztlan and settled in Central Mexico; it means “that which sounds good” (Siméon, 1995 [1885]).

Hill and Hill (1986) prefer the term *Mexicano* because their consultants did not know what Nahuatl was. My consultants, in contrast, referred to their language variously as Mexicano and Nahuatl. I have adopted the term *Nahuatl* in the present work because

it is one of the words used by my language consultants, and also happens to be the one more widely used in the scholarly literature.

### 3. RESEARCH DESIGN

Below I present the research questions which guided my study; I also present information regarding my consultants, procedures for data collection, and methodology.

#### 3.1 *Research Questions*

My central question is

- (1) What linguistic principles define code switching boundaries within sentences?

This question leads to some subquestions, shown in (2), which I shall also address using the Spanish-Nahuatl data I collected in Southeast Puebla. I will use the data pertaining to these subquestions to address question (1).

- (2a) What are the descriptive facts of Spanish-Nahuatl code switching in Southeast Puebla?
- (2b) How do the Spanish-Nahuatl data differ from those of other code switching corpora? What might explain conflicting findings?
- (2c) Does the Functional Head Constraint of Belazi, Rubin and Toribio (1994) account for the Spanish-Nahuatl code switching data?
- (2d) Does the “Null Theory” of code switching proposed in Mahootian (1993) account for the Spanish-Nahuatl code switching data?
- (2e) Does the MLF Model of Myers-Scotton (1993b) account for the Spanish-Nahuatl data?
- (2f) Can minimalist grammars explain the Spanish-Nahuatl data? If so, what are their advantages?
- (2g) Can a minimalist account be extended to data from other code switching corpora?

### 3.2 *Consultants*

Consultants used in a study on code switching ought to be selected according to particular criteria. Below these criteria and the extent to which my population conforms to them will be discussed.

#### **3.2.1 Selection Criteria for Target Language Population**

As discussed in section 2.1, consultants used in any study of intrasentential code switching should be native bilinguals, relatively evenly dominant in both languages, have actively used both languages since infancy, have had continued, sustained exposure to both languages, and appear to have generally high verbal fluency in both languages. This selection criterion is a methodological precaution to guard against critical period effects in the data.

Furthermore, Valdés (1981) and Lipksi (1978) have emphasized that code switching data may only reliably be gathered from communities in which code switching is a socially valued speech style. Otherwise, there is a risk that speakers may be reluctant to code switch, or may simply not engage in code switching at all, despite their bilingual ability.

#### **3.2.2 Description of Consultants**

During my fieldwork in Mexico I worked primarily with four consultants. Their names (pseudonyms) and the number of hours spent with each were

Jesús	17.0
Mario	10.3
Alberto	35.0
Jorge	38.5

Jesús, now 36 years old, grew up in the town of San Juan Tetelcingo in the Alto Balsas region of the state of Guerrero. He spoke Nahuatl exclusively until the age of seven; he then began to learn Spanish in elementary school. He graduated from a business administration college in Mexico City and now teaches a Nahuatl class on Saturday afternoons while attending graduate school.

I quickly learned from working with Jesús that he had very negative attitudes toward code switching. When I asked him to express judgments on particular code-switched sentences he reacted with great discomfort. He believed that his language was losing ground among its people and the mixing of Spanish and Nahuatl was a great political disservice to the Aztec community. Although Jesús appeared to be highly proficient in both Spanish and Nahuatl, his strongly negative attitudes toward code switching made him an inappropriate consultant for this study. Therefore, none of the code switching data collected from Jesús is presented in this dissertation.

San Sebastián Zinacatepec, the town in which I conducted nearly all of my fieldwork, is located near Tehuacán in southeast Puebla and has a population of about 7,000, according to the 1990 Mexican census. About 65% of the population is bilingual in Spanish and Nahuatl, about 31.5% speak only Spanish, and 271 inhabitants (about 3.9%) reported knowledge only of the indigenous language; 68% of the population can read and write in Spanish. Zinacatepec has one secondary school and four primary

schools. (See relevant tables in INEGI (1994b).) In the last local election, under tight police supervision, the Partido Ecológica ousted the ruling PRI.

Mario, another consultant, is a 26-year-old male from Zinacatepec. His mother and father are both monolingual speakers of Nahuatl, and his siblings do not know Spanish as well as he does, according to his assessment. Like Jesús, Mario began learning Spanish in school at age seven. He speaks both Spanish and Nahuatl on a daily basis, and he has been training to become a bilingual teacher in a school located in the mountains surrounding the Tehuacán Valley. The school is about a day's journey from San Sebastián, including four hours of hiking. Mario finished *preparatoria* (high school) and attends the technical university on Saturdays as part of his bilingual teacher preparation program.

Mario, with whom I worked about ten hours in total, was comfortable with producing code switching judgments but is not accustomed to speaking in this way. Because his parents are monolingual in Nahuatl and his siblings do not know Spanish well, Mario says that he is not often in a conversational situation with bilinguals which is informal enough to allow code switching. Nonetheless, Mario's judgments were consistent with those of Alberto and Jorge, both bilingual since infancy and very comfortable with code switching.

Alberto is 26 years old and has three sisters and two brothers. He grew up in San Sebastián speaking Nahuatl with his grandparents, who were essentially monolingual and lived with his family as he was growing up; he mainly spoke Spanish with his siblings and parents. His parents, who are both fluent bilinguals, speak both languages between

themselves. He is married and speaks Nahuatl with his wife, a monolingual. He has two children, four and two years old, who are learning to speak Nahuatl at home. Alberto works in the country where he grows crops on a small parcel of land he inherited from his father. Out in the fields Spanish and Nahuatl are both used daily.

Alberto is very comfortable with code switching. He explained that in the company of close friends and peers it is the typical way of talking, but it is looked down upon by monolingual Spanish-speakers in the big city and sometimes by older Nahuatl-speakers in San Sebastián. I usually worked with Alberto and Jorge together at the same time.

Jorge and Alberto are very comfortable together because they have known each other all their lives and are now family (Alberto is married to Jorge's sister). Jorge is 24 years old and is the youngest of six children. He and all his siblings are native in both Spanish and Nahuatl, and have spoken both languages among themselves since infancy. However, his grandparents, who also lived with them, spoke Nahuatl and very little Spanish. His parents, on the other hand, speak both languages but are dominant in Nahuatl. Jorge is single and lives at home; he speaks only Nahuatl with his mother but both languages with his siblings. Like Alberto, he works in the fields where he grows produce to sell at market. His parcel of land is now very small, but he can still make a living with it.

Jorge, like Alberto, reports that he often code switches with close friends and family members. Language mixture came very naturally to him, and he often offered his own theories about why some switches were not allowed. For the experimental data, I

relied most heavily upon Jorge and Alberto because of their strong bilingual ability and their high level of comfort with code switching. Although Mario was also consulted, most of the data reported in section 4.1 are due to Jorge and Alberto.

The naturalistic data were gathered at an elementary school in San Sebastián Zinacatepec. Although there are bilingual schools in the Tehuacán Valley (in San José Hiahuatlan and Altepexi), the school in San Sebastián did not offer first-language support for Nahuatl-speaking children. The fifth grade teacher, herself a Spanish-Nahuatl bilingual, invited children who self-identified as bilingual in Spanish and Nahuatl to participate in the project.

A proficient Spanish-Nahuatl bilingual adult (Mario, described above) came along as an assistant in the project and interviewed five children for about twenty-five minutes. The children spoke to one another and to the adult bilingual regarding a variety of topics, freely mixing Spanish and Nahuatl in conversation. These interactions were videotaped and later transcribed with the help of the adult bilingual. All but one of the children appeared to be conversationally fluent in Nahuatl; the other child understood much of what was said to him but could not answer in Nahuatl. The code switching facts observed in this session, among both the children and the adult bilingual assistant, are reported in section 4.2.

### *3.3 Data Collection Procedures*

As already mentioned, I used two procedures for data collection, naturalistic observation and sentence judgment (SJ) tasks. Although some researchers in code switching have a strong preference for one of these data types over the other, both used in

combination may ultimately be a useful way of establishing the best description of code switching for a particular language pair.

### 3.3.1 Naturalistic Observations

Labov (1971, 1972) favored naturalistic data over elicited data because, according to Newmeyer (1983), he did not accept the distinction between competence and performance. While naturalistic data may be useful for obtaining initial findings in a natural setting, it does not tell us what *cannot* occur; thus, it is of somewhat limited use in constructing a theory of the sort pursued here. However, the naturalistic findings may provide evidence which falsifies some of the proposals discussed in 2.2.2 (and revisited in section 5.2.1) and corroborate the experimental findings.

Naturalistic data were transcribed with the assistance of a native bilingual and later coded for morphological, syntactic, and lexical information relevant to code switching. Roughly following MacWhinney's (1991, 1995) CHAT format, and influenced by Curtiss, Schaeffer, Sano, MacSwan, and Masilon (1996), each code switch was marked for its syntactic category on a separate code switching tier (designated %cdg:),. as illustrated in (3).

(3)	*PED:	¿Tlamón tikchiwa in recreo?
	%trn:	¿Qué haces en la hora del recreo?
	%cdg:	N recreo

Here Pedro (whose speaker tier is marked \*PED:, following CHAT conventions) asks a Nahuatl question during conversation. A Spanish rendition is presented in a translation

tier (%trn:),<sup>56</sup> followed by observations regarding the utterance in the code switching tier (%cdg:). In (3), the observation is that a code switch occurs at the Spanish noun *recreo*.

Coding the transcript in this way allowed for the document to be automatically searched using a simple frequency counter on the %cdg: tier. These occurrences may then be manually inspected to determine what other properties may be relevant to the code switch (major phrase boundaries, the presence of functional categories, and so on).

In addition, borrowed elements are coded on the speaker tier using the suffix @B, as in (4).

- (4)           \*HEC:           ¿Pero@B tlan okichiwato?  
               %trn:           ¿Pero qué fue a hacer?  
               %cdg:

Because *pero* has been borrowed into Nahuatl (see section 2.3.1), its presence is not marked on the %cdg: tier. However, it may be of some peripheral interest to keep track of the frequency of borrowed words, so these are coded with the suffix @B, as shown in (4), and are reported in section 4.2.13.

### 3.3.2 Sentence Judgment Tasks

Before asking consultants for judgments on code-switched sentences, I discussed the general and widespread practice of code switching, presenting the case of Spanish-English code switching in Los Angeles as an example, an especially useful illustration

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<sup>56</sup>It was much more convenient to use Spanish translations, provided by my Spanish-Nahuatl bilingual assistant, rather than English. In (3), the question *¿Qué haces en la hora del recreo?* means “What do you do at recess time?”

given that Spanish is the language of prestige in this bilingual community, unlike the situation in Los Angeles.

Then, in an effort to make very clear what sort of information I was looking for, I presented code-switched constructions which I suspected would be extremely bad (based on comparisons with English-Spanish mixtures; see (6c) in Table 1, page 68). These involved the mixture of a Spanish accusative clitic with a Nahuatl verb, already marked for object agreement, as shown in (5).

- (5) \*Yo la *niktlasojtla*  
 Yo la ni-k-tlasojtla  
 I ACC.CLITIC 1S-3Ss-love  
 ‘I love her’

This construction, which my consultants judged to be extremely ill-formed, served as a comparison for relatively better mixtures. Consultants were always asked to provide gradient rankings for sentences; (5) was continually referenced as a prototypical worst case. In addition, each sentence was written, read aloud, and sometimes discussed at some length by consultants.

The constructions I presented were for the most part modeled after those summarized in Table 1 (page 68). In addition, my choice of constructions was sometimes influenced by Baker’s (1996) Mohawk corpus.

### 3.3.3 Conventions and Abbreviations Used for Presentation of Data

Finally, I will present data in this dissertation using the following format:

- (10) Le dije *ke kitlasojtla in Juan sikpanoah*  
 le dije ke 0-ki-tlasojtla that in Juan sikpanoah  
 DAT.CLITIC PAST/1Ss/say 3S-3Os-love IN Juan a.lot  
 ‘I told him that she loves Juan a lot’

The first line of (10) is the datum; the second line is a morphological “parse” of the datum; the third line is a gloss, morpheme by morpheme, followed in line four by an approximate translation into English (in single quotes).

Utterances prefixed with a star or asterisk (\*) are those regarded as ill-formed by consultants; expressions regarded as degraded but possibly acceptable are prefixed with (multiple) question marks (?, ??, ???), the more the worse. Material in parentheses may be omitted without altering the judgments denoted by \*, ?, ?? or ???. Sentences with no \*- or ?-prefix are well-formed.

A code switch is indicated with *italic text*, as is standard in the literature, but here the language italicized will not be presumed to have a special status (that is, it will not, for my purposes, play the role of the “embedded” language as opposed to the “matrix” language, a distinction important in some models).

In the gloss line, bound morphemes are separated by a hyphen (-), free morphemes by a space. Portmanteau morphemes are glossed using slashes (/), as illustrated in (10) for *dije*, an irregular Spanish verb, glossed as *PAST/ISs/say* (order irrelevant). The meanings of many functional/inflectional morphemes are glossed in SMALL UPPERCASE, as is conventional in linguistics discussions. When a single morpheme requires two or more separate words for its gloss, a period (.) is used to separate these words; this is illustrated in (10) for *le*, glossed as *DAT.CLITIC* (dative clitic, where *DAT* abbreviates *dative*), and for *sikpanoah*, glossed as *a.lot*. A zero (0) introduced in the second line, as shown in (10) where *kitlasojtla* is parsed as *0-ki-tlasojtla*, indicates the presence of a phonetically null element to be glossed in line three.

The particular terms used for functional elements were selected in the interest of expository convenience. Nowhere should these choices be taken to represent a theoretical commitment; for instance, by labeling Nahuatl *ki-* as 3O (third person object agreement), I do not mean to preclude an analysis of this item as an accusative clitic (an ACC.CLITIC) in chapter 5, or even to claim that the distinction is an important one.

Abbreviations used in the glosses are given in Table 6.

Table 6: Abbreviations of Terms Used in Glosses (Alphabetical)

<i>Abbreviation</i>	<i>Morpheme</i>
1O	first person object agreement (unspecified for number)
1Op	first person plural object agreement
1Os	first person singular object agreement
1S	first person subject agreement (unspecified for number)
1Sp	first person plural subject agreement
1Ss	first person singular subject agreement
2O	second person object agreement (unspecified for number)
2Op	second person plural object agreement
2Os	second person singular object agreement
2S	second person subject agreement (unspecified for number)
2Sp	second person plural subject agreement
2Ss	second person singular subject agreement
3O	third person object agreement (unspecified for number)
3Op	third person plural object agreement
3Os	third person singular object agreement
3S	third person subject agreement (unspecified for number)
3Sp	third person plural subject agreement

Table 6 (continued): Abbreviations of Morphemes Used in Glosses

<i>Abbreviation</i>	<i>Morpheme</i>
3Ss	third person singular subject agreement
ACC.CLITIC	accusative clitic
COND	conditional
DAT.CLITIC	dative clitic
DUR	durative morpheme (like Spanish <i>-ando</i> or Nahuatl <i>-toc</i> )
FUT	future tense
IMP	imperative
IN	Nahuatl determiner <i>in</i> , similar to English <i>the</i> or <i>a</i>
INDEF	indefinite morpheme (Nahuatl <i>tla-</i> )
INF	infinitive marker
LOC	locative suffix
NOM.CLITIC	nominative clitic
NSF	noun suffix (sometimes called absolutive)
PAST	past tense
PL	plural marking (on nouns or verbs)
PRES	present tense
PRT	particle
REF	reflexive clitic or pronoun
SING	singular
SUBJ	subjunctive mood
VSF	verb suffix
1SPOS	first person singular possessive
2SPOS	second person singular possessive
3SPOS	third person singular possessive
1PPOS	first person plural possessive
2PPOS	second person plural possessive
3PPOS	third person plural possessive

Finally, I should say a word about the orthographic system used in this dissertation. Some Nahuatl communities, influenced by the Spanish writing system, use *j* for /h/, while others used *h*. In some contexts, the /h/ is deleted. My consultants, for instance, spelled the verbal suffix *-kej* variously as *-kej*, *-keh* and *ke*. In addition, the Nahuatl determiner element *in* is sometimes cliticized to an element which follows it,

pronounced as a vocalic alveolar nasal; in this case it might be written simply as *n*.<sup>57</sup> The consultants for my experimental data consistently used the more traditional *in* spelling, while the consultants who helped with the naturalistic data preferred *n*. As a result, the orthographic system used in this text is a mixture of different Nahuatl orthographic systems. Since there is no established conventional writing system for this language, and since the “inconsistencies in spelling” originate with the Nahuatl speaking community itself, these differences will not be of concern to me in the following chapters. I have essentially used whatever spelling my consultants wished. (See 2.5.3.3 for a brief word on Nahuatl orthographic traditions.)

### *3.4 How the Research Questions Will be Addressed*

Returning briefly to the research questions set out in section 3.1 of this chapter, some comments should be made regarding how the particular questions will be addressed in the findings and analysis chapters of this dissertation.

Question (1) will be informed by answers to its subquestions in (2). The descriptive question, (2a), will be answered as the facts are presented in chapter 4. The descriptive characteristic of question (2b) will also be answered in chapter 4, and an explanation for apparent conflicts in findings will be offered in section 5.3.

Questions (2c) through (2e), each of which pertains to a prior account of code switching, will be specifically addressed in section 5.2.1. Finally, in sections 5.2 and 5.3,

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<sup>57</sup>R. Joe Campbell (personal communication) suggests that the cliticization takes place only before a vowel for purposes of syllabification.

minimalist grammars will be used to explain both the Spanish-Nahuatl facts and some of those reported in other corpora, as addressed in questions (2f) and (2g).

#### 4. SPANISH-NAHUATL CODE SWITCHING: BASIC FINDINGS

As discussed in chapter 3, data were collected in two ways: experiments, which consisted of elicited judgment tasks; and naturalistic observation, for which children engaged in code switching were recorded and transcribed at an elementary school in San Sebastián, Puebla. For a discussion of the language consultants, subjects, and other factors relevant to the research design, see chapter 3; conventions and abbreviations used in the presentation of data are defined in Table 6 (page 132), also in chapter 3.

The present chapter is intended as an annotated list of findings, highly descriptive in nature. In chapter 5, I will undertake an analysis of the data listed here.

##### *4.1 Data Obtained Through Elicited Judgments*

I asked my language consultants for judgments on Spanish-Nahuatl constructions similar to those reported in other code switching corpora and summarized in Table 1 (page 68). The judgments are presented below by theme, in the order assigned by Table 1.

##### **4.1.1 Conjunctions and *because***

Consultants in this study gave the judgments below for switches involving conjunctions, reported in Gumperz (1976) as a descriptive boundary at which a code switch is disallowed, but contested in many other works (compare (1a) in Table 1, page 68).

- (1) Maria kitlasojtla in Juan, *y va a casarse con él*  
 Maria 0-ki-flasojtla in Juan, y va a cas-ar-se con él  
 Maria 3S-3Os-love IN Juan, and go/3Ss/PRES PRT marry-INF-REF with him  
 ‘Maria loves John, and she’s going to marry him’
- (2) ?Maria ama a Juan, *iwan va a casarse con él*  
 Maria am-a a Juan, y va a cas-ar-se con él  
 Maria love-3Ss PRT Juan, and go/3Ss/PRES PRT marry-INF-REF with him  
 ‘Maria loves John, and she’s going to marry him’
- (3) Onikitak se ichpochtle, *y le pregunté dónde está la iglesia*  
 o-ni-k-itak se ichpochtle, y le pregunt-é dónde está la iglesia  
 PAST-1S-s3Os-see a girl, and DAT.CLITIC ask-PAST/1Ss where  
 be/3Ss/PRES the church  
 ‘I saw a girl, and I asked her where the church is’
- (4) Vi a una muchacha, *iwan oniktlajtlani kanika in teopan*  
 vi a una muchacha, iwan o-ni-k-tlajtlani kanika in teopan  
 PAST/1Ss/see PRT a girl, and PAST-1S-3Os-ask where the church  
 ‘I saw a girl, and I asked her where the church is’
- (5) Onikitak se ichpochtle, *iwan le pregunté dónde está la iglesia*  
 o-ni-k-itak se ichpochtle, iwan le pregunt-é dónde está la iglesia  
 PAST-1S-3Os-see a girl, and DAT.CLITIC ask-PAST/1Ss where  
 be/3Ss/PRES the church  
 ‘I saw a girl, and I asked her where the church is’
- (6) ?Vi a una muchacha, *y oniktlajtlani kanika in teopan*  
 vi a una muchacha, y o-ni-k-tlajtlani kanika in teopan  
 PAST/1Ss/see PRT a girl, and PAST-1S-3Os-ask where the church  
 ‘I saw a girl, and I asked her where the church is’

Although (2) and (6) were regarded as slightly degraded, they become perfect if a short pause is inserted between the conjunction and the CP. The consultants reported that (2) is “difficult to pronounce” and seemed ill-formed for this reason rather than reasons of syntactic constituency, and that Spanish *y* in (6) is more readily interpreted as the Nahuatl adverbial clitic *y*- ‘already.’

With respect to constructions involving because (compare (1b) in Table 1), boundaries are much more difficult to determine for Southeast Puebla Nahuatl. As in many other varieties of Nahuatl, Spanish *porque* has replaced classical *pampa* (still used in Guerrero and other regions). None of my consultants from Southeast Puebla knew the word *pampa* at all. In addition, Spanish *porque* and Nahuatl *porke* (as my consultants preferred to spell it in Nahuatl) appear to be pronounced the same. As expected, (7) and (8) are well-formed. In the absence of a careful phonetic analysis, it is unclear as to whether *porque* should be spelled *porque* (Spanish) or *porke* (Nahuatl) in (7) and (8); my choice is arbitrary.

- (7) (Ne) onipaktoka, porke *vi a una muchacha*  
 (ne) o-ni-paktoka, porke *vi a una muchacha*  
 (I) PAST-1S-be.happy because PAST/1Ss/see PRT a girl  
 ‘I was happy because I saw a girl’
- (8) Estaba feliz, porque *onikitak se ichpochtle*  
 estaba feliz, porque o-ni-k-kitak se ichpochtle  
 PAST/1Ss/be happy because PAST-1S-3Os-see a girl  
 ‘I was happy because I saw a girl’

Thus, due to the fact that both Spanish and Nahuatl use the same form for *because*, the data in (7) and (8) cannot enlighten us with respect to Gumperz’ claim mentioned in Table 1.

#### 4.1.2 *That-Complement*

Southeast Puebla Nahuatl has also borrowed Spanish complementizer *que*, generally written *ke*. Unlike Spanish, Nahuatl *ke* may be phonetically null, as in English. (In classical and some other varieties *in* is used as the complementizer.) The following data regarding (2) in Table 1 (page 68) were collected.

- (9) Le dije *que kitlasojtla in Juan sikpanoah*  
 le dije que 0-ki-tlasojtla in Juan sikpanoah  
 DAT.CLITIC PAST/1Ss/say that 3S-3Os-love IN Juan a.lot  
 'I told him that she loves Juan a lot'
- (10) Le dije *ke kitlasojtla in Juan sikpanoah*  
 le dije ke 0-ki-tlasojtla that in Juan sikpanoah  
 DAT.CLITIC PAST/1Ss/say that 3S-3Os-love IN Juan a.lot  
 'I told him that she loves Juan a lot'
- (11) Le dije *kitlasojtla in Juan sikpanoah*  
 le dije 0-ki-tlasojtla in Juan sikpanoah  
 DAT.CLITIC PAST/1Ss/say 3S-3Os-love IN Juan a.lot  
 'I told him she loves Juan a lot'
- (12) Onikili *que la quiere Juan*  
 o-ni-k-ili que la quier-e Juan  
 PAST-1S-3Os-say that ACC.CLITIC love-PRES/3Ss Juan  
 'I told him that Juan loves her'
- (13) Onikili *la quiere Juan*  
 o-ni-k-ili la quiere Juan  
 PAST-1S-3Os-say ACC.CLITIC love-PRES/3Ss Juan  
 'I told him Juan loves her'

The facts do not change if the complement clause is a subjunctive, marked in Nahuatl with the verbal prefix *xi-*. (14) and (15) are pure Spanish and (16) pure Nahuatl, given for purposes of comparison; (17) through (19) are code-switched sentences involving subjunctive CP complements. (As with *porque/porke*, it is unclear whether *que* in (18) and (19) should be spelled *que*, as in Spanish, or *ke*, as in Nahuatl; the choice is again arbitrary.)

- (14) Quiero que compres ropa  
 quier-o que compr-es ropa  
 want-PRES/1Ss that buy-SUBJ/2Ss clothes  
 'I want that you buy some clothes'

- (15) Espero que compres ropa  
esper-o que compr-es ropa  
hope-PRES/1Ss that buy-SUBJ/2Ss clothes  
'I hope that you buy some clothes'
- (16) nikchia ke (te) xikoa tlakemetl  
ni-k-chia ke (te) xi-k-koa tlakeme-tl  
1S-3Os-hope that (you) SUBJ-3Os-buy garment-NSF  
'I hope you buy some clothes'
- (17) Quiero *ke (te) xikoa tlakemetl*  
quier-o ke (te) xi-k-koa tlakeme-tl  
want-PRES/1Ss that (you) SUBJ-3Ss-buy garment-NSF  
'I want you to buy some clothes'
- (18) nikchia *ke compres ropa*  
ni-k-chia ke compr-es ropa  
1S-3Os-hope that buy-SUBJ/2Ss clothes  
'I hope you buy some clothes'
- (19) Espero que *(te) xikoa tlakemetl*  
esper-o que (te) xi-k-koa tlakeme-tl  
hope-PRES/1Ss that (you) SUBJ-3Ss-buy garment-NSF  
'I hope that you buy some clothes'

#### 4.1.3 Other Embedded Clauses

As noted in (3) of Table 1, it has been claimed that a switch is barred between certain I-elements (auxiliary *have*, modals, English *to*, the durative auxiliary) and their complements. Southeast Puebla Nahuatl does not use an auxiliary akin to European *have* for compound tenses, does not appear to use modal-like elements,<sup>58</sup> and does not have

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<sup>58</sup>Tuggy (1979) and Beller and Beller (1979) report the existence of a modal element *ma* 'may' in Morelos and Huasteca, but my speakers from the Tehuacán Valley were confused when I introduced this word. The word does occur in the naturalistic data (item (158) in section 4.2.7), but there its meaning is somewhat unclear. Siméon (1996 [1885]) lists multiple meanings for this word, only one of which has the modal sense of Tuggy (1979) and Beller and Beller (1979).

infinitives. However, an embedded IP complement in Nahuatl is morphologically marked for tense and agreement, as shown in (20) and (23).

If a Nahuatl verb takes a Spanish complement (unmarked for tense and agreement) the resulting construction is ill-formed, as in (21), (22), (24) and (25). If a Spanish verb takes a Nahuatl complement, as in (26), the construction is seriously degraded but preferred to (21), (22), (24) and (25).

- (20) Nio niktati nowelti  
 ni-o ni-k-tati no-welti  
 1S-go 1S-3Os-see my-sister  
 ‘I’m going to see my sister’
- (21) \*Nio (a) ver (a) mi hermana  
 ni-o (a) ver (a) mi hermana  
 1Ss-go (PRT) INF/see (PRT) my sister  
 ‘I’m going to see my sister’
- (22) \*Nio veo (a) mi hermana  
 ni-o veo (a) mi hermana  
 1S-go PRES/1Ss/see PRT my sister  
 ‘I’m going to see my sister’
- (23) Nikneki nikoas tlakemetl  
 ni-k-neki ni-k-koa-s tlakemetl  
 1S-3Os-want 1S-3Os-buy-FUT clothing  
 ‘I want to buy some clothes’
- (24) \*Nikneki *compro ropa*  
 ni-k-neki compr-o ropa  
 1S-3Os-want buy-1Ss/PRES clothing  
 ‘I want to buy some clothes’
- (25) \*Nikneki *compraré ropa*  
 ni-k-neki compr-aré ropa  
 1S-3Os-want buy-1Ss/FUT clothing  
 ‘I want to buy some clothes’

- (26) ??*Quiero nikoas tlakemetl*  
 ni-k-neki ni-k-koa-s tlakemetl  
 1S-3Os-want 1S-3Os-buy-FUT clothing  
 ‘I want to buy some clothes’

Like Spanish, illustrated in (27), Nahuatl has a durative suffix *-toc*, as shown in

(28) and (29). Notice that in Nahuatl no auxiliary (*estar* ‘to be’) is used.

- (27) (Yo) *estoy ayudando a Juan*  
 (yo) *estoy ayud-ando a Juan*  
 (I) be/PRES/1Ss help-DUR PRT Juan  
 ‘I’m helping Juan’
- (28) (Ne) *nikpalewijtoc in Juan*  
 (ne) *ni-k-palewij-toc in Juan*  
 (I) 1S-3Os-help-DUR IN Juan  
 ‘I’m helping Juan’
- (29) (Ye) *nejnentoc*  
 (ye) *0-nejnen-toc*  
 (he) 3S-walk-DUR  
 ‘He’s walking’

In code switches involving these constructions, the Spanish auxiliary *estar* may be followed by a Nahuatl durative verb (*V-toc*) only if the verb is unmarked for subject or object agreement and there has been no noun incorporation. The prefix *tla-*, often called the indefinite prefix (Launey, 1992: 35), is used in (30) and (31) to make transitive *kijtohtoc* intransitive (Wolgemuth, 1981: 70); similarly in (34) and (35).

- (30) \**Estoy nitlajtohtoc*  
*estoy ni-tla-toh-toc*  
 be/PRES/1Ss 1S-INDEF-speak-DUR  
 ‘I’m speaking’
- (31) *Estoy tlajtohtoc*  
*estoy tla-toh-toc*  
 be/1Ss INDEF-speak-DUR  
 ‘I’m speaking’

- (32) \*Estoy *nikijtohtoc*  
 estoy ni-ki-toh-toc  
 be/PRES/1Ss 1S-3Os-speak-DUR  
 ‘I’m saying it’
- (33) \*Estoy *kijtohtoc*  
 estoy ki-toh-toc  
 be/PRES/1Ss 3Os-speak-DUR  
 ‘I’m saying it’
- (34) \*Estoy *nitlacuajtoc*  
 estoy ni-tla-cuaj-toc  
 be/PRES/1Ss 1S-INDEF-eat-DUR  
 ‘I’m eating’
- (35) Estoy *tlacuajtoc*  
 estoy tla-cuaj-toc  
 be/PRES/1Ss INDEF-eat-DUR  
 ‘I’m eating’
- (36) \*Estoy *nikuajtoc*  
 estoy ni-k-cuaj-toc  
 be/PRES/1Ss 1S-3Os-eat-DUR  
 ‘I’m eating it’
- (37) \*Estoy *kuajtoc*  
 estoy k-cuaj-toc  
 be/PRES/1Ss 3Os-eat-DUR  
 ‘I’m eating it’
- (38) \*Estoy *nitlakaktoc*  
 estoy ni-tla-kak-toc  
 be/PRES/1Ss 1S-INDEF-hate-DUR  
 ‘I’m hating’ (=‘I feel hatred’)
- (39) Estoy *tlakaktoc*  
 estoy tla-kak-toc  
 be/PRES/1Ss INDEF-hate-DUR  
 ‘I’m hating’ (=‘I feel hatred’)
- (40) \*Estoy *nikaktoc*  
 estoy ni-k-kak-toc  
 be/PRES/1Ss 1S-3Os-hate-DUR  
 ‘I’m hating it’

An incorporated noun in the place of *k-* (or *ki-*) in (36) does not change judgments:

- (41) *ninakakuajtoc*  
 ni-naka-cuaj-toc  
 1Ss-meat-eat-DUR  
 ‘I’m eating meat’
- (42) \**Estoy ninakakuajtoc*  
 estoy ni-naka-cuaj-toc  
 be/PRES/1Ss 1S-meat-eat-DUR  
 ‘I’m eating meat’
- (43) \**Estoy nakakuajtoc*  
 estoy naka-cuaj-toc  
 be/PRES/1Ss meat-eat-DUR  
 ‘I’m eating meat’

Some code switching examples which do not include verbs detransitivized by *tla-* appear below. The generalization holds for these data as well: a complement to Spanish *estar* may not bear agreement morphology or an incorporated noun, just as in the IP complement cases discussed above.

- (44) \**Estoy nikpalewijtoc*  
 estoy ni-k-palewij-toc  
 be/PRES/1Ss 1S-3Os-helping-DUR  
 ‘I’m helping him/her’
- (45) \**Estoy nikmakatoc*  
 estoy ni-k-maka-toc  
 be/PRES/1Ss 1S-3Os-give-DUR  
 ‘I’m handing it to him/her’
- (46) \**Estoy ninejnentoc*  
 estoy ni-nejnen-toc  
 be/PRES/1Ss 1S-walk-DUR  
 ‘I’m walking’

- (47) Estoy *nejnentoc*  
 estoy nejnén-toc  
 be/PRES/1Ss walk-DUR  
 ‘I’m walking’
- (48) \*Estoy *niajtoc*  
 estoy ni-a-toc  
 be/PRES/1Ss 1S-go-DUR  
 ‘I’m going’
- (49) Estoy *yajtoc*  
 estoy ya-toc  
 be/PRES/1Ss go-DUR  
 ‘I’m going’
- (50) \*Estoy *nitekititoc*  
 estoy ni-tekiti-toc  
 be/PRES/1Ss 1S-work-DUR  
 ‘I’m working’
- (51) Estoy *tekititoc*  
 estoy tekiti-toc  
 be/PRES/1Ss work-DUR  
 ‘I’m working’

#### 4.1.4 Negation

Many varieties of Nahuatl express negation with *amo* ‘no,’ also the form used in the classical texts. In other dialects, a verbal prefix is used instead of *amo* (*x-*, for instance, in Guerrero Nahuatl). In Southeast Puebla Nahuatl negation may be indicated with either *amo* or a verbal prefix *mach-*.

However, since the prefix type of negation raises complications which are not at issue with *amo*, the examples involving switches of negation presented here are of the *amo* variety. It could be the case, for instance, that some morphological principles of word formation, perhaps the head-movement cases, resist code switching due to conflicts

in the syntactic requirements of these heads; using switches at the negation boundary with *amo* controls for this effect. (In Spanish, sentential negation is *no*.)

An additional complication arises because Nahuatl *amo* ‘not’ happens to have the same form as Spanish *amo* ‘I love,’ as my consultants often pointed out when these constructions were presented (see, in particular, (60) and (61)). Although the data are not ample and the judgments not always clear, there appears to be a resistance to code switches which involve Spanish negation followed by a Nahuatl verb that bears agreement morphology (note in particular (53)-(56)). Example (52) is pure Nahuatl, provided for purposes of comparison. (Examples of code switches with negative quantifiers are presented in section 4.1.5 of this chapter.)

- (52) Amo nitekititoc  
amo ni-tekiti-toc  
not 1S-work-DUR  
‘I’m not working’
- (53) \*No *nitekititoc*  
no ni-tekiti-toc  
not 1S-work-DUR  
‘I’m not working’
- (54) No estoy *tekititoc*  
no estoy tekiti-toc  
not be/PRES/1Ss work-DUR  
‘I’m not working’
- (55) Amo *estoy* tekititoc  
amo estoy tekiti-toc  
not be/PRES/1Ss work-DUR  
‘I’m not working’
- (56) \*No *onikili*  
no o-ni-k-ili  
not PAST-1S-3Os-tell  
‘I didn’t tell him’

- (57) *Amo le dije*  
 amo le dije  
 not DAT.CLITIC tell/PAST/1Ss  
 ‘I didn’t tell him’
- (58) ??*Maria no kitlasojtla in Juan*  
 Maria no 0-ki-tlasojtla in Juan  
 Maria not 3S-3Os-love IN Juan  
 ‘Maria doesn’t love Juan’
- (59) ??*Maria amo quiere a Juan*  
 Maria amo quier-e a Juan  
 Maria not love-3Ss/PRES PRT Juan  
 ‘Maria doesn’t love Juan’
- (60) ??*Maria amo ama a Juan*  
 Maria amo am-a a Juan  
 Maria not love-3Ss/PRES PRT Juan  
 ‘Maria doesn’t love Juan’
- (61) ???/\**Amo amo a Maria*  
 amo am-o a Maria  
 not love-1Ss/PRES PRT Maria  
 ‘I don’t love Maria’

#### 4.1.5 Quantifiers and Nonreferential Quantified NPs

Spanish *cada* ‘each’ has been borrowed into all of the modern varieties of Nahuatl, including Southeast Puebla Nahuatl, and is among Suárez’s (1977: 120) twenty words brought into modern Nahuatl by “préstamo simple” (simple borrowing). Thus, code switches involving *cada* do not inform us regarding (4a) of Table 1 (page 68).

- (62) *Cada tlakatl okipipitzo in isiwa*  
 cada tlaka-tl o-0-ki-pipitzo in i-siwa  
 each man-NSF PAST-3S-3Os-kiss IN his-wife  
 ‘Each man kissed his wife’

- (63) Cada hombre *okipipitzo in isiwa*  
 cada hombre o-0-ki-pipitzo in i-siwa  
 each man PAST-3S-3Os-kiss IN his-wife  
 'Each man kissed his wife'

While (63) shows us that a switch is allowed between a subject and verb, we cannot tell whether a switch is allowed between *cada* and its NP complement since the phonetic content of the word is the same in both languages.

Similar comments hold for the numerals. Although modern Nahuatl speakers can typically count up to four or five using Nahuatl-origin number words, they productively use the Spanish numbers in daily interactions. This is a common event under conditions of linguistic colonialism; the dominant language, whose speakers control commerce, begins to replace the counting words in the minority language with its own lexical tags (compare, for instance, modern Tagalog). Because my consultants did not know how to count in Nahuatl, I have no data involving code switches between a numeral and an NP complement.

In Nahuatl, the position of negatively quantified nonreferential NPs like *nobody* is rigid; these must occur before the verb and nowhere else. However, non-negatives like *somebody* may move with the same flexibility as other NPs. This fact is illustrated in (64) through (71).

