Précis of a *Minimalist Approach to Intrasentential Code Switching*

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This article is a précis of a *Minimalist Approach to Intrasentential Code Switching* (MacSwan, 1999). Like any précis, it promises nothing new beyond the presentation of a concise summary of the work. I may, however, occasionally falter in this task and reference work and controversies which have emerged since the publication of MacSwan (1999).

Making the simplest assumption, we might suppose that the principles which govern bilingual code switching are all and only the principles which govern monolingual language, with no special mechanisms specific to code switching itself. I will pursue this proposal below, as in MacSwan (1999), exploring some important consequences of Chomsky's (1995a) Minimalist Program for the data of language mixture.

First, however, sketch some I will previous approaches to code switching, including Poplack (1980, 1981); Joshi (1985); Di Sciullo, Muysken and Singh (1986); Mahootian (1993); Belazi, Rubin and Toribio (1994); and the language processing approaches of Azuma (1991, 1993), de Bot (1992), and Myers-Scotton (Myers-Scotton, 1993; Myers-Scotton & Jake, 2001; Myers-Scotton, 2001, 2002; Jake, Myers-Scotton & Gross, 2002). I will review these approaches below, arguing that each has undesirable empirical and conceptual characteristics.

1. Introduction

As is common among researchers in the field, we will take code switching to be a speech style in which fluent bilinguals move in and out of two (or more) languages, as illustrated in the Spanish-English examples in (1) and (2), due to Belazi, Rubin and Toribio (1994).

(1) The students *habían visto la pelicula italiana* [1]
The students had seen the Italian movie

(2) *The student had *visto la pelicula italiana*
The student had seen the Italian movie

Note that code switching at some boundaries is licit, as in (1), while switching at other boundaries is not, as in (2).

Poplack (1980, 1981) and Sankoff and Poplack (1981) propose constraints which govern the interaction of the two language sys-

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tems. Specifically, Poplack proposes the Equivalence Constraint and the Free Morpheme Constraint, defined in (3) and (4).

(3) *The Equivalence Constraint*
Codes will tend to be switched at points where the surface structures of the languages map onto each other.

(4) *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 (3), 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; (4), stated differently, tells us that a code switch may not occur at the boundary of a bound morpheme. To illustrate, (3) correctly predicts that the switch in (5) is disallowed, and (4) correctly disallows (6).

(5) *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'

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

A shortcoming in Poplack's constraints is that there is no attempt to EXPLAIN the facts represented in (3) and (4). In addition, because (3) and (4) 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, as pointed out by Mahootian (1993).

In addition to these theory-internal difficulties, (3) and (4) do not hold up to empirical tests. For instance, although the construction in (2) is not disallowed by either of Poplack's constraints it is nonetheless unacceptable. Also consider the examples in (7) and (8), where code switches occur between a subject pronoun and a verb, both in their correct S-structure position for both Spanish and Nahuatl, yet one example is ill-formed and the other well-formed. The operative principle involved in code switching could not therefore be Poplack's Equivalence Constraint.

(7) *Tú *tikoas tlakemetl*
tú ti-k-koa-s tlake-me-tl
you/SING 2S-3Os-buy-FUT garment-PL-NSF
'You will buy clothes'

(8) Él *kikoas tlakemetl*
él 0-ki-koa-s tlak-eme-tl
he 3S-3Os-buy-FUT garment-PL-NSF
'He will buy clothes'

Poplack's Free Morpheme Constraint appears to be descriptively adequate, but it has been somewhat controversial in the code switching literature. While it is attested in numerous corpora (Bentahila & Davis, 1983; Berk-Seligson 1986; Clyne 1987; MacSwan 1999), others claim to have identified counter-examples (Bokamba 1989; Myers-Scotton 1993; Nartey 1982; Halmari 1997; Chan 1999; Hlavac 2003). However, in presenting counter-examples, researchers have often given too little attention to the specific phonological, morphological and syntactic characteristics of the examples cited, making it difficult to determine whether they are in fact violations. Examples in which an other-language stem has been phonologically integrated into the language of an inflectional affix, as in (9), do not constitute counter-examples to the Free Morpheme Constraint.

(9a) Juan está iteando su pozole
Juan be/1Ss it-DUR su pozole
'Juan is eating his pozole.'

(9b) Juan iteó su pozole
Juan eat-PAST/3Ss su pozole
'Juan ate his pozole.'

(9c) Juan iteará su pozole
Juan be/1Ss eat-FUT/3Ss su pozole
'Juan will eat his pozole.'

Poplack, like most code switching researchers, would define these examples as cases of borrowing because the stem is phonologically integrated into the language of the verbal morphology; hence, the mixed-language verb is best characterized as an English-origin Spanish word. Because the word is not historically used in Spanish, we would additionally note that it is a nonce borrowing, a borrowed item which appears for the first time in this instance. But it is indeed a borrowing, as defined by its morphophonological properties.

From a theoretical point of view, the Free Morpheme Constraint is not very satisfying. We are left knowing only that a particular structural description is barred, but we do not know why. Below, I will incorporate the empirical generalization of the Free Morpheme Constraint within the framework of the PF Disjunction Theorem of MacSwan (1999), which attempts to tie these and other related facts to properties of language design.

Joshi (1985) presents another proposal. In his system, the language which a code-switched construction is judged to be "coming from" is defined as the 'matrix language', while the other language is the 'embedded language'. A "control structure" permits shifting from a matrix language to an embedded language but not vice versa. Thus, switches are asymmetrical in this system. Joshi (1985) further proposes the Closed-Class Constraint which stipulates that a code switch is impermissible between a closed-class item and an open-class item, as in (10); however, this constraint applies only to switches *into* the embedded language.

(10) *Constraint on Closed-Class Items*
Closed-class items (e.g., determiners, quantifiers, prepositions, possessives, Aux, Tense, helping verbs) cannot be switched.

For example, in Joshi's (1985) data, a Marathi postposition cannot be switched for the English preposition in (13).

(11) *some chairs-*war* [Joshi, 1985]
some chairs-on
'on some chairs'

An unappealing aspect of Joshi's system is the existence of a special code switching rule; such rules should be excluded for general reasons of scientific parsimony unless the data forces us to posit them. Perhaps more importantly, (10) fails on empirical grounds, as shown by the Farsi-English example in (12) (Mahootian 1993) and the Italian-French example in (13) (Di Sciullo, Muysken & Singh 1986).

