SPANISH-ENGLISH LANGUAGE SWITCHING IN
SPEECH AND LITERATURE: THEORIES AND MODELS

John M. Lipski

Language switching among Spanish-English bilinguals living in the United States is one of the most salient characteristics of this speech population and has been the subject of comment and research by educators, psychologists, linguists, anthropologists, and literary investigators. Originally, before critical focus was directed at this phenomenon, language switching (later to become known as "code-switching") was taken as evidence for internal mental confusion, the inability to separate two languages sufficiently to warrant the designation of true bilingualism. With the advent of interest in sociolinguistic and ethnolinguistic investigations of non-prestige groups, code-switching became the object of scientific scrutiny, with the unsurprising result that it was shown to be governed by a complicated and as yet not fully delimited set of constraints, indicating a complex and structured interaction between the two languages in the internal cognitive apparatus of the bilingual—a far cry from the anarchical confusion postulated previously. At present, scholarly interest in bilingualism is high and code-switching, particularly between Spanish and English, is an almost constant topic of discussion.

Many states are under a mandate to provide bilingual education for language minorities and in the concomitant process of determining language standards for classroom use the problem of language mixture continues to appear, often encumbered by a clutter of anecdotal, misleading, and incomplete descriptions that reflect ignorance, prejudice, and disinterest. Despite this almost overwhelming diversity of motivations for directing attention to bilingual language switching, certain common denominators may be extracted, which promise both immediate and long-range dividends for research scholars and educators alike, and as such are worth comparing.

It is the purpose of this article to offer an appraisal of the major research strategies affecting the linguistic study of Spanish-English code-switching, which have implications for the determination of the linguistic competence of bilinguals and the manner in which the two languages are represented in the cognitive apparatus. Particular emphasis will be placed on the potential benefits of work currently in progress, by both the present writer and other investigators who have dedicated themselves to the study of bilingual code-switching.

Code-switching provides evidence on two interrelated planes: linguistic and psychological. The latter includes the situational variables that permit a switch to occur, while the former includes the linguistic factors that facilitate the switch and the precise form that a switched utterance takes. An additional dichotomy is the study of language switching in the spontaneous speech of bilinguals and switching as reflected in written documents in which it becomes a literary device; this is found most frequently in the works of certain contemporary United States Hispanic writers. An analysis of written code-switching may be of great value in tracing the psychological variables that come into play and promises to provide a broader perspective on the affective values of language mixing.

It is obvious that language switching in literature is not the result of confusion or inability to separate the languages, but rather stems from a conscious desire to juxtapose the two codes to achieve some particular literary effect, which in turn presumably reflects an inner drive that
cannot find ready expression by remaining within a single language. On the other hand, because of the very fact that written documents, particularly those claimed as literary, involve not only conscious reflection but also the inherent correction, editing, and rewriting process that accompanies any act of writing, it cannot be claimed that such texts may be used as specimens of naïve, spontaneous linguistic production. That is, writing involves a clear exercise of self-consciousness, comparable to the self-consciousness in speech found in certain stressful situations (interviews, television announcements, etc.) and therefore does not represent the uncontaminated output of the internal linguistic mechanisms of the speaker. Although such edited phrases may be closer to the linguistic notion of "competence" in the theoretical sense, they provide only a limited amount of usable data about the active and passive filtering mechanisms in the cognitive apparatus, which account for the vast jumble of mixing, analogy, slips, and other forms of linguistic usage that theoretical linguists write off as "performance phenomena," but which, like the anomalous functioning of any mechanism, often provide the only insight into the internal workings of the bilingual brain.

Despite the obvious methodological limitations inherent in the use of literary examples of code-switching, such examples have received a great amount of attention due to the interlocking and overlapping domains of study represented by linguistic and literary analysis. In an attempt to incorporate the corpus of literary bilingual code-switching into the scope of theoretical discussions, two questions must be addressed. The first concerns the extent to which code-switching in literature (or, in general, in any written format) is truly representative of the speech norms of the linguistic community it purports to represent. The second question is the potential value that may accrue to literary code switches that are narrowly deviant from observed societal norms. Although no one has claimed that written texts are equivalent, as sources of theoretical data, to spontaneous spoken utterances, there is nonetheless a vast amount of linguistic, psychological, and aesthetic information to be obtained from a careful consideration of code-switching in its written form.