- (64) Juan okitak aka  
 Juan o-0-ki-tak aka  
 Juan PAST-3S-3Os-see somebody  
 'Juan saw somebody'
- (65) Juan aka okitak  
 Juan aka o-0-ki-tak  
 Juan somebody PAST-3S-3Os-see  
 'Juan saw somebody'

- (66) Juan amaka okitak  
 Juan amaka o-0-ki-tak  
 Juan nobody PAST-3S-3Os-see  
 ‘Juan saw nobody’
- (67) \*Juan okitak amaka  
 Juan o-0-ki-tak amaka  
 Juan PAST-3S-3Os-see nobody  
 ‘Juan saw nobody’
- (68) Amaka witz  
 amaka witz  
 nobody come  
 ‘Nobody will come’
- (69) \*Witz amaka  
 witz amaka  
 come nobody  
 ‘Nobody will come’
- (70) Aka witz  
 aka witz  
 somebody come  
 ‘Somebody will come’
- (71) Witz aka  
 witz aka  
 come somebody  
 ‘Somebody will come’

In code switching contexts, if a Nahuatl verb is used, the distribution of nonreferential quantified NPs remains essentially the same as in (64) through (71). However, unlike the pure Nahuatl example, the pattern in (65) is somewhat marked when a Spanish nonreferential quantified NP is used in combination with a Nahuatl verb.

- (72) Juan *nadie* okitak  
 Juan *nadie* o-0-ki-tak  
 Juan nobody PAST-3S-3Os-see  
 ‘Juan didn’t see anybody’

- (73) \*Juan okitak (*a*) *nadie*  
 Juan o-0-ki-tak (a) *nadie*  
 Juan PAST-3S-3Os-see (PRT) *nadie*  
 ‘Juan didn’t see anybody’
- (74) ?Juan *alguien* okitak  
 Juan *alguien* o-0-ki-tak  
 Juan somebody PAST-3S-3Os-see  
 ‘Juan saw somebody’
- (75) ?Nadie *witz*  
*nadie witz*  
 nobody come  
 ‘Nobody will come’
- (76) \*Witz (*a*) *nadie*  
*witz* (a) *nadie*  
 come (PRT) nobody  
 ‘Nobody will come’
- (77) ?Alguien *witz*  
*alguien witz*  
 somebody come  
 ‘Somebody will come’
- (78) *Witz alguien*  
*witz alguien*  
 come somebody  
 ‘Somebody will come’

Notice, too, that although Nahuatl has the option of using a negative concord construction, as in (79), the code-switched versions are ill-formed.

- (79) Juan amo okitak aka  
 Juan amo o-0-ki-tak aka  
 Juan not PAST-3S-3Os-see somebody  
 ‘Juan didn’t see anybody’
- (80) \*Juan *a nadie* okitak  
 Juan *a nadie* o-0-ki-tak  
 Juan PRT nobody PAST-3S-3Os-see  
 ‘Juan didn’t see anybody’

- (81) \*Juan amo okitak (*a*) *nadie*  
 Juan o-0-ki-tak (a) *nadie*  
 Juan PAST-3S-3Os-see (PRT) nobody  
 ‘Juan didn’t see anybody’
- (82) \*Juan no vio *aka*  
 Juan no vió *aka*  
 Juan not see/past/3Ss somebody  
 ‘Juan didn’t see anybody’

Finally, when a Spanish verb is used with a Nahuatl nonreferential quantified NP in object position, the construction is always ill-formed.

- (83) \*Comprará *itlah*  
 compr-ará *itlah*  
 buy-FUT/3Ss something  
 ‘He’ll buy something’
- (84) \*Itlah *comprará*  
 itlah compr-ará  
 something buy-FUT/3Ss  
 ‘He’ll buy something’
- (85) \*Amitlah *comprará*  
 amitlah compr-ará  
 nothing buy-FUT/3Ss  
 ‘He’ll buy nothing’
- (86) \*Comprará *amitlah*  
 compr-ará *amitlah*  
 buy-FUT/3Ss nothing  
 ‘He’ll buy nothing’

These elements can, however, freely occur in subject position:

- (87) *Alguien okitak in Juan*  
 alguien o-0-ki-tak in Juan  
 somebody PAST-3S-3Os-see IN Juan  
 ‘Somebody saw Juan’

#### 4.1.6 Demonstratives

As noted in (4b) of Table 1, there is a dispute in the code switching literature with respect to whether a code switch may occur between a demonstrative and its NP complement. While a code switch between the Nahuatl demonstrative *neka* ‘that’ and a Spanish NP is allowed, a switch between a Spanish demonstrative (*aquel, ese, este*) and a Nahuatl NP is ill-formed with feminine demonstratives and degraded with masculine forms.

- (88) Neka *hombre* kikoas se kalli  
 neka hombre 0-ki-koa-s se kalli  
 that man 3S-3Os-buy-FUT a house  
 ‘That man will buy a house’
- (89) ??Este *tlakatl kitlasojtla in Maria*  
 este tlaka-tl 0-ki-tlasojtla in Maria  
 this man-NSF 3S-3Os-love IN Maria  
 ‘This (here) man loves Maria’
- (90) ??Ese *tlakatl kitlasojtla in Maria*  
 ese tlaka-tl 0-ki-tlasojtla in Maria  
 this man-NSF 3S-3Os-love IN Maria  
 ‘This man loves Maria’
- (91) ??Aquel *tlakatl kitlasojtla in Maria*  
 aquel tlaka-tl 0-ki-tlasojtla in Maria  
 that man-NSF 3S-3Os-love IN Maria  
 ‘That man loves Maria’
- (92) \*Neka *tlakatl kikoas aquella* kalli  
 neka tlaka-tl 0-ki-koa-s aquella kalli  
 that man-NSF 3S-3Os-buy-FUT that house  
 ‘That man will buy that house’
- (93) \*Neka *tlakatl kikoas esa* kalli  
 neka tlakatl kikoas esa kalli  
 that man-NSF 3S-3Os-buy-FUT this house  
 ‘That man will buy this house’

- (94) \*Neka tlakatl kikoas *esta* kalli  
 neka tlakatl kikoas *esta* kalli  
 that man-NSF 3S-3Os-buy-FUT this house  
 ‘That man will buy this (here) house’

#### 4.1.7 Determiners

There is a dispute in the code switching literature with respect to whether a code switch may occur between a determiner and its NP complement, as noted in (4c) of Table 1. The findings here are as they were in section 4.1.6 (Demonstratives): While a switch between the Nahuatl article *se* ‘a’ and a Spanish NP is allowed, a switch between a Spanish article and a Nahuatl NP is allowed with masculine but not with feminine articles.

- (95) \*Neka tlakatl kikoas *una* kalli  
 neka tlaka-tl 0-ki-koa-s *una* kalli  
 that man-NSF 3S-3Os-buy-FUT a house  
 ‘That man will buy a house’
- (96) *El* teopixke kipia *se* coche  
 el teopixke 0-ki-pia *se* coche  
 the priest 3S-3Os-have a car  
 ‘The priest has a car’
- (97) *El* teopixke kipia *un* coche  
 el teopixke 0-ki-pia *un* coche  
 the priest 3S-3Os-have a car  
 ‘The priest has a car’
- (98) *Se hombre* kikoas *se* kalli  
 se hombre 0-ki-koa-s *se* kalli  
 a man 3S-3Os-buy-FUT a house  
 ‘A man will buy a house’
- (99) Tengo *un* konetl  
 tengo un kone-tl  
 have/PRES/3Ss a son-NSF  
 ‘I have a son’

#### 4.1.8 Nahuatl *in* and Spanish Nouns

Nahuatl *in* is frequently translated ‘the’ in English or ‘el/la’ in Spanish, but it behaves very differently from these definite articles. A number of proposals have been advanced regarding the syntactic properties of this element, but for now I will simply discuss how it behaves in code switching contexts (returning to its syntactic characteristics in section 5.2).

Code switches between *in* and a Spanish noun are unmarked, just as in the case of *se* discussed in section 4.1.7.

- (100) *Arrancó in vestido non de Maria*  
 arranc-ó in vestido non de Maria  
 pull-PAST/3Ss IN dress which of Maria  
 ‘She pulled on Maria’s dress’
- (101) *Okitanili in vestido non de Maria*  
 o-0-ki-tilanili in vestido non de Maria  
 PAST-3S-3Os-pull IN dress which of Maria  
 ‘She pulled on Maria’s dress’

In one instance my consultants regarded this switch as somewhat marked:

- (102) *?In hombre kikoas se kalli*  
 in hombre 0-ki-koa-s se kalli  
 IN man 3S-3Os-buy-FUT a house  
 ‘The man will buy a house’

The Spanish word *cuchillo* is the only word used by my consultants for ‘knife,’ so it may be regarded as a borrowing in (103). This contrasts with the use of Spanish *vestido* ‘dress’ in (101) since Nahuatl speakers use their native word *tlake* for ‘dress’ as well.

- (103) *In cuchillo de Juan kipalewijtok*  
 in cuchillo de Juan 0-ki-palewij-tok  
 the knife of Juan 3S-3Os-help-DUR  
 ‘Juan’s knife is helping him’

#### 4.1.9 Modification Structures

It has been argued that code switches are barred in modification constructions when the adjective and noun differ with regard to the directionality requirement within the AP; thus, if a language  $L_a$  requires its nouns to follow adjectives, and a language  $L_b$  requires its adjectives to follow nouns, then a code switch between a noun and an adjective involving  $L_a$  and  $L_b$  is barred. This finding has been disputed, as noted in (5) of Table 1.

In Nahuatl, there is a slight preference for adjectives to precede nouns, but they often may vary freely, as in (103) and (104).

(103) Ye kipia se kalli iztak  
 ye 0-ki-pia se kalli iztak  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(104) Ye kipia se iztak kalli  
 ye 0-ki-pia se iztak kalli  
 she 3S-3Os-have a white house  
 ‘She has a white house’

In addition, despite widespread assumptions to the contrary, modification constructions appear to be a heterogeneous class which is not well understood. Thus, examples such as (103) and (104) should not necessarily be regarded as general patterns for Nahuatl, just as their English equivalents should not be regarded as general patterns for English (that is, some types of adjectives will have very different syntactic properties).

In code switching contexts, with respect to constructions like (103) and (104), a Spanish adjective may be used with a Nahuatl NP if the adjective precedes the noun and

does not use feminine gender (as might be expected for the Spanish word *casa* ‘house’).

Note the contrast between (105) through (107) on the one hand and (108) on the other.

(105) \*Ye kipia se *blanca* kalli  
 ye 0-ki-pia se blanca kalli  
 she 3S-3Os-have a white house  
 ‘She has a white house’

(106) \*Ye kipia se kalli *blanca*  
 ye 0-ki-pia se kalli blanca  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(107) \*Ye kipia se *blanco* kalli  
 ye 0-ki-pia se blanco kalli  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(108) ??Ye kipia se kalli *blanco*  
 ye 0-ki-pia se kalli blanco  
 she 3S-3Os-have a house white  
 ‘She has a white house’

#### 4.1.10 Switches Involving Subject and Object Pronouns

As noted in (6a) of Table 1, it has been reported that a switch may not occur between a subject pronoun and a verb; however, this finding, too, has been disputed. In Spanish-Nahuatl, a switch between a Spanish subject pronoun and a Nahuatl verb is allowed for third person but is not allowed for first or second person. This corresponds to the absence of an overt third-person subject agreement morpheme on the Nahuatl verb, as may be observed in (111).

(109) \*Yo *nikoas tlakemetl*  
 yo ni-k-koa-s tlake-me-tl  
 I 1S-3Os-buy-FUT garment-PL-NSF  
 ‘I will buy clothes’

- (110) \*Tú *tikoas tlakemetl*  
 tú ti-k-koa-s tlake-me-tl  
 you/SING 2S-3Os-buy-FUT garment-PL-NSF  
 ‘You will buy clothes’
- (111) Él *kikoas tlakemetl*  
 él 0-ki-koa-s tlak-eme-tl  
 he 3S-3Os-buy-FUT garment-PL-NSF  
 ‘He will buy clothes’
- (112) Ella *kikoas tlakemetl*  
 ella 0-ki-koa-s tlake-me-tl  
 she 3S-3Os-buy-FUT garment-PL-NSF  
 ‘She will buy clothes’

These judgments are sustained even when the pronoun is postponed, normally allowed in both Spanish and Nahuatl, as illustrated (for Nahuatl) in (113).

- (113) Niktlalia tlantikuaske nochipa ne  
 ni-k-tlalia tlantikuask nochipa ne  
 1S-3Os-prepare food daily I  
 ‘I prepare food every day’
- (114) \*Niktlalia tlantikuaske nochipa yo  
 ni-k-tlalia tlantikuask nochipa yo  
 1S-3Os-prepare food daily I  
 ‘I prepare food every day’
- (115) \*Tiktlalia tlantikuaske nochipa tú  
 ti-k-tlalia tlantikuask nochipa tú  
 2S-3Os-prepare food daily you/SING  
 ‘You prepare food every day’
- (114) Kitlalia tlantikuaske nochipa él  
 0-ki-tlalia tlantikuask nochipa él  
 3S-3Os-prepare food daily he  
 ‘He prepares food every day’

A Nahuatl subject pronoun placed before a Spanish verb is somewhat degraded for first person but ill-formed for second or third:

- (115) ?*Ne tengo (una) casa*  
 ne tengo (una) casa  
 I have/1Ss/PRES (a) house  
 ‘I have a house’
- (116) \**Te tienes (una) casa*  
 te tienes (una) casa  
 you have/2Ss/PRES (a) house  
 ‘You have a house’
- (117) \**Ye tiene (una) casa*  
 ye tiene (una) casa  
 (s)he have/3Ss/PRES (a) house  
 ‘(S)he has a house’

My consultants found (116) especially unacceptable due to the confusion between Spanish *te* (the second-person singular clitic/reflexive) and Nahuatl *te* (the second-person singular subject pronoun), phonetically identical but syntactically very different forms. On the Spanish reading of *te*, (116) crashes because it has two objects, *te* and *casa*. Thus, like (60) and (61), parsing (116) introduces a garden path, adding an additional complication to the analysis.

Spanish object pronouns inserted in Nahuatl sentences are ill-formed regardless of person or overt case marking. (Compare (6b) of Table 1.) I do not have data regarding Nahuatl object pronouns mixed with Spanish verbs.

- (118) ??*Niktlasojtla in ella*  
 ni-k-tlasojtla in ella  
 1S-3Os-love IN her  
 ‘I love her’
- (119) \**Niktlasojtla a ella*  
 ni-k-tlasojtla a ella  
 1S-3Os-love PRT her  
 ‘I love her’

- (120) \*Nimistlasojtla in *tí*  
 ni-mis-tlasojtla in *tí*  
 1S-2Os-love IN you/SING/ACC  
 ‘I love you’
- (122) \*Nimistlasojtla *a tí*  
 ni-mis-tlasojtla *a tí*  
 1S-2Os-love PRT you/SING/ACC  
 ‘I love you’
- (123) \*Titechtlasojtla in *mí*  
 ti-tech-tlasojtla in *mí*  
 2S-2Os-love IN me/ACC  
 ‘You love me’
- (124) \*Titechtlasojtla *a mí*  
 ti-tech-tlasojtla *a mí*  
 2S-2Os-love PRT me/ACC  
 ‘You love me’
- (125) \*Nimistlasojtla in *tú*  
 ni-mis-tlasojtla in *tú*  
 1S-2Os-love IN you/SING/NOM  
 ‘I love you’
- (126) \*Titechtlasojtla in *yo*  
 ti-tech-tlasojtla in *yo*  
 2S-1Os-love IN I/NOM  
 ‘You love me’

#### 4.1.11 Switches Involving Clitics

It has not been disputed that a switch between a clitic and a verb is ill-formed ((6c), Table 1). While Nahuatl does not have clitics per se, object agreement morphemes interact with Spanish clitics in code switching contexts in very interesting respects. In (127), the Nahuatl object DP is not permitted after the Spanish verb; however, if the Spanish verb is prefixed by a clitic element, much as a Nahuatl transitive verb must have an object agreement prefix, the construction is well formed, as in (128).

- (127) \**Veo (a) in ichpochtle*  
 veo (a) in ichpochtle  
 see/3Ss/PRES (a) IN girl  
 ‘I see the girl’
- (128) *La veo in ichpochtle*  
 la veo in ichpochtle  
 CLITIC see/3Ss/PRES IN girl  
 ‘I see the girl’

Some varieties of Spanish allow clitic doubling, as in (129) (Lipski, 1994). However, my consultants regarded (129) as ill-formed and (130) as acceptable, as in most varieties of Spanish. This fact makes the judgments in (127) and (128) even more surprising.

- (129) \**La veo a la muchacha*  
 la veo a la muchacha  
 CLITIC PRT see/3Ss/PRES the girl  
 ‘I see the girl’
- (130) *Veo a la muchacha*  
 veo a la muchacha  
 see/3Ss/PRES PRT the girl  
 ‘I see the girl’

#### 4.1.12 Switches Involving a Bound Morpheme

Poplack (1981) claimed that the free/bound distinction in morphology played a crucial role in explaining grammaticality judgments in code switching (see (7), Table 1). Here the problem of distinguishing borrowed words from code switching at word level becomes nearly intractable. It is commonplace, for instance, to borrow Spanish verbs into Nahuatl, rendering examples such as *nikprepararoa* (‘prepare,’ from Spanish *preparar*) and *niviviroa* (‘reside,’ from Spanish *vivir*). In the latter case, there is no close native equivalent meaning ‘reside’ for Nahuatl speakers from San Sebastián, and so

*niviviroa* might be regarded as a fully borrowed lexical item.<sup>59</sup> However, in other cases, even where native equivalents were productively available, my consultants freely used Spanish verbs, adding *-oa* (a suffix for one of the Nahuatl verb classes) to the Spanish infinitive plus whatever other agreement morphology was necessary. The process appears to be completely productive. Examples (132) and (134) show that pure Nahuatl forms exist to express the concepts glossed; this may suggest that (131) and (133) are cases of code switching rather than borrowing. However, as was emphasized in section 2.3.1, it is often difficult to distinguish word-level code switching from borrowing.

- (131) Ne *nikamaroa* in Maria  
 ne ni-k-amar-*oa* in Maria  
 I 1S-3Ss-love-VSF IN Maria  
 ‘I love Maria’
- (132) Ne *niktlasojtla* in Maria  
 ne ni-k-tlasojtla in Maria  
 I 1S-3Ss-love IN Maria  
 ‘I love Maria’
- (133) Ne *onikgolpearoa* tlakatl  
 ne o-ni-k-golear-*oa* in tlaka-tl  
 I PAST-3S-3Os-hit-VSF IN man-NSF  
 ‘I hit the man’
- (134) Ne *onikmak* in tlakatl  
 ne o-ni-k-mak in tlaka-tl  
 I PAST-3S-3Os-give IN man-NSF  
 ‘I hit the man’

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<sup>59</sup>Nahuatl speakers in more remote areas of the Tehuacán Valley appear to use *chanti* ‘reside,’ as do speakers of Guerrero Nahuatl and other modern varieties, but my consultants from San Sebastián only used *niviviroa*, a Spanish borrowing. Simeón (1996 [1885]) lists *chantia* as the classical verb root for ‘reside.’

Examples involving Spanish nouns and bound morphemes are also available. In (135), for instance, the Spanish word *hermano* ‘brother’ occurs with the Nahuatl bound morpheme *no-* ‘my’ and the construction is acceptable, even though Nahuatl proper uses *kni* for ‘brother,’ as in (136).

- (135) Nowelti okimak *nohermano*  
 no-welti o-0-ki-mak no-hermano  
 my-sister PAST-3S-3Os-give my-brother  
 ‘My sister hit my brother’
- (136) Nowelti okimak *nokni*  
 no-welti o-0-ki-mak no-kni  
 my-sister PAST-3S-3Os-give my-brother  
 ‘My sister hit my brother’

Other examples like these appear in section 4.2.10 below.

#### 4.1.13 Other Findings

Nahuatl verbs may freely take Spanish object and subject lexical (that is, non-pronominal) DPs:

- (137) *Mi hermana kitlasojtla in Juan*  
 mi hermana 0-ki-tlasojtla in Juan  
 my sister 3S-3Os-love IN Juan  
 ‘My sister loves Juan’
- (138) *Okipipitzo al hermano de Maria*  
 o-0-ki-pipitzo a-el hermano de Maria  
 PAST-3S-3Os-kiss PRT-the brother of Maria  
 ‘He kissed Maria’s brother’
- (139) *Okipipitzo el hermano de Maria*  
 o-0-ki-pipitzo el hermano de Maria  
 PAST-3S-3Os-kiss the brother of Maria  
 ‘Maria’s brother kissed her’

Notice that (138), where the Spanish particle *a* (used to mark animate objects) occurs before *el hermano*, the DP is interpreted as the object. In (139) it is interpreted as the subject because it lacks this element.

Spanish verbs will accept lexical subjects in Nahuatl:

- (140) Icuchillo in Juan *le ayudó*  
 i-cuchillo in Juan le ayud-ó  
 his-knife IN Juan DAT.CLITIC help-3Ss/PAST  
 ‘Juan’s knife helped him’
- (141) In tlakatl *quiere a Maria*  
 in tlaka-tl quier-e a Maria  
 IN man-NSF love-3Ss/PRES PRT Maria  
 ‘The man loves Maria’

As suggested in section 4.1.11, the use of Nahuatl object DPs with Spanish verbs is a bit more complex. Examples provided there suggest that a Spanish clitic is required to mark agreement for the Nahuatl object DP.

## 4.2 Data Obtained in the Naturalistic Observation

For details regarding the setting for the naturalistic data, see chapter 3. All Spanish-Nahuatl speakers in the naturalistic data together produced about forty-eight code-switched utterances in the space of about twenty-five minutes. Below I discuss these in themes according to the boundaries where the switches occurred.

### 4.2.1 Intersentential Switches

There was one intersentential code switch:

- (142) Este, *uyá Coapa*, fueron a cortar  
 este, uyá Coapa, fueron a cort-ar  
 um, go/3S/PAST Coapa, ir/3Sp/PAST PRT cut-INF  
 ‘Um, they went to Coapa; they went to cut crops.’

Code switches of this type are not the topic of this dissertation.

#### 4.2.2 Conjunctions

A very interesting utterance was produced in the naturalistic setting in which a code switch occurred before a conjunction, shown in (143). However, it is not clear what the status of *yeka* is.

- (143) Tlami, *yeka y estudio*  
 tlami, *yeka y estudi-o*  
 after, *yeka* and *study-3Ss/PRES*  
 ‘And then I arrive and study’

In Nahuatl, *yeka* usually means ‘for this reason.’ In (143), the speaker may have begun with *yeka* and then started over again with *y* ‘and,’ then with *estudio* ‘I study’ (two false starts). But the utterance is not articulated with pauses or other gestures associated with false starts. Another possibility, the one I have followed in the gloss in (143), is that the speaker devoiced the [ɣ] of Spanish *llego* [yeɣo] in order to phonologically incorporate it into Nahuatl (which has no velar fricatives or voiced stops) and converted the *-o* ending to *-a*, a thematic vowel for certain Nahuatl verb classes. Many verbs of motion do not take subject agreement morphemes in Nahuatl, explaining the absence of *ni-* here. If this analysis is right, then (143) illustrates a code switch between a new coinage (*yeka*), phonologically and morphologically incorporated into Nahuatl, and a conjunction.<sup>60</sup>

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<sup>60</sup>Alva Hernández (1996) gives *ehko* as the Nahuatl word for *llegar* ‘leave’ for speakers from Coxcatlán, another town of the Tehuacan Valley. This form and *yeka* may be dialectal variants, but a consultant from San Sebastián did not think so.

In another case involving a conjunction, a child explained some of his daily activities at school. Notice the Spanish *y* ‘and’ just before Nahuatl *tlamis* ‘after.’

- (144) Estamos haciendo pruebas, y *tlamis tikiskaske*  
 recreo *iwa tlamis tikalakiske oksepa, tlamis*  
 de nuevo vamos a estudiar  
 estamos hacie-ndo prueba-s, y tlamis ti-kisa-s-ke  
 recreo iwa tlamis ti-kalaki-s-ke oksepa, tlamis  
 de.nuevo vamos a estudi-ar  
 be/3Sp/PRES do-DUR test-PL, and after 2S-go-FUT-PL  
 recess and after 2S-enter-FUT-PL again, after  
 again go/3Sp/PRES PRT study-INF  
 ‘We’re taking tests, and then we will go out for recess, and then we  
 will go in again, then we’re going to study again’

The examples in (143) and (144) confirm the basic finding in the previous section (4.1.1), namely, that the presence of a conjunction does not block a code switch.

#### 4.2.3 Modification Structures

In (145), a Spanish adjective follows the Nahuatl predicate *kajki*. A similar predicative construction occurs in (146) where a presumably null form of the copula precedes the phrase *muy felices* ‘very happy.’ Code switches of this type are uncontroversial (that is, it has not been reported that they are barred). In (146) and elsewhere, *quando* ‘when’ and other Spanish borrowings are adapted to Nahuatl orthography, discussed in sections 2.5.3.3 and 3.3.3.

- (145) *Kajki difícil*  
 kajki difícil  
 is difficult  
 ‘It’s difficult’
- (146) *Tlami muy felices* *quando ya tlami*  
 tlami muy felice-s *quando ya tlami*  
 after very happy-pl when already after  
 ‘They’re very happy when they’re done’

However, in (147), an adjective follows the pronominal DP *nin*, as required by Spanish syntax. This is congruous with the facts reported for the experimental data in section 4.1.9 and with those reported in (5) of Table 1 (page 68). (Here and elsewhere, *kuando* is regarded as fully borrowed, as discussed in section 2.3.1.)

- (147) Iwa nin *malo*, tlamis kuando ya tlami *este kirescataroa*  
 iwa nin malo, tlamis kuando ya tlami este 0-ki-rescatar-*oa*  
 and this.one bad, after when already after um 3S-3Os-rescue-VSF  
 ‘And this bad guy, after he’s done um they rescue him’

In (147) there is also an example of a word-level switch in *kirescataroa*; the Spanish word *rescatar* ‘rescue’ has been derived with the Nahuatl verb suffix *-oa*. It is certainly not easy to tell, however, whether this is a case of borrowing or code switching. Other examples like this will be presented in section 4.2.10.

#### 4.2.4 Nouns

In several instances code switches involving the use of Spanish nouns occurred. In (144), Spanish *recreo* ‘(school) recess’ occurs with no determiner. In another instance, *recreo* follows Nahuatl *in*, as shown in (148), confirming the experimental finding that *in* may precede a Spanish noun (section 4.1.8).

- (148) ¿Tlamón tikchiwa in *recreo*?  
 tlam-ón ti-k-chiwa in recreo  
 what-LOC 2Ss-3O-do IN recreo  
 ‘What do you do during recess?’

In (149), (150) and (152), a Spanish noun follows (a cliticized) Nahuatl *in*, just as *recreo* does in (148). In (151), *película* ‘movie’ occurs after Nahuatl *non* ‘this.’ These

findings are consistent with experimental results discussed above (sections 4.1.6 through 4.1.8).

- (149) A ver *axa nomejwa xiktlajtlanika n ye kox yokitak n película*  
 A ver axa nomejwa xi-k-tljatlánika in ye kox  
 y-o-0-k-ita-k in película  
 PRT see/INF now you/PL IMP-3Os-ask IN he if  
 already-PAST-3S-3Os-see-VSF IN movie  
 ‘Let’s see now, you guys ask him if he already saw the movie.’
- (150) O *non de Pokajontas ¿yononkitakeh n película?*  
 o non de Pokajontas y-o-non-k-ita-keh in película  
 or this about Pocahontas already-PAST-2Sp-3Os-see-PL IN película  
 ‘Or the one about Pocahontas, have you guys seen the movie?’
- (151) ¿*Más o menos tlánon kijito non película?*  
 más o menos tlan-on 0-ki-jito non película  
 more or less what-LOC 3S-3Os-cover this movie  
 ‘More or less, what’s this movie about?’
- (152) Más o menos *ximotlapowika kox kuajkualtzi kenomi ka in prueba*  
 más o menos xi-motlapowika kox kuajkualtzi kenomi ka in prueba  
 more o less IMP-relate if good how is IN test  
 ‘Tell me more or less if it’s good the way the test is.’

In (153), the Spanish nouns *cuento* ‘story’ and *Llorona* ‘crying woman’ (a mythological figure) occur after *se*, the Nahuatl indefinite article, and also after Nahuatl *okse* ‘other.’ These results are consistent with those of section 4.1.7. If *okse* is analyzed as an adjective, then (153) provides evidence that a Nahuatl adjective may precede a Spanish noun; this evidence was not available in the experimental results (section 4.1.9).<sup>61</sup>

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<sup>61</sup>*Other* and *another* have pronominal properties, like demonstratives, cardinal numbers, and quantifiers such as *some* and *any*, and might therefore best be analyzed as a different class from either adjectives or determiners (Celce-Murcia and Larsen-Freeman, 1983: 130; Alcina Franch and Blecua, 1983: 627).

- (153) Más o menos *ximotlapowika* de *itla*, de *se* cuento,  
 de *se* Llorona, de *se* *Koyonawale* o de *okse* cuento  
 más o menos xi-motlapowika de itla de se cuento,  
 de se Llorona, de se Koyonawale  
 o de okse cuento  
 more or less IMP-relate of something about a story,  
 about a crying.woman, about a coyote.man  
 or about another story  
 ‘More or less, tell us something, a story -- about a Crying Woman,  
 a Coyote Man, or another story.’

In (154), Spanish *escuela* ‘school’ occurs as an adverbial adjunct, out of the reach of any of the descriptive boundaries mentioned in Table 1 (page 68).

- (154) Tlami niwitz nika *escuela*  
 tlami ni-wit-z nika escuela  
 after 3S-come-FUT here school  
 ‘And then I’ll come here to this school.’

#### 4.2.5 Verbs

In one instance a code switch involved two Spanish intransitive verbs, *estudiar* ‘study’ and *oscurecer* ‘get dark,’ shown in (155). Because the subject pronouns are dropped in both instances, this example says little about descriptive constraints explored in section 4.1.10.

- (155) Iwa oksepa *estudio* iwa ya tlanesi ... *este*  
*oscurece*, noma kichiwa *icomida*,  
 titlakuaske, iwa ya tikochoiske  
 iwa oksepa estudi-o iwa ya tlanesi ... *este*  
 oscurec-e, no-ma 0-ki-chiwa i-comida,  
 ti-tla-kua-s-ke, iwa ya ti-kochi-s-ke  
 and again study-1Ss/PRES and already supper .... um  
 darken-3Ss/PRES, my-mother 3S-3Os-do her-food,  
 2Ss-INDEF-eat-FUT-PL already 2Ss-sleep-FUT-PL  
 ‘And again I study and then supper .... um,  
 it gets dark, my mom makes food, we’ll eat,  
 then we’ll sleep.’

#### 4.2.6 Prepositions

Nahuatl has a few prepositions which it uses in addition to its locative suffixes. Following recent conventions, I will regard sentential modifiers like *after*, *then* and *if* as prepositions which take CP complements. Alternatively these elements might be regarded as  $C^0$  categories. There is just one example of this type in the naturalistic data, in which Spanish *entonces* ‘so’ occurs before a Nahuatl CP.

- (156) A ver, entonces *noiwa nomejwa nontlajtoa*  
 a ver, entonces noiwa nomejwa non-tlajtoa  
 PRT see/INF so also you/PL 3Sp-speak  
 ‘Let’s see, so you guys speak [Nahuatl] too.’

Suárez (1977) regards *entonces* as fully borrowed into the modern dialects of Nahuatl; if true, then (156) may not count as a code switched sentence (*a ver* is discussed in section 4.2.12).

#### 4.2.7 C-Elements

If *entonces* is analyzed as a  $C^0$  category, then (156) shows a switch between  $C^0$  and an IP complement. Besides this, there are two instances of switches involving *ke/que*, but since this is a fully borrowed element in Nahuatl it is not possible to tell whether the complementizer is in Spanish or Nahuatl. However, in (157), because the copula is omitted, *ke* appears to be Nahuatl. In (158) it is unclear which language *que/ke* is in.

- (157) Pero el chiste *ke te xitlajto Mexicano*  
 pero el chiste ke te xi-tlajto Mexicano  
 but the joke that you/SING SUBJ-speak Mexicano  
 ‘But the thing is that you speak Mexicano.’

- (158) Iwa tlamis kuando *ya* ma ...  
           *que de la una* tikisaske para nias nocha  
 iwa tlamis kuando *ya* ma ...  
           que de la una ti-kisa-s-ke para ni-as nocha  
 and after when already like ...  
           that of the one 2Ss-go-FUT-PL for 1S-go home  
 ‘And afterwards when it was already like ...  
           at one o’clock we leave to go home.’

I regard *para* ‘for’ in (158) as a borrowed item, following Suárez (1977), although its occurrence here may bear on the discussion of prepositions (4.2.6) or C<sup>0</sup> elements (4.2.7).

#### 4.2.8 D-Elements

The utterance in (155) shows a switch between *i-*, the Nahuatl third person possessive prefix, and the Spanish word *comida* ‘food,’ an instance of a switch between a functional morpheme and an N. This kind of switch also occurs in (135). Another two switches of this sort occur in (159), involving Spanish *primo* ‘cousin’ and *tía* ‘aunt.’

- (159) Iwa moprimojwa, motiajwa, ¿non kechme?  
 iwa mo-primo-jwa, mo-tia-jwa, non kech-me  
 and your/SING-cousin-PL, your/SING-aunt-PL, that how.many-PL  
 ‘And your cousins, your aunts. How many are there?’

This finding is consistent with experimental results reported in sections 4.1.6, 4.1.7 and 4.1.8.

Less interestingly, the naturalistic data revealed (160), where a switch between *kemi* ‘how, like’ and the Spanish DP *las siete y media* ‘seven thirty (o’clock)’ occurs. Time expressions are of Spanish origin even in monolingual Nahuatl; thus, in (160), the only code switch may be between *no* and *amo*.

- (160) No, *amo, kemi* las siete y media  
 no, amo, kemi las siete y media  
 no, no, like the/PL seven and half  
 ‘No, no. About seven thirty.’

#### 4.2.9 Negation

The only instance of negation in the naturalistic data is (160). Because the negative element does not change before the verb, and because it appears to be in an adjunct position above CP, it does not add additional information to findings reported in section 4.1.4.

#### 4.2.10 Word-Internal Instances of Code Switching

Word-internal code switches, relevant to (7) of Table 1 (page 68) and discussed in section 4.1.12, occur in (131), (133), (135), (147), (155), and (159). In (161), *kirescataroa* occurs once again (it also appears in (147) and is briefly discussed in section 4.2.3), along with *motrataroa* ‘deal with.’ In this latter case the Spanish verb *tratarse*, a reflexive of *tratar*, takes the Nahuatl verb suffix *-oa* and the Nahuatl reflexive clitic *mo-* (instead of Spanish *se*) to create the new Spanish-Nahuatl form *motrataroa*.

- (161) *Motrataroa* de nin *kirescataroa* n Pocajontas  
 mo-tratar-*oa* de nin 0-ki-rescatar-*oa* in Pocajontas  
 REF-treat-VSF about this 3S-3Os-escape-VSF IN Pocahontas  
 ‘It deals with Pocahontas, the one who escaped.’

Again, it is not clear that these word-internal cases are in fact code switches rather than borrowings; nor is it clear that this distinction is a crucial one.

#### 4.2.11 Adverbs

Notice the Spanish adverb *ya* ‘already’ in (145), (146) and (147). Spanish *muy* ‘very’ also occurs in (145) and (147). The Spanish adverbial *de nuevo* also occurred in the naturalistic setting, shown in (144), where *de nuevo* ‘again’ occurs in the same utterance with *oksepa*, the Nahuatl word for ‘again.’ The Spanish sentential adverbial *más o menos* ‘more or less’ is often used simply to make a request gentler; one speaker used it in three instances with Nahuatl, in (151), (152), and (153). Adverbs are generally regarded as adjuncts, so they do not interact with other elements in any obvious way (or in ways that are well understood). Perhaps for this reason little has been said about them in the code switching literature, just as little will be said about them in this dissertation.

#### 4.2.12 Interjections

A number of interjections have been borrowed from Nahuatl into Spanish. The Spanish filler *este*, used to indicate that the speaker is thinking about what she wants to say (like English *um*), occurs in (142), (147) and (155). *A ver* ‘let’s see’ occurs in (156). Besides these, *bueno* ‘well’ occurred twice and *pues* ‘so’ occurred once. It is difficult to know whether these elements should be regarded as borrowed or switched. In any event, I will set them aside for the purposes of the discussion in chapter 5.

#### 4.2.13 Inventory of Spanish Borrowings in the Naturalistic Data

In section 2.3.1, Suárez’ (1977) list of twenty Spanish functional words borrowed into Nahuatl was presented. To that we added *kuando*, and it may be that many other words ought to be added to the list. In particular, Nahuatl exclusively uses Spanish

words for expressions of time (*las seis y media*), just as Tagalog does, another language influenced as a result of Spanish colonialism. In any event, seven of the words listed by Suárez occurred in the naturalistic data, with the frequency shown in the table in (162).

(162)	<u>Spanish loan word</u>	<u>English gloss</u>	<u>Frequency in naturalistic data</u>
	de	of, about	12
	desde	since	4
	kuando	when	6
	o	or	10
	para	for	1
	pero	but	3
	pues	so, well	2

Loan words will be essentially excluded from the discussion in chapter 5, except in a few instances where they may bear on crucial topics.

The description questions posed in chapter 3 may now be addressed. Question (2a), which asks for a description of the Spanish-Nahuatl corpus, has a complex and varied answer which has been expressed in each of the thematic subsections of this chapter. Question (2b) has two aspects, one descriptive and one explanatory. Its descriptive aspect, which asks how the Spanish-Nahuatl corpus differs from other corpora, has been addressed throughout as well, drawing attention in each subsection to the degree to which the Spanish-Nahuatl corpus agrees with the basic descriptive boundaries reported in Table 1. The explanatory aspect of question (2b), as well as the other research questions, will be addressed in chapter 5.

## 5. A MINIMALIST APPROACH TO CODE SWITCHING

The approach to code switching pursued in this dissertation is minimalist in two respects. First, it restricts considerations to the minimal theoretical apparatus necessary to explain the facts of language mixture, as discussed in section 5.1. Second, and consistent with this basic assumption, it appeals to an explanation of the code switching facts within the general framework of Chomsky (1995a), as pursued in sections 5.2, 5.3 and 5.4.