(12) 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'

(13) No, *parce que* hanno *donné des cours*
no, because have given of the lectures
'No, because they have given the lectures'

In (12), *ke* marks a switch into the embedded language which begins with a closed-class item, a violation of (10). In (13), a switch is introduced with *parce*, also a closed-class item.

Also consider (14) and (15); in both instances, a switch occurs into the embedded language that is introduced with a closed-class item (Nahuatl *in* and Spanish *el*).

(14) 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'

(15) 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'

Joshi's (1985) constraint, then, could not be the operative principle which defines syntactic boundaries in code switching for both theoretical and empirical reasons.

Di Sciullo, Muysken & Singh (1986) have proposed that there is an anti-government requirement on code switching boundaries, an approach defended in Halmari (1997). Their constraint is given in (16).

(16) *Government Constraint*
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 dominated by Y^{max}.

The proposed constraint in (16) has the virtue that it refers to an independently motivated principle of grammar (government), while other proposals considered so far have 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 its object, (16) predicts that a verb or preposition must be in the language of its complement. This is shown to be incorrect by examples in (17), where switches occur in case-marked positions.

(17a) This morning *mi hermano y yo fuimos a comprar* some milk
This morning *my brother and I went to buy* some milk

(17b) J'ai joué avec *il-ku:ra*
I.have played with the-ball
'I have played with the ball'

(17c) Mi hermana *kitlasojtla in Juan*
mi hermana 0-ki-tlasojtla in Juan
my sister 3S-3Os-love IN Juan
'My sister loves Juan'

Furthermore, since it has been argued that the government relation is not necessary in syntactic theory (Chomsky 1995a), independent, monolingual justification for the existence of government as a syntactic operation will be needed if (16) is to avoid becoming a code-switching specific mechanism. I conclude that (16) is not the principle which underlies code switching.

Another recent proposal is due to Mahootian (1993) and Santorini and Mahootian (1995), where an account is offered which focuses on the complement relation in phrase structure (see also Pandit 1990 & Nishimura 1997); they claim that (18) defines syntactic code switching boundaries.

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

Mahootian and Santorini (1996) slightly modify (18) to focus on more general properties of syntactic heads, as shown in (19).

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

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 (20) illustrates.

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

Mahootian's (1993) approach also has some problems. She uses a tree-adjoining grammar (TAG) formalism which she stresses is an implementation of general work in the Government-Binding (GB) tradition. However, note that (20) is 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 directionality (Stowell 1981; Chomsky 1981), and current work in this tradition posits a universal base in which all complements branch to the right (Kayne, 1995; Chomsky 1995a).

In addition, there are well-known counter-examples to the formulation in (19). In both English and Spanish, it is generally assumed that Neg(ation) selects a tensed verb to its right. Despite the adherence to (19), the code switches in (21) are strongly deviant.

(21a) *El no *wants to go*
he not want to go
'He doesn't want to go'

(21b) *He doesn't *quiere ir*
He doesn't want/3Ss go/INF
'He doesn't want to go'

Also consider the curious asymmetry in (22). In (22a), a Spanish negation may not occur before its Nahautl verbal complement, just as in (21a); however, a Nahuatl negation before a Spanish verbal complement is well-formed in (22b). Thus, despite the fact that basic subcategorization requirements are met in (21) and (22), the constructions are ill-formed, contrary to the prediction made by the principle in (18) (or its expanded form in (19)).

(22a) *No *nitekititoc*
no ni-tekiti-toc
not 1S-work-DUR
'I'm not working'

(22b) Amo *estoy trabajando*
amo estoy trabaja-ndo
not be/3Ss work-DUR
'I'm not working'

There are other counter-examples to Mahootian's system, discussed in Mahootian & Santorini (1996), but such examples are rejected as spurious by these authors because they do not come from naturalistic corpora. The basic argument for rejecting them 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. Moreover, there are individual languages which are extremely stigmatized in some places (indigenous languages in the U.S. and Mexico, for instance), but linguists have fruitfully studied them using traditional elicitation methods for many years. Indeed, both elicitation data and naturalistic data should be examined with usual caution in the study of both monolingual and bilingual data.

Finally, Belazi, Rubin & 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:

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

To explain the observation in (23), Belazi, Rubin and Toribio (1994) appeal to "feature checking," independently motivated to be at work in numerous other phenomena. However, these authors also add an additional item to the feature stack. According to them, a 'language feature', such as [+Spanish] or [+English], is checked along with other features such as case and agreement. 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 (24).

(24) *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 (24) applies only to f-selected configurations (a complement selected by a functional head, as in Abney (1987)), switches between lexical heads and their complements are not constrained.

There are deep conceptual problems with this approach. First, the operation of (24) 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, and is therefore tautological. In addition, linguists take particular grammars to be derivative in nature, not primitive constructs. 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.

Also, note that features generally have a relatively small set of discrete values, such as [±past] or [±finite]. By contrast, there are many, many particular languages, quite possibly infinitely many, as Keenan & Stabler (1994) have argued, and the dividing lines between them are often quite obscure. Thus, a language feature set to [-Greek] introduces extreme, possibly unresolvable computational complexity. Furthermore, the feature [+Chinese] would presumably include all the mutually unintelligible languages of China, and [+Norwegian] would exclude Swedish even though Swedish and Norwegian speakers generally understand each other. Indeed, as Chomsky (1995a:11, n6) has noted in another connection:

> 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 grammar.

This now gives the Functional Head Constraint (FHC) in (24) new empirical content. In particular, to evaluate the FHC, particular hypotheses are needed regarding which features of English, being distinct from features of Spanish, result in a conflict. The formulation invites us to propose such hypotheses and evaluate them empirically. Another concern with the formulation in (24) is that it posits that

head-complement configurations are checking domains. If current approaches are correct in assuming that only head-head and head-spec configurations are checking domains (Sportiche 1995; Chomsky 1995a), then the FHC could not be correct, even if "the language feature" were given the empirical content it now lacks. (Compare Rubin & Toribio (1995), who argue that checking in instantiated in this configuration as well.)

There are empirical counter-examples to Belazi, Rubin and Toribio's approach, indicating that (23) is not a fact. Examples (12), (13), (14) and (22b), presented above, count as counter-examples to Belazi, Rubin and Toribio's system, given their definition of the set of functional heads. To these we might add (25), a well-formed construction in which a Nahuatl indefinite article *se* occurs before the Spanish noun *hombre* 'man.'