Remaining within the domain of English-Spanish alternation, one finds the majority of such linguistic behavior in the literature of United States Hispanics of Mexican and Rican origin. Within these groups, literary code-switching is most common in poetry, less so in narrative, and least frequent in essays, although individual exceptions may be found. A key feature of such bilingual code-switching writing in that it presupposes a readership not only familiar with the underlying texts, but whose own linguistic behavior in some way is reflected by the language of the texts. More comprehensively, although it is necessary for the literary aims to be achieved, it is not sufficient. For example, E. Díaz-Valcárcel's Fugaziones en el mar con marron contains much pseudo-code-switching material and anachronisms formed on English patterns that could be understood only by Puerto Rican living in the United States, but also by those in Puerto Rico itself and by those other readers who know both Spanish and English. Similarly, Se está haciendo tarde (fin del enigma) by the Mexican novelist José Agustín, contains a humorous mixing of English and Spanish which reflects the speech habits of few if any speakers of any known language and yet is readily understood by those familiar with both colonial Mexican Spanish and colloquial American English. 6

Bilingual writers themselves come from linguistic communities where code-switching is the norm, at least in everyday speech contexts. It is therefore legitimate to search for examples of linguistically valid alternation in the literary output of such writers, although tempered by self-consciousness and self-editing reflection mentioned above. It is, however, a mistake, however, to assume automatically that all examples of code-switching in literature, especially in poetry, is fully representative of the kind of spontaneous and therefore potentially spontaneous use of code-switching that would be most unlikely to occur spontaneously in everyday speech.

Keller (1979: 268) defines two assertions with respect to literary code-switching. The stronger assertion, which would be most difficult to sustain, is that all literary acceptable code-switching would need to sound natural in the members of the bilingual community. The weaker assertion, which Keller prefers, allows for the literary acceptance of code switches that create internal, bilingual images and sound acceptable to members of the bilingual community, even though in active speech production such forms might never occur. Keller then proposes to extend the analyses of Valdés-Fuller (1976a, 1977), who places more emphasis on the application of the strong hypothesis—that is, deviations from societal norms in code switches extract from literary value. Although Valdés does not actually demand the application of the strong hypothesis, she does include it in the criteria for literary evaluation of bilingual poetry.

An evaluation of the accuracy of literary code switches is difficult to make, since the only method of verifying the existence of such a form in the bilingual community, other than the fortuitous circumstance of finding a pre-existent example in another linguistic corpus, is to present the literary examples to members of the speech community for approval, asking them in effect if they would write something they or their acquaintances might say. 7 Smith's methodology is notoriously inaccurate, as any investigator who has done field work will testify. On the other hand, some speakers will not admit to language switching, even if such usage forms part of their linguistic behavior. On the other hand, a large number of speakers will accept, in passive recognition tests, material that deviates substantially from observed norms of the linguistic community.

When presenting passive acceptance items to linguistically naive subjects of any language, it is not uncommon for the speakers to accept as "correct" anything that they can reasonably understand, regardless of appropriateness, even to the extent of refusing to test in the context of writing the theoretical grammars. It is only by extrapolating from established corpora of spontaneously produced utterances that linguistic criteria applicable to literature may be derived; to proceed in the opposite direction is to put the cart before the horse.

In accepting the caveat that literary examples do not necessarily reflect societal usage, one still faces the theory and philosophically tangled problem of the relationship between literary norms and actual usage. Defining precisely what is meant by a powerful bilingual image and how to recognize one if it occurs constitutes a key difficulty in spanning the gap between linguistic analyses of literary texts and linguistic analyses of natural language texts. Keller (1979: 270) elaborating upon the work of Russian formalist and New Critics, states that literary texts ... while they may be related to contexts, are separate from them. They are complete in themselves, and their textual significance is necessarily enclosed within the limits of the form they take. Expanding upon this notion, he further remarks (p. 274) that the "literary text creates a secondary language system that is the result of organizing deviations from the communal language into patterns that are critically discernible in the very text .... the text subsists, or rather replaces, the functions of what in sociolinguistics would be distinguished as code and context."

SPANISH-ENGLISH LANGUAGE SWITCHING

particularly in bilingual poetry—represent configurations that would be most unlikely to occur spontaneously in everyday speech.
Spanish-English Language Switching

Spanish and English are two distinct languages with different grammatical structures and lexical items. When speakers switch between these languages, this is referred to as language switching. This phenomenon can occur in different contexts, such as bilingual communities, where individuals are exposed to both languages from a young age, or in situations where individuals have to switch between languages due to social, cultural, or communicative needs.

Language switching is a complex phenomenon that involves the use of different linguistic systems simultaneously. It can be seen in various forms, such as code-switching, in which speakers alternate between two languages within a single speech act, or code-mixing, where elements of two languages are mixed in a single speech act.

The study of language switching is important for understanding the cognitive and social processes involved in language use. It can provide insights into the mental representations of language, the strategies used by speakers to navigate linguistic boundaries, and the social and cultural contexts in which language switching occurs.