### 5.1 Code Switching on Minimalist Assumptions

The earliest accounts of the grammar of code switching were strictly descriptive, cataloguing boundaries such as those listed in Table 1 (page 68). Poplack (1980) was among the first to attempt a more principled account, as discussed in section 2.2.2.1. Some have criticized Poplack's work as a "third grammar" approach (Mahootian, 1993), one in which an external, regulating principle governs code switching. Some of the other approaches reviewed in chapter 2 also might be regarded as "third grammar" approaches, despite the widespread belief among researchers on code switching that the correct approach will make no appeal to apparatus outside UG or the relevant mixed grammars (Woolford, 1983; Belazi, Rubin and Toribio, 1994).

The central, leading aim of Chomsky's (1995a) minimalist program is the elimination of all mechanisms that are not necessary and essential on conceptual grounds alone; thus, only the *minimal* theoretical assumptions may be made to account for linguistic data, privileging more simplistic and elegant accounts over complex and

cumbersome ones. These assumptions would naturally favor accounts of code switching which make use of independently motivated principles of grammar over those which posit rules, principles or other constructs specific to it. The idea that no code switching-specific mechanisms may be admitted is also consistent with views expressed in most current work on code switching, and I shall pursue this idea here as well. In general terms, this research program may be stated as in (1), where the minimal code switching-specific apparatus is assumed.

- (1) Nothing constrains code switching apart from the requirements of the mixed grammars.

Notice that (1) does not imply that there are no unacceptable code-switched sentences. In (1), *constrain* is used in its technical sense in syntactic theory, entailing that there are no statements, rules or principles of grammar which refer to code switching.<sup>62</sup>

A bit more concretely, (1) entails that we ignore differences between the identities of particular languages for the purposes of linguistic theory. The language faculty (and associated learning principles) is a generating function which selects a particular language  $L_x$  or  $L_y$  (...  $L_n$ ), given input from  $L_x$  or  $L_y$  (...  $L_n$ ). Thus, the value of  $L$  determined by the language faculty crucially may not be a construct in linguistic theory; its value is derived, *determined* by the theory of grammar (and associated learning principles). Hence, while distinctions like “Spanish,” “French,” “English” and “Berber” are meaningful for many interesting questions of language use, they do not enter into the

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<sup>62</sup>Of course, (1) itself is not a statement or principle of grammar. It is a research agenda.

apparatus of syntactic theory, and should play no role in an account of code switching (see §2.2.2.5).

Clearly, however, there are language-particular requirements; in the minimalist program, these are taken to be represented in morphology. An explanation of grammaticality in code-switched sentences must therefore appeal to mechanisms motivated to account for grammaticality in monolingual sentences, or appeal to conflicts in the requirements of the mixed languages (that is, conflicts in their parametric settings), or to other factors independently motivated for linguistic theory.

Our conception of such conflicts is very much determined by our conception of the organization of the grammar. In classical GB Theory, parametric differences were generally assumed to be properties of the computational system. For instance, noting that some subjacency violations of the English variety are acceptable in Italian, Rizzi (1982) proposed that the bounding nodes for the Subjacency Principle are parameterized (NP and IP in English, NP and CP in Italian). Similarly, Hyams (1986) proposed the *Pro-Drop Parameter*, a mechanism of the computational system which specified whether a language could drop subjects (Spanish, Italian) or not (English, German). On this conception of parametric variation, in which the computational system itself differs between languages, it is very difficult to know how a *conflict in language-specific requirements* should be precisely defined. In an Italian-English mixed construction, for instance, what determines whether the sentence will be sensitive to IP or CP as a bounding node for the purposes of the Subjacency Principle? The answer depends upon

which computational system is in use (Italian or English), and it is very unclear what factors should determine this for a bilingual.

Indeed, in this conception of parametric variation, in which parameters consist of language-specific, or even construction-specific rules, it comes as a surprise that switching between languages is even possible. Consider, for instance, a case involving *contradictory* requirements, such as the branching parameter of earlier models (set to *left* or *right*). It should be impossible to take the union of such grammars, because under union the branching parameter could not have a setting. Similar remarks hold for a number of other conceivable non-lexical parameters. Thus, with respect to the non-lexical parameters of earlier models, we must either assume that the two languages are compartmentalized, making switching impossible, or a “control structure” is required which mediates between them. The latter maneuver, as I will show in sections 5.2.2 and 5.3, is unnecessary and therefore, on general principles of economy and elegance, incorrect.

However, if we assume that the computational system is invariant across languages, and that parameters are part of the lexicon which the computational system uses to build up larger structures, then the question of which particular language system is in use is answered straightforwardly. Each lexical item introduces features into the derivation, and these features must be checked. Languages differ with respect to their feature matrices, as set by experience. The language faculty need pay no attention to the sociopolitical identity of words (our associations of *tree* with “English” or of *árbol* with “Spanish”). It only knows that these lexical items have features which enter into the

derivation, and that these features must be checked; when features mismatch, or when uninterpretable features cannot be checked, the derivation crashes, whether the set of lexical items is associated with one particular language or two (or more). Thus, in the minimalist program, a *conflict in language-specific requirements* is just a conflict involving lexical features, and the interface of distinct “languages” is trivially solved.<sup>63</sup>

However, as Chomsky (1995a) emphasizes, the nature of the syntactic rule system responsible for mapping  $N \rightarrow \lambda$  is “radically different” from the system which takes  $N \rightarrow \pi$ . We assume no linguistic variation in the syntactic computation; the same operations apply to lexically-encoded features to derive observable differences between particular languages. However, unlike syntax, PF rules vary cross-linguistically, and have different orders (or rankings) with respect to one another--orders which also vary cross-linguistically (Bromberger and Halle, 1989). Thus, for reasons having to do with the structure of the PF computation, switching at PF may indeed be impossible. I will return to this possibility in section 5.2.2 and beyond.

The proposed model is represented graphically in Figure 8 below (with questions of the PF component postponed).  $Lex(L_1)$  is the lexicon associated with one of the mixed languages,  $Lex(L_2)$  with another. Again, it is of no importance to the syntax whether a lexical item is “Spanish,” “French,” “Nahuatl,” or whatever, apart from the characteristics of its feature matrices. The computational system ( $C_{HL}$ ) selects new items

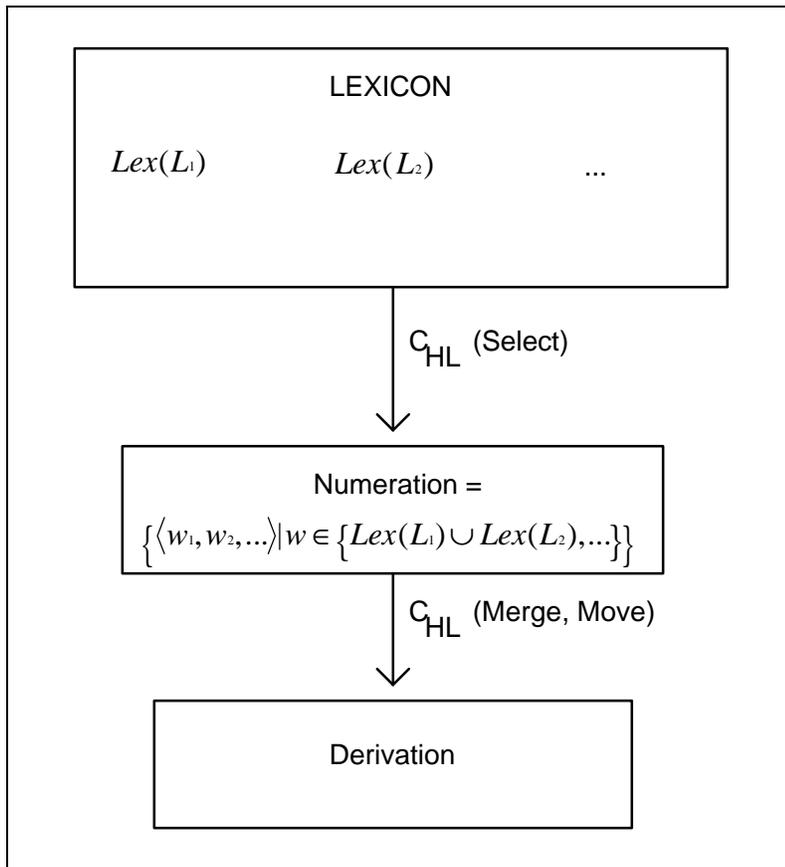
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<sup>63</sup>Based on Borer (1983), Finer (1990) makes a number of observations similar to those I have made in this section; based on language mixture and other facts, he argues for a modular grammar in which parameters are strictly lexical.

from the lexicon and places them into a numeration from which a derivation is then constructed by further application of  $C_{HL}$ . The numeration constructed in this way may be made up from elements of one or both lexicons, as expressed in (2).

$$(2) \quad \text{Numeration} = \{ \langle w_1, w_2, \dots \rangle \mid w \in \{ \text{Lex}(L_1) \cup \text{Lex}(L_2), \dots \} \}$$

Figure 8: Code Switching on Minimalist Assumptions



If all of the lexical items in the numeration happen to have been drawn from either  $\text{Lex}(L_1)$  or  $\text{Lex}(L_2)$  (not both), then the expression will be monolingual; if the lexical items are drawn from both  $\text{Lex}(L_1)$  and  $\text{Lex}(L_2)$ , then the expression will be an example of bilingual code switching. Its well-formedness depends on whether its

features match, whether it is a monolingual or a bilingual expression. In addition, there is in principle no bound on the number of languages which may be mixed into a linguistic expression in this way.

The basic idea that a code switch is unacceptable when the respective grammatical systems clash in some way is at the heart of much of the work reviewed in section 2.2.2, especially that of Poplack (1980, 1981), Mahootian (1993) and Belazi, Rubin and Toribio (1994). However, as I argued there, none of these proposals properly characterize the nature of these grammatical clashes. That, however, is largely due to the fact that a theory with extremely rich lexical requirements which move far beyond the encoding of simple categorial information was previously unavailable. The crucial advantage of minimalist grammars for the study of code switching is precisely this: On this approach, the lexicon has much richer requirements than in earlier models, requirements rich enough to generate clause structure, and language-specific requirements may be concretely related to particular lexical items.

In this dissertation, I pursue an explanation of the code switching facts in terms of conflicts in the lexical requirements of words which are independent of code switching-specific mechanisms. In section 5.2, I examine the Spanish-Nahuatl corpus reported in chapter 4, and in section 5.3 I attempt to extend my conclusions to findings that have been reported in other corpora.

## *5.2 The Spanish-Nahuatl Corpus*

Before analyzing the data in chapter 4, I will briefly discuss the implications of the Spanish-Nahuatl data for the theories of code switching reviewed in section 2.2.2 of

the literature review, evaluating their empirical predictions in terms of the data collected. All of the Spanish-Nahuatl examples presented in this section are repeated from chapter 4; however, for ease of exposition, the examples have been renumbered (with references to the relevant subsections of chapter 4 provided).

### 5.2.1 The Spanish-Nahuatl Corpus on Other Theories

Poplack's (1980, 1981) approach predicts that (a) a code switch will not occur at the boundary of a bound morpheme, and (b) a code switch is allowed between constituents only if the word order requirements of both languages are met at S-structure for those constituents (see section 2.2.2.1). Although it is sometimes difficult to know whether a morpheme is bound or free, numerous examples presented in chapter 4 appear to indicate that (a) is false. In (3a), *nik-* is indisputably a bound morpheme, as is *ki-* in (3b) (see sections 4.1.12 and 4.2.10 for other examples). Thus, the operative principle which governs code switching cannot be Poplack's Free Morpheme Constraint.

- (3a) Ne *nikamaroa* in Maria  
 ne ni-k-amar-*oa* in Maria  
 I 1S-3Ss-love-VSF IN Maria  
 'I love Maria'
- (3b) *Motrataroa* de nin *kirescataroa* n Pocajontas  
 mo-tratar-*oa* de nin 0-ki-rescatar-*oa* in Pocajontas  
 REF-treat-VSF about this 3S-3Os-escape-VSF IN Pocahontas  
 'It deals with Pocahontas, the one who escaped.'

Also note that (3) might be examples of borrowings rather than code switches. In section 5.3.1.7, I will return to Poplack's approach and address some of these issues, modifying the analysis of (3) suggested here.

Poplack’s idea that a code switch is allowed between constituents only if the relevant word order requirements of both languages are met at S-structure (her Equivalence Constraint; see section 2.2.2.1) appears to be empirically incorrect. In (4) and (5), switches occur between a subject pronoun and a verb, both in their correct S-structure position for both languages, yet one example is ill-formed and the other well-formed (see section 4.1.10). The operative principle involved in code switching could not therefore be Poplack’s Equivalence Constraint.

- (4) \**Tú tikoas tlakemetl*  
 tú ti-k-koa-s tlake-me-tl  
 you/SING 2S-3Os-buy-FUT garment-PL-NSF  
 ‘You will buy clothes’
- (5) *Él kikoas tlakemetl*  
 él 0-ki-koa-s tlak-eme-tl  
 he 3S-3Os-buy-FUT garment-PL-NSF  
 ‘He will buy clothes’

Other counter-examples appear in sections 4.1.4, 4.1.6, 4.1.7, 4.1.9, and 4.1.11.

Joshi’s (1985) account predicts that a switch into the “embedded language” may not occur at the boundary of a closed-class item (see section 2.2.2.2 for discussion). However, in (6) and (7), a switch into the embedded language occurs at the boundary of a determiner (*in* and *el*), a closed class item, yet the constructions are well-formed. Joshi’s constraint could not therefore be the operative principle governing code switching.

- (6) *Arrancó in vestido non de Maria*  
 arranc-ó in vestido non de Maria  
 pull-PAST/3Ss IN dress which of Maria  
 ‘She pulled on Maria’s dress’

- (7) Okipipitzo *el hermano de Maria*  
 o-0-ki-pipitzo el hermano de Maria  
 PAST-3S-3Os-kiss the brother of Maria  
 ‘Maria’s brother kissed her’

Other possible counter-examples may be found in sections 4.1.1, 4.1.4, 4.1.6, 4.1.8, 4.1.11, and 4.1.12.

Di Sciullo, Muysken and Singh (1986) proposed an anti-government condition on code switching, claiming that a code switch cannot occur where a government relation holds (see section 2.2.2.3). In GB Theory, subjects are assumed to receive nominative case from the Infl node under government. Thus, any acceptable sentence in which a subject DP occurs with a verb from another language will serve as a counter-example to this claim. Similarly, in GB Theory objects receive accusative case under government by a verb, so a code switch between a verb and its object likewise falsifies this claim. Examples (5) and (7) therefore count as counter-examples to this approach, as do the sentences in (8) and (9), showing that Di Sciullo, Muysken and Singh’s system does not capture the operative principles which govern code switching.<sup>64</sup>

- (8) Mi hermana *kitlasojtla in Juan*  
 mi hermana 0-ki-tlasojtla in Juan  
 my sister 3S-3Os-love IN Juan  
 ‘My sister loves Juan’
- (9) Okipipitzo *al hermano de Maria*  
 o-0-ki-pipitzo a-el hermano de Maria  
 PAST-3S-3Os-kiss PRT-the brother of Maria  
 ‘He kissed Maria’s brother’

---

<sup>64</sup>In section 5.2.2.1, I analyze the object in (9) as an adjunct. If this is the correct analysis of (9), it would not count as a counter-example to Di Sciullo, Muysken and Singh’s theory. However, other examples presented here suffice to show that their approach could not be correct.

Other possible counter-examples appear in sections 4.1.10, 4.1.11, 4.1.13, and 4.2.6.

In Mahootian's (1993) approach, properties of syntactic heads determine the position of their complements (section 2.2.2.4). This theory is much more about word order in code switching than it is about well-formedness; however, Mahootian's approach additionally suggests that code-switched constructions will be well-formed so long as the basic selectional requirements of heads have been met. Nonetheless, in (10), although the Nahuatl verb *nikneki* selects a tensed IP complement, satisfied by Spanish *compraré*, the mixture results in an ill-formed construction (§4.1.3).

- (10) \*Nikneki *compraré ropa*  
 ni-k-neki compr-aré ropa  
 1S-3Os-want buy-1Ss/FUT clothing  
 'I want to buy some clothes'

Similarly, in (11), although the basic selectional requirements of the Spanish verb *veo* have been met, the construction is ill-formed (§4.1.11).

- (11) \*Veo (a) *in ichpochtle*  
 veo (a) in ichpochtle  
 see/3Ss/PRES (a) IN girl  
 'I see the girl'

The contrast captured in (4) and (5) is also problematic for Mahootian's system. In fact, any ill-formed construction in which a switch occurs between a head and its complement will constitute a counter-example to her approach. Thus, Mahootian's approach does not properly characterize the operative principles involved in code switching either. Other possible counter-examples appear in sections 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.9, 4.1.10, and 4.1.11.

Belazi, Rubín and Toribio (1994) claim that a code switch may not occur between a functional head and its complement (see section 2.2.2.5). Although there is some controversy as to what should count as a functional head, fairly uncontroversial<sup>65</sup> cases are elements of categories D, C, Agr, T and Neg. Therefore, the clearest counter-examples in chapter 4 to Belazi, Rubín and Toribio's approach might be those in which a switch occurs between a determiner (such as Nahuatl *in* or *se*) and its NP complement; two such cases are (6), repeated here as (12a), and (12b) (§4.1.7). In (13), a switch occurs between Neg and its VP complement, another case that Belazi, Rubín and Toribio's approach predicts to be ill-formed, contrary to the facts (§4.1.4).

(12a) *Arrancó in vestido non de Maria*  
 arranc-ó in vestido non de Maria  
 pull-PAST/3Ss IN dress which of Maria  
 'She pulled on Maria's dress'

(12b) *Se hombre kikoas se kalli*  
 se hombre 0-ki-koa-s se kalli  
 a man 3S-3Os-buy-FUT a house  
 'A man will buy a house'

(13a) *Amo estoy tekítitoc*  
 amo estoy tekítitoc  
 not be/PRES/1Ss work-DUR  
 'I'm not working'

(13b) *Amo le dije*  
 amo le dije  
 not DAT.CLITIC tell/PAST/1Ss  
 'I didn't tell him'

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<sup>65</sup>Of course, D, C, Agr, T and Neg are not clear cases of functional heads to those who deny that functional categories exist. See Stabler (1997b) for discussion.

Other possible counter-examples, involving elements whose status as functional heads is less clear, may be found in sections 4.1.2, 4.1.4, 4.1.6, 4.1.8, 4.1.11, and 4.2.8. However, the cases provided certainly suffice to show that Belazi, Rubin and Toribio’s empirical generalizations are incorrect, and their analysis certainly flawed.<sup>66</sup>

Finally, the speech-planning proposals reviewed in section 2.2.2.6 claim that the matrix language defines the position of content words and functional elements. Counter-examples to this proposal may be sought in any ill-formed code-switched construction in which the content words and functional elements are in the position required by the matrix language.<sup>67</sup> In (14) and (15), all of the words are in the position required by the matrix language, yet (14) is ill-formed and (15) is not; (15) differs only in that it lacks Nahuatl-appropriate agreement morphology, a surprising fact (§4.1.3).

- (14) \*Estoy *nitlajtohtoc*  
 estoy ni-tla-toh-toc  
 be/PRES/1Ss 1S-INDEF-speak-DUR  
 ‘I’m speaking’

---

<sup>66</sup>Although I will not take up the topic here, some of the examples of Spanish-English code switching in Belazi, Rubin and Toribio (1994) are spurious. For instance, none of the Spanish-English bilinguals I have consulted agree that the complementizer *que/that* must be in the language of the complement clause, as these authors claim. Also, contrary to their claims, English determiners may often precede Spanish nouns: The *borracho* who came to dinner yesterday *se tomó toda la tequila* (‘The drunk who came to dinner yesterday drank all the tequila’). See section 5.3.1.4 for further discussion of these cases.

<sup>67</sup>The matrix language is the one which *dominates* in some sense. Myers-Scotton (1993b: 68) adopts “a frequency based criterion” to distinguish the matrix language from the embedded language, the matrix language being the one which contributes “more morphemes” to the expressions (Myers-Scotton, 1993b: 68). I return to Myers-Scotton’s Matrix Language Frame (MLF) model in section 5.2.2.1 in connection with an analysis of Spanish-Nahuatl pronominal code switching.

- (15) *Estoy tlajtohtoc*  
 estoy tla-toh-toc  
 be/1Ss INDEF-speak-DUR  
 ‘I’m speaking’

Other counter-examples to this approach may be found in sections 4.1.4, 4.1.6, 4.1.9, 4.1.10, 4.1.11, and some additional discussion occurs in 5.2.2.1. However, the cases presented here suffice to show that the speech-planning approaches do not correctly characterize the operative principles governing code switching.

We are now in a position to answer some of the research questions posed in chapter 3, specifically, those which ask of each code switching theory reviewed in section 2.2.2 whether or not it accounts for the Spanish-Nahuatl data presented in chapter 4 (questions (2c)-(2e)). As we have seen, the Spanish-Nahuatl corpus holds counter-examples for each of the models reviewed. In the next section, I will attempt to develop an analysis of the Spanish-Nahuatl data consistent with the goals of section 5.1.

## **5.2.2 An Analysis of the Data**

Given the general assumptions of the minimalist program, sketched in section 2.4.3, and the research framework outlined in section 5.1, my strategy in the present section will consist in locating language-specific conflicts in the feature specifications of functional categories as a way of explaining the grammaticality judgments on the data in chapter 4. For ease of exposition, the data in chapter 4 is tackled by theme.

### ***5.2.2.1 Pronouns and Agreement Morphemes***

Chapter 4 reported an interesting asymmetry in grammaticality judgments on constructions involving a switch between a subject pronoun and a verb (§4.1.10): A

switch between a Spanish pronoun and a Nahuatl verb may not occur for first or second person; third person switches, however, are well-formed.

- (16) \**Yo nikoas tlakemetl*  
 yo ni-k-koa-s tlake-me-tl  
 I 1S-3Os-buy-FUT garment-PL-NSF  
 ‘I will buy clothes’
- (17) \**Tú tikoas tlakemetl*  
 tú ti-k-koa-s tlake-me-tl  
 you/SING 2S-3Os-buy-FUT garment-PL-NSF  
 ‘You will buy clothes’
- (18) *Él kikoas tlakemetl*  
 él 0-ki-koa-s tlak-eme-tl  
 he 3S-3Os-buy-FUT garment-PL-NSF  
 ‘He will buy clothes’
- (19) *Ella kikoas tlakemetl*  
 ella 0-ki-koa-s tlake-me-tl  
 she 3S-3Os-buy-FUT garment-PL-NSF  
 ‘She will buy clothes’

As noted in section 2.2.2.7, it has frequently been reported that a code switch between a subject pronoun and its predicate is not allowed. Jake (1994) points out that the code switching data often do not agree on this point, with some corpora indicating no conflict and others indicating marked unacceptability. In (16)-(19), the examples show variation in acceptability within a single corpus, where person appears to be the offending characteristic.

Jake (1994) approaches this problem in the literature by breaking up the class of pronouns into four distinct functional categories, as illustrated in (20), according to whether they function as system or content morphemes.

- (20a) *Discourse-emphatic pronouns*  
*Me*, I wouldn’t do it for all the money in the world.

- (20b) *Dummy pronouns*  
*It* seems that he is somewhat conservative.
- (20c) *Indefinite pronouns*  
*Somebody* wants to go.
- (20d) *Personal pronouns*  
 Me, *I* wouldn't do it for all the money in the world.

The category of a pronoun is determined by language-specific properties in Jake's system. For instance, personal pronouns in languages like Spanish are system morphemes because (a) they may be null and (b) they occur in argument position. Relating this situation to Myers-Scotton's (1993b) Matrix Language Frame (MLF) Model, reviewed briefly in section 2.2.2.6, Jake (1994) argues that the available code switching data attest the soundness of Myers-Scotton's (1993b: 83) System-Morpheme Principle, stated in (21), where ML refers to a matrix language and EL refers to an embedded language.

- (21) *System-Morpheme Principle*  
 In ML + EL constituents, all system morphemes which have grammatical relations external to their constituent (i.e. which participate in the sentence's thematic role grid) will come from the ML.

It is difficult in Myers-Scotton's system to know which language counts as the matrix language and which as the embedded language since she adopts "a frequency based criterion" to differentiate these, the matrix language being the one which contributes "more morphemes" to the expressions (1993b: 68). A complication arises with the stipulation that the ML may change even within a single conversation. This difficulty in clearly defining the ML is a severe empirical weakness, with contradictory predictions depending upon which language is identified as the ML.

Nonetheless, while Jake (1994) provides a rich and fascinating review of code switching data, it is clear that the MLF Model will not help with respect to the data in (16)-(19). In both Spanish and Nahuatl, personal pronouns should be system morphemes, since in both languages these are assigned to argument positions. Moreover, the ML in (16)-(19) should be Nahuatl, on Myers-Scotton's frequency-based definition of ML, yet the system pronouns in (18) and (19) come from Spanish, violating the System-Morpheme Principle in (21). The only way to save the System-Morpheme Principle in light of the Spanish-Nahuatl data is to define the ML as Spanish for (18) and (19) and as Nahuatl for (16) and (17), hardly a credible maneuver.

However, some linguists have classified Nahuatl as a "pronominal argument language," a possible alternative which may help Jake's analysis. Following Jelinek (1984), Baker (1996) assumes that case is absorbed by agreement morphemes in polysynthetic languages like Nahuatl, making such morphemes the true arguments (or *system morphemes*) and making pronouns adjuncts. However, this proposal is not especially helpful to Jake (1994) and Myers-Scotton (1993b), since the subject pronouns in the Spanish-Nahuatl examples above are from *Spanish*, and are therefore system morphemes, and the ML is Nahuatl (still a violation of the System-Morpheme Principle).

However, putting the MLF Model aside, there may be syntactic insights worth considering in Baker's (1996) approach, insights that might help explain the facts in (16)-(19). Modifying Jelinek's (1984) and Baker's (1996) approach to conform to a more thorough-going feature-driven system, we might assume that in Nahuatl the functional category D (which heads pronouns) lacks a case feature, and that for this reason case may

be absorbed by Nahuatl agreement morphemes<sup>68</sup> (as English *-en* and Spanish *se* are thought to absorb case; see Jaeggli (1982, 1986)). As for Spanish, however, we assume that D requires case, as expected.

Now, before proceeding with this line of thought, notice that the subject agreement morpheme is null for the third person in Nahuatl, but is *ni-* for first person and *ti-* for second person, as may be observed in (16)-(19). This asymmetry is precisely the opposite of what one finds in English, where *-s* marks third-person agreement but the first and second person are null.

Pollock (1994) suggests, following Kayne (1989), that there is no null person suffix  $-\emptyset$  which contrasts with *-s* in English. Pollock uses this morphological asymmetry to account for two interesting syntactic puzzles of English, the inflection puzzle, first noticed by Jaeggli and Hyams (1993), and the causative puzzle:

- (22a) John goes to talk to his advisor every day.
- (22b) \*John goes talk to his advisor every day.
- (22c) I/you go to see a movie every Tuesday.
- (22d) I/you go see a movie every Tuesday.

- (23a) John made Mary leave
- (23b) Mary was made to leave
- (23c) \*Mary was made leave

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<sup>68</sup>Here I assume that the traditional “subject agreement morphemes” of Nahuatl verbs are in fact agreement morphemes, not clitics. If this assumption is correct, then, according to Zwicky and Pullum (1983), we will be further committed to the view that traditional object agreement morphemes are agreements too, since “clitics can attach to material already containing clitics, but [agreement] affixes cannot” (504). However, there is reason to believe that distinguishing between agreement affixes and clitics may be misguided (Luján and Parodi, 1996; Everett, 1996; Ura, 1996). For my purposes, it is sufficient to regard them as agreement morphemes without giving special attention to the status of clitics.

Pollock (1994) accounts for these contrasts by assuming that English verbs undergo LF checking only if they are marked with an agreement morpheme whose features require checking; otherwise the element remains in situ (at LF and PF).<sup>69</sup> In this respect, Pollock claims, uninflected verbs in English are like the bare forms used in infinitival constructions.

Assuming Jelinek and Baker's system, (16) and (17) may be analyzed as ill-formed because the pronouns cannot get case (put differently, the [case] feature of Spanish D cannot be satisfied). In (19), however, there is no third-person agreement morpheme to absorb case, leaving case assignment open for Spanish *él* and *ella* in (18) and (19) and explaining the judgments presented.

While this analysis satisfies the requirements of our research agenda (derives the facts from nothing external to the relevant grammars), there are a number of shortcomings. First, if case has not been absorbed by the absent agreement morpheme in (18) and (19), such that it may be assigned to Spanish *él* and *ella*, then it must also be

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<sup>69</sup>Pollock's approach leaves an important question unanswered. Specifically, on his account, there is no obvious way to bar \**He like Mary* in English or \**Ne kikoas tlakemetl* 'I buy/3Ss cloths' in Nahuatl. The subject checks its case and  $\phi$ -features in [Spec, TP], but the bare verbs *like* and *kikoas* do not raise for LF checking; hence, no conflict in features should be detected and these constructions should be well-formed, contrary to the facts. Pollock (personal communication) has suggested that this relationship is perhaps mediated in the VP shell before subject or verb extraction, perhaps involving some condition on lexical insertion. Indeed, with respect to similar issues in other data, Shütze (1997: 113-114) posits the Accord Maximization Principle (AMP) which requires that a derivation have a maximal number of agreement and case features: "Among a set of convergent derivations *S* that result from numerations that are identical except for uninterpretable phi- and case-features, such that the members of *S* satisfy other relevant constraints, those members of *S* where the greatest number of Accord relations are established block all other derivations in *S*." Thus, while *He like Mary* and *Ne kikoas tlakemetl* are convergent derivations, they are blocked by *He likes Mary* and *Ne nikoas tlakemetl*, other convergent derivations with maximal accord morphemes. I will return to this topic in section 5.2.2.4 where AMP is used to account for Spanish-Nahuatl code switches involving duratives.

available in (24), a well-formed monolingual Nahuatl expression; but *ye* in (24) cannot check the case feature according to the present hypothesis.

- (24) Ye kikoas tlakemetl  
 ye 0-ki-koa-s tlak-eme-tl  
 (s)he 3S-3Os-buy-FUT garment-PL-NSF  
 '(S)he will buy clothes'

If, for some reason, the case feature does not need to be satisfied in (24), then we are back to square one, with no explanation for the acceptability of (18) and (19) in which the Spanish pronouns presumably receive case. Assuming that case assignment is "optional" in (18)-(19) and (24) may save the analysis, but it does so at a tremendous loss of empirical force.

There are other problems with Baker's (1996) proposals as well, at least with respect to modern Nahuatl. As mentioned, Jelinek's (1984) basic idea, incorporated into Baker's (1996) polysynthesis parameter, is that subject and object agreement morphemes absorb case, forcing all NPs to be adjuncts in polysynthetic languages. Nahuatl, like Mohawk and other languages Baker considers, fits the definition of a polysynthetic language (Baker, 1996: 17-20; also see section 2.5.1), and should therefore adhere to the polysynthesis parameter posited in Baker (1996) (that is, Baker's system predicts that Nahuatl should behave like Mohawk, with all NPs always in adjunct positions).

Baker (1996) surveys six syntactic differences between English and Mohawk which are said to follow from the assumption that all NPs in polysynthetic languages are adjuncts. However, I will limit my attention here to just one of Baker's tests, namely, the behavior of nonreferential quantified NPs in polysynthetic languages.

A central concern, of course, is the nature of quantification in these languages. If Baker's analysis is right, then quantifiers, like all other NPs, may only occur in adjunct position, coindexed to the agreement morphemes which serve as the true ( $\theta$ -marked) arguments of the verb. Thus, these quantified NPs are *dislocated*.

As Baker mentions, Rizzi (1986) has observed that quantified NPs cannot be left-dislocated in Italian, as examples in (25) show.

(25a) \*Nessuno, lo conosco in questa città.  
'Nobody, I know him in this city.'

(25b) \*Tutto, lo dirò alla polizia.  
'Everything, I will say it to the police.'

Rizzi (1986) posits (26) as a condition on quantifier binding at LF.

(26) A pronoun cannot be locally bound by a quantifier.

Rizzi (1986) further posits that the constructions in (25) are ill-formed because the pronouns cannot be interpreted as variables bound by the dislocated NPs since, he claims, every quantifier must bind (c-command and co-index) a trace in argument position.

On Baker's hypothesis, all NPs are adjoined to IP (=S) and coindexed with a null pronoun (*pro*) and are therefore like the constructions in (25). For this reason, this system predicts that "true quantified NPs are impossible" in polysynthetic languages, which, according to Baker, is precisely what is found in Mohawk and other languages he surveys, where no word like English *every* is available. Rather, Mohawk uses *akwéku* 'all' instead, a word with very different properties.

However, while Nahuatl, like Mohawk, indeed lacks a word for *every* (just as Spanish and many other *analytic* languages do), virtually every modern variety of

Nahuatl has borrowed Spanish *cada* ‘each,’ providing a salient counter-example to the claim that polysynthetic languages lack nonreferential quantified NPs.<sup>70</sup> Consider (27), where *cada tlakatl* occurs in subject and object positions.

- (27a) Cada tlakatl okipipitzo in isiwa  
 cada tlaka-tl o-0-ki-pipitzo in i-siwa  
 each man-NSF PAST-3S-3Os-kiss IN 3SPOS-wife  
 ‘Each man kissed his wife’
- (27b) Ye kitlasojtla cada tlakatl  
 ye 0-ki-tlasojtla cada tlaka-tl  
 (s)he 3S-3Os-love each man-nsf  
 ‘(S)he loves each man’

Since these constructions are well-formed, *cada tlakatl* could not be an adjunct here. It follows that NPs may be arguments in Nahuatl.

Baker also considers disjoint reference effects, the behavior of anaphora, interrogative constructions, CED effects, and weak crossover effects. Nahuatl behaves differently from Mohawk with respect to some of the properties he discusses, while a number of *analytic* languages behave the same as Mohawk with regard to some of them. In other words, there is no one-to-one relationship between polysynthetic languages and these properties, suggesting that no single parameter (no macroparameter, such as a polysynthesis parameter) is responsible for the cluster of effects Baker surveys. Also problematic for Baker’s claim is the fact that word order is relatively fixed in modern Nahuatl, as discussed in section 2.5.3; this observation undermines general plausibility

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<sup>70</sup>Beghelli and Stowell (1997) treat *every* and *each* as alike in all respects, with the exception that in their system *every*, unlike *each*, raises to [Spec, RefP] instead of [Spec, DistP] just in case it lacks the feature [+Distributive]. This accounts for the different scopal properties of *each* and *every* but does not compromise Rizzi’s (1986) analysis of the constructions in (25).

for the claim that subjects and objects are adjuncts in this language, originally motivated by the assumption that Nahuatl word order is highly flexible. I therefore conclude that Nahuatl does not have the property that all NPs must be adjuncts. (See MacSwan (1997) for further discussion.)<sup>71</sup>

Our account of the facts in (16)-(19) must therefore assume a much more traditional phrase structure for Nahuatl, one in which NPs are (usually) in argument position. In addition, in keeping with the research agenda outlined in section 5.1, an approach which depends fundamentally upon feature checking should be developed. Thus, we might assume that the basic conflict in (18) and (19) resides in features of T, since T is the functional projection which occurs between the pronoun and V.

In Chomsky (1995a), it is assumed that T may be drawn from the lexicon with  $\phi$ -features attached; this assumption, together with a theory which allows for multiple specifier positions, provides for the elimination of Agr<sup>O</sup> and Agr<sup>S</sup> of earlier proposals. Moreover,  $\phi$ -features have long been assumed to be closely tied to pronominals. In fact, Chomsky (1981: 330) claims that pronominals are *just*  $\phi$ -features, with or without a phonological matrix:

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<sup>71</sup>Potter (1997) shows that Western Apache exhibits several properties presumably characteristic of pronominal argument languages (absence of nonreferential quantified NP, lack of certain expected condition C effects, rich subject and object morphology in verbs, optional overt nominal arguments, internally headed relative clauses, and discontinuous constituents); however, he demonstrates by using a variety of facts on negation, modal uncertainty, focus, and *wh*-constructions that Western Apache overt nominals *must* be in argument positions, implying that the six phenomena noted in Baker (1996, chapter 2) cannot be considered “characteristic” of pronominal argument status, and must therefore have alternative non-pronominal argument analyses.

Assume that there is some set of grammatical features  $\phi$  that characterize pronouns; i.e., pronouns are distinguished from overt anaphors and R-expressions in that the grammatical features of pronouns are drawn solely from  $\phi$ , whereas overt anaphors and R-expressions have some other grammatical features as well.  
....

A pronominal has no grammatical features other than  $\phi$ -features, and may or may not have a phonological matrix.

Everett (1996) uses this idea to argue that individual  $\phi$ -features (person, number, gender, and case) are primitives in the human lexicon, inserted (and “stacked”) under D and Agr<sup>0</sup>. He surveys an impressive range of languages, and points to numerous fascinating cross-linguistic facts which defend his basic thesis. In Everett’s system, the phonological shape of a particular set of  $\phi$ -features is determined by “postlexical or precompiled spell-out rules” (3). In a thorough-going minimalist model, such a rule would presumably be a language-specific PF rule, one which takes (for instance) the configuration [ $D^{\max}$  [ $D^0$   $\phi$ -features]] (Everett’s definition of a pronoun) to *he* in English, just in case  $\phi = \{+third\ person, +singular, +masculine, +nominative\}$ .

At least two important problems arise here, however. First, the relevant PF rule must be sensitive to categorial information ([ $D^{\max}$  [ $D^0$ ], in the example given), and it is sometimes assumed that rules operate at the phonetic interface with no regard for syntactic information, and that syntactic rules operate with no regard for whether a

constituent is phonetically empty or not.<sup>72</sup> This “independence of grammar” represents a long-standing tradition in generative grammar (see Chomsky (1957: 2-17) and (1995a: 229); indeed, Bouchard (1984) and Stabler (1997a) have emphasized that the stipulation of rules which depend on these considerations seriously undermines the empirical force of linguistic theory.