(25) 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'

Finally, I will 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 (1993; 1995). Myers-Scotton's framework, known as the Matrix Language Frame (MLF) Model, has more recently been discussed in Myers-Scotton and Jake (2001), Myers-Scotton (2001; 2002), and Jake, Myers-Scotton & Gross (2002).

According to Azuma (1993) and Myers-Scotton (1993), the matrix language defines the surface structure positions for content words and functional elements. Myers-Scotton (1993) refers to this as the Matrix Language Frame. Azuma (1993) offers, among other data, the examples in (26) as support for this theory. In this framework, we expect (26a) to be well-formed but not (26b) since in (26b) the determiner *the* is not in the surface position of the matrix language (Azuma, 1993).

(26a) Uchi wa *whole chicken* o kau noyo
we TOPIC *whole chicken* ACC. buy TAG
'We buy a whole chicken'

(26b) *Watashi ga katta *the* hon wa takai
I NOM. bought *the* book TOPIC expensive
'The book I bought is expensive'

In many respects, 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 (2), repeated here.

(2a) *The students had *visto la película italiana*
The students had *seen the Italian movie*

(2b) *Los estudiantes habían *seen the Italian movie*
The students had *seen the Italian movie*

Notice that (2) are ill-formed even though the matrix language, whether it is taken to be English or Spanish in this case, has correctly defined the positions of content words and functional categories.

For an extensive discussion of the MLF Model, see MacSwan (2005a) and the exchange between Jake, Myers-Scotton and Gross (2005) and MacSwan (2005b). I will not discuss the model further here.

A clear virtue of any theory is its ability to reconcile apparent conflicts in basic findings. As Table 1 illustrates, the code switching literature is rife with conflicting findings. Some who work on code switching have been dismissive of findings which appear not to be congruent with their own, and a common strategy for defending a cherished theory has been to deny the credibility of the falsifying data. While there may sometimes be good reason to suspect that data are spurious, substantial progress may result from attempting to reconcile apparent conflicts. I will give attention to resolving some of these in the next section in the context of a new analysis of code switching.

2. Chomsky's Minimalist Program

Chomsky (1991) has suggested, following work by Borer (1984) and others, that parametric variation may be restricted to the lexicon, now a popular view in syntactic theory:

Table 1. Summary of Basic Findings in Code Switching Corpora

Item ref #	*Descriptive boundaries* (+ = code switch)	*Reported in ...*	*in disagreement with ...*
1a	*because* + CP	Gumperz 1976	Poplack 1981 Sankoff and Poplack 1981 Mahootian 1993
1b	conj + CP	Gumperz 1976	Poplack 1977 McClure 1981
2	*that* + IP	Belazi, Rubin and Toribio 1994	Bentahila and Davies 1983 Mahootian 1993
3a	*have* + VP	Belazi, Rubin and Toribio 1994	Di Sciullo, Muysken and Singh 1986
3b	*modal* + VP	Belazi, Rubin and Toribio 1994	Di Sciullo, Muysken and Singh 1986
3c	*to* + V	Timm 1975	Lipski 1978 Poplack 1981 McClure 1981
3d	Aux + V	Timm 1975	Lipski 1978 Poplack 1981 McClure 1981 Mahootian 1993
3e	Neg + V	Timm 1975	
4a	Q + NP	Belazi, Rubin and Toribio 1994	Bentahila and Davies 1992 Mahootian 1993
4b	Demonstrative + NP	Belazi, Rubin and Toribio 1994	Nishimura 1985 Bentahila and Davies 1992 Mahootian 1993
4c	Article + NP	Belazi, Rubin and Toribio 1994	Brown 1986 Bentahila and Davies 1992 Mahootian 1993
5a	N + Adj Adj from Adj-N language, N from N-Adj language	Gumperz 1976 Lipski 1978 Belazi, Rubin and Toribio 1994	Bokamba 1989 Mahootian and Santorini 1996
5b	Adj + N Adj from N-Adj language, N from Adj-N language	Belazi, Rubin and Toribio 1994	Poplack 1981
6a	Subject pronoun + V	Timm 1975 Gumperz 1976 Lipski 1978	Poplack 1981 Woolford 1983 Nortier 1990 Eid 1992 Bentahila and Davies 1983
6b	V + object pronoun	Timm 1975 Gumperz 1976 Lipski 1978	Poplack 1981 Mahootian 1993
6c	clitic + V or V + clitic	Timm 1975	undisputed
7	A switch involving a bound morpheme	Poplack 1981 Sankoff and Poplack 1981	Nishimura 1985 Mahootian 1993 Myers-Scotton 1993

> 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 Ilanguage is fixed and invariant, a far-reaching idea that has proven quite productive (p. 23).

Restricting parameters to the lexicon means that linguistic variation falls out of just the morphological properties (abstract and concrete) of the lexicon. In Chomsky's system, there are two components of grammar: C_{HL}, a computational system for human language, presumably invariant across languages; and a lexicon, to which the idiosyncratic differences observed across languages are attributed.

Phrase structure is also derived from the lexicon in the minimalist framework. An operation called *Select* picks lexical items from the lexicon and introduces them into the numeration, a finite 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 Δ from κ and α (κ the target of movement and α the element affected by movement) by replacing κ with $\{\Gamma, \{\alpha, \kappa\}\}$ $(=\Delta)$ (Chomsky 1995). Phrase structure trees are thus 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.

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 specifier position of a head. In either case, the element moves for the purpose of checking morphological features of case and ϕ (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,* where they are pronounced) and LF (*logical form*, where they are interpreted). 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, 1995:27). Thus, uninterpretable features (denoted-interpretable) must be checked and

deleted by LF. (The +Interpretable features are categorial features plus ϕ-features of nominals (Chomsky 1995a:278). [+Interpretable] features do not require checking.