In recent years, research on language switching has focused on the cognitive and neural mechanisms underlying this phenomenon. Studies have shown that language switching involves the recruitment of different brain areas, depending on the nature of the switching task and the linguistic and social context.

The study of language switching is not only relevant for linguists and neuroscientists but also for educators, policymakers, and sociolinguists. Understanding the factors that influence language switching can help in the design of language education programs, the development of language policies, and the promotion of linguistic diversity.

In conclusion, language switching is a fascinating area of research that combines linguistic, cognitive, and social aspects. It offers a unique window into the human capacity for language and the complex processes involved in multilingual communication. Further research in this area is essential for expanding our knowledge of language use and its psychological and social implications.
In addition to providing the basis for the study of the literary effects of bilingualism, an examination of written texts undoubtedly will reflect the major constraints governing code-switching and may be used to corroborate observations of spontaneous utterances. The data of recent interest in the linguistic thinking to construct a theoretical computer-based model remain those representing the spoken language, which exhibits a greater diversity in terms of switching than which presumably can be taken as evidence of the relative output of what amounts to linguistic apparatus the speaker possesses to store what for the linguist are two distinct codes.

One traditional approach to determining linguistic constraints on code-switching has been to examine the semantic dimension, to observe in which domains switches occur. Thus, for example, it may be observed that a woman will switch when talking about cooking, children, etc. A man might switch in discussions about sports, war, women, and so forth. Although apparent based on semantic factors, it is obvious that this type of determination relies heavily on the psychological or affective domain and that it is the context and level of the conversation that facilitates language switching. A similar observation might be made in the case of diminutive suffixes such as -ito and -ita, which represent a different type of code-switching in the stylistic level areas of an entire language. There are obvious semantic categories that encourage diminutives in speech (e.g., "un fertilizador" "a small farmer") or diminutive suffixation (e.g., "tumbado" "a leaning," "oceanico" diminutive suffixation). Not everything, however, is obvious. The affective variables, which determine the appropriateness of diminutive usage in a given situation. Once again, purely semantic criteria, although they are necessary, are not sufficient to predict occurrences of diminutive forms.

An analysis of the effective variables constraining code-switching in a monolingual system is necessary, to any theoretical linguist, to understand the exigencies of natural language grammar. They are highly dependent on psychological factors that may, when examined, determine overuse of semantic constraints and form new communicative strategies. As with the case of literary example, when investigating spoken examples of Spanish-English language variation, it is necessary to distinguish between intrasentential and inter-sentential switchers in addition to the more general use of lexical or syntactic constraints. An example of the speech of a monolingual speaker, bilingual in the United States as and the reasons for preferring one language or the other are often quite subtle and varied.

A necessary prerequisite for such dual language behavior is that the learner be able to understand both languages and are willing to participate in a bilingual conversation. The presence of a monolingual speaker is usually enough to get an end to monolingual switching, while the participation of an individual who does not wish to spread the speech is another factor. For example, a native speaker, when the learner can have the ability to use an older parent, relative, or neighbor, may simply reduce or eliminate casual switching between the languages. Panelli (1979) has shown that even a very young age (around 2 years) bilingual children can already express such emotional states and act accordingly. Assuming these constraints have been controlled, the context of speech (is it Spanish or English) becomes a fundamental identity marker in speakers whose linguistic abilities allow them to express themselves equally well in both languages. Determining the latter is exceptionally important in practice than might be supposed.

Early observations of code-switching, which frequently sought to explain to bilinguals linguistic behavior, suggested that language switching, particularly from Spanish to English, resulted from lack of familiarity with the term in the first language. Later studies, which demonstrated the elaborate and systematic nature of bilingual behavior, sought to refine the cumbersome definitions of lexical and semantic inadequacy. Likewise, cases of lexical deficiency were sometimes observed or ignored in these studies. Most contemporary investigations work on the notion that lack of familiarity with a term in a given language (as opposed to the lack of existence of a known or familiar term) is a sufficient cause of language switching, although it is not a necessary cause. At times, it might be suggested in both English and Spanish in the course of a bilingual switch does not necessarily mean that the two terms are equally recoverable from the memory stores. It may be the case that implication relations exist, that a presentation of the word or phrase in one language is necessary in order to retrieve the equivalent term in the other language. Examination of the speech of some bilingual speakers appears to bear out this possibility, since in a given speaker, such self-translation tend to occur always in the same order that is Spanish + English or English + Spanish.