However, perhaps more important for topics in the study of bilingualism, addressed in this dissertation, is the problem of matching a PF rule for language L, triggered by the structure  $[D^{\max} [D^0 \phi\text{-features}]]$ , to a phonological matrix associated with L. In other words, assuming that the structure  $[D^{\max} [D^0 \phi\text{-features}]]$  appears in [Spec, TP] (or whichever position) by Spell-Out, where  $\phi = \{+\text{second person}, +\text{singular}, \pm\text{masculine}, +\text{nominative}\}$ , what determines that a bilingual will apply a PF rule for Nahuatl (to get *te*) and not for Spanish (to get *tú*)? The answer clearly matters, as the contrasts in (16)-(19) indicate. If a phonological matrix is not associated with a structure such as  $[D^{\max} [D^0 \phi\text{-features}]]$ , then Everett’s system will be of little help in analyzing the pronominal facts in (16)-(19).<sup>73</sup>

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<sup>72</sup>Everett’s (1996: 11) spell-out rules “may refer only to phi-features and lexical properties,” which he takes to imply that a spell-out rule “never sees more than one node at a time” so that “purely configurational features ... never have a phonological reflex.” However, in his system, the difference between pronouns, clitics and affixes is (often) just the difference between the syntactic category (or syntactic position) of their  $\phi$ -features. While categorial information is lexically specified, it is specifically syntactic information, and should not be visible at PF if syntax and phonology are believed to be fully independent of one another.

<sup>73</sup>Although I do not adopt it, later developments in this section make Everett’s system compatible with (16)-(19) (see note 79, page 205).

Of course, there are other ways to represent the apparently very close relationship between T and the pronouns in its specifier position. As (28) illustrates, Nahuatl and Spanish pronouns differ from one another in two salient respects.

(28) Nahuatl and Spanish nominative (S) and accusative (O) pronouns<sup>74</sup>

<i>Nahuatl pronouns</i>				<i>Spanish pronouns</i>		
PERSON	<i>1S</i>	<i>2S</i>	<i>3S</i>	<i>1S</i>	<i>2S</i>	<i>3S</i>
SING	ne	te	ye	yo	tú	él (m) ella (f)
PLURAL	tehwa	nomehwa	yehwa	nosotros (m) nosotras (f)	ustedes <i>or</i> vosotros (m) vosotras (f)	ellos (m) ellas (f)
PERSON	<i>1O</i>	<i>2O</i>	<i>3O</i>	<i>1O</i>	<i>2O</i>	<i>3O</i>
SING	ne	te	ye	mí	ti	él (m) ella (f)
PLURAL	tehwa	nomehwa	yehwa	nosotros (m) nosotras (f)	ustedes <i>or</i> vosotros (m) vosotras (f)	ellos (m) ellas (f)

Nahuatl pronouns do not overtly mark either a nominative/accusative (case) distinction or a masculine/feminine (gender) distinction, while the Spanish paradigm includes morphological markings for both. This observation is not restricted to the pronominal system: the absence of overt case and gender markings is a general property of Nahuatl DPs, while Spanish DPs are always overtly marked for gender but not for case. I will assume, then, that either case or gender plays a role in an analysis of (16)-(19). Below I explore accounts in terms of each alternative.

As (28) shows, Nahuatl pronouns do not differ with respect to overt accusative and nominative case markings. We might assume that languages differ typologically in this regard, with DPs in languages like Nahuatl bearing a simple CASE feature, while

<sup>74</sup>In Table (28), *m* and *f* denote “masculine” and “feminine” respectively; Latin American Spanish uses *ustedes* instead of the *vosotros* form of Spain.

Spanish and English DPs have the features CASE(ACCUSATIVE) and CASE(NOMINATIVE). If this is correct, then children acquiring a language should begin with an essentially morphologically uniform pronominal system, adding more detail (ACC and NOM) when positive evidence is encountered (in accordance with the Subset Principle).<sup>75</sup> Although the facts are complicated cross-linguistically, children appear to do precisely this (Radford, 1990: 203-205).<sup>76</sup>

If something like this is correct, then the presence of a Spanish pronoun indicates that T has been drawn from the lexicon with the features relevant for Spanish -- CASE(NOMINATIVE), not CASE. Otherwise the features of T and the raised DP would mismatch and the derivation would crash.

As Suñer (1994) points out, Spanish also requires that verbs move overtly, as in French (compare Pollock (1989)). As evidence for this, consider the relative positions of the verb *jugar* (*juega, jugaba*) ‘play’ and the VP-level adverb *limpio* ‘clean’ in her examples presented in (29).

(29a) Juan *juega limpio* a las cartas (todos los días).  
‘Juan plays clean at cards (every day)’

(29b) *Jugar* Juan *limpio* a las cartas es una contradicción.  
‘For Juan to play clean at cards is a contradiction.’

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<sup>75</sup>Hyams (1995) develops the idea that child grammars differ from adult grammars due to “underspecification” in functional categories. If such underspecifications are attested in adult grammars, as I have proposed here for Nahuatl case, then we might think of the (possible) grammars which children select as related one to another in terms of a subset relation among elements of their feature matrices. See Stabler (1997b) for a detailed and technical discussion of the consequences of minimalist grammars for learnability theory.

<sup>76</sup>Although children begin with default case settings, in some instances they acquire morphological case distinctions extremely early. See Shütze (1997: §3.2.2) for some interesting discussion.

- (29c) Aunque *jugaba* Juan *limpio* a las cartas, siempre ganaba.  
Although played Juan clean at cards, he always won.

Spanish subjects may either remain in [Spec, V<sup>max</sup>] or raise to [Spec, TP], deriving the well known SV/VS flexibility of Spanish. In (29b) and (29c), the verb *jugar* (*jugaba*) has moved past the VP-internal subject *Juan* to adjoin to T by head-movement.

By contrast, Nahuatl verbs appear to move covertly, like English verbs. Consider the examples in (30), parallel to Pollock's (1989) original French/English adverb tests.

- (30a) In Juan nochipa kipipitzoa Maria  
in Juan nochipa 0-ki-pipitz-oa Maria  
IN Juan often 3S-3Os-kiss-VSF Maria  
'Juan often kisses Maria'
- (30b) \*Juan kipipitzoa nochipa Maria  
in Juan 0-ki-pipitz-oa nochipa Maria  
IN Juan 3S-3Os-kiss-VSF often Maria  
'Juan kisses often Maria'

Nahuatl adverbs pattern with English, as shown in (30), suggesting that the verb undergoes covert movement to T, contrasting with the overt movement requirements placed on Spanish verbs.

Now, recall Pollock's (1994) analysis of English verb morphology, in which he claimed that first- and second-person morphemes, rather than being empty, as is commonly assumed, simply do not exist, allowing an account of the interesting asymmetries in (22) and (23). As in English, assume that Nahuatl third-person agreement morphemes, being null, do not exist, and thus the verb does not undergo LF checking.

These facts may now suggest a solution to the puzzle in (16)-(19). As stated, the presence of Spanish pronouns in (16)-(19) suggests that T has the feature composition of

Spanish T, not Nahuatl T; otherwise the constructions would be ill-formed since the formal features CASE and CASE(NOMINATIVE) do not match. In (16) and (17), the presence of the subject agreement morpheme triggers movement of the verb to T; however, a conflict arises: Spanish T requires overt movement, while the Nahuatl verbs in (16) and (17) need to move covertly. We might propose that the strength of the features mismatch, and so the derivations crash. By contrast, in (18) and (19), the verb never raises to check its features since it has no subject agreement morpheme, and these derivations would therefore converge.

Some important questions arise in connection with the implementation of checking theory used in this account, however. Pollock's (1994) analysis of English verbs in (22) and (23) assumes that V in these constructions does not undergo LF checking, hence does not move to check its features with T. This analysis, extended here to Nahuatl bare forms in (16)-(19), appears to conflict with Chomsky's (1995a: 308) conclusion that a derivation will crash if its  $\phi$ -Interpretable features are not checked. However, this conclusion may be evaded if we further assume, with Chomsky (1995a: 377), that "as T is drawn from the lexicon for the numeration, it too is optionally assigned  $\phi$ -features." We assume, then, that Spanish T in (18) and (19) checks its case feature with the Spanish subject DP, but has no  $\phi$ -features which require checking (it has been drawn from the lexicon without them). The Nahuatl verbs in these constructions, also lacking  $\phi$ -features associated with a subject agreement morpheme, do not raise for LF checking. The derivation converges, with no unchecked features. In (16) and (17), however, a problem remains whether Spanish T has  $\phi$ -features or not, as the data require:

the Nahuatl verbs either cannot check their  $\phi$ -features (if T is selected without  $\phi$ ) or the weak  $\phi$ -features of Nahuatl verbs mismatch the strong features of Spanish T (if T is selected with  $\phi$ ). Thus, (16) and (17) crash.

Chomsky (1995a: 309) uses the notion of feature “mismatch” to account for a range of facts, advancing the claim in (31).

(31) Mismatch of features cancels the derivation.

A canceled derivation is one for which a more optimal convergent derivation may not be considered: If features mismatch, further derivations are barred.<sup>77</sup> In the current analysis, I have so far assumed that the weak features of Nahuatl verbs *mismatch* the strong features of Spanish verbs, such that (16) and (17) do not converge.

While it is natural to regard “nominative” and “accusative” as a mismatch of case, the assumption that *strength* of a feature constitutes a mismatch will be problematic for later analyses (§5.3.1.8), and it is not a standard idea in the minimalist program. While the checker (T, in this case) is sensitive to whether an element moves covertly or overtly, the target of movement (V here) should not be. An analysis which avoids the notion that feature *strength* constitutes mismatch would therefore be preferred to this one.

Turning again to the Spanish-Nahuatl pronominals displayed in (28), assume that the languages actually differ in their feature matrices with respect to gender. This is a natural idea; its alternative, that languages like Nahuatl have covert gender markings, is

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<sup>77</sup>Of course, “mismatch” is distinguished from “nonmatch.” Nominative and accusative case mismatch, barring further derivations, but accusative case and categorial I “fail to match” so that further derivations may be considered (Chomsky, 1995a: 309).

highly implausible because it is unlearnable: there are no gender markings on Nahuatl DPs, so there is no way to know which DP is masculine and which feminine. I will assume, then, that Nahuatl gender is null, or one-valued, and that Spanish gender is two-valued (masculine, feminine).<sup>78</sup> Formally, this difference may be attributed to values of  $\phi$ : for Spanish,  $\phi = \{\text{person, number, gender}\}$ , but Nahuatl either has no gender feature or has a null gender feature (that is,  $\emptyset_{\text{gender}}$ ). The stipulation made earlier, that Nahuatl has no covert accusative/nominative distinction, may now be set aside as irrelevant.

A new account of (16)-(19) is now possible in terms of a mismatch in the Spanish and Nahuatl gender feature in  $\phi$ . T in these constructions may only select a Spanish DP as its specifier if the  $\phi$ -features of T match D's value for  $\phi$ ; thus, the presence of the Spanish pronouns in (16)-(19) indicate that T in these constructions has the Spanish values for  $\phi$ , including  $\pm_{\text{gender}}$ , otherwise T and its specifier would mismatch in features. In (16) and (17), a subject prefix in the verb causes V to adjoin to T for feature checking. However, Nahuatl  $\phi$  in V mismatches Spanish  $\phi$  in T (more specifically,  $\pm_{\text{gender}}$  mismatches  $\emptyset_{\text{gender}}$ ) and the derivations are canceled, on (31). In the case of (18) and (19), again following Pollock (1994) with respect to English verb morphology, Nahuatl V does not undergo LF checking since it has no subject agreement morpheme. Since V does not enter into a checking relation with T (here drawn without  $\phi$ -features),

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<sup>78</sup>Other possibilities can be imagined. Perhaps Nahuatl just has *unmarked* gender, while Spanish has *marked* and *unmarked*. Many languages have a three-way gender system (German, Greek), so the Nahuatl gender feature might be neuter while the Spanish feature is masculine or feminine. Further investigation may lead to refinements; here, however, I will simply assume that the gender features of

[footnote continues on next page]

(18) and (19) converge. As before, a problem arises for (16) and (17) whether Spanish T has its optional  $\phi$ -features or not: the Nahuatl verbs either cannot check their  $\phi$ -features (if T is selected without  $\phi$ ) or the gender features mismatch with Spanish T (if T is selected with  $\phi$ ), again canceling (16) and (17).<sup>79</sup>

The approach developed here extends nicely to the code switching facts regarding object pronouns; Spanish object pronouns always make a Nahuatl construction ill-formed (§4.1.10), regardless of overt case marking:

- (32) ??Niktlasojtla in *ella*  
 ni-k-tlasojtla in ella  
 1S-3Os-love IN her  
 ‘I love her’
- (33) \*Niktlasojtla *a ella*  
 ni-k-tlasojtla a ella  
 1S-3Os-love PRT her  
 ‘I love her’
- (34) \*Nimistlasojtla in *tí*  
 ni-mis-tlasojtla in tí  
 1S-2Os-love IN you/SING/ACC  
 ‘I love you’
- (35) \*Nimistlasojtla *a tí*  
 ni-mis-tlasojtla a tí  
 1S-2Os-love PRT you/SING/ACC  
 ‘I love you’

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Spanish and Nahuatl are sufficiently different to cause a mismatch regardless of the setting of the Spanish feature (masculine, feminine).

<sup>79</sup>With the value of  $\phi$  distinct for Spanish and Nahuatl, Everett’s (1996) approach discussed earlier will now also derive these facts. For reasons stated, we assume that T is only compatible with Spanish pronouns if it has the right gender markings. Everett’s insertion rules can now distinguish between Nahuatl and Spanish:  $[D^{\max} [D^0 \phi\text{-features}]]$  is mapped to Spanish pronouns if the gender in  $\phi$  is two-valued, mapped to Nahuatl if it is one-valued.

- (36) \*Titechtlasojtla in *mí*  
 ti-tech-tlasojtla in *mí*  
 2S-2Os-love IN me/ACC  
 ‘You love me’
- (37) \*Titechtlasojtla *a mí*  
 ti-tech-tlasojtla *a mí*  
 2S-2Os-love PRT me/ACC  
 ‘You love me’
- (38) \*Nimistlasojtla in *tú*  
 ni-mis-tlasojtla in *tú*  
 1S-2Os-love IN you/SING/NOM  
 ‘I love you’
- (39) \*Titechtlasojtla in *yo*  
 ti-tech-tlasojtla in *yo*  
 2S-1Os-love IN I/NOM  
 ‘You love me’

In (32)-(39), assume that Spanish T covertly selects an object pronoun as its specifier. If T has Nahuatl values for  $\phi$ , the derivation will cancel since  $\pm$ gender of  $\phi$  in the Spanish pronouns mismatches  $\emptyset$ gender in Nahuatl  $\phi$ . If T has Spanish values for  $\phi$ , the derivations again will cancel when V raises to check its  $\phi$ -features with T. In contrast with the subject cases, the derivations always cancel since the object agreement morpheme on the verb is always filled. Thus, there is no successful derivation for (32)-(39).

The facts I obtained regarding Spanish lexical DPs mixed with Nahuatl verbs are congruent with the analysis so far developed; these elements are always third person expressions, so they are predicted to be well-formed with Nahuatl verbs (§4.1.13), as the facts attest:

- (40) Mi hermana *kitlasojtla in Juan*  
 mi hermana 0-ki-tlasojtla in Juan  
 my sister 3S-3Os-love IN Juan  
 ‘My sister loves Juan’
- (41) Okipipitzo *el hermano de Maria*  
 o-0-ki-pipitzo el hermano de Maria  
 PAST-3S-3Os-kiss the brother of Maria  
 ‘Maria’s brother kissed her’

However, (42) may be problematic for this analysis (§4.1.13). It suggests that a lexical object DP can occur with a Nahuatl verb, barred by considerations above.

However, it is reasonable to assume that the Spanish particle *a* (rather than the verb) in (42) assigns its patient  $\theta$ -role to the object DP, much like English *by* assigns an agent  $\theta$ -role to the subject. In other words, the object phrase in (42) is an adjunct in relation to the Nahuatl verb, just as an English *by*-phrase is an adjunct in its clause. Thus, (42) is acceptable because its object is not a true argument of the verb.

- (42) Okipipitzo *al hermano de Maria*  
 o-0-ki-pipitzo a-el hermano de Maria  
 PAST-3S-3Os-kiss PRT-the brother of Maria  
 ‘He kissed Maria’s brother’

The conclusion that Spanish DPs may not occur as objects of Nahuatl verbs is further strengthened by facts in (43) and (44) (§4.1.11); in (43), the Nahuatl object of Spanish *veo* ‘see’ makes the construction ill-formed, but additional inflectional material in (44) rescues the derivation. In section 5.2.2.2, I will discuss the interesting facts in (43) and (44) in more detail.

- (43) \*Veo (a) *in ichpochtle*  
 veo (a) in ichpochtle  
 see/3Ss/PRES (a) IN girl  
 ‘I see the girl’

- (44) *La veo in ichpochtle*  
*la veo in ichpochtle*  
 CLITIC see/3Ss/PRES IN girl  
 ‘I see the girl’

Note that there are no instances of Spanish lexical DPs as objects of Nahuatl verbs in the naturalistic data (§4.2).

Finally, the specific analyses developed here predict that Nahuatl subject pronouns should always render constructions with Spanish verbs ill-formed, since Spanish verbs are always marked for subject agreement. Unfortunately, I did not obtain ample data regarding the mixture of Nahuatl pronouns with Spanish verbs; the three cases I do have (§4.1.10, (115)-(117)) all involve the verb *tener* ‘have’ which has many idiosyncratic properties (Kliffner, 1983; Freezer, 1992; Kayne, 1993). In my sample, first person with *tengo* ‘have’ is slightly degraded, and second and third person are ill-formed. However, it seems as though more data involving other verbs are needed before a stronger conclusion may be drawn.

As it stands, the analysis further predicts that, other considerations aside, code switching between DPs (pronominal or lexical) and predicates in languages with like gender systems should be allowed, otherwise disallowed. As I will show in section 5.3.1.6, this prediction appears to be essentially correct.

The particular analyses pursued here are intended as an illustration of a research program for code switching. The analyses themselves will no doubt need to be revised as new, independent insights emerge. However, the current approach to the data in this section satisfies our basic requirement, expressed in 5.1, that the facts be accounted for

with no appeal to *ad hoc* mechanisms specific to code switching. The analyses developed here show that this goal may indeed be satisfied.

### 5.2.2.2 *Clitics and Agreement Morphemes*

Code switches between a Spanish verb and a Nahuatl direct object are not acceptable unless a Spanish clitic doubles the object, as in (46).

- (45) \*Veo (a) *in ichpochtle*  
 veo (a) *in ichpochtle*  
 see/3Ss/PRES (a) IN girl  
 ‘I see the girl’
- (46) La veo *in ichpochtle*  
 la veo *in ichpochtle*  
 CLITIC see/3Ss/PRES IN girl  
 ‘I see the girl’

As reported in chapter 4, the consultants who produced the judgments shown in (45)-(46) do not speak a clitic-doubling variety of Spanish, such that (47) is acceptable but (48) is not (§4.1.11).

- (47) Veo a la muchacha  
 veo a la muchacha  
 see/3Ss/PRES PRT the girl  
 ‘I see the girl’
- (48) \*La veo (a) la muchacha  
 la veo a la muchacha  
 CLITIC PRT see/3Ss/PRES the girl  
 ‘I see the girl’

We might briefly entertain the possibility that the object agreement morpheme *k-* in Nahuatl transitive verbs is an object clitic. Zwicky and Pullum (1983) present a number of tests to determine whether an element is a clitic or a morpheme, one of which is that once a clitic is attached to a verb, additional inflectional material may not be

added. If this is correct, then assuming Nahuatl object agreement morphemes to be clitics will have implications for the analysis in 5.2.2.1 where *ni-* and *ti-* (which attach to *k-*) are taken to be subject agreement morphemes. Others (Everett, 1996; Luján and Parodi, 1996) have argued that the distinction between clitics and object agreements is unimportant. If Nahuatl *k-* is a clitic, then Nahuatl is a clitic-doubling language.

Below I will review Sportiche's (1995a) recent approach to clitic-doubling phenomena, attempting to explain the facts exhibited in (45)-(46) in terms of the apparatus made available. The results of this analysis, together with a reconsideration of conclusions drawn in section 5.2.2.1 regarding (45)-(46), develop into a change of course away from the clitic analysis of these constructions.

Sportiche (1995a) attempts to reconcile two seemingly incompatible analyses of Romance clitic constructions which have appeared in the literature. Strozer (1976), Rivas (1977), Jaeggli (1982), Borer (1981), Sportiche (1983) and others have argued that clitics are base-generated in their surface position, whereas Kayne (1975, 1989) and Sportiche (1990) have argued that clitics move from object position to the position they occupy at surface structure.

Kayne's (1975) movement analysis is partly motivated by the complementary distribution between clitics and their associated XPs in French, as illustrated in (49). For Kayne (1975), the clitic moves from object position to Chomsky-adjoin to an appropriate verb in the tree.

- (49a) Marie connaît Louis  
 Marie knows Louis

- (49b) Marie le connaît  
Marie ACC.CLITIC knows
- (49c) \*Marie le connaît (a) Louis  
Marie ACC.CLITIC knows Louis

This analysis has been challenged on several grounds. First, Romanian, Greek and some varieties of Spanish violate the complementarity illustrated in (49):

- (50a) L-am vazut pe Popescu (Romanian)  
ACC.CLITIC-have/1S seen PRT Popescu  
'I saw Popescu'
- (50b) Lo vimos a Juan (River Plate Spanish)  
ACC.CLITIC saw/1Sp PRT Juan  
'We saw Juan'
- (50c) o Yiorghos tin-perimene [[tin Maria] na paraponiete] (Greek)  
the George ACC.CLITIC-expected [[the Maria] SUBJ complain]  
'George expected Maria to complain'

As Sportiche (1995a) points out, (50c) is especially problematic for Kayne's (1975) analysis since it exemplifies clitic doubling in a context (ECM) in which adjuncts are not generally tolerated.

Nonetheless, there are a number of very strong arguments in favor of a movement analysis of these constructions. In particular, clitics appear to behave precisely like other moved elements with respect to SSC effects, CED/ECP effects, and French participle agreement. Regarding the latter, note that the construction in (51b), a relative clause, behaves just like (51c), a clitic construction; (51a), on the other hand, requires the French feminine morpheme *-e* to be absent from the participle due to the presence of the DP *la porte*.

- (51a) Jean a peint(\*e) la porte  
 Jean has painted(FEM) the door  
 ‘Jean painted the door’
- (51b) La porte que Jean a peint(e) *t*  
 ‘The door that Jean painted’
- (51c) Jean l’a peint(e) *e*  
 Jean it has painted(FEM)  
 ‘John painted it’

In addition to the argument from clitic doubling, base-generation proponents have also put forward what Sportiche (1995a) calls the “lack of source” argument: clitics appear in constructions in which there is no corresponding DP-site from which they may reasonably be said to have moved. Two such constructions are the ethical dative shown in (52a) and the inherent clitic shown in (52b).

- (52a) Je t’acheterais un cadeau à Pierre  
 I you-would-buy a present to Peter  
 ‘I tell ya, I would buy Peter a present’
- (52b) Pierre en a bavé  
 Peter of-it drooled  
 ‘Peter suffered.’

In an effort to obtain a uniform analysis, proponents of a movement approach would be hard pressed to identify an extraction site for the clitics in question here.

Sportiche (1995a) also reviews a number of other interesting facts regarding clitics which I have not touched upon here. The overall picture, pre-analytically, is that clitic constructions behave strikingly like constructions involving movement on the one hand, and like elements which have been base-generated in their surface positions on the other hand.

Sportiche (1995a) reconciles these apparently incompatible views by assuming that the clitic is base-generated in its surface position and selects the object DP as its specifier. The basic insight, then, is that the object of the verb moves, not the clitic itself, thus explaining the range of facts favoring both of the previously contending analyses. Hence, on this account, the object DP moves into the specifier position of the clitic, a functional category heading its own projection, in order to check its agreement features of case, number, gender and person with the clitic.

Three parameters affecting language variation with respect to clitics emerge, then, on Sportiche’s (1995a) analysis. These are shown in (53).

- (53) i. Movement of XP\* to XP^ occurs overtly or covertly<sup>80</sup>
- ii. The clitic head is overt or covert
- iii. XP\* is overt or covert

Some effects of setting these parameters are given in the table in (54).

(54) *Some parametric variation in clitic constructions*

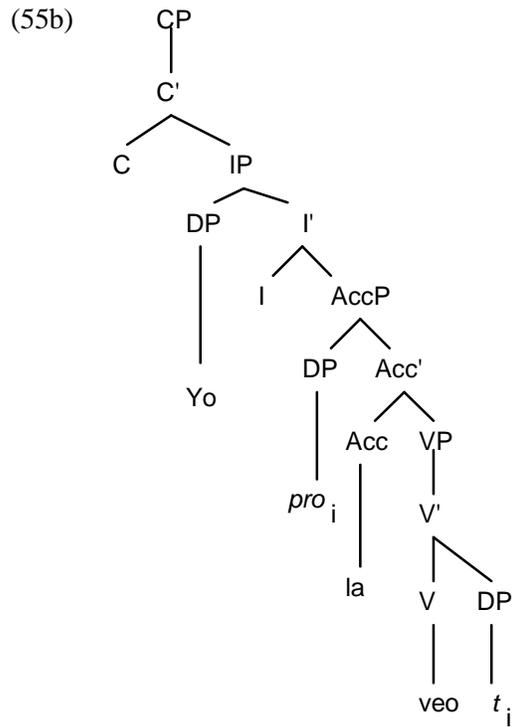
<i>mvt of XP*</i>	<i>head</i>	<i>XP*</i>	<i>typology</i>
covert	overt	overt or covert	clitic doubling languages (some Spanish, Romanian, Greek, ...)
overt	overt or covert	overt or covert	non-clitic doubling languages (most Spanish, French, Italian, ...)

Because it shares properties with pronouns, Sportiche (1995a) assumes covert XP\* to be an instance of *pro* ([-anaphoric, +pronominal]). The structure of Spanish (55a) would therefore be something like (55b), where I have used Acc as the syntactic category for accusative clitics, specified as part of their lexical entries.

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<sup>80</sup>As in other works, Sportiche uses XP\* to refer to the D-structure position of XP and XP^ to refer to its S-structure position.

(55a) Yo la veo



In Sportiche’s system, movement of XP\* is caused by the Clitic Criterion, an extension of the Wh-Criterion of Rizzi (1991) (May, 1985; Chomsky, 1986), where the feature [+F] represents a particular property which clitics license in XPs.

(56) *Clitic Criterion*

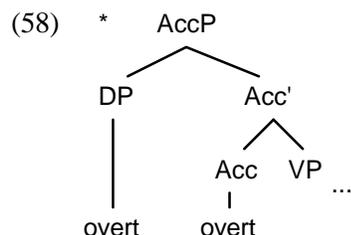
At LF

- i. A clitic must be in a spec-head relationship with a [+F] XP
- ii. A [+F] XP must be in a spec-head relationship with a clitic.

Sportiche develops the Doubly Filled Voice Filter in (57) as a principle of economy, a principle which Koopman (1996) has recently attempted to reconcile with the Doubly Filled Comp Filter and Kayne’s (1995) Linear Correspondence Axiom (LCA). The function of (57) is to prohibit both a head and its specifier from being phonetically filled.

- (57) *Doubly Filled Voice Filter*  
 \*<sub>[HP]</sub>XP [H ...]  
 where H is a functional head licensing some property P and both XP and H overtly encode P.

Thus, on (57), the configuration in (58) is barred.



In the case of undoubled Spanish constructions, XP\* may be overt or covert (*pro*); if covert, this element may then move overtly to the specifier position of the overt head Acc, as required by (56), resulting in a configuration in which a covert DP is in the specifier position of an overt head, fine by (57). If XP\* is overt, it may move overtly to the specifier position of a covert head, also a configuration licensed by (57).<sup>81</sup> However, note that an overt XP\* moved overtly to the specifier position of an overt head results in a configuration like (58), so that constructions like (48) are correctly barred for these languages.

In clitic-doubling varieties of Spanish, however, the Acc head is always overt and XP\*-movement always covert. If XP\* is overt (a lexical DP), then covert movement of XP\* to the specifier position of Acc results in a licit configuration, a covert specifier and an overt head. If XP\* is *pro*, the same configuration results.

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<sup>81</sup>Subsequent raising of V places the object in postverbal position.

Let us now review the facts under analysis.

- (45) \**Veo (a) in ichpochtle*  
 veo (a) in ichpochtle  
 see/3Ss/PRES (a) IN girl  
 ‘I see the girl’
- (46) *La veo in ichpochtle*  
 la veo in ichpochtle  
 CLITIC see/3Ss/PRES IN girl  
 ‘I see the girl’

A generalization for (45)-(46) might be that the Nahuatl DP requires a clitic doubled construction.

It is natural within a minimalist framework to relate the overtness or covertness of the movement of XP\* in Sportiche’s (1995a) system to the strength of  $\phi$ -features in the Acc head. If Nahuatl *k-* is an accusative clitic, then its  $\phi$ -features are weak. For most varieties of Spanish,  $\phi$ -features in Acc are strong and movement of XP\* to the specifier position of Acc is overt, as discussed. Furthermore, Spanish Acc has the property that it may be covert or overt, while Nahuatl Acc must be overt. On this view, whether or not a construction doubles should be strictly a property of Acc. However, in (46), the doubling is related to XP\*, not Acc. On the theory developed here, then, (46) is predicted to be well-formed and (45) ill-formed, contrary to the facts.

Recall, too, the conclusion in section 5.2.2.1 that Spanish DPs with Nahuatl Vs conflict by virtue of a mismatch in their gender features. If the analysis presented there is correct, then no Spanish subject may occur in a construction with a Nahuatl verb if the verb bears a subject agreement morpheme (*ni-* first person, *ti-* second person), and no

Spanish object may occur in a construction with a Nahuatl verb. And vice versa: No Nahuatl DPs are allowed with Spanish verbs. The same considerations bar (45).<sup>82</sup>

But why should (46) be well-formed? If the DP in (46) is analyzed as an adjunct, then this construction should indeed converge. Spanish regularly allows clitic-right dislocation of this sort, as illustrated in (59).<sup>83</sup>

- (59) Yo la vi, (a) la muchacha  
I ACC.CLITIC see/PAST/1Ss, (PRT) the girl  
'I saw her, the girl'

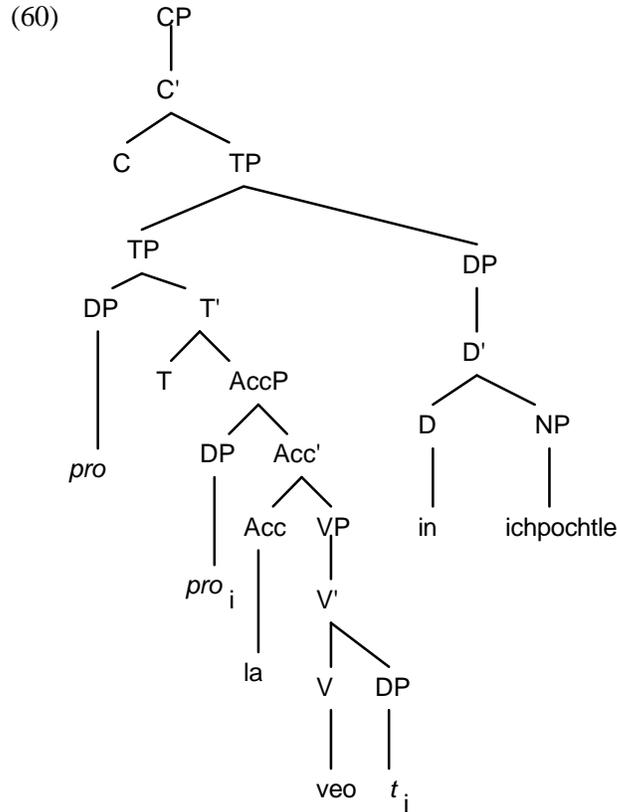
Nahuatl also allows dislocation.<sup>84</sup> The structure of (46) may be analyzed as (60), then, where *in ichpochtle*, as a non-argument, bears no structural agreement relation with any element in the tree. The clitic is required by the Spanish verb, as when no object DP is present.

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<sup>82</sup>Following work by Chomsky (1995a) and Ura (1996), Luján and Parodi (1996) argue that clitic doubling constructions result from multiple feature checking phenomena. A doubled construction, then, is simply one for which features have been checked twice, once with the clitic head and once with T. However, this approach will also become problematic for my data, since the facts established in section 5.2.2.1 remain: a fundamental conflict in gender features prevents convergence when a Nahuatl object is mixed in with a Spanish construction.

<sup>83</sup>(59) is due to Manuel Español-Echevarría.

<sup>84</sup>Indeed, dislocation is commonplace cross-linguistically for purposes of focus and contrast. Thus, the claim here that Nahuatl allows dislocation is not surprising, and it in no way suggests that Nahuatl *requires* all NPs to be adjuncts, as Baker (1996) argues. See section 2.5.3.



The representation in (60) respects Sportiche’s economy principle stated in (57) since XP\* is covert. In addition, it allows us to maintain the analysis in section 5.2.2.1 regarding gender and feature mismatch; some additional evidence for this view will be added in section 5.3.1.6.

### 5.2.2.3 *Embedded Clauses*

In section 4.1.2 we saw that Spanish verbs of speaking may take a Nahuatl CP complement, and that Nahuatl verbs of speaking may take Spanish CP complements, as expected from reports on other code switching corpora. Hence, consultants in the present study confirmed that the switches in (61) and (62) are licit (§4.1.2).

- (61) *Le dije ke kitlasojtla in Juan sikpanoah*  
 le dije ke 0-ki-tlasojtla that in Juan sikpanoah  
 DAT.CLITIC PAST/1Ss/say that 3S-3Os-love IN Juan a.lot  
 ‘I told him that she loves Juan a lot’
- (62) *Onikili que la quiere Juan*  
 o-ni-k-ili que la quier-e Juan  
 PAST-1S-3Os-say that ACC.CLITIC love-PRES/3Ss Juan  
 ‘I told him that Juan loves her’

Furthermore, Nahuatl, unlike Spanish, allows a null complementizer in this context; (63) suggests that a switch may occur between the complementizer and IP, contrary to the claims of Belazi, Rubin and Toribio (1994).

- (63) *Onikili la quiere Juan*  
 o-ni-k-ili la quiere Juan  
 PAST-1S-3Os-say ACC.CLITIC love-PRES/3Ss Juan  
 ‘I told him Juan loves her’

These findings are not surprising on the assumption that each lexical item introduces features into the derivation which must be checked. The verbs in these constructions bear the selection feature [C] which is checked under merger with the CP complement.

However, switched IP complements are always ill-formed in the data presented in chapter 4. Consider, for example, (64)-(66).

- (64a) \**Nio (a) ver (a) mi hermana*  
 ni-o (a) ver (a) mi hermana  
 1Ss-go (PRT) INF/see (PRT) my sister  
 ‘I’m going to see my sister’
- (64b) \**Nio veo (a) mi hermana*  
 ni-o veo (a) mi hermana  
 1S-go PRES/1Ss/see PRT my sister  
 ‘I’m going to see my sister’

- (65a) \*Nikneki *compro ropa*  
 ni-k-neki compr-o ropa  
 1S-3Os-want buy-1Ss/PRES clothing  
 ‘I want to buy some clothes’
- (65b) \*Nikneki *compraré ropa*  
 ni-k-neki compr-aré ropa  
 1S-3Os-want buy-1Ss/FUT clothing  
 ‘I want to buy some clothes’
- (66) ??Quiero *nikoas tlakemetl*  
 ni-k-neki ni-k-koa-s tlakemetl  
 1S-3Os-want 1S-3Os-buy-FUT clothing  
 ‘I want to buy some clothes’

From the perspective of phrase structure and selectional requirements alone, many of these judgments come as a surprise. The Nahuatl verb in (65b), for instance, selects a tensed IP complement, and [*compraré ropa*] is a tensed IP complement. Unlike examples (61)-(63), this Nahuatl construction will not tolerate a complementizer (see (67)), suggesting that the complement is indeed an IP, not a CP.

- (67) \*Nikneki ke nikoas tlakemetl  
 ni-k-neki ke ni-k-koa-s tlakemetl  
 1S-3Os-want that 1S-3Os-buy-FUT clothing  
 ‘I want that I will buy some clothes.’

The bar on a switch at V-V is even more surprising when other corpora are considered. This structure is widely reported to be ill-formed in mixtures from a variety of language pairs, a topic I will return to in section 5.3.1.2.

Considerable attention has been given to V-V sequences in the syntactic literature as well, sequences which Zwicky (1990) has called “intimate combinations.” In particular, a specific subclass of verbs which enter into V-(P)-V configurations have been identified as *restructuring* or *verb-incorporating* (VI) verbs.

Rizzi (1982) analyzed Italian modals,<sup>85</sup> aspectuals and motion verbs as “restructuring” verbs as a way of accounting for (among some other peculiarities) the contrasts in (68)-(69).

- (68a) Finalmente *si* comincerà a costruire le nuove case popolari  
 Finally *si* begin/FUT to build the new houses people/GEN  
 ‘Finally we’ll begin to build the new houses for the poor.’
- (68b) Finalmente le nuove case popolari *si* cominceranno a costruire  
 (Same as (68a).)
- (69a) Finalmente *si* otterrà di costruire le nuove case popolari  
 Finally *si* get.permission/FUT to build the new houses people/GEN  
 ‘Finally we’ll get permission to build the new houses for the poor.’
- (69b) \*Finalmente le nuove case popolari *si* otterranno di costruire  
 (Same as (69a).)

In Rizzi’s (1982) analysis, *comincerà* ‘will begin,’ but not *otterrà* ‘will get permission,’ triggers an optional reanalysis of the form  $V_x (P) V_2 \Rightarrow V$ , where  $V_x$  is a verb of the restructuring class, (P) an optional intervening preposition, and  $V_2$  is the verb of the embedded sentence. This restructuring process is essentially a type of compounding. In (68) a reanalysis of the constituents allows the object of the embedded clause in an impersonal *si* construction to move to the subject position of the matrix clause; in (69) this promotion is barred because reanalysis cannot apply for *otterrà*.

Aspectual *essere* is used with a past participle in Italian passive impersonal *si* constructions. In constructions such as (70a), *essere* too may be viewed as a restructuring

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<sup>85</sup>Rizzi (1983: 41, n5) uses the term *modal* “as a simple mnemonic label for a homogeneous, small class of main verbs,” regarding them (in Italian) to be of the same lexical category as other Vs.

verb, allowing promotion of the embedded object to matrix subject position, shown in (70b).