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; the mapping operations 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*. Note that the various components (overt, covert, phonological) are all part of C_{HL}, the computational system for human language. The model might be

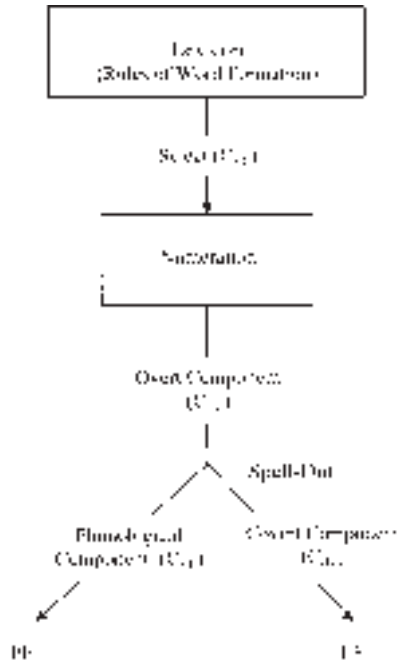

Fig. 1. The Minimalist Framework.

represented graphically as in Figure 1.

3. Code Switching on Minimalist Assumptions

As mentioned, some of the accounts previously reviewed had the flavor of a "third grammar." That is, the operative principle responsible for predicting acceptability in code switching was specific to code switching itself, not independent or epiphenomenal of the two grammars in contact. The leading aim of Chomsky's (1995) 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. In general terms, this research program may be stated as in (26), where the minimal code switching-specific apparatus is assumed:

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

Notice that (26) does not imply that there are no unacceptable code-switched sentences. In (26), *constrain* is used in its technical sense: There are no statements, rules or principles of grammar which refer to code switching.[2] In other words, (26) posits that all of the facts of code switching may be explained just in terms of principles and requirements of the specific grammars used in each case, including principles and requirements of Universal Grammar. So, formally, for G*x* a grammar of L*x* and G*y* a grammar of L*y*, code switching falls out of {G*x* ∪ G*y*} and nothing more. In a Minimalist framework, G*n* is lexically encoded, so {G*x* ∪ G*y*} is the union of two lexicons.

Thus, we may take the explanation of ungrammaticality in code-switched sentences to relate to mechanisms motivated for monolingual sentences, or to conflicts in the requirements of the mixed languages (that is, conflicts in their parametric settings). The more interesting cases, such as the contrast illustrated in (1) and (2), will relate to independently motivated conflicts in the requirements of the mixed grammars. Since languages differ with respect to their lexically encoded requirements, permissible phrase structure "boundaries" such as those reported in Table 1 may differ depending upon the particular language pairs they are drawn from. Some examples of this will be given below and used to resolve some of the apparent conflicts

reported in Table 1.

It is interesting to note that our conception of these 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 were 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 across 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, especially if no "control structure" or mediating grammar is permitted.

Indeed, if the computational system is subject to parametric variation, 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, as in Joshi's (1985) theory. However, if we assume that the computational system is invariant across languages, and that parametric variation is lexically encoded, then the question of which particular language system is in use is answered straightforwardly.

Thus, in a Minimalist approach to code switching which adheres to the agenda stated in (26), lexical items may be drawn from the lexicon of either language to introduce features into the numeration, which must then be checked for convergence in just the same way as monolingual features must be checked, with no special mechanisms

permitted. In this lexicalist approach, no "control structure" is required to mediate contradictory requirements of the mixed systems. The requirements are simply carried along with the lexical items of the respective systems. Thus, it makes sense to formalize the grammar used for code switching as the union of the two lexicons, with no mediating mechanisms. In the next section we consider some additional refinements of the model which relate specifically to the interaction of the phonological and syntactic components of the grammar.

4. Code Switching at PF

As indicated in Figure 1, at Spell-Out a derivation is split, with features relevant only to PF sent to the phonological component where it is mapped to π (or PF), and interpretable material treated by further application of the syntactic component in the mapping to λ (or LF). As a lexicalist model, the Minimalist framework assumes that processes of word formation apply before an item is introduced into the numeration (Chomsky 1995:20). We may assume that in code switching each lexical item cues its proper phonological system during the computation N→π, a claim that I will sharper in a moment. If correct, switching phonological systems between grammatical morphemes cannot occur, as Poplack's (1980) classic examples illustrated. Consider the sharply ungrammatical constructions in (44).

(44a) *Juan está *eat*-iendo
Juan be/1Ss eat-DUR
'Juan is eating.'

(44b) *Juan *eat*-ó
Juan eat-PAST/3Ss
'Juan ate.'

(44c) *Juan *com*-ed
Juan eat-PAST
'Juan ate.'

(44d) *Juan eat-*ará*
Juan be/1Ss eat-FUT/3Ss
'Juan will eat.'

In claiming that each lexical item cues its respective phonological system, and that code switching involving grammatical mor-

phemes is therefore prohibited, we assume that phonological components for a bilingual speaker are *informationally encapsulated*, in the sense of Fodor (1983); that is, once a PF component has been selected by a lexical item, no mixing of systems may occur in the computation N→π. By contrast, code switching in syntax appears to be constrained only by the operations of C_{HL} on lexically-encoded features.

The very different character of the N→π computation is a theme repeated often in Chomsky (1995) and revisited in Chomsky (1998). Specifically, Chomsky claims that

> ... at the point of Spell-Out, the computation splits into two parts, one forming p and the other forming l. 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 l, though not for the computation from N to p; the latter modifies structures (including the internal structure of lexical entries) by processes very different from those that take place in the N → λ computation [Chomsky, 1995: 229].

A salient difference, then, between syntax and phonology is that phonological rules are ordered with respect to one another, as also noted by Bromberger & Halle (1989). Moreover, as Bromberger & Halle (1989) point out, the orders of phonological rules are believed to differ cross-linguistically. There are other differences between syntax and phonology, of course, but this particular difference is one which might be easily exploited to rule out code switching within the PF component, as the data in (44) require.

We have been assuming that code switching is formally the *union* of two (lexically-encoded) grammars, 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 the encoded features, and syntactic operations need take no notice of what particular language a lexical item is associated with.

However, suppose that in a PF component PF_x rules are ordered such that R1 > R2 and R3 > R4, and suppose that in 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 R*n*. In other words, under union (code switching), the PF components cannot meet their requirement that they have (partially) ordered rules or constraints; therefore, mixing at PF is prohibited. I will take this formal property, then, to bar code switching at PF, stated succinctly in (45) as the PF Disjunction Theorem.

(45) *PF Disjunction Theorem*
- (i) The PF component consists of rules/constraints which must be (partially) ordered/ranked with respect to each other, and these orders vary cross-linguistically.
- (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 (45) may be deduced from more elementary considerations, it is termed a "theorem" rather than a "principle."