(70a) Si è dato un regalo  
*si essere given a gift*  
 ‘A gift is given.’

(70b) Un regalo si è dato  
 a gift *si essere given*  
 ‘A gift is given.’

On Rizzi’s (1982) analysis, restructuring has applied to (70b) but not to (70a), forcing the promotion of [<sub>NP</sub> *un regalo*] in the former.

However, note that a very different pattern of judgments emerges when code switching is involved in (70). Consider the French-Italian facts in (71).<sup>86, 87</sup>

(71a) Si è *donné un cadeau*  
*si essere given a gift*

(71b) \**Un cadeau* si è *donné*  
 a gift *si essere given*

The movement of [<sub>NP</sub> *un cadeau*] suggests that reanalysis has occurred in (71b), just as it did in (70b). The verbal complexes are identical in (71a) and (71b): A mixture of the Italian aspectual auxiliary *è* immediately adjacent to the French past participle *donné*. Thus, the unacceptability of (71b) indicates that restructuring correlates with the ban on language mixture in V-V sequences.

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<sup>86</sup>The data and judgments in (70)-(71) are due to Anastella Vester.

<sup>87</sup>The examples in (71) may be structurally different from those in (68) and (69); however, as I will point out in section 5.3.1.2, a verbal particle such as *a* or *di* greatly improves code switching judgments in these constructions, so a code-switched example like (68) would not make the point that (71) does. While the structural difference may play a role with respect to Rizzi’s (1981) original analysis (but see his note 7, page 41), it does not appear to do so for Roberts’ (1997) recent account of this phenomenon.

Baker (1988) analyzes certain causatives, and Li (1990a) certain “serial verb” constructions,<sup>88</sup> on the assumption that V-V compounding is obligatory for the language data of concern in their respective analyses. Pollock (1994) analyzes English motion verbs *come* and *go*, as well as English causatives, as involving verb incorporation too, with still other morphological reanalysis available for idiolectic variation in these constructions. Accordingly, I will assume that verb incorporation (VI) is sometimes optional, sometimes obligatory, and sometimes unavailable, accounting for a range of linguistic variation. The Nahuatl verbs in (64)-(65), being verbs of motion, aspectuals and modals,<sup>89</sup> all fall within Rizzi’s restructuring verb class. Therefore, given (71), I will assume that restructuring is obligatory in Nahuatl and accounts for the unacceptability judgments in (64)-(66). To explain (71), I assume with Rizzi (1983) that restructuring is optional in Italian. That Spanish *querer* ‘want’ in (66) is a restructuring verb is suggested by its ability to trigger clitic climbing (Rizzi, 1983):

- (72) Lo quiero comprar  
 ACC.CLITIC want/1Ss buy/INF  
 ‘I want to buy it’

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<sup>88</sup>Serial verb constructions might be quite different from restructuring constructions, but Campbell (1989) argues that serial verb constructions are similar to European perfective constructions (a type of restructuring, on Rizzi’s analysis). Such constructions, which indeed share many properties with restructuring verbs, are analyzed in Li (1990a) and Collins (1997) under principles of  $\theta$ -grid merger. Still, it seems that any application of these conclusions to code switching will necessarily be left with a generalization that languages cannot share inflectional material, an idea that will be developed in the remainder of this section.

<sup>89</sup>Like Italian, Nahuatl may not have modals per se; however, I will take *nikneki* ‘want’ to belong to this class of verbs, just as Rizzi (1983: 4) expressly includes Italian *volere* ‘want.’ See note 85 (page 221, this volume) for additional clarification.

In summary, the correct descriptive generalization regarding (64)-(66), as well as (71), appears to be (73).

(73) Languages cannot be switched in V-V compounds.

The remaining question is why. Below I will briefly review some treatments of the structure of restructuring configurations before developing an answer to this question.

Serial verb constructions, which might be regarded as a subclass of restructuring constructions, allow verbs to share objects and subjects, and they often require that only one of the verbal heads bear inflectional material. However, Schachter (1974) provides examples of verb serialization from Akan in which both verbal heads carry inflectional material:

(74) Me-yɛɛ adwuma me-maa Amma  
 1Ss-do work 1Ss-give Amma  
 ‘I work for Amma.’

In the Nahuatl examples, too, the verbs share a common subject. The matrix verb  $\theta$ -marks the embedded clause while the embedded verb  $\theta$ -marks its object; however, both verbs appear to bear some structural relation to the object DP much as in (74). Like (74), the Nahuatl example has full agreement on both verbs, as shown in (75).

(75) Nikneki nikoas tlakemetl  
 ni-k-neki ni-k-koa-s tlakemetl  
 1S-3Os-want 1S-3Os-buy-FUT clothing  
 ‘I want to buy something.’

Baker (1988) proposed that in VI constructions such as these the lower V climbs into the higher V position by cyclic head-movement through the  $C^0$  of the embedded clause (but see Baker (1989) where the VP is analyzed as “doubly-headed”). Li (1990b) argues that these constructions may be derived by assuming that the complement of the

matrix verb is a VP. In these three approaches, the lower V moves to the higher V by head-movement, forming a V-V compound. In Rizzi's (1982) and Haegeman and van Riemsdijk's (1986) approaches to these constructions, the V-V sequence is merged by a syntactic reanalysis rule. Working primarily with German, Wurmbrand (1997) analyzes restructuring verbs as having complements which lack independent tense and subjects.

In a recent proposal by Roberts (1997), V-movement in Italian restructuring cases is governed by (76).

- (76a) Head movement is copying.
- (76b)  $*[_{X^0} W_1 W_2]$ , where  $W_n$  are morphological words.
- (76c) A head is spelled out in the highest position of its chain, subject to (76b).

In cases such as Rizzi's (68) and (69), on Roberts' analysis, the lower infinitival  $V_{inf}$  raises by head movement through  $Agr^S$  on its way to the lower T, there forming (minimally)  $[V_{inf} + T]$ ; this complex incorporates to the higher restructuring verb  $V_R$  (by way of the embedded  $C^0$ ) and continues up to matrix T. The conditions in (76b)-(76c) determine where these elements may be pronounced. In particular, since both Vs are "morphological words" (presumably, stems with inflectional affixes attached), (76b) bans both heads from being pronounced in the matrix V. Instead,  $V_{inf}$  is pronounced in its highest position prior to incorporation, at  $Agr^S$  of the lower clause (as required by (76c)).  $V_R$  is spelled out at the head of its chain, generally the matrix  $Agr^S$ .

Roberts further assumes that movement occurs to satisfy a checking relation between some formal features ([FF]). On this approach, the code switches in (64)-(66) might be analyzed as ill-formed just in case the values of [FF] mismatch or fail to be met in some way. However, as I will point out in section 5.3.1.2, the restriction against code

switching in VI configurations is attested in a wide variety of language pairs, nearly approaching a universal. The definition of [FF] would therefore have to be highly language-specific, approaching the spurious “language feature” rejected in section 2.2.2.5 and elsewhere. If independent justification is available, it may therefore be reasonable to relate this particular restriction to a component of grammar within the minimalist framework which remains highly language-specific, namely, the morphological component.

To accomplish this goal with respect to Roberts’ system in (76), we need only make the plausible assumption that (76b) is a restriction within the *morphological* component of the grammar which is applied in the mapping to PF, not a constraint on syntactic movement. In fact, this is Roberts’ (1997) idea; he regards (76b) to be “a condition on Spell-Out .... that dictates the upper limit of the morphological material that can be spelled out under an  $X^0$ ” (426).

The need to restrict code switching at some morphological level is also related to Poplack’s (1981) observations; she stipulated a ban on code switching between a root and a bound morpheme in such examples as (77a).

- (77a) \*Juan está *eat*-iendo  
 Juan be/1Ss eat-DUR  
 ‘Juan is eating.’

Notice similarly the severely degraded structures in (77b)-(77d).

- (77b) \*Juan *eat*-ó  
 Juan eat-PAST/3Ss  
 ‘Juan ate.’

(77c) \*Juan *comed*  
 Juan eat-PAST  
 ‘Juan ate.’

(77d) \*Juan *eatará*  
 Juan be/1Ss eat-FUT/3Ss  
 ‘Juan will eat.’

The idea that the morphological system is *different in kind* from syntactic operations is an important assumption in Chomsky’s minimalist program. As he puts it, at the point of Spell-Out,

... the computation splits into two parts, one forming  $\pi$  and the other forming  $\lambda$ . The simplest assumptions are (1) that there is no further interaction between computations and (2) that computational procedures are uniform throughout: any operation can apply at any point. We adopt (1), and assume (2) for the computation from N to  $\lambda$ , though not for the computation from N to  $\pi$ ; the latter modifies structures (including the internal structure of lexical entries) by processes very different from those that take place in the  $N \rightarrow \lambda$  computation [Chomsky, 1995: 229].<sup>90</sup>

Elsewhere Chomsky (1995a) similarly comments that “phonology, unlike the rest of  $C_{HL}$ , is rule-based” and involves “processes very different from those that take place in the  $N \rightarrow \lambda$  computation” (380, 229).

As a lexicalist model, the minimalist program assumes that morphologically complex elements like *walked* and *went* are stored in the lexicon along with features associated with their inflectional morphology (PAST and  $\emptyset$ , in this case).<sup>91</sup> However, although these elements are stored whole in the lexicon prior to selection into the

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<sup>90</sup> $\pi$  is PF (Phonetic Form),  $\lambda$  is LF (Logical Form), and N is the Numeration; see section 2.4.3.

<sup>91</sup>Note, for instance, the treatment of affix lowering/raising in chapter 1 of Chomsky (1995) (coauthored with Howard Lasnik).

numeration, standard arguments from the poverty of the stimulus suggest that principles of word formation (morphological rules) build them up. Otherwise the uniformity of inflectional morphology would be unexpected within languages, and over-generalizations (\**goed*, \**comed*) would not occur. Chomsky (1995a: 20) adopts the position that “processes internal to the lexicon (*redundancy rules*) form the word *walked* with the properties [walk] and [past] already specified.” Thus, a morphological component must form items for the lexicon before they can be selected for the numeration (otherwise these will not have the relevant features required for convergence). Note that these morphological principles of word formation must be highly language-specific, capturing the *patterned differences* between languages (past tense is usually *-ed* on English verbs, usually *o-* on Nahautl verbs).

In addition, it is well known that certain phonological operations are sensitive to morphological affixation (Halle and Mohanan, 1985), suggesting that morphological structure is relevant to some rules or principles of PF. These post-syntactic operations in the PF component often refer to specific inflectional material, as demonstrated in work by Halle and Mohanan (1985) and Mohanan (1986). Indeed, Halle and Marantz (1993) place an additional level of representation, called MS (their “morphological structure”), between S-Structure and PF, and stress that MS serves as “the interface between syntax and phonology.”

In addition, as Bromberger and Halle (1989) point out, phonological rules are ordered with respect to one another, and the orders of rules differ cross-linguistically. (In Optimality Theory, “constraints” are “ranked,” or ordered in relative importance, and

these rankings vary cross-linguistically.) This fact, Bromberger and Halle (1989) argue, makes phonology crucially different from syntax.

There are other differences between syntax and phonology, but this particular difference is one which might be easily exploited to rule out code switching within the PF component. We have been assuming that code switching is formally the *union* of two grammars, captured in Figure 8 (page 179), where the numeration may draw elements from the union of two (or more) lexicons. Each lexical item imposes certain requirements on the derivation in terms of lexically-encoded features; syntactic operations need take no notice of what particular language a lexical item is associated with.

However, suppose that in a PF system  $PF_x$  rules are ordered such that  $R1 > R2$  and  $R3 > R4$ , and suppose that in a PF system  $PF_y$  rules are ordered such that  $R1 < R2$  and  $R3 < R4$ . Then the union of  $PF_x$  and  $PF_y$  ( $PF_x \cup PF_y$ ) will have no ordering relations for  $Rn$ . In other words, under union (code switching), the PF components cannot meet their requirement that they have (partially) ordered rules or constraints. I will take this formal property, then, to bar code switching at PF, stated succinctly in (78) as the PF Disjunction Theorem.

(78) *PF Disjunction Theorem*

- (i) The PF component consists of rules which must be (partially) ordered with respect to each other, and these orders vary cross-linguistically.<sup>92</sup>
- (ii) Code switching entails the union of at least two (lexically-encoded) grammars.
- (iii) Ordering relations are not preserved under union.
- (iv) Therefore, code switching within a PF component is not possible.

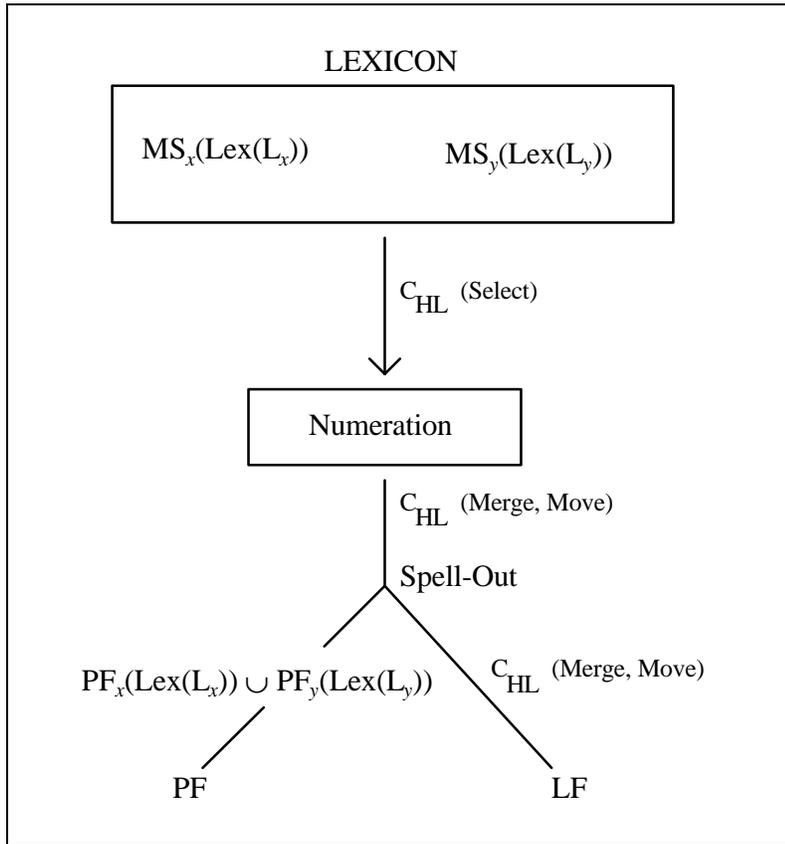
Because (78) may be deduced from independently discovered facts about the language faculty, it is termed a “theorem” rather than a “principle.”

It appears, then, that a bilingual speaker has a grammar organized as in Figure 9, a slightly enriched version of Figure 8 (page 179). In Figure 9,  $MS(Lex(L_n))$  is the lexicon of  $L_n$  after morphological principles of word formation have applied. PF, also sensitive to inflectional material, applies after Spell-Out, but its application is restricted to the “morphological words” (stems with affixal material) of its own system. Thus, in  $(PF_x(Lex(L_x)) \cup PF_y(Lex(L_y)))$ ,  $Lex(L_x)$  is the lexicon of language  $x$ , identified in terms of its inflectional material, and  $Lex(L_y)$  is the lexicon of language  $y$ , also so identified. Both of the rule systems  $PF_x$  and  $PF_y$  may apply in the mapping of the derivation to PF, but they cannot apply to elements from each other’s lexicons.

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<sup>92</sup>Alternatively, within Optimality Theory, the PF component consists of constraints which must be *ranked* with respect to one another. Thus, (78) is not dependent upon a particular phonological framework.

Figure 9: A Bilingual Minimalist Grammar with Disjoint Morphological Components



Let us further assume, along with Chomsky (1995a), that  $X^0$ s are inputs to PF.

Now the facts in (64)-(66), as well as Poplack's observations regarding constructions in (77), follow straightforwardly. In the complex  $[x^0 W_1 W_2]$ , (76b) applies at PF. However, since elements cannot be mixed at PF, the result is ill-formed; an undefined term (affix) remains regardless of whether the complex is analyzed by  $PF_x$  or  $PF_y$ . Similarly, (77) is ill-formed because code switching occurs below  $X^0$ : the stem is

analyzed by the phonological system of PF<sub>x</sub> but the morphological material belongs to PF<sub>y</sub>.<sup>93</sup>

Once again, in the foregoing discussion and throughout, specific analyses presented for code switching data in this dissertation are intended to lend general support to the basic research agenda discussed in section 5.1. Refinements are surely necessary. However, as in previous sections, the facts addressed here have been explained by reference to independently motivated principles of grammar, including general properties of rule systems, suggesting once again that there are no statements of grammar specific to code switching constructions, as claimed in section 5.1.

#### 5.2.2.4 *Duratives*

The facts in (79) are striking. Both Nahuatl and Spanish have durative constructions, as shown in (80); the Nahuatl version differs in that it does not use an auxiliary before the present participle as Spanish does (*estar* ‘to be,’ as in English). Also, the Nahuatl durative form ending in *-toc* requires appropriate agreement prefixes, as (80b) illustrates (*ni-*, in this case). However, (79) indicates that Spanish *estar* may use a

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<sup>93</sup>Note that matters are different if the stem is borrowed into the language of the inflectional morphology. So, for example, *Juan eat-ó todo* sounds much better if pronounced with full Spanish phonology, with the verb produced as [itió]. It is almost impossible to pronounce the inflectional morpheme with Spanish phonology and the stem with English, unless a pause is inserted. We might imagine a variant of Spanish in which the English stem *eat* has been borrowed, allowing such constructions as *Juan iteó todo*, *Voy a itear ahora*, and so on. Such a variant would not be radically different from, say, Mexican Spanish expressions like *Necesito parquear mi coche* (‘I need to park my car’), *Mi bicicleta no tiene breacas* (‘My bike doesn’t have brakes’), or *Voy a checar eso* (or in U.S. Spanish, *Voy a chequear eso*, ‘I’m going to check this’). A similar analysis is possible for *yeka* in example (143) of section 4.2.2 (page 164): *Tlami yeka y estudio* ‘And then I arrive and study.’ I will return to some of these observations in section 5.3.1.7 where further refinements will be made.

Nahuatl present participle only if it does *not* have a subject agreement prefix. Moreover, code switching in this context is ruled out regardless of which agreement morphemes appear on the verb, subject or object, as the transitive constructions in (81) illustrate. Note, too, that noun incorporation (NI) also makes the construction ill-formed, as shown in (82).

- (79a) \*Estoy *nitlajtohtoc*  
 estoy ni-tla-toh-toc  
 be/PRES/1Ss 1S-INDEF-speak-DUR  
 ‘I’m speaking’
- (79b) Estoy *tlajtohtoc*  
 estoy tla-toh-toc  
 be/1Ss INDEF-speak-DUR  
 ‘I’m speaking’
- (80a) (Yo) estoy ayudando a Juan  
 (yo) estoy ayud-ando a Juan  
 (I) be/PRES/1Ss help-DUR PRT Juan  
 ‘I’m helping Juan’
- (80b) (Ne) *nikpalewijtoc* in Juan  
 (ne) ni-k-palewij-toc in Juan  
 (I) 1S-3Os-help-DUR IN Juan  
 ‘I’m helping Juan’
- (81a) \*Estoy *nikijtohtoc*  
 estoy ni-ki-toh-toc  
 be/PRES/1Ss 1S-3Os-speak-DUR  
 ‘I’m saying it’
- (81b) \*Estoy *kijtohtoc*  
 estoy ki-toh-toc  
 be/PRES/1Ss 3Os-speak-DUR  
 ‘I’m saying it’
- (82a) \*Estoy *ninakakuajtoc*  
 estoy ni-naka-cuaj-toc  
 be/PRES/1Ss 1S-meat-eat-DUR  
 ‘I’m eating meat’

- (82b) \*Estoy *nakakuajtoc*  
 estoy naka-cuaj-toc  
 be/PRES/1Ss meat-eat-DUR  
 ‘I’m eating meat’

Other examples are given in section 4.1.3.

With certain reasonable assumptions about the structure of Spanish and Nahuatl duratives, the facts in (79)-(82) will follow from some conclusions reached in previous discussions (§5.2.2.1, §5.2.2.3). Below I will discuss the structure of (83), then highlight some important facts regarding (79)-(82). The analysis will then be shown to relate to (a) the PF Disjunction Theorem (78) and (b) the relationship between verb movement and inflectional morphemes.

- (83a) (Yo) estoy ayudando a Juan  
 (yo) estoy ayud-ando a Juan  
 (I) be/PRES/1Ss help-DUR PRT Juan  
 ‘I’m helping Juan’
- (83b) (Ne) *nikpalewijtoc* in Juan  
 (ne) ni-k-palewij-toc in Juan  
 (I) 1S-3Os-help-DUR IN Juan  
 ‘I’m helping Juan’
- (83c) I am helping Juan  
 I am help-ing Juan  
 I be/PRES/1Ss help-DUR Juan  
 ‘I’m helping Juan’

A leading idea in contemporary work in comparative syntax is that, in the absence of (learnable) evidence to the contrary, languages do not differ. In this spirit, I will assume that the basic structure of Spanish, Nahuatl and English duratives is essentially the same. Spanish uses its copula *estar* with the present participle form *ayudando* in (83a), just as English uses an appropriate form of *be* with *helping* in (83c). In Nahuatl,

some uses of the copula appear to be null, as in many other languages. Note, for instance, the constructions in (84).

- (84a) (Ne) nimexicatl  
 (ne) ni-mexic-tl  
 (I) 1S-Mexican-NSF  
 ‘I’m a Mexican/Mexica.’
- (84b) (Te) titlakatl  
 (ne) ti-tlaka-tl  
 (I) 2S-man-NSF  
 ‘You’re a man.’
- (84c) (Ye) tlakatl  
 (ne) tlaka-tl  
 (I) man-NSF  
 ‘He’s a man’
- (84d) Tisemeh  
 ti-se-meh  
 2S-one-PL  
 ‘We are one.’

I will assume that Nahuatl has a null copula in (84) and in (83b); in the latter case, it subcategorizes for a gerundive form *nikpalewijtoc*, just as English *be* and Spanish *estar* subcategorize for *helping* and *ayudando* respectively. On these assumptions, the gerund in (83) is selected by the copula (of category  $V^{94}$ ) in the same way that some verbs may select an interrogative or subjunctive  $C^0$  complement.<sup>95</sup> In minimalist terms, the copula

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<sup>94</sup>The argument developed here is unaffected if the copula is assumed to be of some other lexical category (Inf, Aux, Aspect, ...). The crucial assumption is that the lower V incorporates with the copula if and only if its inflectional morphology requires it to move. This idea will be developed below.

<sup>95</sup>For instance, English *wonder* and *know* may select an interrogative  $C^0$  complement in *He wonders what time it is* or *You know what to say*. Spanish *esperar* ‘hope’ and Nahuatl *nikchia* ‘hope’ take subjunctive complements: *Espero que compres ropa* or *Nikchia ke (te) xikoa tlakemetl*, ‘I hope that you buy some clothes.’

joins with a [+DUR] verb by the operation merge. No checking is therefore required, hence no movement.<sup>96</sup>

However, as discussed in section 5.2.2.1 (Pronouns and Agreement Morphemes), verbs will undergo LF checking with T if and only if they bear  $\phi$ -features associated with an inflectional affix. Thus, in (79a), (81) and (82a), a subject or object agreement morpheme triggers checking of the verb with T by way of the intervening aspectual verb *estar*. As a result,  $[_{T^0} V_1 V_2]$  is formed, an instantiation of the PF filter  $*[_{X^0} W_1 W_2]$  in (76b). Again, (76b) applies at  $X^0$ . On the PF Disjunction Theorem (78), there is no derivation for  $[_{X^0} V_{Nahuatl} V_{Spanish}]$  or  $[_{X^0} V_{Spanish} V_{Nahuatl}]$  since neither PF system can interpret these structures (an undefined term remains in either case,  $V_{Spanish}$  for  $PF_{Nahuatl}$  or  $V_{Nahuatl}$  for  $PF_{Spanish}$ ).

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<sup>96</sup>The idea that the order of the English auxiliaries is determined by subcategorization is suggested in Radford (1988) and McCawley (1988) (among others) with some interesting discussion. I make this assumption here primarily for reasons of simplicity and expository convenience. As pointed out in note 100, adopting a checking theory for *-ing* forms does not affect my argument in this section.

In (82b), however, the construction is ill-formed as a result of NI.<sup>97</sup> Ferguson (1996) argues that nouns incorporate into verbs in order to check their case features. Hence, in addition to  $\phi$ -features, Ns are assumed to bear a case feature that may be checked directly with V by head-movement. However, once the complex  $[_{V^0} N^0 V^0]$  is formed by NI,  $V^0$  is a carrier of N's  $\phi$ -features. Just as when V bears  $\phi$ -features as a result of the presence of an inflectional morpheme (*ni-* or *ti-*), the  $\phi$ -features in V must be checked with T;  $[_{V^0} N^0 V^0]$  therefore raises by head-movement to T, forming  $[_{V^0} T [_{V^0} N^0 V^0]]$ . The morphological filter (76c) then applies; however, due to the PF Disjunction Theorem (78), the application of (76c) to (82b) causes it to crash at PF.

Perhaps more surprising than these ill-formed constructions is the well-formed version, (79b).<sup>98</sup> Other such examples are given in (85) (again from §4.1.3). The amazing fact here is that Nahuatl verbs bearing “null” affixes, generally associated with third-person subjects, may co-occur with a Spanish auxiliary conjugated for the first-person; moreover, it may *only* occur with a Spanish auxiliary if it bears no affix.

- (85a) *Estoy tekititoc*  
 estoy tekiti-toc  
 be/PRES/1Ss work-DUR  
 ‘I’m working’

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<sup>97</sup>NI may itself be an instantiation of  $[_{X^0} W_1 W_2]$ , much like the V-V compounds discussed earlier. However, I have been assuming that a W (a morphological word) is one which contains inflectional morphemes, and the Ns which can incorporate do not bear such morphemes; in addition, I do not have independent evidence that NI is barred in Spanish-Nahuatl code switching. For this reason, I will pursue an alternative account which relies again on the presence of  $\phi$ -features.

<sup>98</sup>I assume that the “indefinite suffix” *tla* in (79b) *Estoy tlajtohtoc* is inserted into certain verbs prelexically to derive intransitives from transitives (Launey’s (1992) basic idea). It appears to have no features which require checking, and plays no role in the syntax.

- (85b) *Estoy yajtoc*  
 estoy ya-toc  
 be/PRES/1Ss go-DUR  
 ‘I’m going’

Recall Shütze’s (1997) Accord Maximization Principle (AMP) alluded to in section 5.2.2.1 (note 69, page 192), repeated here as (86).

- (86) *Accord Maximization Principle (AMP)*  
 Among a set of convergent derivations *S* that result from numerations that are identical except for uninterpretable phi- and case-features, such that the members of *S* satisfy other relevant constraints, those members of *S* where the greatest number of Accord relations are established block all other derivations in *S*.

In minimalist syntax, principles of economy select among convergent derivations; (86) picks one convergent derivation (the one with maximal agreement morphology) from a class of convergent derivations *S* and privileges it, barring all others in *S*.

Pollock’s (1994) idea that bare verbs in English (*go, love, speak, ...*) do not undergo LF checking had an undesirable consequence in that it did not prevent (87a) from converging.<sup>99</sup>

- (87a) \*He like Mary

- (87b) He likes Mary

The AMP, however, will indeed block (87a) because the verb does not have maximal agreement morphemes, as in (87b). By extension, Nahuatl (88a) is blocked in the same way; *nikoas*, as in (88b), must be used to maximize agreement.

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<sup>99</sup>It should be noted that Shütze (1997) developed AMP to deal with certain Icelandic data. (See especially his chapter 4.) The extension of AMP to Pollock (1994) and the Nahuatl data here independently shows the usefulness of the mechanism.

- (88a) \*Ne kikoas tlakemetl  
 ne ki-koa-s tlake-me-tl  
 I 3Os-buy-FUT garment-PL-NSF  
 ‘I’ll buy some clothes.’
- (88b) Ne nikoas tlakemetl  
 ne ni-k-koa-s tlake-me-tl  
 I 1S-3Os-buy-FUT garment-PL-NSF  
 ‘I’ll buy some clothes.’

Note that (88a) and (88b) are both convergent derivations, members of the class *S*; (86) picks the member of *S* with maximal agreement, assigning a star to (88a).

Now consider once again the data in (79)-(82) and (85). I have argued that the inflected versions crash for the same reason other restructuring constructions do: switches in V-V compounds are not allowed on (78), for reasons given in section 5.2.2.3. In (87) and (88), both a-type and b-type constructions are convergent; however, AMP selects the b-type derivations and bars the a-type. In (79)-(82) and (85), all of the constructions with inflected duratives are ill-formed due to restructuring, leaving only the uninflected constructions as members of the class *S* of convergent derivations. AMP selects from *S* the construction with maximal agreement morphology, in this case (79b) and (85), constructions with *minimal* inflectional material (since all of the inflected forms are nonconvergent).<sup>100</sup>

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<sup>100</sup>In an excellent discussion of language impairment data, Schaeffer (1996) assumes that Vs marked with the *-ing* inflection raise to Agr<sub>O</sub> for checking in a tree like Chomsky’s early minimalist version (1995a: 173, (2)), where Agr<sub>S</sub>P dominates TP, TP dominates Agr<sub>O</sub>P, and Agr<sub>O</sub>P dominates VP. This view is not inconsistent with the analysis presented here, so long as V<sub>PART</sub>, lacking agreement morphology, may check its *-ing* feature with Agr<sub>O</sub> without moving on to T or Agr<sub>S</sub>. This will prevent it from being in an X<sup>0</sup> position adjoined to V<sub>COPULA</sub>, resulting in a violation of the morphological ban on V-V compounds expressed in (78).

Again, many refinements and alternatives may be constructed. However, while none of the code switching theories reviewed in sections 2.2.2 and 5.2.1 may account for the facts discussed here, the claim that code switching data can be explained in precisely the same terms as monolingual data (expressed in section 5.1) has again been borne out.

### 5.2.2.5 *Negatives*

The facts presented in section 4.1.4 suggest that a Spanish negation (*no* ‘not’) before a Nahuatl verb results in an unacceptable code switch, but when a Nahuatl negation (*amo*) is placed before a Spanish verb no problem arises. Consider the examples in (89).

- (89a) \*No *nitekititoc*  
 no ni-tekiti-toc  
 not 1S-work-DUR  
 ‘I’m not working’
- (89b) *Amo estoy tekititoc*  
 amo estoy tekiti-toc  
 not be/PRES/1Ss work-DUR  
 ‘I’m not working’
- (89c) *Amo le dije*  
 amo le dije  
 not DAT.CLITIC tell/PAST/1Ss  
 ‘I didn’t tell him’

The switch between *estoy* and *tekititoc* in (89b) was accounted for in the previous section. Here I will only address the curious asymmetries involving negation and its complement in (89), highlighting some independently motivated differences between Spanish and Nahuatl negation and then moving on to an analysis.

Following Pollock (1989), I will assume a phrase structure (derived by operations of  $C_{HL}$ ) in which TP dominates NegP. In French syntax, *ne* ‘not’ is always assumed to be a clitic element in constructions like (90)<sup>101</sup> (see Kayne (1975)).

- (90) N'avait-il pas mangé?  
not have-he PAS eaten  
‘Didn’t he eat?’

The evidence for the clitic nature of *ne* is quite limited. However, in (90), note that the vowel in *ne* is phonologically deleted before *avait*, and *ne* is preposed along with the verb to the front of the construction.

There is evidence that Spanish *no* is also a clitic, even though there are no phonological reflexes of its cliticization as in (90) for French. Zagana (1988) argues precisely this, claiming that Spanish *no* is part of the Spanish verbal complex, a clitic on V. To make a case for this analysis, Zagana points out that Spanish *no* must be fronted with the verb in (91), unlike the adverbs in (92).

- (91) ¿Qué no dijo Juan?  
what not say/1Ss/PAST Juan  
‘What didn’t Juan say?’
- (92a) \*¿Qué sólo leyó Juan?  
what only read/1Ss/PAST Juan  
‘What did Juan only read?’
- (92b) \*¿Qué meramente leyó Juan?  
what merely read/1Ss/PAST Juan  
‘What did Juan merely read?’

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<sup>101</sup>The data in (90) is due to Dominique Sportiche.

Also, Zagona (1988) points out that Spanish *no* cannot be contrastively stressed in (93) as its English counterpart in (94) can be, owing to the fact that “clitics are inherently unstressable” (156). The example in (94) shows that in English, in contrast to Spanish, the negative element is not required to be a clitic.

(93) \*Juan no ha *no* hecho la tarea  
 Juan not has not done the task  
 ‘Juan hasn’t *not* done the task’

(94) Juan hasn’t *not* done the task

These facts suggest that in Spanish, as in French, the verb is a host for a cliticized negation. For concreteness, I will assume that some property of Neg in French and Spanish attracts V, just as T attracts V.

Nahuatl behaves differently from French and Spanish with regard to negation. A test similar to the one Zagona uses in (93) yields very different results, as shown in (95).<sup>102, 103</sup>

(95a) Amo nio niktati nowelti  
 amo ni-o ni-k-tati no-welti  
 not 1S-go 1S-3Os-see my-sister  
 ‘I’m not going to see my sister’

(95b) Amo nio *amo* niktati nowelti  
 amo ni-o amo ni-k-tati no-welti  
 not 1S-go amo 1S-3Os-see my-sister  
 ‘I’m not going to *not* see my sister’

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<sup>102</sup>The facts in (95) are due to Fidel González and David Martínez.

<sup>103</sup>Of course, in (93)-(95), *italics* represents stress, not code switching as in previous examples.

Nahuatl patterns with English in this regard. Since clitics are inherently unstressable, we may conclude from (95b) that *amo* is not a clitic in Nahuatl. In addition, note that *amo* is bisyllabic (unlike *not*, *no* and *ne*) and may resist cliticization for phonological reasons.

Recall Roberts' (1997) treatment of restructuring constructions, repeated here.

(76a) Head movement is copying.

(76b)  $*[_{X^0} W_1 W_2]$ , where  $W_n$  are morphological words.

(76c) A head is spelled out in the highest position of its chain, subject to (76b).

Remember that (76b) is a filter at PF. The formulation in (76) is general enough that it should apply to any configuration derived by head-movement in which a complex  $[_{X^0} W_1 W_2]$ , consisting of morphological words ( $W_n$ ), is formed.

Roberts (1997) is not precise about which words count as “morphological words” and which do not. In section 5.2.2.3, I suggested that the set of morphological words minimally includes stems with inflectional morphology (formed in the lexicon before entering the numeration). English *not*, as well as Spanish *no* and Nahuatl *amo*, share certain properties with verbal inflection; negation intimately interacts with the checking domain of inflected verbs (T, or in other systems, T, Agr<sub>O</sub> and Agr<sub>S</sub>), and it constitutes a closed class of just one member as do verbal affixes (*-ed* and *-s*, irregular verbs aside). Also, just as some inflectional affixes are free (*could*, *might*) and others bound (*-ing*, *-ed*), Southeast Puebla Nahuatl has both free (*amo*) and bound (*mach-*, *x-* in Guerrero Nahuatl) negation. It therefore seems reasonable to add *not* to the class of “morphological words.”

In section 5.2.2.3, it was argued that a general restriction exists against code switches involving the computation  $N \rightarrow \pi$  due to the special nature of the PF component, as summed up in (78); this had the effect of (correctly) barring code switches in

restructuring configurations since these involve the PF filter (76b). This restriction was invoked again to account for a related phenomenon in durative constructions in section 5.2.2.4.

The code switching judgments in (89) now follow. Recall that those switches involving Spanish *no* are ill-formed but those which involve Nahuatl *amo* are not. If Spanish *no* is an incorporating element, it forms a unit with V by head-movement, specifically, the complex  $[_{X^0} \text{Neg V}]$ . Since the PF Disjunction Theorem (78) bars switches at  $X^0$ , complexes thus formed are illicit in code switching. (Note too that  $[_{X^0} \text{Neg V}]$ , in the normal course of a derivation, would raise to T for feature checking, producing  $[_{T^0} T [\text{Neg V}]]$ , another violation of (78).) These considerations correctly rule out (89a). The cases involving Nahuatl *amo*, (89c) or (89b), are well-formed because *amo* does not attract V in these constructions, forming no compounds.

Again, refinements may follow. However, the discussion presented shows once again that code switching data can be explained in the same way as monolingual data, suggesting that no theories which identify specific grammatical relations as underlying constraints on code switching are necessary, desirable, or likely to be correct (as discussed in section 5.1).

#### 5.2.2.6 *Gender Features in DPs and Modification Structures*

Consider the facts in (96) and (97) (§4.1.6-4.1.8).

- (96a) Neka *hombre* kikoas se kalli  
 neka hombre 0-ki-koa-s se kalli  
 that man 3S-3Os-buy-FUT a house  
 ‘That man will buy a house’

- (96b) *Se hombre kikoas se kalli*  
 se hombre 0-ki-koa-s se kalli  
 a man 3S-3Os-buy-FUT a house  
 ‘A man will buy a house’
- (96c) *Okitilanili in vestido non de Maria*  
 o-0-ki-tilanili in vestido non de Maria  
 PAST-3S-3Os-pull IN dress which of Maria  
 ‘She pulled on Maria’s dress’
- (97a) ??*Este tlakatl kitlasojtla in Maria*  
 este tlaka-tl 0-ki-tlasojtla in Maria  
 this man-NSF 3S-3Os-love IN Maria  
 ‘This (here) man loves Maria’
- (97b) ??*Aquel tlakatl kitlasojtla in Maria*  
 aquel tlaka-tl 0-ki-tlasojtla in Maria  
 that man-NSF 3S-3Os-love IN Maria  
 ‘That man loves Maria’
- (97c) \**Neka tlakatl kikoas aquella kalli*  
 neka tlaka-tl 0-ki-koa-s aquella kalli  
 that man-NSF 3S-3Os-buy-FUT that house  
 ‘That man will buy that house’

Descriptively, the facts are these: A Nahuatl determiner or demonstrative before a Spanish noun is well-formed, but a Spanish determiner or demonstrative before a Nahuatl noun is not; this latter case is bad with masculine nouns, worse with feminine.

Baker (1996: 252-256) argues that Nahuatl, like other polysynthetic languages, does not have “true determiners.” Rather, elements like *in* and *se* in Nahuatl, which in some respects behave like the determiners of European languages, are adjuncts to NP since “they can appear either before or after a noun they are associated with” (255). In sections 2.5.3 and 5.2.2.1, I concluded that Baker’s idea that modern Nahuatl is a pronominal argument language is misguided. However, it may nonetheless be true that Nahuatl, like other polysynthetic languages, is a “determinerless language.”

If so, the facts in (96) and (97) would follow. In (96), the Nahuatl elements *neka*, *se* and *in*, if adjuncts, would bear no agreement relation to the nouns they are associated with, so the constructions in (96) would be well-formed, as the facts require. In contrast, the Spanish determiners in (97) select a complement of category N; since these Ns are Nahuatl, the  $\phi$ -features of the determiners will not agree with their  $\phi$ -features after a checking domain is established by head-movement.<sup>104</sup> The judgments in (97) follow, since Nahuatl and Spanish clash with respect to their gender systems (see section 5.2.2.1).

However, there are some basic problems with Baker's (1996) proposal regarding determiners in Nahuatl. Although some of the descriptive grammars emphasize the flexibility of word order for classical Nahuatl, the elements *in* and *se* are in fact quite fixed in relation to NPs in the modern varieties: they may occur only before nouns, never after them.<sup>105</sup> The element *neka*, which also has the adverbial meaning 'here,' appears to have greater flexibility than, say, an English demonstrative, but this is due to its use as an adverbial. Furthermore, unlike in the other polysynthetic languages Baker surveys, Nahuatl *se* is systematically indefinite and *in*, when used as a determiner, is always definite.

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<sup>104</sup>Longobardi (1994) proposes that N moves to D to check (at least) its  $\pm R$  (referential) feature. More will be said about Longobardi's system below.

<sup>105</sup>Grammars of other modern varieties concur that demonstratives precede the noun. See Tuggy (1979: 67) on Tetelcingo Nahuatl, Brockway (1979: 160-161) on North Puebla Nahuatl, and Beller and Beller (1979: 211-233) on Huasteca Nahuatl. However, Launey's (1981, 1993) introduction to classical Nahuatl does indeed provide examples of postnominal *in* in some constructions. Thus, Nahuatl word order internal to DP may have once been considerably more flexible than it is in the modern varieties.

The core motivation for suggesting that these elements are adjuncts is to explain their flexibility in word order; since there is in fact little or no flexibility in word order for these elements in modern Nahuatl, I will assume that these elements are like their counterparts in well-studied languages, that is, that they are of category D and select NP complements. Given this assumption, the facts in (96) and (97) will require an alternative explanation, beginning with some inquiry into the structure of DP and the nature of feature-checking within this phrasal domain.

There is a long history in generative grammar of attempts to bring the basic structure of the nominal system into a parallelism with the clausal system. Szabolcsi (1983) and Abney (1987) developed a theory, now widely accepted, that NPs are dominated by a functional projection DP. In constructions like (98a), *Nero* is in [Spec, DP], just as it is in [Spec, TP] in (98b).

(98a) [<sub>DP</sub> Nero's destruction of Rome] took us all by surprise.

(98b) [<sub>CP</sub> Nero destroyed Rome]

To account for a number of typological differences between Germanic and Romance, Longobardi (1994) proposed a further parallelism between CPs and DPs: Just as V checks features in T, N checks features in D. Moreover, just as in Pollock's (1989) classic treatment of V-movement, whether N moves covertly or overtly accounts for a range of differences between languages.<sup>106</sup>

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<sup>106</sup>Pollock's (1989) system, which postulated a difference in affix-lowering vs. affix-raising, was actually revised in terms of covert/overt movement in Chomsky (1995a). In this respect Pollock's observations constituted an extremely important contribution to the development of the minimalist program.

In previous sections, we adopted Pollock's (1994) idea that an uninflected verb does not undergo LF checking with T. It was suggested that uninflected V did not move because it had no "need" to check  $\phi$ -features, having none (since it had no agreement morphology). This conception suggests that the burden to move is upon the element to be displaced, not the target of movement, a notion at odds with Chomsky's (1995a: 297) conception of movement evident in the operation *Attract F*, defined in (99).

- (99) *Attract F*  
 K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K.

Here movement occurs to satisfy features of the target of movement, not the displaced element.

However, if we adopt (99), Vs may still remain in situ if uninflected. We assume, as before, that T may be drawn from the lexicon optionally without  $\phi$ -features. If T has no  $\phi$ -features, it does not attract V, and V remains in situ, since on (99) only F (a feature) in T can trigger movement. If T has  $\phi$ -features and V is inflected, V is attracted to T and raises. Note that V will not be able to discharge its  $\phi$ -features if T has none, and T (with  $\phi$ ) will not be able to check off its  $\phi$ -features if V has none. However, in Chomsky's (1995a) system, the  $\phi$ -features of V and T are -Interpretable and must be deleted (by means of checking) by LF. There are therefore four logically possible configurations, but only the first two are licit: [T+ $\phi$ [V+ $\phi$ ]], [T- $\phi$ [V- $\phi$ ]], \*[T+ $\phi$ [V- $\phi$ ]], and \*[T- $\phi$ [V+ $\phi$ ]]. We have exactly one convergent derivation corresponding to the presence of an inflected verb ([T+ $\phi$ [V+ $\phi$ ]]) and exactly one convergent derivation corresponding to the presence of a bare verb ([T- $\phi$ [V- $\phi$ ]]), a desirable outcome on minimalist assumptions.

Furthermore, in keeping with the desire for parallelism between V-movement and N-movement, we might suggest that N moves to check features with D if and only if D has  $\phi$ -features which require checking. In Chomsky's system, the +Interpretable features are categorial features plus  $\phi$ -features of nominals (Chomsky, 1995a: 278). Since +Interpretable features are not deleted even if checked, no problem arises if D, being barren of  $\phi$ , cannot check  $\phi$ -features in N. Here an asymmetry emerges between the T-system and the D-system.

Now consider again the facts in (96) and (97). Nahuatl Ds are uninflected for person, number and gender. Note that they may occur before elements of any person (before *ne* 'I', *te* 'you', *ye* 'he/she') and are unaffected by nominal plurals. As mentioned before, Nahuatl Ns do not bear gender markings, and neither do Ds. I will therefore make the plausible assumption that Nahuatl Ds, unlike Spanish Ds, may be (and possibly *must* be) drawn from the lexicon without  $\phi$ -features. Thus, just as Pollock (1994) took the lack of inflection on English Vs to correspond to an absence of  $\phi$  in these Vs, I will take the lack of inflection on Nahuatl Ds to correspond to the absence of  $\phi$  in these Ds, further maintaining a parallelism between the nominal system and the clausal system.

In the case of V-movement, we said that T does not attract V if it has no  $\phi$ -features. Suppose now that the Spanish Ns in (96) do not raise to Nahuatl Ds to check features either, since Nahuatl Ds do not bear  $\phi$ -features and hence do not attract Ns. That being so, no conflict in gender parallel to that discussed in section 5.2.2.1 occurs, and no violation of the ban on code switching in compounds occurs (§5.2.2.3-5.2.2.5). Since  $\phi$ -features of nominals do not require checking, no problem arises if the Spanish Ns do

not have their features checked with D. The code switches in (96) are therefore convergent.

In contrast to (96), the examples in (97) crash. Having  $\emptyset$ -features corresponding to their rich morphology, the Spanish Ds attract Nahuatl Ns. These constructions are ill-formed for two reasons: A conflict in gender features occurs, parallel to the conflict discussed in section 5.2.2.1 in relation to restrictions on mixtures with pronouns, and a compound involving “morphological words” is formed, disallowed for code switches by the PF Disjunction Theorem in (78) of sections 5.2.2.3.

Note too that those constructions in (97) which involve Spanish feminine Ds are worse than those with masculine Ds. We might speculate that Spanish uses masculine gender as a sort of “default” or unmarked form which is somehow more acceptable to Nahuatl’s single-valued (or null) gender system. This idea fits with the fact that nearly all of the Nahuatl borrowings into Spanish take masculine gender.<sup>107</sup> Thus, the constructions in (97) with masculine Ds are degraded because they bear masculine gender, and they are ill-formed because they involve a morphological conflict in the mapping to PF. Those with feminine Ds are ill-formed on two counts, forcing stronger judgments in this case. This relative improvement arises again in connection with modification constructions discussed below.

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<sup>107</sup>This is an informal observation. Interested parties might look carefully at the lists of vocabulary items in Cabrera (1974) and Santamaria (1978). Participants in the Nahuatl electronic discussion list could think of only one feminine borrowing, *la viznaga* (from *huitznakatl*) (due to Chuco).

Notice that this analysis also further expands the notion of a “morphological word” in a reasonable way. Ds are to the nominal system what Ts are to the clausal system; if Ts correspond to the inflectional content of morphological words, Ds might too. Some Ts are free (*will, can*) while others are bound (*-ed, -s*); similarly, Ds appear to be free in English and Spanish but are bound in Romanian and Hebrew. Ds share a further property with inflectional affixes as well: They form a very small closed class. Morphological words, then, are inflected stems plus Negs and Ds. (Regarding Negs, see section 5.2.2.5.)

Finally, while the analysis presented here appears very plausible, there are some apparent counter-examples to the descriptive generalization to which some attention should be directed. Consider (100), a slightly degraded construction in which Nahuatl *in* ‘a/the,’ a determiner, precedes a Spanish N *hombre* ‘man’ (§4.1.7-4.1.8).

- (100) ?*In hombre kikoas se kalli*  
       *in hombre 0-ki-koa-s se kalli*  
       IN man 3S-3Os-buy-FUT a house  
       ‘The man will buy a house’

As briefly noted in section 3.3.3, Nahuatl *in* phonologically cliticizes to an element which follows it for convergence at PF (to meet the requirements of syllabification) if that element begins with a vowel sound, as *hombre* does. Therefore, (100) is degraded because Spanish and Nahuatl phonological components are forced to interact in the computation  $N \rightarrow \pi$ . Note that (100) is not as strongly ruled out as cases involving code switches below  $X^0$ .

Also consider (101), another apparent counter-example to the descriptive generalization reached here.

(101a) *El* teopixke kipia se coche  
 el teopixke 0-ki-pia se coche  
 the priest 3S-3Os-have a car  
 ‘The priest has a car’

(101b) *El* teopixke kipia *un* coche  
 el teopixke 0-ki-pia un coche  
 the priest 3S-3Os-have a car  
 ‘The priest has a car’

(101c) Tengo *un* konetl  
 tengo un kone-tl  
 have/PRES/3Ss a son-NSF  
 ‘I have a son’

I will have little to say about these constructions, except to note that they involve a very special verb, ‘have’ (*kipia* in (101a)-(101b), *tengo* in (101c)), whose properties are not well understood. On the idiosyncratic nature of this verb, see Kliffer (1983), Freezer (1992), and especially Kayne (1993). Also note that (101) all have Spanish *el* and *un*, forms which were assumed to be identical to the demonstratives in (97) in terms of their syntactic properties (their formal features); this assumption too may be false. More data and further inquiry are required to resolve this issue.

Finally, we turn to the modification structures in (102), which again involve the idiosyncratic *kipia* ‘have’ (§4.1.9).

(102a) \*Ye kipia se *blanca* kalli  
 ye 0-ki-pia se blanca kalli  
 she 3S-3Os-have a white house  
 ‘She has a white house’

(102b) \*Ye kipia se kalli *blanca*  
 ye 0-ki-pia se kalli blanca  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(102c) \*Ye kipia se *blanco* kalli  
 ye 0-ki-pia se blanca kalli  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(102d) ??Ye kipia se kalli *blanco*  
 ye 0-ki-pia se kalli blanco  
 she 3S-3Os-have a house white  
 ‘She has a white house’

Once again, all of the constructions in (102) are degraded because of a conflict in the gender systems of Spanish and Nahuatl; in whatever configuration Spanish adjectives check their  $\phi$ -features, these will conflict with Nahuatl nominal  $\phi$ -features in terms of gender.

However, also notice that (102c) is worse than (102d). In Nahuatl, adjectives may occur on either side of the noun they modify, as in (103), while in Spanish adjectives only follow nouns (unless used non-restrictively).

(103a) Ye kipia se kalli iztak  
 ye 0-ki-pia se kalli izta  
 she 3S-3Os-have a house white  
 ‘She has a white house’

(103b) Ye kipia se iztak kalli  
 ye 0-ki-pia se iztak kalli  
 she 3S-3Os-have a white house  
 ‘She has a white house’

The difference in acceptability might relate to the fact that (102d) respects Spanish word order, the language of the adjective *blanco* ‘white.’

Santorini and Mahootian (1995) surveyed a wide range of data regarding adjective-noun code switching, and concluded on the basis of work by Svenonius (1993) and Bernstein (1992, 1993) that adnominal adjectives (the ones that can be used as

predicates) may occur in code switching either in the word order of the adjective or the word order of the noun. I will return to this question in section 5.3.1.5 and briefly discuss Santorini and Mahootian's observations in relation to (102c)-(102d).

The analysis presented here again shows that a focus on complement relations will not suffice to derive the facts of code switching. In (96), a functional category D subcategorizes for an N, and the constructions are well-formed; in (97) too, a functional category D subcategorizes for N, but here the constructions are ill-formed. However, some attention to movement properties and morphology allow a plausible explanation of the data. While progress in syntactic theory will surely deem refinements appropriate, the research program endorsed here, which claims that code switching phenomena can be explained in terms of general syntactic theory just as monolingual language data can, again seems promising.

### 5.2.3 Preliminary Conclusions

Focusing attention on Spanish-Nahuatl code switches parallel to those of other language pairs reported in Table 1 (page 68), I have analyzed a number of interesting findings strictly in terms of mechanisms independently motivated for the analysis of monolingual data.<sup>108</sup> In some of these cases, a principle of strict separation in  $L_x$  and  $L_y$  PF rules was used (formalized as the PF Disjunction Theorem), but this too was

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<sup>108</sup>Perhaps conspicuously absent is an analysis of the data reported in section 4.1.5 (Quantifiers and Nonreferential Quantified NPs). An explanation of this data will fall out of an understanding of the licensing mechanisms of negative polarity items in Spanish and Nahuatl. However, since this data does not correspond to any of the findings in Table 1, I will defer its analysis to future work and/or other interested scholars.

motivated by independent considerations involving the nature of the operations of  $C_{HL}$  which map  $N \rightarrow \pi$ . Therefore, in a reasonable sampling of cases, I have shown that code switching phenomena may be explained without appealing to *ad hoc* constraints specific to code switching. On minimalist assumptions, and in line with general scientific conventions of parsimony, it may be safely assumed that such constraints do not exist, confirming the hypothesis stated in section 1.6 and section 5.1, repeated here as (104).

(104) Nothing constrains code switching apart from the requirements of the mixed grammars.

However, while I have motivated (104) with respect to the Spanish-Nahuatl corpus presented here, questions remain regarding other corpora and conflictive findings reported in Table 1 (page 68). I now turn to these.

### 5.3 *Other Corpora and Some Prospects for Further Research*

In this section I will consider some conflicting findings in other code switching corpora, addressing how these relate to conclusions reached in section 5.2.2 regarding the Spanish-Nahuatl corpus. In doing so, I will proceed through each item listed in Table 1. In some cases, I offer little more than a few speculative comments about the direction which further research might take, but in other cases corroborating evidence from other corpora both affirm the analyses of section 5.2.2 and reveal some apparent conflicts to have been illusory. The purpose is to focus the code switching research agenda on explicating data, even when the facts appear to be incoherent and contradictory.

As a preview, consider

Table 7 (page 257). Here I list the descriptive constraints enumerated in Table 1, adding notes about how they relate to findings presented in chapter 4. These are then discussed in turn, as is the “disputed” nature of the findings in Table 1.

### ***5.3.1.1 Conjunctions and that (Table 1, (1)-(2))***

In testing Gumperz’ (1976) claim that a code switch may not occur after a conjunction, I presented several constructions to my consultants in which a switch occurred (a) before Spanish *y*, (b) after Spanish *y*, (c) before Nahuatl *iwán*, and (d) after Nahuatl *iwán* (§4.1.1, §4.2.2).

Table 7: Summary of Basic Findings in Relation to Other Studies

<i>Item ref #</i>	<i>Descriptive boundaries (+ = code switch)</i>	<i>Status</i>	<i>Spanish-Nahuatl Findings</i>
1a	<i>because + CP</i>	disputed	Cannot tell because Nahuatl and Spanish use the same word for 'because' ( <i>porke</i> and <i>porque</i> ).
1b	<i>conj + CP</i>	disputed	Slightly degraded without a pause.
2	<i>that + IP</i>	disputed	Nahuatl and Spanish use the same word for 'that' ( <i>ke</i> and <i>que</i> ), but Nahuatl allows a null complementizer. Tests with null complementizer indicate that there is no constraint on switches at this boundary.
3a	<i>have + VP</i>	disputed	Nahuatl has no auxiliaries like European 'have' and, of course, no past participle, so this test could not be done.
3b	<i>modal + VP</i>	disputed	Nahuatl and Spanish do not have elements like English modals, so this test could not be done.
3c	<i>to + V</i>	disputed	No code switches were allowed in either direction between adjacent verbs when the matrix verb was a restructuring verb.
3d	<i>Aux + V</i>	disputed	Code switches between Spanish <i>estar</i> and a Nahuatl present participle are allowed only if the present participle has no agreement affixes and does not include an incorporated noun.
3e	<i>Neg + V</i>	undisputed	Code switches were allowed between Nahuatl negation and a Spanish verb, but not between Spanish negation and a Nahuatl verb.
4a	<i>Q + NP</i>	disputed	Many Spanish quantifiers have been borrowed into Nahuatl, so this case is difficult to test. No results to report.
4b	<i>Demonstrative + NP</i>	disputed	A code switch between a Nahuatl demonstrative ( <i>neka</i> ) and a Spanish noun is allowed, but not between a Spanish demonstrative and a Nahuatl noun.
4c	<i>Article + NP</i>	disputed	A code switch between a Nahuatl article ( <i>in, se</i> ) and a Spanish noun is allowed, but not between a Spanish article and a Nahuatl noun.
4d	<i>Complex D + NP</i>	disputed	No results to report.
5a	<i>N + Adj (Adj from Adj-N language, N from N-Adj language)</i>	disputed	Nahuatl allows adnominal adjectives to follow or precede their nouns. With a Spanish adjective and a Nahuatl noun in code switching contexts, there appears to be a slight preference for N-Adj word order.
5b	<i>Adj + N (Adj from N-Adj language, N from Adj-N language)</i>	disputed	
6a	<i>Subject pronoun + V</i>	disputed	Spanish subject pronouns before Nahuatl verbs are allowed for third person but not for first or second; Nahuatl subject pronouns with Spanish verbs are not allowed, but more data are needed for a conclusive finding.
6b	<i>V + object pronoun</i>	disputed	Spanish object pronouns cannot be mixed with Nahuatl verbs.
6c	<i>clitic + V or V + clitic</i>	undisputed	Nahuatl verbal prefixes ( <i>ni-, ti-, ki-, k-</i> , and so on) are analyzed as agreements rather than clitics, so this case cannot be tested (but see §4.1.11 and §5.2.2.2).
6d	<i>Gapping constructions with Aux second V switched (marginal)</i>	disputed	No results to report.
7	<i>A switch involving a bound morpheme</i>	disputed	Severely restricted.

Sentences were slightly degraded in two instances. In one case, *ivan* was followed by a Spanish word that began with /b/, a sound that is not part of the phonemic inventory of Nahuatl (Launey, 1992; Tuggy, 1979; Brockway, 1979; Beller and Beller, 1979). We might seek independent evidence, then, that Nahuatl *ivan* (and maybe also Spanish *y*) cliticizes to an element which follows it, and that a clash of some sort occurs in the Spanish-Nahuatl phonological systems, as I argued in the case of (100) in section 5.2.2.6.

In another instance in my data, a construction was slightly degraded when there was competition to interpret Spanish *y* as the Nahuatl adverbial prefix *y-* ‘already.’ A similar “garden path” occurred in section 4.1.4, when Nahuatl *amo* ‘not’ was used to negate Spanish *amo* ‘I love.’ Thus, some bilinguals may rule out constructions of this sort for the same reason that some monolinguals rule out (105a), a classic example of garden pathing: Understood as (105b), (105a) is acceptable; understood as (105c), it is not.

(105a) The horse raced past the barn fell

(105b) [<sub>CP</sub> [<sub>DP</sub> The horse] [<sub>CP</sub> (which) raced past the barn]] [<sub>VP</sub> fell]]

(105c) \*[[<sub>CP</sub> [<sub>DP</sub> The horse] [<sub>VP</sub> raced past the barn]] fell

These facts suggest that aspects of parsing theory must enter into the analysis of code switching data too, just as they enter into the analysis of human understanding of

(105).<sup>109</sup> To resolve the apparent conflicts in Table 1, then, we may need to move beyond syntactic theory into other domains of knowledge of language, as suggested at various points in section 5.2.2.

Regarding the ban on code switching after complementizing that (Table 1, (2)), I know only of the proposal in Belazi, Rubin and Toribio (1994: 224) that expressions such as (106b) are ill-formed in comparison to (106a).

(106a) El profesor dijo *that the student had received an A*  
 ‘The professor said that the student had received an A’

(106b) \*El profesor dijo que *the student had received an A*  
 ‘The professor said that the student had received an A’

Spanish-English bilinguals whom I have consulted regarding (106) disagree with the judgments in Belazi, Rubin and Toribio’s paper.<sup>110</sup> Although it has been suggested that our linguistic intuitions might sometimes be rightfully influenced by our theory (Chomsky, 1957), the strong evidence against the description generalization proposed in Belazi, Rubin and Toribio now compels us to reject (106) as erroneous data. Again, other factors may be involved, as with the morphophonological issues mentioned earlier. However, given my own conclusions regarding Spanish-Nahuatl findings in other corpora, and the judgments of Spanish-English bilinguals regarding (106) (that both are well-formed), I will conclude here that there is no ban on switches at this juncture.

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<sup>109</sup>In other words, there are aspects of code switching which must be explained in terms of a theory of parsing/production, as Myers-Scotton (1993b) and others have attempted. However, a much more precise theory is required; see the discussion in 2.2.2.6.

<sup>110</sup>These judgments are due to Concepción M. Valadez and Reynaldo F. Macías, among others.

### 5.3.1.2 *Embedded Verbs (Table 1, (3a)-(3d))*

There has been some disagreement in the code switching literature with respect to the question of whether a switch may occur between a matrix verb and an embedded verb adjacent to it. Di Sciullo, Muysken and Singh (1986) provide an interesting example which suggests that switching between an Italian auxiliary and an embedded French verb is allowed:

- (107) No, *parce que* hanno *donné des cours*  
 no, because have given of the lectures  
 ‘No, because they have given the lectures’

In section 5.2.2.3, I suggested that this constraint applies only to restructuring contexts, and is derived from the ban on mixing morphological rules. French-Italian examples presented there strongly suggest this to be the correct generalization. In (108b), the embedded object is raised to the subject position, before impersonal *si*. The fronting of the embedded object indicates that optional restructuring has occurred in (108b), whereas in (108a) no restructuring has taken place.

- (108a) *Si è dato un regalo*  
*si* essere given a gift  
 ‘A gift is given.’

- (108b) *Un regalo si è dato*  
 a gift *si* essere given  
 ‘A gift is given.’

When restructuring is forced in the Italian-French mixture in (109b), an ungrammatical string results, unlike the mixture in (109a) where restructuring has not been forced.

- (109a) *Si è donné un cadeau*  
*si* essere given a gift  
 (Same as (108).)

- (109b) \**Un cadeau si è donné*  
 a gift *si* essere given  
 (Same as (108).)

The examples which suggest that switching is banned between aspectuals/modals and their complements come from Di Sciullo, Muysken and Singh's (1986) Italian-French corpus and contain constructions like (107); all these constructions involve matrix Italian restructuring verbs. I will assume that these code-switched constructions converge if and only if restructuring is not forced by movement, as in (109). If correct, this observation reconciles the disagreements in Table 1 with respect to (3a) and (3b).

Similar remarks are appropriate for (3c) and (3d) of Table 1. Poplack (1977), Lipski (1978) and McClure's (1981) counter-examples to Timm's (1975) constraint on switching between adjacent verbs all involve matrix verbs of the restructuring class. These authors found ample examples of code switches between restructuring verbs and an infinitival complement in their naturalistic English-Spanish data, but these were consistently of the form (110a), never like (110b)-(110f). On the other hand, Timm's (1975) experimental data, upon which she formulated this restriction, only applies to switches like (110b)-(110f).

- (110a) He wants to *hacer la cena*  
 He want-s to hac-er la cena  
 he want-3Ss INF hac-INF the dinner  
 'He wants to make dinner.'

- (110b) \*He wants *hacer la cena*  
 he want-s hac-er la cena  
 he want-3Ss hac-INF the dinner  
 'He wants to make dinner.'

(110c) \*He wants *a hacer la cena*  
 he want-s a hac-er la cena  
 he want-3Ss PRT hac-INF the dinner  
 ‘He wants to make dinner.’

(110d) \*Quiere *make dinner*  
 quiere make dinner  
 quiere/3Ss make dinner  
 ‘He wants to make dinner.’

(110e) \*Quiere *to make dinner*  
 quiere to make dinner  
 quiere/3Ss INF make dinner  
 ‘He wants to make dinner.’

It is no surprise that (110c) is ill-formed, since *querer* requires an infinitival complement and here has a simple VP (or small clause) complement. However, the subcategorization requirements for (110b) and (110d) have been met, yet these sentences are ill-formed. Surprisingly, the one mixture in (110) that is well-formed happens to be the one in which the infinitive is represented *twice*, once with *to* and once with *-er*. I will return to this observation in a moment.

Descriptively, (110a) is a restructuring context in which a verb particle of the same language as the restructuring verb (*to* in this case) intervenes before a switched embedded clause. Indeed, there is evidence that this generalization correctly distinguishes acceptable and unacceptable switches at this boundary cross-linguistically. In relative judgments from a Spanish-Catalan-Greek trilingual, the Spanish-Catalan switch in (111a) was regarded as severely degraded, while the Spanish-Greek switch in

(111b) was deemed well-formed.<sup>111</sup> This is especially surprising given the apparent similarity between Spanish and Catalan infinitival morphology.<sup>112</sup>

(111a) \**Quiero mengar el dinar*  
 quier-o meng-ar el dinar  
 want-1Ss eat-INF the dinner  
 ‘I want to eat dinner.’

(111b) *Quiero na fao vradino*  
 quier-o na fa-o vradino  
 want-1Ss NA fa-1Ss dinner  
 ‘I want to eat dinner.’

Similarly, (112a) is much better than (112b) in French-English code switching.<sup>113</sup>

(112a) I want to *acheter le lait*  
 I want to achet-er le lait  
 I want INF buy-INF the milk  
 ‘I want to buy milk.’

(112b) \*I want *acheter le lait*  
 I want achet-er le lait  
 I want buy-INF the milk  
 ‘I want to buy milk.’

Finally, note that switches in Italian-French examples parallel to (109) are acceptable if a verb particle intervenes, as shown in (113).<sup>114</sup>

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<sup>111</sup>Judgments due to Manuel Español-Echevarría.

<sup>112</sup>See Terzi (1992) on the special characteristics of embedded clauses in Greek, Romanian and Albanian.

<sup>113</sup>Judgments due to Dominique Sportiche. Sportiche (personal communication) notes that judgments also improve when the matrix verb is not of the restructuring class, but then the particle must be in the language of the embedded verb: I refuse *d’acheter le lait* / I promised *d’acheter le lait*. I will not comment on these facts here.

<sup>114</sup>Judgments due to Anastella Vester.

(113a) Finalmente si comincerà a *construire les nouvelles maisons*  
 finally SI begin/FUT PRT build/INF the new houses  
 ‘Finally they’ll begin to build the new houses.’

(113b) Finalmente *les nouvelles maisons* si cominceranno a *construire*  
 finally the new houses SI begin/FUT PRT build/INF  
 ‘Finally they’ll begin to build the new houses.’

Goodall (1991) and Roberts (1997) have noted that English restructuring verbs may undergo *to*-contraction (*wanna*, *hafta*, *sposta*, *usedta*, *gonna*, so on). It is well known that contractions of this sort are only possible if a *t* (=trace) does not intervene (Jaeggli, 1980), as in (114).

(114a) Who do you wanna dance with *t*?

(114b) \*Who do you wanna *t* dance?

I will assume that restructuring verbs incorporate an adjacent infinitival particle, if present, and if *t* does not intervene. Otherwise the matrix verb incorporates the V inside its complement. If this is correct, then the facts observed in (110) through (113) are accounted for in light of the ban on mixing PF rules (developed in sections 5.2.2.3-5.2.2.5), and the apparent conflict in findings reported in (3a)-(3d) of Table 1 are reconciled. In (110a), then, *want* may satisfy its requirement to incorporate by attracting *to*, and *hacer* may raise to adjoin to T to check its [-finite] feature. Whether this analysis will extend naturally to Rizzi’s (1982) original corpus of restructuring problems remains to be seen.

Certainly, further inquiry into these topics will lead to refinements. However, the discussion suggests that conflicts in basic findings spelled out in (3d) of Table 1 are much

more apparent than actual, once data has been analyzed beyond simple merger relations (subcategorization requirements).

### 5.3.1.3 *Negation (Table 1, (3e))*

The ban on switching between a negative and its verb is undisputed in Table 1, but the Spanish-Nahuatl corpus analyzed in section 5.2.2.5 indicates that a switch between Nahuatl *amo* ‘not’ and a Spanish verb is acceptable. Yet it is widely attested that switches of this nature are ill-formed, even when the languages involved appear quite similar on the surface with respect to the position of negation. Consider, for instance, the Greek-Spanish code switches in (115),<sup>115</sup> where Greek *then* and Spanish *no* both occupy the same structural position.

(115a) \*No *thelo na fao vradino*  
 no thel-o na fa-o vradino  
 no want-1Ss NA fa-1Ss dinner  
 ‘I don’t want to eat dinner.’

(115b) \*Then *quiero comer la cena*  
 no quier-o com-er la cena  
 no want-1Ss com-er the dinner  
 ‘I don’t want to eat dinner.’

Again, Spanish-Nahuatl data previously presented indicates that a switch between Nahuatl *amo* ‘not’ and a Spanish verb is acceptable, a clear counter-example to the descriptive generalization of Belazi, Rubin and Toribio (1994), while a switch between Spanish *no* ‘not’ and a Nahuatl verb is not acceptable. I claimed in section 5.2.2.5 that these facts follow from the assumption, independently motivated, that Spanish *no* is a

clitic element while *amo* is not. Clearly, more than simple merger relations must be considered in this case as well. Further inquiry into this matter, involving other language pairs, will be helpful in confirming, disconfirming or refining the analysis presented in section 5.2.2.5.

#### 5.3.1.4 *D-Matter (Table 1, (4))*

Although Belazi, Rubin and Toribio (1994) claim that code switches may not occur between a D and its complement, this generalization is not consistent with many other corpora, including the corpus presented in this dissertation. In particular, the Spanish-Nahuatl mixtures reveal that Nahuatl Ds may be followed by Spanish nominal complements, but Spanish Ds may not be followed by Nahuatl Ns. This difference was accounted for in terms of an inability in the morphologically impoverished Nahuatl Ds to attract Spanish Ns for  $\phi$ -feature checking (§5.2.2.6).

Belazi, Rubin and Toribio (1994) claim that (116a) is ill-formed; however, other Spanish-English bilinguals with whom I have consulted claim that a short pause before the code switch, as in (116b),<sup>116</sup> improves the judgment considerably, and others have observed that contracting the English copula, as in (116c),<sup>117</sup> also greatly improves the construction. (I assign (116a) a star, following Belazi, Rubin and Toribio (1994), but many Spanish-English bilinguals I have consulted judge it to be only slightly degraded.)

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<sup>115</sup>The data in (115) is due to Manuel Español-Echevarría.

<sup>116</sup>Judgment and observation due to Reynaldo F. Macías.

<sup>117</sup>Judgment and observation due to Tara Joy Yosso.

(116a) \*He is a *demonio*  
 ‘He is a devil.’

(116b) He is a -- *demonio*  
 ‘He is a -- devil.’

(116c) He’s a *demonio*  
 ‘He’s a devil.’

These facts again may suggest that phonological cliticization is responsible for degrading (116a), to whatever extent it is ill-formed, and that English articles optionally do not attract nouns for LF checking. Note that the English indefinite article has an alternative, phonologically conditioned form *an* which is used only before vowel sounds. The pause in (116b) and the contraction in (116c) change syllabification in (116a) so that phonology does not have to build syllables across language boundaries. If correct, this analysis brings (116a) into line with the analysis of (100) in section 5.2.2.6, and with the analysis of cliticization of conjunctions in section 5.3.1.1, and suggests a further role for the PF Disjunction Theorem presented in section 5.2.2.3. Further inquiry and comparisons with additional data may bring other relevant facts to light.

### 5.3.1.5 *Modification Structures (Table 1, (5))*

Santorini and Mahootian (1995) survey a wide range of code switching data involving adjectival constructions and show that, while adjectives sometimes determine word order in code switching contexts, constructions in which the noun appears to determine word order have also been attested. Consider the AdaNme-English code switch in (117), reported in Nartey (1982).

- (117) e hé *house red* ò  
 (s)he bought house red the  
 ‘(S)he bought the red house.’

Santorini and Mahootian (1995) analyze (117) in terms of a Tree Adjoining Grammar (TAG) in which lexical items are stored with trees which give partial structure. In the grammar given by Santorini and Mahootian, an auxiliary tree corresponding to the word order requirements of AdaNme adjectives is presented, but it is not lexically filled with an AdaNme adjective; presumably another such tree exists to derive (monolingual, at least) English adjective-noun word order, also lexically empty. This leads to their generalization that “all possible codeswitching combinations are attested” in noun-adjective contexts.

But this is not an uncontroversial claim. With respect to Spanish-English, for instance, Gumperz (1976), Lipski (1978), and Belazi, Rubin and Toribio (1994) claim that Adj-N order is determined by the language of the adjective, Poplack (1980) claims that the order is unconstrained, and Timm (1974) found that no Adj-N switches were allowed. Even confining the discussion to a small subclass of adjectives, adnominals, as in Santorini and Mahootian (1995), the data is not clear. In section 5.2.2.6, with respect to (102), I also suggested that the word order requirements of the adjective are favored in Spanish-Nahuatl (noting idiosyncratic properties of *nikpia* ‘have’).

To properly solve this puzzle, at least two currently missing pieces must be put in place. Because Santorini and Mahootian (1995), following Mahootian (1993), reject all data obtained through elicited judgment tasks (see section 2.2.2.4), many of their claims cannot be falsified. In particular, it is not possible to evaluate their claim that word order

in N-Adj pairs is unconstrained, since no starred sentences are ever available for analysis in their system. Therefore, to gain a better grasp of the descriptive facts, much more experimental data must be obtained, controlling for conflicts in agreement systems such as those discovered in section 5.2.2.6, and for marginal unacceptability due to phonological cliticization,<sup>118</sup> such as the cases discussed in sections 5.2.2.6 and 5.3.1.1.

In addition, the question of what parameterized properties of DPs account for noun-adjective word order remains somewhat open in the syntactic literature. Longobardi (1994) suggests that a D-N-Adj order results from overt movement of N to D in which N crosses AP in [Spec, NP]. Covert movement results in D-Adj-N word order. If that is on the right track, and if some version of Attract-F discussed in 5.2.2.6 is correct, then the requirements of the *determiner* should dictate word order in Adj-N sequences. In the fourteen examples Santorini and Mahootian (1995) collected<sup>119</sup> for review, in five cases the Adj-N order indeed corresponded to the requirements of the language of the determiner, while in two cases it did not, and in seven cases no overt determiner was present. The two cases in which the Adj-N word order did not correspond to the language of the determiner are from English-Italian and English-French; but note that both French and Italian allow Adj-N word order under certain semantic conditions (Longobardi, 1994). My own data, however, weaken this analysis, since *se kalli blanco* ‘a house white’ favors Spanish word order but bears a Nahuatl

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<sup>118</sup>As Bruce Hayes (personal communication) has pointed out, the role of phonology in code switching is greatly underinvestigated. More work in this arena would constitute an important contribution.

determiner. Other factors may be involved (conflict in agreement, Nahuatl Ns may not raise to check features, the use of *nikpia* ‘have,’ and so on). As a clearer picture emerges in the syntactic literature regarding which properties of DP account for DP-internal variations in word order, and as more experimental code switching data become available, a clearer and more sure-footed analysis of this phenomenon might also be developed.

### 5.3.1.6 *Pronouns and Clitics (Table 1, (6))*

Timm (1975) and others found very strong, negative judgments when consultants were presented with Spanish-English constructions such as (118).

(118a) \*Yo *went*  
‘I went’

(118a) \*Él *wants*  
‘He wants’

(118c) \*He *quiere*  
‘He wants’

(118d) \*I *fui*  
‘I go’

However, Poplack (1981) reports Spanish-English mixtures in naturalistic data at this juncture, in (119a), as does Woolford (1983) in (119b).

(119a) There was this guy, you know, *que he se montó ...*  
there was this guy, you know, that he REF get.up/PAST/3Ss ...  
‘There was this guy, you know; he got up ...’

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<sup>119</sup>Their fourteen examples are collected from papers by Di Sciullo, Muysken and Singh (1986), Bokamba (1989), Poplack (1980, 1981), Stenson (1990, 1991), Myers-Scotton (1993b), and Nartey (1982).

(119b) ... but you *usastes más pa' ir pa' llá*  
 ... but you used more to go there  
 '... but you used more (gas) to go there.'

Certainly, the constructions in (118) and (119) might differ from one another in some respect that will account for the facts presented. However, it could also be that the interjection of pronouns in (119) has the character of false starts, marking a conversational repair at TP. If this is so, then no agreement relations would be established between the pronoun and its verb, and no unacceptability judgments would follow. Given the analysis presented in section 5.2.2.1, Spanish-English code switching at this juncture should be disallowed.<sup>120</sup> There is a considerable amount of data available on this question, however, and reconciling it all is no small task (see Jake (1994) for some interesting examples).