Furthermore, since phonological rules are often sensitive to particular inflectional affixes, as Halle and Mohanan (1985) and Mohanan (1986) have shown, we might suppose that a lexical item LI of language L bearing inflectional material of L can only enter the PF component of L. In other words, the code-switched items in (44a,b,d) are ill-formed because an English PF component is used to compute a PF representation for a lexical item which bears Spanish inflectional material – a code switch at PF, disallowed by (45). Similarly (44c) involves the use of a Spanish PF component with a lexical item bearing an English inflection. By contrast, in (46), the English verb stem *park* is used with Spanish morphology and phonology, and no ungrammaticality results. We might even imagine a hypothetical variety of Spanish which has borrowed the English stem *eat*, yielding the judgments in (47).

(46a) Juan está parqueando su coche
Juan be/1Ss park-DUR his car
'Juan is parking his car.'

(46b) Juan parqueó su coche
Juan park-PAST/3Ss his car
'Juan parked his car.'

(46c) Juan parqueará su coche
Juan be/1Ss park-FUT/3Ss
'Juan will park his car.'

(47a) Juan está iteando su pozole
Juan be/1Ss it-DUR su pozole
'Juan is eating his pozole.'

(47b) Juan iteó su pozole
Juan eat-PAST/3Ss su pozole
'Juan ate his pozole.'

(47c) Juan iteará su pozole
Juan be/1Ss eat-FUT/3Ss su pozole
'Juan will eat his pozole.'

The difference between (44) and (46)-(47) now reduces to a single issue: In (44), a code switch occurs at PF, between the stem and the inflectional affix, whereas no such switch occurs in (46) or (47).

As currently formulated, (45) takes advantage of feeding-bleeding relationships of classical segmental phonology. However, one can imagine ways of reformulating (45) which make it consistent with developments within the framework of Optimality Theory (OT). In OT, there are no intermediate representations, hence no feeding-bleeding relationships of the sort found in classical phonology (Chomsky & Halle 1968). If we suppose that words (X^0s) are inputs to phonology, then it follows that code switching will not be permitted within words in the OT framework either, as there are no intermediate representations and therefore no opportunities to switch phonological systems in the course of a derivation.

Notice that on this analysis the language faculty has only an indirect way of identifying which lexical item LI belong with which language L: Since a bilingual's PF components must be kept separate on (45), and since a PF component makes reference to morphological material, by inference an LI "belongs" to L if it bears inflectional material in PF(L). Borrowing occurs when a lexical stem is moved from one lexicon into another, and the recipient language applies its own principles of word formation and its own phonology.

Also notice that the PF Disjunction Theorem in (45) incorporates Poplack's Free Morpheme Constraint stated in (4), but it does so with some important differences. First, (45) relates the constraint in (4) to independently established facts regarding the nature of the computation $N \rightarrow \pi$, so it is not a constraint specific to code switching, as (4) is. Also, the range of cases which (4) covers differs from those covered by (45). For instance, the difference between expressions in (44) and (46) is easily captured by (45). Such constructions as those in (9), often taken to be counter-examples to (4), may be analyzed in a principled way as instances of borrowing rather than code switching. Most striking, however, are the syntactic consequences of (45), none of which are expected on (4); these will be explored below.

In sum, we may suppose that a bilingual speaker has a grammar as organized in Figure 2, where $Lex(L_n)$ is the lexicon of a language L_n after principles of word formation have applied. In $(PF_x(Lex(L_x)) \cup PF_y(Lex(L_y)))$, $Lex(L_x)$ is the lexicon of language *x* and $Lex(L_y)$ is the lexicon of language *y*. 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, as noted.

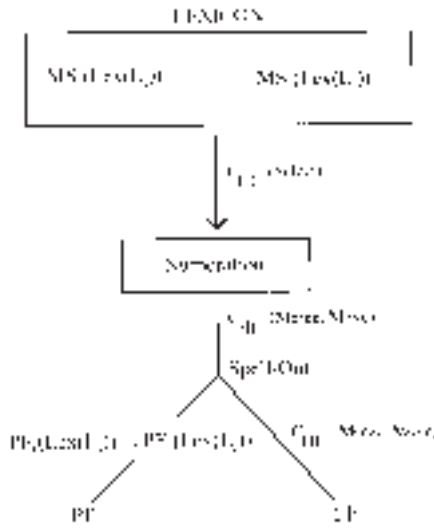

Fig. 2. A Bilingual Minimalist Grammar with Disjoint PF Components.

Finally, we have been assuming that X^0s are inputs to PF, as has been suggested by Chomsky (1995, p. 319) and others. On the analysis presented, (at least) each X^0 is subjected to PF, so that a switch in phonology at any position below X^0 (such as between *eat-* and *-ará* in (44d)) is not allowed. Given (45), this assumption makes very strong predictions for code switching: Specifically, it predicts that code switching may not occur below an X^0 in instances where structures $[_X{}^0\ X^0\ X^0]$ have been formed by head movement, since this would involve switching PF components between internal constituents of a single (syntactically complex) X^0. In the remainder of this section, I argue that this prediction is in fact borne out in the code switching data, and may be used to reconcile some of the apparent conflicts reported in (3a,b), (4), (6c) and (7) of Table 1.

5. Code Switching in Restructuring Contexts

Rizzi (1982) analyzed Italian modals,[3] aspectuals and motion verbs as "restructuring" verbs as a way of accounting for (among some other peculiarities) the contrasts in (48)-(49).

(48a) 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.'

(48b) Finalmente le nuove case popolari si cominceranno a costruire
(Same as (48a).)

(49a) 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.'

(49b) *Finalmente le nuove case popolari si otterranno di costruire
(Same as (49a).)

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 fi 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 (48) 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 (49) this promotion is barred because reanalysis cannot apply for *otterrà*. Importantly, reanalysis is *optional* in Italian; it has applied in (48b), allowing the promotion of the embedded object to subject position, but it has not applied in (48a) where the object of the embedded clause remains in situ.

Aspectual *essere* is used with a past participle in Italian passive impersonal *si* constructions. In constructions such as (50a), *essere* too may be viewed as a restructuring verb, allowing promotion of the embedded object to subject position, shown in (50b).

(50a) Si è dato un regalo
si essere given a gift
'A gift is given.'

(50b) Un regalo si è dato
a gift *si* essere given
'A gift is given.'