However, in support of the analysis presented in section 5.2.2.1, in which I claimed that a mismatch in the gender feature of Spanish and Nahuatl was responsible for some of the ungrammaticality effects, consider the switches in (120) and (121).<sup>121</sup> A Spanish-Catalan-Greek trilingual reported that the switches in (120), involving Spanish and Catalan, both two-valued systems, are relatively well-formed; however, when Greek, a three-valued system, is mixed with either Spanish or Catalan the constructions are severely ill-formed.

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<sup>120</sup>It is not entirely clear that the gender system of English is single-valued. Unlike, say, Nahuatl, English uses distinct pronouns for masculine and feminine third person singular (*he* and *she*) but, like Nahuatl, has no gender markings on nouns, adjectives or determiners. The question of whether English is one-valued or two-valued in its gender system certainly impacts upon the theory developed in section 5.2.2.1 with respect to English-Spanish code switching.

<sup>121</sup>The data in (120) and (121) is due to Manuel Español-Echevarría.

(120a) *Yo vull mengar el dinar* (Spanish/Catalan)  
 I want eat/INF the dinner  
 ‘I want to eat dinner.’

(120b) *El vol mengar el dinar* (Spanish/Catalan)  
 he wants eat/INF the dinner  
 ‘He wants to eat dinner.’

(120c) *Jo quiero comer la cena* (Catalan/Spanish)  
 I want eat/INF the dinner  
 ‘I want to eat dinner.’

(121a) \**Ego vull mengar el dinar* (Greek/Catalan)  
 I want eat/INF the dinner  
 ‘I want to eat dinner.’

(121b) \**Ego quiero comer la cena* (Greek/Spanish)  
 I want eat/INF the dinner  
 ‘I want to eat dinner.’

(121c) \**Aftos vol mengar el dinar* (Greek/Catalan)  
 he wants eat/INF the dinner  
 ‘He wants to eat dinner.’

(121d) \**Aftos quiere comer la cena* (Greek/Spanish)  
 he wants eat/INF the dinner  
 ‘He wants to eat dinner.’

In section 5.2.2.1, it was noted that the data required that we posit a very tight relationship between T and V. This was articulated in terms of a conflict in gender too. However, this tight relationship may now be derived from the ban on switching within  $X^0$  compounds, proposed in section 5.2.2.3. Yet, as (120) and (121) show, an important role for feature mismatch within  $\phi$  in spec-head configurations still remains.

Similarly, the ungrammaticality of Spanish object pronouns mixed in with Nahuatl verbs was derived from a conflict in  $\phi$ -features when the verb adjoined to T in order to check its features. Unacceptability in such constructions may also relate to

phonological cliticization, as in other cases discussed. In addition, apparent conflicts in the ample Spanish-English corpora may be resolved by a careful analysis of possible performance factors influencing the data. Similar comments are in order for the gapping constraint mentioned in (6d) of Table 1.

Finally, the ban on switching between a verb and its clitic in Romance is undisputed, as mentioned in (6c) of Table 1. This fact falls out of the ban on code switching within morphological compounds if clitics are viewed as a kind of affix. In the next section, I will discuss the ban on switching within an  $X^0$  in more detail.

### ***5.3.1.7 Morphological Switches (Table 1, (7))***

In sections 2.2.2.1 and 5.2.1, Poplack's (1980, 1981) Free Morpheme Constraint, which stipulates that a code switch may not occur at the boundary of a free morpheme, was reviewed and rejected on empirical grounds. Later, in section 5.2.2.3, I claimed that certain morphological switches are prohibited. This conclusion was forced by the fact that switching in V-V compounds appears to be universally ruled out, so far as I have been able to tell, and there are no obvious feature mismatches to which the ill-formedness can be attributed (parallel, say, to the conclusion reached regarding pronominal switches in section 5.2.2.1). The ban on V-V compounding was attributed to the nature of the PF rule system -- in particular, to its ordered rules, which are sensitive to morphological structure -- and the PF Disjunction Theorem was proposed. Morphological rules of word formation apply to items before they are selected for the numeration, building such forms as *walked*, *came*, *speaks*, *going* (to use English examples). After spell out, PF rules apply in the computation  $N \rightarrow \pi$  to map the set of lexical items selected for the numeration to a

PF representation. But code switching is not allowed at PF, for reasons discussed in section 5.2.2.3 relative to the PF Disjunction Theorem.

In section 5.2.2.3, some attention was given to the Spanish-English examples in (122), constructions which are all morphologically similar to Poplack's (122a).

(122a) \*Juan está *eat*-iendo  
 Juan be/1Ss eat-DUR  
 'Juan is eating.'

(122b) \*Juan *eat*-ó  
 Juan eat-PAST/3Ss  
 'Juan ate.'

(122c) \*Juan *eat*ará  
 Juan be/1Ss eat-FUT/3Ss  
 'Juan will eat.'

As previously suggested (note 93, page 230), these constructions become well-formed if we imagine that Spanish has borrowed the English verb *eat*, just as American Spanish has borrowed English *parquear*.<sup>122</sup> Since verbs borrowed into Spanish generally take *a* as a thematic vowel (Harris, 1991, 1996), I will assume an *-ar* ending for our imagined borrowing *eat*, spelled *it* in Spanish, with an intervening *-e-* introduced by the morphophonological system, just as in *parquear*.

(123a) Juan está *ite*ando su pozole  
 Juan be/1Ss *it*-DUR su pozole  
 'Juan is eating his pozole.'

(123b) Juan *ite*ó su pozole  
 Juan eat-PAST/3Ss su pozole  
 'Juan ate his pozole.'

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<sup>122</sup>Other examples include *taypear* 'type,' *quitar* 'quit,' *chequear/chechar* 'check,' and *lonchar* '(to) lunch.' On the English origin of these words in American Spanish, see de Gámez (1973).

- (123c) Juan iteará su pozole  
 Juan be/1Ss eat-FUT/3Ss su pozole  
 ‘Juan will eat his pozole.’

The differences between (122) and (123) now reduce to a clear, single difference in morphophonology: (123) is well-formed because the verb stem is analyzed by the PF system of the inflectional material; that is, in (123), there is no mixture of rules involving the PF components. The forms in (122), however, violate the PF Disjunction Theorem, repeated here:

- (124) *PF Disjunction Theorem*
- (i) The PF component consists of rules which must be (partially) ordered with respect to each other, and these orders vary cross-linguistically.<sup>123</sup>
  - (ii) Code switching entails the union of at least two (lexically-encoded) grammars.
  - (iii) Ordering relations are not preserved under union.
  - (iv) Therefore, code switching within a PF component is not possible.

In this light, we may now reconsider the counter-examples used in the discussion of Poplack’s work, repeated below in (125). Three Spanish verbs (*amar*, *tratar* and *rescatar*) are used in combination with Nahuatl bound affixes *nik-*, *mo-*, *ki-* and *-oa*. We may now give a clear sense to borrowing, given concepts developed here and represented graphically in Figure 9 (page 231): Before items are selected for the numeration, Nahuatl rules of word formation apply to the Spanish base forms in (125) to attach appropriate affixes;  $X^0$ s, thus formed, respect (124) just as the imagined borrowing in (123) does, and

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<sup>123</sup>Alternatively, within Optimality Theory, the PF component consists of constraints which must be *ranked* with respect to one another. Thus, (78) is not dependent upon a particular phonological framework.

(125) converge; here, however, the verbs are assumed to be phonologically incorporated into Nahuatl. Informally, we say that these cases involve “loan words” rather than code switches.

(125a) Ne nikamaroa in Maria  
 ne ni-k-amar-oa in Maria  
 I 1S-3Ss-love-VSF IN Maria  
 ‘I love Maria’

(125b) Motrataroa de nin kirescataroa n Pocajontas  
 mo-tratar-oa de nin 0-ki-rescatar-oa in Pocajontas  
 REF-treat-VSF about this 3S-3Os-escape-VSF IN Pocahontas  
 ‘It deals with Pocahontas, the one who escaped.’

With respect to morphological switches, then, it appears that Poplack’s constraint is essentially correct as a descriptive generalization, with refinements noted above.

Slightly reformulated, Poplack’s constraint may be stated as a descriptive generalization as in (126), derived from (124) on the assumption that  $X^0$ s are inputs to PF.

(126) *A descriptive generalization*  
 Code switches below  $X^0$  are ungrammatical.

As much of the data discussed in this dissertation show, however,  $X^0$ s may often elude us. Apparent morphological compounds may not be true  $X^0$ s, as in (127) (§4.1.12), in which Nahuatl *no-* ‘my’ does not attract Spanish *hermana* ‘sister’ for feature checking (see section 5.2.2.6).

(127) Nowelti okimak nohermano  
 no-welti o-0-ki-mak no-hermano  
 my-sister PAST-3S-3Os-give my-brother  
 ‘My sister hit my brother’

In addition,  $X^0$ s may be formed by covert movement, as in (128) where a V-V compound has been formed in a restructuring context, discussed in section 5.2.2.3.

- (128) \*Nikneki *compraré ropa*  
 ni-k-neki compr-aré ropa  
 1S-3Os-want buy-1Ss/FUT clothing  
 ‘I want to buy some clothes’

Whether or not an element forms an  $X^0$  is an empirical question, determined by linguistic argument; orthographic conventions have no bearing on the matter.

Hence, special attention to the apparent counter-examples in Nishimura (1985), Mahootian (1993) and Myers-Scotton (1993b), presented in Table 1, may reveal that these cases, too, do not represent code switches below true  $X^0$ s. I leave the matter here and invite others to investigate further.

### 5.3.1.8 *Code Switching and Basic Word Orders*

Because Spanish and Southeast Puebla Nahuatl are both SVO languages, as discussed in section 2.5, it was not possible to observe the effects of mixing lexical items from languages which differ with respect to basic word order in the corpus presented here. However, other corpora have rich findings in this regard. Below I will sketch a minimalist approach to word order typology, then examine ways in which English, an SVO language, interacts in code switching with SOV Farsi (Mahootian, 1993), Japanese (Nishimura, 1986) and Korean (Lee, 1991); there is a limited amount of data available from English SVO and Irish VSO (Stenson, 1990) as well, and this will also be briefly considered.

One of the most interesting features of the minimalist program is its ability to derive differences in attested word orders from a single underlying phrase structure; this aspect of minimalist grammar is explored in recent work by Stabler (1997a, 1997b).

Stabler introduces a computational formalism for minimalist grammars which is sufficiently different from, say, Chomsky (1995a) to have unique empirical effects,<sup>124</sup> and is also especially concerned with the nature of the human parser and the formal mechanisms of language acquisition (learnability). However, for expository convenience, where no substantive issues are at stake, I will translate Stabler's formalism into a traditional  $\bar{X}$ -theoretic schema in the presentation which follows.

Consider (129), an English SVO construction.

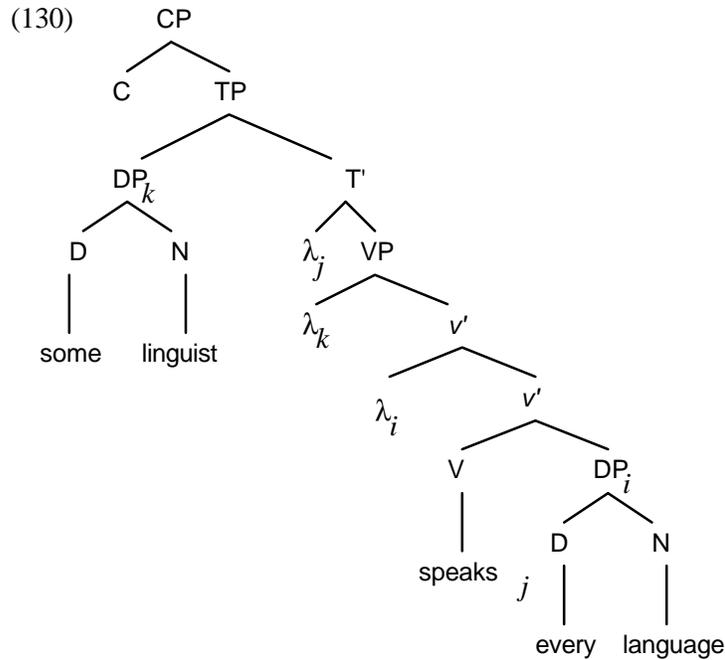
(129) Some linguist speaks every language

The phrase [<sub>v'</sub> speaks [<sub>DP</sub> every language]] is formed by two applications of merge: The D *every* merges with the N *language* to form the DP [<sub>DP</sub> every language], which in turn is merged with V *speaks* to form the *v'* [<sub>v'</sub> speaks [<sub>DP</sub> every language]]. *Speaks*, the head of this phrase, must assign case to its specifier, and there is only one item within the phrase which requires case -- [<sub>DP</sub> every language]. Having a weak case feature, the DP raises covertly to the specifier of *v'*, forming [<sub>v'</sub> (every language) [<sub>v'</sub> speaks [<sub>DP</sub> every language]]], where parenthetical elements have moved covertly. The subject, formed by merging *some* and *linguist*, is merged with *v'* to form the VP shell [<sub>VP</sub> some linguist [<sub>v'</sub> (every language) [<sub>v'</sub> speaks [<sub>DP</sub> every language]]]]. This structure is then merged with the phonetically null category T which must (strongly) assign case to its specifier; the move operation overtly raises the subject DP and assigns case in [Spec, TP]. Merge may

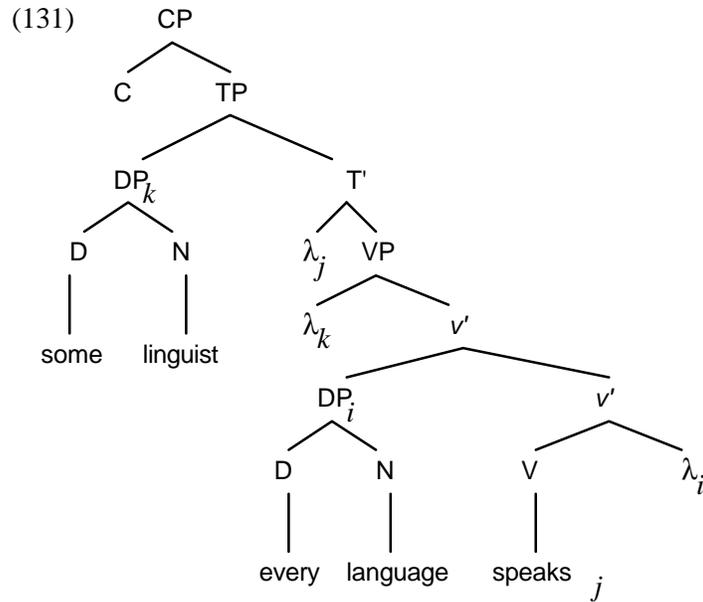
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<sup>124</sup>A major difference in Stabler's (1997a, 1997b) system is that all features (-Interpretable and +Interpretable) are deleted when checked, while Chomsky (1995a) assumes that only -Interpretable features delete. For the purposes of code switching data discussed in this section, however, these differences are unimportant.

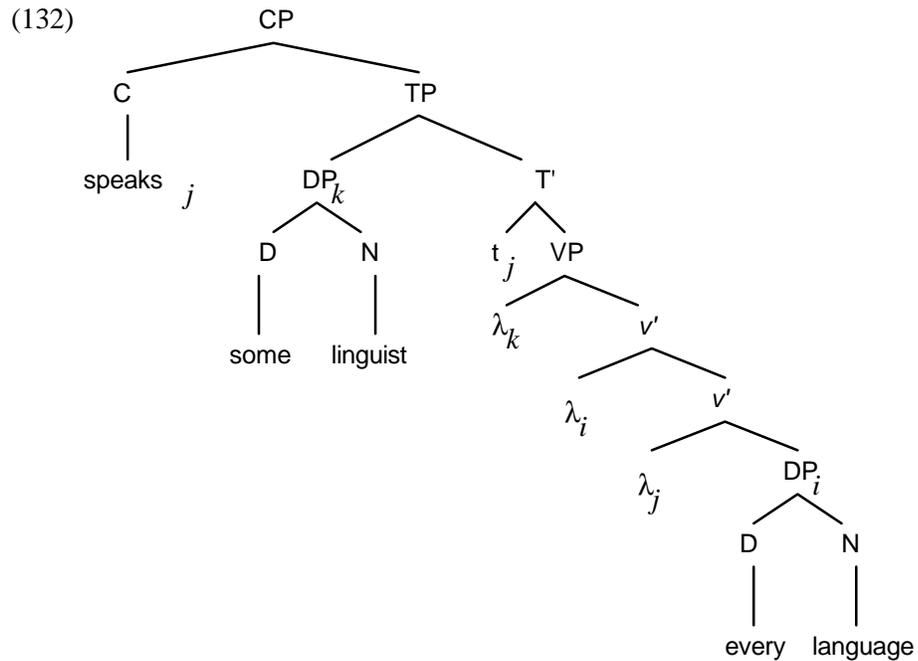
then apply to add a complementizer C to this structure, now complete with only a single unchecked categorial feature C (which, Stabler suggests, is somehow checked when inserted into discourse). The final SVO structure is represented in (130), where I have once again used conventional  $\bar{X}$ -type notation for convenience;  $\lambda$  represents an empty node, and its subscript indicates the position to which it has been moved.



An SOV language may now be derived by simply stipulating that its Vs are strong case assigners (whereas in (130) they were weak case assigners). As Stabler (1997a) does, we will continue to use the English phonetic content in (130) for readability rather than substituting lexical tags from Farsi or Japanese. The derivation of the SOV structure is presented in (131), where the object strongly checks case in the specifier position of V, resulting in overt movement.



Finally, VSO word order may be derived by positing overt movement of the verb through T up to C. The intermediate movement of V is annotated *t* in (132).



To summarize, SVO, SOV and VSO word orders have been derived by positing the parametric differences in (133).

(133)	<i>Word orders</i>	<i>Lexically-encoded parameter values</i>
	SVO	V is a weak case assigner T and C have weak $v$ -features
	SOV	V is a strong case assigner T and C have weak $v$ -features
	VSO	V is a strong case assigner T and C have strong $v$ -features

In the three derivations discussed above, head-movement occurred from V to T and, in one case, higher up to C. Given the ban on code switches below  $X^0$  discussed in the preceding section, those derivations in which V, T and (in the case of (132)) C are not from the same language will crash at PF. Therefore, in any convergent derivation, V, T and C will be from the same language if they are related by head-movement. Therefore, we predict that the language of the verb will uniformly determine the position of subjects and objects in code switching.

Consider the position of objects first, a topic addressed at length in Mahootian (1993). In SVO-SOV code switching, subjects should occur uniformly in preverbal position, but objects should occur preverbally or postverbally in accordance with the requirements of the language of the verb, if the prediction made here is correct. Consider the following examples of SVO-SOV code switching from Farsi-English, Japanese-English and Korean-English.

- (134a) VO verb: Farsi-English (Mahootian, 1993: 152)  
 Tell them you'll buy *xune-ye jaedid* when you sell your own house  
 Tell them you'll buy house-POSS new when you sell your own house  
 'Tell them you'll buy a new house when you sell your own house.'

- (134b) OV verb: Farsi-English (Mahootian, 1993: 150)  
 Ten dollars *dad-e*  
 ten dollars give-PERF  
 ‘She gave ten dollars.’
- (135a) VO verb: Japanese-English (Nishimura, 1986: 76)  
 ... we never knew *anna koto nanka*  
 ... we never knew such thing sarcasm  
 ‘... we never knew such a thing as sarcasm.’
- (135b) OV verb: Japanese-English (Nishimura, 1986: 129)  
 In addition, his wife *ni yattara*  
 in addition, his wife DAT give-COND  
 ‘In addition, if we give it to his wife.’
- (136a) VO verb: Korean-English (Lee, 1991: 130)  
 I ate *ceonyek* quickly  
 ‘I ate dinner quickly.’
- (136b) OV verb: Korean-English (Lee, 1991: 129)  
 Na-nun *dinner-lul* pali meokeotta  
 I-SM dinner-OM quickly ate  
 ‘I ate dinner quickly.’

As expected, the language of the verb determines the position of the object.<sup>125</sup>

Matters are not so clear in SVO-VSO code switching. I have been able to find just one clear example, from Irish-English, in which an object occurs *after* an English verb, contrary to the prediction made above. Consider Stenson’s (1990) example in (137).

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<sup>125</sup>Mahootian (1993) obtains this result with an alternative formalism. Using a Tree Adjoining Grammar, in which branching direction is represented in lexically-stored subtrees, she shows that verbal heads determine the branching direction of their objects. See sections 2.2.2.4 and 5.2.2.6 for comments on this approach.

- (137) SV verb (English), VS subject (Irish) (Stenson, 1990: 174)  
 Decided *Aer Lingus go raibh sé ro-chancy*  
 decided Aer Lingus that be-PA it too-chancy  
 ‘Aer Lingus decided that it was too chancy.’

However, it is not clear that all of Stenson’s data should be regarded as true cases of code switching. She reports, for instance, that the Irish-English bilinguals used in her studies all had “at least a working knowledge of English” (1991: 575). If the person who uttered (137) was not truly a proficient bilingual, in the sense expressed in section 2.1, then (137) might better be excluded from consideration. In any case, considerably more data will be needed to test this prediction. Once again, I leave the matter here and invite others to investigate further.

#### *5.4 Some General Patterns and Conclusions*

After discussion of a number of alternatives, the data in section 5.2.2 were analyzed using just a handful of syntactic mechanisms. Each of these mechanisms was independently motivated with monolingual data, then the grammaticality facts observed in the code switching data were derived from them. In section 5.3, these and other mechanisms were discussed in relation to the data of other code switching corpora outlined in Table 1 (page 68). In many cases apparent conflicts were reconciled in light of some of the ideas developed in 5.2.2. These analyses are summed up in Table 8.

Table 8: Summary of Findings, Explanations Presented, and Corroborating Evidence from Other Language Pairs

<i>Findings</i>	<i>Explanation Presented</i>	<i>Corroborating Evidence</i>
A switch between a Spanish pronoun and a Nahuatl verb is allowed for third person but not for first and second. (§4.1.10, 5.2.2.1.)	In the case of first and second person, the Spanish 2-valued gender feature and the Nahuatl 1-valued gender feature mismatch when V raises to T to check $\phi$ -features and DP raises to [Spec, TP] to check case. No such conflict occurs for third person, however, since the bare Nahuatl stem may remain in situ in this instance. (§5.2.2.1.)	<ul style="list-style-type: none"> <li>• English-Spanish switches are ill-formed.</li> <li>• Spanish-Catalan switches are well-formed.</li> <li>• Greek-Spanish switches are ill-formed. (§5.3.1.6.)</li> </ul>
Switching between a verb and its CP complement is allowed, whether the complementizer is in the language of the matrix clause or the embedded clauses. However, switching between a restructuring verb and its complement is not allowed. (§4.1.2-4.1.3, 5.2.2.3.)	Restructuring forms an $X^0$ -level V-V compound, and $X^0$ s are inputs to PF. Code switching within PF is not allowed on the PF Disjunction Theorem. It is therefore not possible to switch in a restructuring configuration. (§5.2.2.3; cf. §5.3.1.7.)	<ul style="list-style-type: none"> <li>• In Italian, restructuring is optional, but forced when the object of an embedded clause raises to the subject position of an impersonal <i>si</i>-construction; accordingly, Italian restructuring verbs with French complements are ill-formed if and only if restructuring is forced.</li> <li>• Restructuring may occur with an intervening verbal particle, such as English <i>to</i>; accordingly, Spanish complements of English <i>want to</i> are well-formed in comparison to complements of <i>want</i>. Similar generalizations hold for Spanish-Greek and English-French. (§5.3.1.2.)</li> </ul>
A switch is allowed between Spanish <i>estar</i> and a Nahuatl durative (or present participle) only if the Nahuatl durative is bare of all inflectional material. These forms remain well-formed even if agreement relations appear to have broken down. (§4.1.3, 5.2.2.4.)	If and only if they are inflected, the Nahuatl duratives undergo LF checking with T by way of aspectual <i>estar</i> . This creates a restructuring configuration within which no switch is tolerated due to the PF Disjunction Theorem. If uninflected, the Nahuatl duratives remain in situ and are selected by the Accord Maximization Principle as the maximally inflected convergent derivations. (§5.2.2.4; cf. §5.3.1.7.)	Lipski (1978), Poplack (1981) and McClure (1981) present naturalistic Spanish-English data in which switching between the auxiliary ( <i>estar</i> or <i>be</i> ) and the durative form (uninflected in both Spanish and English) is allowed. However, Timm (1975) presents two Spanish-English examples from an experimental corpus in which such switches are regarded as ill-formed. (§5.3.1.2.)

<i>Findings (continued)</i>	<i>Explanation Presented (continued)</i>	<i>Corroborating Evidence (continued)</i>
A switch is allowed between Nahuatl <i>amo</i> 'not' and a Spanish verb, but not between Spanish <i>no</i> 'not' and a Nahuatl verb. (§4.2.4, 5.2.2.5.)	On independent evidence, Spanish <i>no</i> may be analyzed as a clitic of its verb, like French <i>ne</i> , whereas Nahuatl <i>amo</i> cannot. Only those cases in which cliticization are involved (Spanish <i>no</i> followed by a Nahuatl verb), that is, cases in which X <sup>0</sup> -level compounds are formed, are ill-formed. On the PF Disjunction Theorem, code switching within an X <sup>0</sup> is not allowed, correctly ruling out the cliticization cases. (§5.2.2.5; cf. §5.3.1.7.)	<ul style="list-style-type: none"> <li>• English-Spanish switching at this juncture is disallowed.</li> <li>• Greek-Spanish switching at this juncture is disallowed.. (§5.3.1.3.)</li> </ul>
Nahuatl determiners may occur before Spanish nouns, but not vice versa. (§4.1.6-4.1.8, 4.2.8, 5.2.2.6.)	Being barren of $\phi$ -features, Nahuatl Ds do not attract Spanish Ns; these Ns therefore remain in situ (just as bare verb stems may remain in situ). However, Spanish Ds have $\phi$ -features and attract their nominal complements, forming X <sup>0</sup> -level compounds. These latter configurations are out for two reasons: a mismatch between the Spanish 2-value gender feature and the Nahuatl 1-value gender feature occurs, as in the case of the pronominals; and a switch occurs within an X <sup>0</sup> , disallowed by the PF Disjunction Theorem. (§5.2.2.6; cf. §5.3.1.7.)	<ul style="list-style-type: none"> <li>• English-Spanish switches (??<i>He is a demonio</i>) improve at this juncture with a pause (<i>He is a -- demonio</i>) or resyllabification (<i>He's a demonio</i>). (§5.3.1.4.)</li> <li>• A switch between a Spanish or Nahuatl conjunction and a clause in the other language is not allowed unless a pause is inserted. (§5.3.1.1.)</li> </ul>
In (adnominal) modification constructions, N-Adj word order is preferred but ill-formed, probably due to gender conflict. (Nahuatl has free word order for N-Adj, and Spanish has unmarked N-Adj.) (§4.2.3, 5.2.2.6, 5.3.1.5.)	No explanation is offered for this subtle difference in judgments in Spanish-Nahuatl, but some conjectures are made in §5.3.1.5 regarding code switching within modification structures in other language pairs.	A review of several other cases suggests that the language of the determiner might determine word order in these configurations, following suggestions by Longobardi (1994). (§5.3.1.5.)
A switch between Nahuatl <i>amo</i> 'not' and Spanish <i>amo</i> 'I love' is not allowed; neither is a switch between Spanish <i>y</i> 'and' and a clause (§4.1.1, 4.1.3, 5.3.1.1.)	Spanish <i>y</i> 'and' cliticizes to an element which follows it, and may be mis-analyzed as Nahuatl <i>y-</i> 'already.' This and the <i>amo</i> case suggest that code switching sometimes creates garden-paths, just as some monolingual constructions do. (§5.3.1.1.)	Monolingual cases considered. (§5.3.1.1.)

<i>Findings (continued)</i>	<i>Explanation Presented (continued)</i>	<i>Corroborating Evidence (continued)</i>
In OV/VO code switching, the language of the verb determines the position of the object. (§5.3.1.8.)	V and T must be in the same language, as required by the PF Disjunction Theorem. In a VO language, the object is attracted weakly (covertly) by the case feature of T, resulting in VO word order, whether the object is from a VO or an OV language. In a VO language, the object is attracted strongly (overtly) by the case feature of T, resulting in OV word order, whether the object is from a VO or an OV language. (§5.3.1.8.)	<ul style="list-style-type: none"> <li>• Examples presented from Farsi-English.</li> <li>• Examples presented from Korean-English.</li> <li>• Examples presented from Japanese-English. (§5.3.1.8.)</li> </ul>
There is not enough data to know what occurs in VS/SV code switching. (§5.3.1.8.)	If the subject checks its case feature in T, then the verb should also determine the word order of the subject. (§5.3.1.8.)	One Irish-English example considered, but there are reasons to doubt its status. (§5.3.1.8.)

A general pattern has indeed emerged. No code switching-specific constraints which have been posited in the literature can account for the range of facts considered in this dissertation, and those which focus on merger relations (subcategorization) have also been shown to be inadequate. Moreover, all of the Spanish-Nahuatl data analyzed in section 5.2.2 has been accounted for in terms of principles motivated to explain monolingual data, and the discussion in section 5.3 shows that the approach outlined extends naturally to data reported in other corpora. Since it has been shown that code switching-specific constraints cannot account for the data under analysis, and since the data under analysis may be explained without reference to such constraints, they may be assumed not to exist by general principles of scientific parsimony. I therefore conclude, as anticipated, that

(138) Nothing constrains code switching apart from the requirements of the mixed grammars.

I have also established (139), since it has been shown that native bilingual code switchers are exquisitely sensitive to the subtle requirements of the languages they use, just as non-code switchers are.

(139) code switchers have the same grammatical competence as monolinguals for the languages they use.

That is, monolinguals and bilingual code switchers avail themselves of the same grammatical mechanisms. I will explore some important policy implications of (139) in the next chapter, together with other important considerations in curriculum and teaching.

Before moving on, however, a note is in order regarding the extensive use of the assumption that the absence of overt morphology corresponds to a structural difference

that is lexically represented. Pollock (1994) made this proposal regarding a few marginal cases of English verbs of motion *go* and *come*, claiming that *goes/comes* differs structurally from *go/come*. This assumption moves against the grain of a long history of linguistic analysis which assumes that morphological distinctions among genders and persons, for instance, may be efficiently encoded with one null affix; so three distinctions need only two overt markings since one may be null.

However, the tendency to assume that null affixes exist which correspond to phonetically filled affixes is generally made in the interest of morphological uniformity, with essentially no evidence to decide the matter. Since, in terms of current syntactic theory, the presence of inflectional affixes generally results in head-movement, and hence  $X^0$ -level compounding, code switching provides a new window of evidence regarding the existence of null affixes since switching at PF (below  $X^0$ ) is not allowed. Thus, contrasts such as those presented in sections 5.2.2.1, 5.2.2.3, 5.2.2.4, 5.2.2.5 and 5.2.2.6 may be used to enlighten us with respect to these matters.

Finally, a word on the direction of future work. Rather than attempting to develop principles which account for all of the facts of code switching in all known corpora, work on code switching should tackle broad cross-sections of data by theme. For instance, a future study might attempt to reconcile all of the data available on switches between pronouns and verbs, or all of the data available on switches before embedded IP-complements. Such inquiry will lead to greater understanding in the theory of grammar, the nature of bilingualism and the architecture of the bilingual language faculty, and a multitude of other topics.

## 6. SOME IMPLICATIONS FOR EDUCATION

This dissertation has addressed grammatical aspects of intrasentential code switching, aiming to show their relevance to issues in education and schooling. In chapter 1, I focused on ways in which a misunderstanding of code switching may lead to tacit tracking effects for language-minority children.

Several findings from original experimental and naturalistic Spanish-Nahuatl code switching corpora, collected in Southeast Puebla, were presented and analyzed in terms of Chomsky's (1995a) minimalist program. The approach taken in chapter 5 was *minimalist* in two respects. First, it is hypothesized that nothing constrains code switching apart from the requirements of the mixed grammars, an assumption which makes use of minimal theoretical apparatus (corresponding to “virtual conceptual necessity”). Second, the particular analyses developed for data presented in the dissertation were restricted as much as possible to mechanisms made available in the minimalist program, as Table 8 (page 284) shows. Other recent theories of code switching were also reviewed in terms of the Spanish-Nahuatl corpus, and each one was disconfirmed in turn. Some attention was then given to extending the approach developed here to an analysis of other corpora; in many cases, the apparent conflicts in basic findings, listed in Table 1 (page 68), were reconciled.

Advances in our understanding of code switching in particular, and of bilingualism in general, should provide a foundation for better educational treatments for bilingual children. Indeed, as foreshadowed in chapter 1, some of the conclusions reached in this dissertation regarding code switching have an immediate application to

issues of policy and tracking; this connection will be made explicitly in section 6.1. The relevance of a related topic--specifically, the rejection of “semilingualism” and prescriptivism--will be discussed with respect to its impact upon issues of curriculum (§6.2), teaching (§6.3), assessment (§6.4), and the psychology of language and cognition (§6.5).

### *6.1 Policy: Tacit Tracking and Code Switching*

Educational policy dictates what course of action a school or district will take in relation to students, but such policy does not need to be overtly stated or implemented. In fact, it is most often imposed by social structures and practices which stem from the larger society, as noted at least as early as Dewey (1916).

More recently, Oakes’ (1985) study of school tracking noted that ability grouping for children correlated highly with children’s self-perceptions for ability and career promise. She concluded that children who had been treated as “good students,” destined for success and achievement, wound up in higher tracks, while other children found themselves in lower tracks. In this regard, according to Oakes, numerous school practices conspire to subtly put tracking structures in place, either overtly or covertly. Thus, Oakes (1985) sees tracking as a mechanism used in schools to *structure* social inequality.

Tracking may thus be used to reproduce class structure, with poor children themselves often being complicitous in their own subjugation. In Willis’ (1981) view, children in impoverished schools have a realistic view of options available to them in the work force, a view they acquire from peers, family members, and the values of their

community. These children view the “mental labor” of school work as a ploy to control their free time. By contrast, manual work is creative, satisfying and independent. Thus, by resisting school labor, children participate in their own subjection to the dominant classes, who are able to justify this state of affairs by pointing to defiance of school authority on the part of these children.

If teachers believe that code switching relates to an inherent disability in children which might be remedied with sufficient instruction, then children’s perceptions of their own “natural abilities” as severely limited, conveyed by classroom teachers, will impact upon their success in school, as Oakes’ (1985) study suggests. This may have the effect of perpetuating poverty and inequality.

The thesis articulated at the end of chapter 1 and confirmed in chapter 5 assumed that all code switching data could be explained by positing that

- (1a) nothing constrains code switching apart from the requirements of the mixed grammars; and
- (1b) bilinguals who code switch have the same underlying linguistic competence as monolinguals for the languages they use.

Indeed, the data explored in chapter 5 show that code switchers are sensitive to extremely subtle requirements imposed by their languages, just as monolinguals are.

Consider, for instance, the remarkable contrast in (2) (§5.2.2.4).

- (2a) \*Estoy *nitlajtohtoc*  
estoy ni-tla-toh-toc  
be/PRES/1Ss 1S-INDEF-speak-DUR  
‘I’m speaking’

- (2b) Estoy *tlajtohtoc*  
 estoy tla-toh-toc  
 be/1Ss INDEF-speak-DUR  
 ‘I’m speaking’

In normal, monolingual Nahuatl, the durative form *tlajtohtoc* is required to carry an agreement prefix such as *ni-*. The notion expressed in (2b), then, would have the form (3) in monolingual Nahuatl.

- (3) Nitlajtohtoc  
 ‘I’m speaking.’

However, agreement morphology causes verbs to undergo LF checking with T, resulting here in  $X^0$ -level compounding of Nahuatl V with Spanish *estar* and T. Since a compound of this sort cannot be interpreted by either PF component (since morphological words are mixed below  $X^0$  here), it constitutes an illegitimate object at PF. However, since verb movement is not forced in (2b), the construction is well-formed.

In determining the judgments in (2), a bilingual is exquisitely sensitive to a range of extremely subtle grammatical requirements, just as a monolingual is. For instance, (2a) is regarded to be ill-formed due to the speaker’s tacit knowledge that the ordered phonological rules which map  $N \rightarrow \pi$  cannot be merged for code switching, since ordering relations are not preserved under union. The construction in (2b) is well-formed even though the Nahuatl verb does not agree with the null subject; this fact reflects the speaker’s tacit knowledge that (2b) is the only derivation in the class *S* of all convergent derivations identical to (2b) except for uninterpretable case and  $\phi$ -features (see section 5.2.2.4 for discussion). These same subtle mechanisms (along with others) determine

grammaticality judgments for monolinguals as well as for bilinguals who do not code switch.

Recall Commins and Miramontes' (1989: 445) conjecture that "a popular belief is that children who code-switch . . . do so because they do not command enough pieces in either language to form a complete code; thus, they are considered semilingual." The example in (2) illustrates that code switchers not only know "enough pieces" in each language, but are actually privy to extremely subtle grammatical requirements, some of which lead to the formation of constructions which would not be possible in either language taken alone, making the attribution of "semilingualism" to these speakers not just unfounded but utterly absurd. (Of course, many other examples analogous to (3) are discussed and reviewed in section 5.2.2.)

In addition, note that code switching enhances rather than limits the expressive capacity of an individual, if we construe "expressive capacity" to refer to the range of constructions permitted by a grammar (or mixture of grammars). This may be shown by considering the simple context-free grammars in (4) for small subsets of Spanish and English.