On Rizzi's (1982) analysis, restructuring has applied to (50b) but not to (50a), forcing the promotion of [$_{NP}$ *un regalo*] in the former example.

However, note that a very different pattern of judgments emerges when code switching is involved in constructions like (50). Consider the French-Italian facts in (51).

(51a) Si è *donné un cadeau*
si essere given a gift

(51b) **Un cadeau* si è *donné*
a gift *si* essere given

The movement of [$_{NP}$ *un cadeau*] indicates that reanalysis has occurred in (51b), just as it did in (50b). The verbal complexes are identical in (51a) and (51b): A mixture of the Italian aspectual auxiliary *è* immediately adjacent to the French past participle *donné*. Thus, the unacceptability of (51b) indicates that code switching in restructuring configurations is prohibited.

The question of interest, of course, is why. Since Rizzi's (1982) original observations regarding restructuring, a variety of proposals have appeared (in particular, see Haegeman and van Riemsdijk (1986), Wurmbrand (1997) and Roberts (1997)). Common to these proposals in the assumption that a sort of compounding takes place in the two verbs, forming a structure of the form [$_{V}{}^{0}$ V^{0} V^{0}].

Consider, in particular, Roberts' (1997) recent proposal. On his account, such structures are formed by V^{0}-movement, governed by (52).

(52a) Head movement is copying.

(52b) *[$_{X}$0 W_1 W_2], where W_n are morphological words.

(52c) A head is spelled out in the highest position of its chain, subject to (52b).

In cases such as Rizzi's (48) and (49), 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 (52b, c) determine where these elements may be pronounced. In particular, since both Vs are what Roberts calls "morphological words" (presumably, stems with inflectional affixes attached), (52b) 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 (52c)). V_R is spelled out at the head of its chain, generally the matrix Agr^S. Furthermore, Roberts (1997) 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" (p. 426).

Roberts' account, along with the PF Disjunction Theorem in (45), provides a straightforward way of accounting for the facts in (51): Restructuring triggers head movement, resulting in the formation of a V^0 structure of the form $[_{V^0}\ V^0\ V^0]$; since V^0, like other X^0s, is an input to PF, and since on (45) PF systems cannot be mixed, the restructuring case in (51) crashes at PF.

Other data appear to confirm this analysis. Consider, for instance, the contrast in (1)-(2) with which our discussion opened, repeated here as (53). In (53b), the aspectual *had* triggers restructuring with *visto* 'seen,' creating the structure $[_{V^0}\ V^0\ V^0]$. Because languages cannot be switched in such structures due to (45), (53b) crashes at PF. The same analysis holds of the Spanish-Nahuatl code switches in (54) where restructuring is triggered by *nikneki* 'want' (Nahuatl) and *quiero* 'want' (Spanish).

(53a) The students *habían visto la pelicula italiana*
The students had seen the Italian movie

(53b) *The student had *visto la pelicula italiana*
The student had seen the Italian movie

(54a) *Nikneki *compraré ropa*
ni-k-neki compr-aré ropa
1S-3Os-want buy-1Ss/FUT clothing
'I want to buy some clothes'

(54b) ??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'

Now let us reconsider some of the apparent conflicts in basic findings reported in Table 1. In particular, Mahootian and Santorini

(1996) cite French-Italian data from Di Sciullo, Muysken and Singh (1986), repeated here in (55), as counter-evidence to Belazi, Rubin and Toribio's (1994) generalization that a code switch may not occur between a modal or auxiliary and an adjacent verb, as exemplified in their data in (53).[4] (Timm (1975), who may be credited with the original observation, provides similar Spanish-English examples.)

(55a) No, *parce que* hanno *donné des cours*
no, because have given of the lectures
'No, because they have given the lectures'

(55b) Oui, alors j'ai dit quie *si potev* aller comme ça
yes so I have said that REF could walk like that
'Yes, so I said that we could go like that.'

Note that the proposed counter-evidence consists of an Italian restructuring verb followed by a French verb. Recall that restructuring is optional in Italian, explaining the promotion of the embedded object in Rizzi's (1982) (49b) and the contrast in (51). Therefore, if the relevant generalization regarding the code switching facts involves restructuring, as I propose here, (55) are predicted to be well-formed and (51b) ill-formed, as attested. Indeed, (55a) may be altered to test for the sort of contrast observed in (51), giving us the judgments in (56), as our analysis predicts (Anne-Marie Di Scuillo, personal communication).

(56a) No, parce que *si hanno* donné des cours
no, because *si* have given of the lectures
'No, because they have given the lectures'

(56b) *No, parce que des cours *si hanno* donné
no, because of the lectures *si* have given
'No, because they have given the lectures'

This analysis reconciles the disagreements regarding (3a) and (3b) in Table 1. However, the quarrel reported in (3c) of Table 1 is perhaps more intriguing, since here the apparent conflict in findings all relate to Spanish-English code switching data. Thus, language-particular differences are not available to explain the difference in findings.

Timm's (1975) reported a restriction on mixing languages at the boundary of two adjacent verbs; all of her examples are of the form in (57) in which there is either no intervening particle *to* or *a*, or the particle is in the language of the embedded verb.

(57a) *He wants *hacer la cena*
he want-s hac-er la cena
he want-3Ss hac-INF the dinner
'He wants to make dinner.'

(57b) *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.'

(57c) *Quiere *make dinner*
quiere make dinner
quiere/3Ss make dinner
'He wants to make dinner.'

(57d) *Quiere *to make dinner*
quiere to make dinner
quiere/3Ss INF make dinner
'He wants to make dinner.'

Counter-examples in Poplack (1977), Lipski (1978) and McClure's (1981), however, are of a different structure. They report ample examples in naturalistic corpora of the sort given in (58); here an English restructuring verb precedes the particle *to*, followed by a Spanish infinitive in the embedded clause.

(58) 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.'

Descriptively, (58) may be characterized as 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. Consider similarly the French-English examples in (59).

(59a) 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.'

(59b) *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 (51) are acceptable if a verb particle intervenes, as shown in (60).

(60a) 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.'

(60b) 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.'

On the analysis presented here, code switching is disallowed below X^0 due to the PF Disjunction Theorem in (45). But why do judgments improve so drastically when a particle in the language of the restructuring verb intervenes before the embedded clause? As Goodall (1991) and Roberts (1997) have noted, English restructuring verbs undergo *to*-contraction (*wanna, hafta, sposta, usedta, gonna,* and so on), a sort of restructuring. It seems reasonable to assume that restructuring verbs incorporate either with an adjacent infinitival particle, such as *to* or *a*, or an adjacent verb. I will assume this to be the case, along lines explored in Roberts (1997), setting other details aside.