(4a) *(Little) English*

S → NP VP

VP → V NP

NP → Det N

V → loves, entertains, reads

Det → the, a, this

N → boy, girl, book

- (4a) *(Little) Spanish*  
 $S \rightarrow NP VP$   
 $VP \rightarrow V Prt NP$   
 $NP \rightarrow Det N$
- $V \rightarrow \text{ama, elige, mira}$   
 $Det \rightarrow \text{el, un, este}$   
 $Prt \rightarrow \text{a}$   
 $N \rightarrow \text{muchacho, libro, perro}$

Because these simple grammars are not recursive, each generates a finite number of strings -- just 243 sentences in each case ( $243=3^5$ , three lexical choices on five terminal nodes in each grammar). A bilingual who does not code switch could produce twice as many sentences ( $243 \times 2 = 486$ ) by using the English of (4a) and the Spanish of (4b) separately. However, mixing the grammars generates 7,776 ( $=6^5$ ), a striking increase in expressive capacity. Because the grammars of natural languages are recursive, we cannot count the strings they generate; however, the same conclusion holds as in the case of the finite grammars in (4):  $G_1 \cup G_2 > L_1 \cup L_2$ . That is, putting the recursive grammars of two languages together generates infinitely many strings that are not in either infinite language taken separately.<sup>126</sup>

As teachers become aware of the nature of code switching and bilingualism, their perceptions of children who code switch should alter accordingly. The conclusion reached in chapter 5, that code switchers do not have limited linguistic competence in comparison with others, should lead teachers to a posture of tolerance toward the

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<sup>126</sup>I am indebted to Edward P. Stabler for this observation.

practice. In the next section, I explore some possible new directions in curriculum based upon the conclusions in chapter 5.

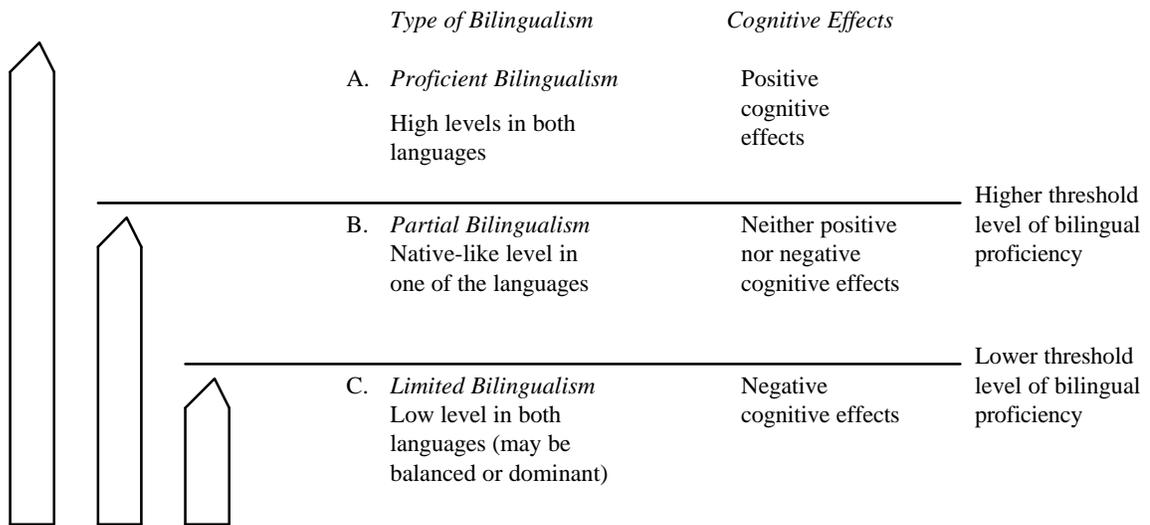
## *6.2 Curriculum*

Our rejection of the notions of “semilingualism” and prescriptivism have important consequences for curriculum. In particular, if “semilingualism” is rejected, the Threshold Hypothesis of Cummins’ (1981), adapted from Toukomaa and Skutnabb-Kangas (1977), will need to be revised to treat only two kinds of bilingualism, proficient or competent bilingualism and partial bilingualism, as I will discuss in section 6.2.1. In section 6.2.2, the consequences of rejecting prescriptivism will be explored with respect to the language arts curriculum.

### **6.2.1 Revising the Threshold Hypothesis**

Cummins’ (1981) version of the Threshold Hypothesis, represented in Figure 10 below, is adapted from Toukomaa and Skutnabb-Kangas (1977) in whose version of the diagram “limited bilingualism” is termed “semilingualism.”

Figure 10: Cummins' (1981) Model of the Cognitive Effects of Different Types of Bilingualism



Cummins regards literacy to be one aspect of language acquisition, so that children on the lower threshold may be individuals who cannot read or write. In section 1.3.2, I argued that reading, writing and other aspects of literacy crucially must be separated from knowledge of language if the harmful effects of ability labels are to be avoided. Regarding preliterate Spanish-speaking children as “limited” or “semilingual” makes no more sense than regarding adults in cultures which lack writing systems as “non-proficient” speakers of their own languages. In addition, what Cummins regards as “cognitive effects” in Figure 10 might better be dubbed “academic effects.” This term is neutral with respect to the cognitive value of school content, much of which has the sole purpose of thought control (see section 1.1).

One of the goals of Cummins' (1981) schema in Figure 10 is to capture the widely attested benefit which first-language literacy holds for second language literacy. In a recent review of work on “literacy transfer,” Krashen (1996) argues that the basic similarities between reading in one language and reading in another, even when the

alphabets are radically different, suggest that basic text decoding skills transfer between languages. This prediction appears to be confirmed in a number of studies which Krashen (1996) reviews. Indeed, because readers heavily rely upon the phonological, morphological and syntactic structure of the text they are decoding (Adams, 1990), it makes no sense to begin teaching children to read in a language they do not know (since these linguistic resources would be unavailable). As Wong Fillmore and Valadez (1988) put it,

There is no other area of the curriculum in which the arguments for beginning with native language instruction are clearer. Reading is unquestionably a language-dependent skill. . . . What the reader must apply in this constructive process, as we have learned from studies of reading comprehension, is knowledge that is *not* encoded in the written word: knowledge of the language, of conventions of its use, of the real world, and of the topics treated in the text . . . [661].

In a comparison of immersion and early-exit transitional bilingual education programs which used a large national sample of 1,054 students, Ramirez *et al.* (1991) found that the early-exit programs did better in reading but not in language and math (where no difference was found). Commenting on this result, Rossell and Baker (1996) consider the following possibility:

Bilingual education may be superior to all-English instruction in the very beginning when a student literally knows no English, but as the student's English language knowledge increases and English becomes more comprehensible, time-on-task in English becomes more important because it becomes *effective* time-on-task [32].

Rossell and Baker (1996: 43) go on to conclude that "it seems more likely that a threshold in the second language, not the native tongue, needs to be passed before the second language instruction is consistently superior to the native tongue instruction." In

other words, once a child has developed a sufficiently high level of competence in the second language, instruction in content areas and literacy may proceed in the L<sub>2</sub>. But in the early years, when students know no English, they can only realistically be taught to read in the L<sub>1</sub>; their knowledge of language is crucially involved in the development of reading skills.

Applying similar concerns to the model in Figure 10, Cummins may have intended to postulate “low levels” of literacy in a child’s native language as the source of trouble (producing negative “cognitive effects”) in second language reading and content instruction. However, the distinction between “low or poor literacy” and “low or poor language ability” is a crucial one which Cummins’ model unfortunately does not make. The relationship between the development of first language literacy and academic success may be represented graphically without assuming that some bilingual children have the special status of “limited bilinguals” or “semilinguals,” as I will show.

With these factors in mind, a revision of Toukoma and Skutnabb-Kangas’ (1977) and Cummins’ (1981) model might be proposed, as in Figure 11.

Figure 11: Academic Effects of Different Types of Literacy Programs for Bilinguals

<i>Type of Bilingualism</i>	<i>Type of Literacy Program</i>	<i>Academic Effects</i>
<i>Competent bilingualism</i> Native-like in both languages	<i>L<sub>1</sub> Program</i> Reading instruction for L <sub>1</sub>	Positive
	<i>L<sub>2</sub> Program</i> Reading instruction for L <sub>2</sub>	Positive
	<i>L<sub>1</sub> and L<sub>2</sub> Programs</i> Reading instruction for both languages	Positive (best case)
<i>Partial bilingualism</i> Native in one language and limited in the other	<i>L<sub>1</sub> Program</i> Reading instruction for L <sub>1</sub>	Positive
	<i>L<sub>2</sub> Program</i> Reading instruction for L <sub>2</sub>	Negative
	<i>L<sub>1</sub> and L<sub>2</sub> Programs</i> Reading instruction for both languages	Positive, but only if L <sub>1</sub> literacy is reasonably strong

Here L<sub>1</sub> denotes the language spoken at home, and L<sub>2</sub> the language spoken by school personnel and the dominant social group. The existence of only two types of bilingualism is acknowledged: *competent bilingualism*,<sup>127</sup> in which speakers, naturally native in one language, have native-like ability in a second; and *partial bilingualism*, in which speakers have only partial or incomplete knowledge of a second language.

The academic effects of different literacy programs are then compared, indicating a preference for literacy development in both languages for competent bilinguals but for literacy development in L<sub>1</sub> for partial bilinguals. Naturally, once partial bilinguals have become competent speakers of both languages, they would benefit from literacy development for either language, ideally for both. They might even begin to learn to read

<sup>127</sup>I use the term “competent bilingualism” instead of “proficient bilingualism” because the latter is defined in the Bilingual Education Act of 1978 to include knowledge of reading and writing. See Macías (1993).

in an L<sub>2</sub> after they have developed reasonably strong L<sub>1</sub> literacy. Note, too, that Figure 11 is neutral with respect to a school's choice of effective LEP programs (structured immersion, transitional bilingual education, or two-way immersion) (Wong Fillmore and Valadez, 1988).

### **6.2.2 Language Arts and Linguistic Inquiry**

The claim of linguistic equality for code switchers is related to a more general claim, discussed at length in chapter 1, namely, that all human beings possess languages and language varieties of equal richness and complexity. This proposition is the denial of prescriptivism. A worthwhile language arts curriculum, rather than targeting stigmatized language for “remediation,” should use language diversity as a *resource* (Ruíz, 1988).

One way in which such diversity can be of use in a language arts curriculum is in the form of linguistics lessons. Honda and O’Neil (1993) used linguistics to teach scientific inquiry to secondary students in the New England area and found that students in their after-school program were engaged and grew in intellectual confidence. The experience with linguistic inquiry also influenced children’s work in science class:

Another measure of success was the new intellectual confidence that the students showed as they moved from the linguistics lessons to other subjects in the science curriculum. For example, after completing the linguistics lessons in regular seventh-grade science classes, students began a new unit on weight and density. The science teacher noted that the seventh graders used the methods of inquiry and the relevant terminology of the linguistics lessons. When asked to record their observations of things that sink and things that float, several students noticed there was no space available on their worksheets for their hypotheses. Students spontaneously suggested the need to make a hypothesis, test it, and then try to “find something that doesn’t follow our hypothesis”--that is, a counterexample [244].

Traditionally, language arts curricula regard English to have “rules” which native speakers sometimes erroneously fail to follow, either due to ignorance or a lack of practice. This conception of a rule relies on some authority external to students, even external to their teacher; to the extent that children follow such rules, they may be counted on to be controlled by schools and other authoritarian institutions. Similar authoritarian aspects of curriculum and schooling focus on simple factual recall, known-answer questions, drills, tedium, punctuality, and general obedience to authority and ideology. In the sheer service of authority and ideology, students are “reduced to mere servants of attaining pleasure and avoiding pain” (Dewey, 1916: 84).

According to Dewey (1916), it is in the interests of powerful elites to limit students’ recourse to individual thinking and the free exchange of ideas; doing so allows elite groups to continue to maintain control over others. Control is thus a function of isolation. On the other hand, diversity, inquiry, and freedom of thought and expression result in democratic progress:

Lack of the free and equitable intercourse which springs from a variety of shared interests makes intellectual stimulation unbalanced. Diversity of stimulation means novelty, and novelty means challenge to thought. The more activity is restricted to a few definite lines--as it is when there are rigid class lines preventing adequate interplay of experiences--the more action tends to become routine on the part of the class at a disadvantage, and capricious, aimless, and explosive on the part of the class having the materially fortunate position [Dewey, 1916: 84-85].

Challenge to thought, in the context of the free exchange of novel perspectives, presupposes a system of intellectual self-defense, a notion which Chomsky has often employed:

Doing things that will stimulate critical analysis, self-analysis, and analysis of culture and society is very crucial. In fact, it seems to me that part of the core of

all education ought to be the development of systems of intellectual self-defense and also stimulation of the capacity for inquiry, which means also collective inquiry [Chomsky, in Olson and Faigley, 1991: 16].

Put even more strongly in Deweyan terms, the process of collective inquiry in the free and equitable exchange of ideas *results in* the development of systems of intellectual self-defense, the ability to express and rationally defend one's own ideas and views.

Thus, a language arts curriculum which asks students to reflect on their own native intuitions about the languages they speak does more than help them construct theories about the world and themselves. It also conveys the sense that their own intrinsic rational nature determines what is correct or incorrect, setting the stage for genuine education. The language arts curriculum is therefore an ideal place to stimulate intellectual independence, but this can only occur if students are asked to engage in rational inquiry. The use of prescriptive, authoritarian rules of “correct use” will assure that students can be controlled, but it will not lead to education or liberation.<sup>128</sup>

### *6.3 Teaching: Bilingual Instruction and Code Switching*

A central concern in bilingual education programs has been “language management.” What percent of time should be devoted to L<sub>1</sub> and what percent should be devoted to L<sub>2</sub> during instruction? How should languages be separated in a bilingual education program -- by time (hours, days of the week), subject, teacher?<sup>129</sup>

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<sup>128</sup>Naturally there is an important role for reading and writing in language arts curriculum as well. See Krashen (1993) for discussion.

<sup>129</sup>For a review of work on these topics, see Wong Fillmore and Valadez (1988).

Jacobson's (1983) view is that languages are best mixed in the classroom by code switching. Conventional approaches, Jacobson argues, in which languages are separated, lead to numerous quandaries. For instance, if languages are separated by *time*, then teachers will have to teach each subject twice, once in English and once in, say, Spanish, a practical problem of significant proportions. If, on the other hand, language separation is based on *content*, Jacobson argues, then it will be impossible to decide which subjects should be taught in which language: Children who learn math in English, for example, may later have difficulty talking about it in Spanish (for lack of appropriate vocabulary), or they may come to view English differently from Spanish because math is a highly valued subject in our society.

Jacobson (1983) believes that by code switching in the classroom students will acquire subject-appropriate vocabulary in  $L_1$  and  $L_2$ , and none of the practical problems of other approaches will be present. However, this switching may not be done haphazardly or randomly, according to Jacobson. In order for it to be educationally effective, four criteria must be met: (1) the languages must be distributed at an approximate ratio of 50/50; (2) the teaching of content must not be interrupted; (3) the teacher must be conscious of her alternation between the two languages; and (4) the alternation must accomplish a specific learning goal. Code-switched instruction which does not meet these criteria Jacobson calls the "unstructured approach."

One consequence of (3), in Jacobson's New Concurrent Approach (NCA), is that teachers only use *intersentential* code switching. Jacobson fears that otherwise, if *intrasentential* code switching is used, "the child is not exposed long enough to any one

language to derive from the teacher's talk the grammatical, semantic and lexical rules of English nor Spanish" (1983: 5).<sup>130</sup> Jacobson (1983) disapprovingly gives the following, presumably contrived example of "flip-flopping" (intrasentential code switching) between Spanish-English for purposes of instruction:

- Teacher: This is a seed, ¿entienden? We plant it en la tierra para que eche raíces. To make it grow fast, we water it. Le echamos agua and then the plant grows a stem and leaves. ¿Qué más tiene la planta?
- Student: Hojas and a flower.
- Teacher: Have you all seen plants with leaves and flowers?
- Students: (No response.)
- Teacher: ¿Han visto ustedes plantas con hojas y flores?
- Students: Yes.

Jacobson (1983) recasts the same exchange in intersentential code switching, where the NCA is used correctly:

- Teacher: This is a seed. We plant it in the soil to develop roots. To make it grow fast, we water it. Después que la planta ha echado sus raíces y la hemos regado bastante, produce un tallo y las hojas. ¿Qué más tiene la planta?
- Student: Tiene hojas y una flor.
- Teacher: Muy bien, tiene hojas y a veces tiene también flores. Have you ever actually seen plants with leaves and flowers?
- Student: Yes, in my backyard.

In terms of issues discussed in this dissertation, it would be surprising if a child could not acquire two separate, distinct codes using only intrasentential code switching as input. In the minimalist program, language learning consists in acquiring values for lexical parameters associated with functional projections. For instance, a Spanish learner must determine that  $\phi$ -features in T are *strong* (evidenced by overt V movement),

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<sup>130</sup>See Faltis (1989) for an extensive and sympathetic review of Jacobson's New Concurrent Approach (NCA).

whereas an English learner determines that they are *weak* (evidenced by covert V movement). A bilingual learner acquires both Ts (or both values for  $\phi$  in T), one with strong features and another with weak ones, under evidence that some verbs move covertly (English) and others overtly (Spanish). English T may be deduced without a full English clause structure; the English Vs are observed to remain in situ in relation to adverbs and other clausal elements, none of which need be in English, implying that  $\phi$  in T is weak. The same procedure works for Spanish V, with the conclusion that  $\phi$  in T is strong.<sup>131</sup>

In addition, while code switching is a frequent and natural practice among bilinguals, school children in the U.S. would probably never have *only* code switching to use as the basis for language learning. They will inevitably come into contact with monolinguals, so in addition to learning the separate grammatical systems of their two languages children will come to understand that different groups have different “ways of talking” (English, Spanish) which may or may not make full use of their language system. In addition, children’s linguistic development is quite advanced by the time they enter school, essentially complete, for at least one language, so Jacobson probably overstates the role of the teacher as a language model.

With respect to the use of code switching in the classroom, then, Jacobson’s (1983) suggestion that code switching may be the best way to mix languages appears to be on the right track, but his concern that *intrasentential* code switching (as opposed to

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<sup>131</sup>Stabler (1997a) presents formal learnability models in which bilingual learners succeed in

[footnote continues on next page]

*intersentential* code switching) will impede children's linguistic development is, I think, misguided.

However, the question of whether a child can acquire two separate languages using only intrasentential code switching as input is empirical in nature. As has often been noted, children exposed to two languages acquire them simultaneously, and the grammars "separate." Still, language learning based solely upon intrasentential code switching may produce a creolization effect, resulting in the formation of a new, uniform system that is distinct from both languages. This question cannot be answered without further inquiry.

Of course, there are other factors involved in language acquisition which must not be overlooked. Crucially, children must have sufficient exposure and practice with the L<sub>2</sub>, or they will not acquire it. The amount of time required is a matter of some controversy (Wong Fillmore and Valadez, 1988; Jacobson, 1989; Krashen, 1996). In addition, as in all arenas of academic content, affect may play an important role in L<sub>2</sub> success (Rolstad, 1996a, 1996b).

#### *6.4 Bilingualism and Assessment*

Because of Cummins' belief that a child's level of attainment in a first language facilitates development in a second, considerable effort has been directed toward assessing language-minority children's first language. According to data reviewed by De George (1988) and Williams and Gross (1990), the most widespread language

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acquiring both their languages in a mixed-language environment.

proficiency test used for this purpose is the *Language Assessment Scales (LAS)* (Duncan and De Avila, 1986a).

The LAS evaluates students for placement purposes in exact parallel with Toukoma and Skutnabb-Kangas' (1977) and Cummins' (1981) Threshold Hypothesis represented in Figure 10; possible results are "fluent," "limited," and "non" (Duncan and De Avila, 1986b: 9), corresponding to Cummins' three levels of language proficiency. Note that the LAS does not include a literacy component for young children, so a child in elementary school may be evaluated as "non-non" (non-English, non-Spanish) on the basis of oral language alone. In Los Angeles Unified School District, 6,800 students were identified as "non-nons" in 1996, as reported by Pyle (1996). Tragically, some teachers and bilingual coordinators responsible for the placement of LEP children conclude that "non-nons" should be placed in all-English classrooms, reasoning that they know "so little Spanish" that it does not matter which language is used for instruction.<sup>132</sup>

No large-scale study of the "non-non" crisis has been undertaken; however, it may be instructive to examine one child's Spanish responses to the Pre-LAS Español which earned her the special status of a "non-non." The Pre-LAS Español is the version of the LAS designed for children aged 4-6. I begin with a discussion of the test.

The Pre-LAS Español consists of six parts. In part I (Tío Simón), the child is asked to repeat a set of ten phrases verbatim; any phrase that is not repeated verbatim

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<sup>132</sup>Two fully-certified bilingual teachers, a resource specialist in charge of special education, and two bilingual coordinators, from several different schools, made this statement independently of one another during conversations about LEP children. It remains to be seen just how widespread this ill-conceived placement strategy is.

counts as an incorrect response. In part II (La Casita), the examiner points to ten items in a small line drawing of a house; each item that is incorrectly identified counts as incorrect. Part III (Dibujos y Frases) requires a student to identify one of two cartoonish line drawings that corresponds to a phrase which the examiner utters. Ten phrases must be repeated verbatim in part IV of the test, very much like the task in part I, but here each item will count as incorrect only if a particular subpart of the expression is “omitted or transformed” (Duncan and De Avila, 1986b: 2). The child is asked to complete five incomplete sentences in part V, where each response is evaluated on a scale 0-3 (0 for no response, 1 if “clauses are awkward and/or unintelligible,” 2 if the child uses an irregular verb incorrectly or uses inappropriate tense or person markings, and 3 for “no syntactic errors”; Duncan and De Avila, 1986b: 3). Finally, part VI asks the student to answer comprehension questions for two short children’s stories; her performance is rated 0-5 for each story (0 for no response, 1 if the child uses only isolated words and expressions, 2 if the child uses only “fragments or very simple sentences,” 3 for complete sentences which contain some “syntactic errors,” 4 if the response contains few errors for fluent Spanish, and 5 for language representative of “an articulate, proficient Spanish speaker”; Duncan and De Avila, 1986b: 4).

Now consider the performance of a child who was evaluated as a “non-Spanish speaker” by the Pre-LAS Español. Gabriela (as I will call her) speaks Spanish at home, and is a five-year-old Latin American child now residing in Los Angeles. Gabriela’s performance on parts I and IV was flawless. On parts II and III, however, she incorrectly matched verbal expressions with line drawings on four occasions, leaving her with a raw

score of 16/20 = 80% for these parts of the test. The incorrect responses in part II (La Casita) were a *peine* ‘comb’ and a *taza* ‘cup,’ extremely small items which the tester cannot easily point to in the very small, cluttered line drawing of the house. The two incorrect responses in part III (Dibujos y Frases) may follow from the frequently observed tendency of very young children to point to the picture they like best, not the one that corresponds to a sentence uttered by an examiner.

In Part V, Gabriela was asked to orally complete five sentences, reproduced in (5) below, where Gabriela’s contributions are given in *italics*, followed by her score for each item (scored 0-3) and my translation in square brackets. (Note that *hicieron* is misspelled as *hizieron* in (5b) by the examiner, not by Gabriela.)

- (5a) Si me levanto temprano *como* (3)  
[‘If I get up early *I eat*’]
- (5b) Los niños tenían hambre así que *hizieron* *sopa* (3)  
[‘The children were hungry so *they made* *soup*’]
- (5c) Fuimos a la fiesta y luego *compramos un pastel* (3)  
[‘We went to a party and then *we bought* *a cake*’]
- (5d) Antes de vestirme *fui a una fiesta* (2)  
[‘Before getting dressed *I went to a party*’]
- (5e) Después de jugar un rato *me siento* (3)  
[‘After playing a while *I sit down*’]

Gabriela’s total score for this part of the test was 14. She was marked down for her response in (5d) presumably because one usually gets dressed up *before* going to a party. The same logic should lower Gabriela’s score in (5c), since one would usually buy a cake *before* going to a party; also, notice that the response in (5d) is primed by the prompt in (5c). However, note that none of Gabriela’s responses is grammatically ill-formed in any way.

The final section of the Pre-LAS Español is weighted to account for 30% of a child's total score. The child is required to respond to comprehension questions about two stories which the examiner presents. Gabriela gave no response for this section of the test; presumably she lost interest, got tired, did not remember the stories, or was bored with the content of "Pérez y Martina" and "El Globo Amarillo." This resulted in a score of zero on this section of the test, giving Gabriela a converted score of 63. The scoring manual for the Pre-LAS Español defines children aged 5 and 6 as "non-Spanish speakers" if their total score is below 79. Had Gabriela provided just a few mediocre comments during the final section of the test (scoring, say, a 3 for her response to each story), she would have joined the ranks of the "fluent (proficient) Spanish speakers," based on the scoring criteria of the test (Duncan and De Avila, 1986b: 9).

Note that *no linguistic aspect* of Gabriela's performance was ever evaluated by the Pre-LAS Español; this would require an analysis of the well-formedness of her responses. Her poor performance could be attributed to her inability to visually identify very small objects inside a line drawing of a house, her preference for some pictures over others, and a lapse of party etiquette (you get dressed up and buy a cake *before* going to parties). Most damaging for Gabriela, her *lack of response* was erroneously interpreted as a *linguistic inability* to respond, placing her among the "non-nons."<sup>133</sup> This very same egregious error was committed by school psychologists in the 1960s who interpreted the

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<sup>133</sup>Note, too, that the Pre-LAS Español scoring manual specifically requires that a lack of response ("the child produces no language") in this section receive a score of zero (Duncan and De Avila, 1986b: 4). Thus, the problem of mis-assessment in Gabriela's case cannot be correctly attributed to faulty "test administration."

lack of response among African American children to be a sign of mental retardation (Labov, 1975). Just as in the case of the mis-labeling of these African American children, thousands of Latino children are now being mis-labeled as “non-nons,” a nearly complete erasure of their human identities, and assigned either to all-English programs or to special classes aimed at fixing up their “limited linguistic ability.”

The Pre-LAS Español scoring manual (Duncan and De Avila, 1986b) cautions that children’s responses should not be marked wrong for dialectal variation in pronunciation;<sup>134</sup> it further prescribes that the use of a second language within a response (code switching) be bracketed off and ignored for purposes of the test. Confusingly, however, instances of code switching are offered as examples of *incorrect* responses. If a child repeats (6a) as (6b) in part IV of the test, for instance, her response should be marked as incorrect for this test item, according to the test scoring manual, which explicitly refers to (6b) as “a grammatical error” (Duncan and De Avila, 1986b: 2).

(6a) Voy a la casa de María  
[‘I’m going to Maria’s house’]

(6b) Voy a *María’s* casa  
[‘I’m going to Maria’s house’]

However, none of the data reviewed in chapter 5 suggest that (6b) is unacceptable as a code-switched utterance, and it is certainly a mistake to infer that a child who says (6b) could not have just as easily said (6a).

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<sup>134</sup>There is a general tendency among prescriptivists to be more tolerant of linguistic variation that relates to phonology and much less tolerant of morphological, syntactic and semantic/lexical variation. This follows from the prescriptivist notion that languages/dialects should be valued in proportion with their *literary* output, where phonological variation generally goes unnoticed. See section 1.2 for discussion.

All of the evidence I have reviewed strongly suggests that there is simply no such thing as “semilingualism.” No normally developing child will fail to acquire a language to which she is exposed; in some cases, children will even add rich grammatical structure which was absent from the input, as in the case of creolization. This conclusion forces us to reject the Threshold Hypothesis of Figure 10 (page 296), which specifically postulates that some children have a “low level in both languages,” and adopt instead some conception developed along the lines of Figure 11 (page 299).

It further casts doubt on the need to test children’s native language ability at all. Trying to determine “how well” a child knows her language is nonsense, except in rare, pathological cases where specific impairments are suspected.<sup>135</sup> While it may sometimes be useful to know what language or dialect a child speaks, this information can generally be easily obtained from a simple home language survey. Notice, also, that nobody thinks for a moment about assessing the linguistic abilities of monolingual English speakers to determine if their language is “good enough” for kindergarten. It is mystifying that some policy makers perceive a need to test Spanish-speaking children in this way.

Finally, I will review some of Valdés and Figueroa’s (1994) conclusions about the testing differential observed for bilinguals in the next section, since they account for the difference by appealing to a proposed difference in the cognitive makeup of bilinguals and monolinguals.

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<sup>135</sup>Here, too, caution must be exercised. Children evaluated as “clinically disfluent,” whom Valadez, MacSwan and Martínez (1997) found to be linguistically similar to other children, were also tested using instruments which did not assess any linguistic aspect of their performance, much like the Pre-LAS in Gabriela’s case.

## 6.5 Bilingualism, Cognition and Mental Architecture

Early in generative grammar, Chomsky (1957) noticed that semantics and syntax appear to be distinct, mentally separate entities in human cognition, as illustrated by the now famous example in (7).

(7) Colorless green ideas sleep furiously

While (7) might be appropriate as a line of poetic discourse, it is semantically nonsensical (or semantically anomalous) as ordinary language. There is no such thing as a “green idea”; if there were, it could not be both “green” and “colorless” at the same time. Despite this and other anomalies, the sentence is *structurally* (syntactically, morphologically, phonologically) well-formed.

These observations, together with other aspects of the innatist perspective, developed into a much broader claim about psychology by the early 1980s. Chomsky (1980, 1984) and Fodor (1981) began to suggest that the mind is organized as a system of interrelated *modules*, each of which is task-specific and independent. Considerable evidence has also been accumulating which indicates that these modules can be selectively impaired or developmentally disassociated (Curtiss 1981, 1988, 1989; Yamada, 1990; Grinstead, MacSwan, Curtiss and Gelman, 1997).

These developments also showed up in new proposals regarding the internal organization of the grammar. In Government-Binding (GB) Theory (Chomsky, 1981), for instance, an interrelated system of independent grammatical modules was posited which, taken together, might explain a wide range of data. For reasons briefly discussed in section 2.4, GB Theory developed into a system in which parameters were viewed as

lexically encoded, and only a very small set of computational operations, taken to be invariant across languages, mapped these parametric settings into permissible derivations (the minimalist program).

However, as pointed out in section 5.1, in GB Theory (or other frameworks in which parameters are set within the computational system), we might expect intrasentential code switching to be impossible, at least without some mediating “control structure” or third grammar to determine where switches can occur. This expectation follows from the possibility of contradictory requirements<sup>136</sup> in mixed GB-style grammars, or the use of ordered transformations in EST and previous models.

However, given recent developments in the minimalist program, we may think of a bilingual as having two separate lexicons, one associated with each language. These lexicons may be united for the purpose of code switching, as the model in Figure 9 (page 231) shows, but their PF components may not. No code switching is allowed in phonology, because phonological rules are ordered with respect to each other, and these orders vary cross-linguistically.<sup>137</sup> Thus, conclusions reached in chapter 5 inform us with respect to the essential architecture of the bilingual language faculty as well.

These conclusions, together with other aspects of psychological modularity, may be useful in making sense of the “CUP Principle,” also related very much to the notion of

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<sup>136</sup>For instance, the GB framework allows for a parameter setting in the computational system which tells complements to branch left or right. Which way should complements branch under the union of two grammars, one with a left-branching and the other with a right-branching setting? It would seem that this would have to be mediated by an external control structure.

<sup>137</sup>See section 5.2.2.3, where the PF Disjunction Theorem is discussed at length.

“transfer” in bilingual education. Cummins (1981, 1994) posited the “common underlying proficiency principle” (CUP) in an effort to refute the common-sense notion of “separate underlying proficiency” (SUP) for bilinguals. According to Cummins, SUP is problematic for the concerns of bilingual education because it suggests that proficiency in L<sub>1</sub> is separate from proficiency in L<sub>2</sub>, leading to the conclusion that children who are deficient in English are best treated by instruction in English, not instruction in their native language.<sup>138</sup> By contrast, the CUP model advocates that there is a common underlying proficiency to both L<sub>1</sub> and L<sub>2</sub>, such that “significant transfer of conceptual knowledge and skills across languages” results (Cummins, 1994: 17-18). Cummins sustains these claims by pointing to studies in which transfer of content and skills across languages appears to be evident.

Note that here Cummins not only includes literacy as a component of knowledge of language, but also appears to include “conceptual knowledge and skills.” In addition, in an effort to argue that transfer between content and skills is possible, Cummins reasons that “if L<sub>1</sub> and L<sub>2</sub> proficiency are separate, then content and skills learned through L<sub>1</sub> cannot transfer to L<sub>2</sub> and vice versa” (1995: 17). However, on the modularity thesis discussed earlier, content and skills learned through L<sub>1</sub> *are independent* of both L<sub>1</sub> and L<sub>2</sub> (independent of the language faculty generally, for monolinguals and bilinguals).

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<sup>138</sup>Of course, taken literally, SUP should imply that a bilingual could not talk in an L<sub>2</sub> about concepts learned through an L<sub>1</sub>, or even be cognizant of concepts learned in an L<sub>1</sub> while speaking an L<sub>2</sub>. This is plainly false, as any bilingual will report.

Thus, Rossell and Baker (1996), who also appear to confuse literacy with knowledge of language, correctly criticize Cummins' model (what they term "the facilitation theory," the idea that academic development in a first language facilitates academic development in a second) as "a poorly cast theory." Moreover, they say,

There is no underlying psychological mechanism that accounts for the facilitation effect. Rather than being deduced from well established mental processes, the facilitation effect has to be accepted as a fundamental characteristic of the brain itself [31].

Of course, it is important to distinguish carefully between the effects of school programs on children (the facts, as they are understood) and the psychological theory which accounts for them. As discussed earlier, there indeed appears to be "significant transfer" of content knowledge and literacy skills across languages, and the early gains for children in transitional bilingual education programs seem to suggest that first language instruction is superior as an initial strategy for instruction of language-minority children. Thus, while Rossell and Baker's (1996) criticisms of the psychological merits of Cummins' model are correct, this matter is independent of the facts regarding transfer.

There is a better way of understanding the psychological effect of "transfer" which Cummins' attempted to characterize. The mechanism which accounts for the facilitation effect is not at all a *mechanism* in the usual sense of the term. Rather, transfer is epiphenomenal of a particular mental architecture in which the language faculty

constitutes a discrete module that is tightly related to other modules which govern conceptual knowledge, pragmatics, vision, number, and literacy.<sup>139</sup>

Therefore, as discussed in relation to Figure 11 (page 299), while it certainly makes sense to teach children content and literacy in the language they know best, at least until they have acquired a sufficient command of English,<sup>140</sup> this conclusion does not follow from Cummins' concern with separate and underlying proficiency for L<sub>1</sub> and L<sub>2</sub>. Rather, it follows from general principles of psychological modularity: Since knowledge of content and skills is independent of knowledge of language, choice of language of instruction for content and skills has no relation to questions of language proficiency. We might therefore revise Cummins' (1994) well-known Linguistic Interdependence Principle in (8) to the much simpler, more theoretically sound form in (9). In (9), "content area knowledge" refers to knowledge corresponding to *curricular* content (math, reading, social science, and so on).

(8) *The Linguistic Interdependence Principle*

To the extent that instruction in L<sub>x</sub> is effective in promoting proficiency in L<sub>x</sub>, transfer of this proficiency to L<sub>y</sub> will occur provided there is adequate exposure to L<sub>y</sub> (either in school or in the environment) and adequate motivation to learn L<sub>y</sub>.

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<sup>139</sup>As Jackendoff (1993) suggests, reading (or more broadly, literacy) appears to involve a host of interacting mental modules, minimally language and vision. Thus, while reading puts knowledge of language to use, just as it puts visual information processing to use, it is no more a *component* of our knowledge of language than it is a *component* of our knowledge of vision.

<sup>140</sup>In the U.S., there has been a historical pressure to redesignate children as FEP ("Fluent English Proficient") as early as possible, at which time instruction in their home language ends. Meanwhile, children are encouraged to study literary and prestigious "foreign languages" in school, also as early as possible. Figure 11 (page 299) indicates that the best treatment for bilingual children is continued instruction in both languages throughout their educational experience, a treatment that should result in a high level of mastery of both languages.

- (9) *The Linguistic Independence Principle*  
Language is independent of literacy and content area knowledge.

Finally, after reviewing numerous pitfalls in the assessment of bilingualism, Valdés and Figueroa (1994) attempt to account for the fact that “circumstantial bilingual individuals have not done well on standardized tests” (204). Historically, they point out, researchers have tried to explain these differences in terms of (a) the characteristics of standardized tests themselves, (b) the inherent talent and/or academic achievement of non-whites, and (c) the degree to which individuals have mastered the language of the test.

However, in their effort to account for the differences, Valdés and Figueroa (1994) suggest that “attention must be focused on . . . the unique mental processing characteristics of bilingual minds” (205). While various conflicting evidence is considered which might bear on this topic, no conclusions are reached which clearly suggest that bilingual minds have unique mental processing characteristics.

It is true that bilingual minds are different in some way from monolingual minds; after all, bilinguals know two languages. While bilingualism may or may not be statistically typical for human beings, it nonetheless appears to be an adaptation of the language faculty. Rather special social circumstances are required in order to maintain stable diglossia, as Fishman (1991) has argued. Edward P. Stabler (personal communication) has suggested that creolization may result from a kind of pressure which the language faculty imposes upon linguistic input in order to achieve uniformity, a pressure which is evident quite generally in the acquisition of new (morphologically-encoded) lexical items. Yet, under the right set of circumstances, the language faculty is

capable of representing two, three or even more distinct languages, generally with only stylistic and pragmatic cross-linguistic interference. It would be surprising, however, if this adaptation had the side effect of creating “unique mental processing characteristics” in bilingual minds, as Valdés and Figueroa (1994) suggest. The question is empirically rich, and deserves further inquiry.

The specific issues raised in Valdés and Figueroa (1994), however, concern testing. Why certain ethnic or linguistic groups perform better than others on standardized tests is a complex matter, addressed at some length in Block (1995).

Chomsky (1972) noted years ago with respect to IQ testing, a similar enterprise, that

. . . it seems that the question of the relation, if any, between race and intelligence has very little scientific importance (as it has no social importance, except under the assumptions of a racist society). A possible correlation between mean IQ and skin color is of no greater scientific interest than a correlation between any two other arbitrarily selected traits, say, mean height and color of eyes.

Testing, particularly standardized testing, provides little or no help to school children.

Rather, it creates a seemingly objective mechanism for excluding certain individuals and groups from access to privilege and comfort, and casts doubt on the general competence of some groups in relation to others. Native language testing, as noted in the earlier discussion of the Pre-LAS Español, is a particularly pernicious threat to the well-being of language-minority children.

Other educational issues might be discussed in relation to the conclusions drawn in chapter 5; here I have addressed only a few. I hope that future work, both my own and others', will refine the analyses in chapter 5, perhaps impacting upon the general

conclusions reached, and expand discussion of the ways in which our understanding of bilingual code switching might inform educational practices.

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