If correct, then the facts observed in (57)-(59) are accounted for in light of the ban on code switching below X^0, expressed as a ban on mixing at PF in (45), and the apparent conflicts reported in (3c) of Table 1 are also explained. Thus, the PF Disjunction Theorem appears to account for a number of syntactic phenomena in addition to the cases discussed in (44). In the next section, it will be invoked once again, along with the Accord Maximization Principle of Schütze (1997), to account for some surprising facts in Spanish-Nahuatl code switching – well-formed constructions which neither language alone would permit.

6. Code Switching in Participial Constructions

Both Nahuatl and Spanish have participial or durative constructions, illustrated in (62).

(62a) (Yo) estoy ayudando a Juan
(yo) estoy ayud-ando a Juan
(I) be/PRES/1Ss help-DUR PRT Juan
'I'm helping Juan'

(62b) (Ne) nikpalewijtoc in Juan
(ne) ni-k-palewij-toc in Juan
(I) 1S-3Os-help-DUR IN Juan
'I'm helping Juan'

Notice some important differences in the way this construction is formed in Spanish and Nahuatl. The Nahuatl version does not use an auxiliary before the present participle as Spanish does (*estar* 'to be,' as in the English gloss), but the verb involves a particular morphological affix *-toc* as does Spanish (*-ndo*). Also, notice that the Nahuatl form, unlike the Spanish, requires an appropriate agreement affix, as (62b) illustrates (*ni-*, in this case). When such constructions involve transitive verbs in Nahuatl, an object agreement affix (or noun incorporation) is also required.

Some surprising results occurs in code switching at this juncture. As (63) indicates, Spanish *estar* may use a Nahuatl present participle only if it does *not* have a subject agreeement affix. 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 (64) illustrate. Note, too, that noun incorporation (NI) also makes the construction ill-formed, as shown in (65). Thus, the code switch is only permitted in the absence of any inflectional material on the participle.

(63a) *Estoy *nitlajtohtoc*
estoy ni-tla-toh-toc
be/PRES/1Ss 1S-INDEF-speak-DUR
'I'm speaking'

(63b) Estoy *tlajtohtoc*
estoy tla-toh-toc
be/1Ss INDEF-speak-DUR
'I'm speaking'

(64a) *Estoy *nikijtohtoc*
estoy ni-ki-toh-toc
be/PRES/1Ss 1S-3Os-speak-DUR
'I'm saying it'

(64b) *Estoy *kijtohtoc*
estoy ki-toh-toc
be/PRES/1Ss 3Os-speak-DUR
'I'm saying it'

(65a) *Estoy *ninakakuajtoc*
estoy ni-naka-cuaj-toc
be/PRES/1Ss 1S-meat-eat-DUR
'I'm eating meat'

(65b) *Estoy *nakakuajtoc*
estoy naka-cuaj-toc
be/PRES/1Ss meat-eat-DUR
'I'm eating meat'

It is amazing that (63b) is well-formed since it lacks appropriate agreement morphology; with *estoy* 'I am,' it should have a first-person subject agreement marker *ni-*, but (63a) shows that this morpheme is *not* permitted. In fact, when code switching occurs, no agreement morphemes are permitted, and neither is NI.

For ease of exposition, I will assume that the participial form is selected by the auxiliary (*estar* in Spanish, *be* in English, null in Nahuatl) in the same way that some verbs may select an interrogative or subjunctive C^0 complement. In Minimalist terms, the copula joins with a [+PARTICIPLE] verb by the operation merge. No checking is therefore required, hence no movement.[5]

Recall Pollock's (1994) idea that verbs will undergo LF checking with T if and only if they bear φ-features associated with an inflectional affix. Thus, in (63a) and (64), a subject or object agreement morpheme triggers checking of the particle with T, a position with which *estar* must also check features. As a result, $[_{T^0}\ V_1\ V_2]$ is formed, where V_1 and V_2 are from distinct languages. However, these constructions crash at PF on the PF Disjunction Theorem (45) which forbids switching below X^0.

In (65), however, the construction is ill-formed as a result of NI. Ferguson (1996) argues that nouns incorporate into verbs in order to check their case features. Hence, in addition to φ-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 φ-features. Just as when V bears φ-features as a result of the presence of an inflectional morpheme (*ni-* or *ti-*), the φ-features in V must be checked with T; $[_V 0\ \ N^0\ V^0]$ therefore raises by head movement to T, forming $[_T 0\ \ T\ \ [_V 0\ \ N^0\ \ V^0]]$, a position at

which *estoy* must also check features. As a result, a complex T^0 is created which hosts verbs from different languages, again a violation of (45) which crashes at PF.

Perhaps more surprising than these ill-formed constructions is the well-formed version, (63b).[6] Other examples are given in (65).

(65a) Estoy *tekititoc*
estoy tekiti-toc
be/PRES/1Ss work-DUR
'I'm working'

(65b) Estoy *yajtoc*
estoy ya-toc
be/PRES/1Ss go-DUR
'I'm going'

We may account for the surprising well-formedness of these constructions by appealing to Shütze's (1997) Accord Maximization Principle, defined in (66).

(66) *The Accord Maximization Principle* (AMP)
Among a set of convergent derivations *S* that result from numerations that are identical except for uninterpretable ϕ- 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*.

The AMP selects the maximally inflected derivation from a class of convergent derivations, each identical to the other except for uninterpretable φ- and case-features. This allowed us to regard constructions such as (33) to be ill-formed while still regarding uninflected forms to have not undergone LF-checking. Because agreement morphemes on the participle in (62)-(65) result in head movement and a violation of the PF Disjunction Theorem, all such derivations crash at PF. AMP selects from the class of convergent derivations *S*, privileging the maximally inflected form for convergence; however, since all inflected forms are nonconvergent by (45), in this case *S* is a class of one, the minimally inflected derivation (63b) (or (65)). Thus, these constructions are well-formed since there are no other derivations available, identical except for additional inflectional material.[7]

On the analysis presented here, we expect code switching at this boundary to be acceptable for Spanish-English, since neither Spanish nor English participles bear agreement morphemes. This is precisely

what was found in studies by Lipski (1978), Poplack (1981) and McClure (1981), as noted in Table 1. Consider, for instance, McClure's (1981, p. 88) examples:

(67a) Estaba *teaching us* en kinder
be/PAST/3Ss teaching us in kindergarten
'She was teaching us in kindergarten'

(67b) It sounds funny when you're *grabando*
'It sounds funny when you're recording.'

Although Timm's (1975) consultants regarded (68a, b) to be ill-formed, they found (68c, d) acceptable. Note that *wachando* and *chopeando* in (68c, d) are English borrowings, phonologically and morphologically coded for Spanish; hence the code switch in these instances occurs right before the participle, from English into Spanish.

(68a) *(I) was *caminando*
'I was walking.'

(68b) *Estaba *walking*
be/PAST/3Ss walking
'I was walking.'

(68c) (He) was *wachando*
'He was watching.'

(68d) (They) were *chopeando*
'They were shopping.'

The findings for (68c, d) are consistent with McClure's data but inconsistent with (68a, 68b). I will not discuss here why (68a, b) might have been judged ill-formed, but it may again relate to the PF component (sentential word stress, perhaps).

7. Conclusions

I have attempted to give a few examples of how analysis of bilingual code switching data might proceed just as in the case of an analysis of monolingual data; rather than assuming specific grammatical operations unique to code switching, we assume none, and take

advantage of the full range of linguistic theory to account for the grammaticality facts attested. The data reviewed here is intended to serve as a proof of concept; appealing to a reasonable sampling of cases, we show that the assumption in (26), that nothing constrains code switching apart from the mixed grammars, permits us to successfully account for the data under consideration.

Also note that none of the theories of code switching reviewed can account for the facts considered. I have argued that any theory of code switching, taken to be a principle of grammar, is a code switching-specific constraint if it refers to code switching, either explicitly, as in the work of Poplack (1980, 1981), or by referring to specific languages, as in the work of Di Sciullo, Muysken & Singh (1986), Myers-Scotton and colleagues (Myers-Scotton 1993; 1995; Myers-Scotton & Jake 2001; Myers-Scotton 2001; 2002; Jake Myers-Scotton & Gross 2002), and Belazi, Rubin & Toribio (1994). This is highly problematic because syntactic operations should not be sensitive to the identities of particular languages but to lexically-encoded language-particular parameter settings. Joshi's (1985) approach explicitly invokes a "control structure" to mediate between the two languages, which places his formulation here as well.

While Mahootian (1993) is not explicit about whether her formulation is a principle of grammar or a theory about which syntactic operations are relevant to code switching, data considered here strongly suggest that the head-complement relation is far too narrow to account for the facts of code switching. In addition, it is reasonable to ask why one would expect code switching to be limited to this operation alone. Mahootian and Santorini (1996) expand the earlier formulation so that heads determine "the syntactic properties of their complements," not just their positions, but this formulation is still too narrow. Similar restrictions are suggested in the work of Pandit (1990), Belazi, Rubin and Toribio (1994), and Nishimura (1997). However, there is no good reason to restrict in advance the range of linguistic principles or operations which might be considered in explicating the data of intrasentential code switching. To whatever extent this has been attempted, counter-examples abound.

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 and in the interest of making use of minimal theoretical apparatus (corresponding to "virtual conceptual necessity," as Chomsky (1995) puts it).

In the course of pursuing (26), I developed the model represented graphically in Figure 2, which is simply an implementation of (26) in Minimalist terms. In the Minimalist Program, operations of the computational system are assumed to be invariant across languages, and language-particular facts are encoded in individual lexical items. Because the rules of word formation, which are internal to the lexicon, are language specific, Figure 2 assumes that a bilingual's lexicons are discrete and separate, with no interaction between them (except for the case of borrowing, discussed below). In addition, Figure 2 assumes that the rules of the phonological component are compartmentalized in bilingual speakers, with no code switching permitted at the level of PF. This latter provision is formalized as the PF Disjunction Theorem, where rule ordering (or constraint ranking) is exploited as a way of independently deriving this property of the language faculty.

Within the syntactic component of the grammar, the model developed here assumes that lexical items may be drawn from the lexicon of either language to introduce features into the numeration which must be checked for convergence in just the same way as monolingual features must be checked, with no special mechanisms permitted. An important consequence of the approach undertaken here is the revelation that properties of particular languages matter in our account of the facts of code switching. Previous work on code switching has focused on universal constraints, usually articulated in terms of phrase structure. The analysis undertaken here illustrates that attention to finer details in the theory of grammar not only promise to reconcile apparent conflicts in basic findings, but also may lead to deeper insights into bilingualism and linguistic theory.

In addition, in the course of pursuing (26) within the Minimalist framework, a formal theory of borrowing has also emerged. Specifically, before items are selected for the numeration, rules of word formation internal to the lexicon apply to base forms to attach appropriate affixes; X^0s, thus formed, respect the PF Disjunction Theorem because phonological rules are sensitive to affixal material. Thus, a borrowed word is one which has moved from one lexicon into another where it is coded with language-particular morphology and mapped to PF with language-particular phonological rules.

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Endnotes

[1] As is conventional in the literature, I will signal code switching boundaries by a change from regular to *italicized* text.

[2] Of course, (26) itself is not a statement or principle of grammar. It is a research agenda.

[3] Rizzi (1983: 41, n5) uses the term *modal* "as a simple mnemonic label for a homogeneous, small class of main verbs," regarding them to be of the same lexical category as other Vs for Italian.

[4] Belazi, Rubin and Toribio (1994) reconcile these facts with their Functional Head Constraint by positing that modals and auxiliaries are functional heads.

[5] 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 7, adopting a checking theory for *-ing* forms does not affect my argument in this section.

[6] 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.

[7] In a discussion of language impairment data, Schaeffer (1996) assumes that Vs marked with the *-ing* inflection raise to Agr^O for checking in a tree like Chomsky's early minimalist version (1995:173, (2)), where Agr^SP dominates TP, TP dominates Agr^OP, and Agr^OP dominates VP. This view is not inconsistent with the analysis presented here, so long as V_{PART}, lacking agreement morphology, may check its *-ing* feature with Agr^O without moving on to T or Agr^S. This will prevent it from being in an X^0 position adjoined to V_{COPULA}, resulting in a violation of the ban in (45).

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