It is conceivable that the label of the language to which the speaker is responding is indeed a sufficient condition for the language of the response. For example, the label of the language to which the speaker is responding is indeed a sufficient condition for the language of the response. The following is a proposition: let X be a speaker who can switch from English to Spanish (or vice versa). Then X is more likely to use English when responding to a question in English than when responding to a question in Spanish. This proposition is not difficult to verify, since it is a special case of the general proposition that language switching is a function of the language of the question.

In analyses based on syntactic categories, it has been verified that noun phrases are most readily switched, proper names are second, and adjectives are least frequently switched. This is understandable for several reasons. First, given the minimal loss of nouns in English and Spanish and the fact that the noun phrase is a canonical word order, a borrowed noun can easily be fit into a language without destroying any other elements or creating an invariant sequence. Moreover, nouns, being one of the most important classes of speech, represent the type of concept likely to be encoded in a noun phrase, for which the writer may not be found in one language or which, for whatever reason, appears more appropriately expressed in one language than in the other. It is thus quite possible to determine whether code-switching has occurred in the case of a borrowed noun or whether the word has merely become localized to the second language, since there is no accepted continuum between borrowing and switching. Switching is probably more common and the majority of examples observed in early studies on code-switching are concrete and involve a limited value from the psychological, linguistic point of view.

Of much greater interest and importance are analyses based on sentence function. For example, it is usually possible to switch at the phrase of clause boundary, as in

(1) He says que verbo mucho.

(2) We were down there extremely wretched.

Within prepositional phrases switches are possible, but usually not if they result in a three-word phrase with alternating English-Spanish constituents. Thus

(3) E mi class as mathematician

But not

(4) E mi class de mathematicas.
which does not differentiate between languages. Kules (1966) found that repeating a word in two languages had the same effect on perception in bilingual subjects as repeating it in the same language. Interlingual word associations produced the same results, and so the conclusion has been offered that the entire question of polar opposition in the bilingual storage of language is probably invalid and that bilingual competence may be characterized simultaneously by a shared component and a pair of separate components.

The evidence is thus far from clear, but all signs point to the principled interaction of the two grammatical bases of the languages of the bilingual. The fact that word-switching requires additional production time is irrelevant to the degree of integration of the two grammars, since it represents an artificial situation in which additional demands are placed upon the linguistic mechanisms of the speaker. More weight should be given to the observation, repeated for several different language pairs, that the reception time of switched utterances is essentially the same as for monolingual material. This indicates that at some level of processing the two grammars are not being kept apart, but are both subject to some central mechanism for executing the information content. A detailed examination of the syntactic structures of code-switched utterances may therefore be highly valuable in tracing the course of this bilingual generating mechanism.

In the case of Spanish-English bilinguals, several investigators have attempted to characterize bilingual intersegmental switching in terms of global syntactic patterns representing the common connections between the two grammars in question. This has led to the suggestion that in most cases when a switch occurs the portion of the sentence following the switch will have the same essential syntactic pattern in both languages. One of the first attempts at offering an explicit formulation of this constraint is found in Liebke (1975: 270).

Given an underlying semantic representation S, let X and Y be the actual realizations of S in [language] L1 and L2, respectively. Furthermore, for any point p in S, where p = 0, 1, let α, β, and γ indicate that portion of S, lying to the left of p, and let h, i, and j denote that portion of S, lying to the right of p. In order to produce a code-switched utterance by combining X and Y, with a break at p, it is necessary that h and j be syntactically equivalent.

A similar formulation was independently arrived at by Poplack (1977), namely that just xing L1 and L2 elements does not violate a syntactic rule in either language. The above constraint accounts for the fact that, when considering overall sentence form, certain types of shifts are obviously prohibited over others. If the portion of the sentence following the shift is essentially the same in syntactic terms, regardless of which language is used, then the shift can proceed as required, facilitated by whatever other psychological and affective factors come into play. Thus in

(5) My cat likes two carrots.

The English version of the post-switch portion would be "is a carpenter." Following the same syntactic pattern. A similar case would be

(6) There are many families in the black que sistem clainique.

where the English post-switch portion would be "who have casually children," again following the same syntactic pattern. It is not difficult to imagine cases where such congruence would not obtain, thus in the English sentence

(7) This is the car that we parked last week.

A switch would be nearly impossible after that, since in Spanish the proposition must precede the relative pronoun de la casa... A switch before that would be possible, since the
SPANISH-ENGLISH LANGUAGE SWITCHING

moment of concerning the thought and does not rely on a specific well-formed sentence in each language for its realization. Consider also the

(11) Na, qué pescado más raro.

If this sentence had been constructed in Spanish, it would be

(12) Na, qué pescado tan raro.

The relative order of verb and object pronoun varies, but the order of the adverb and main verb is identical. Following the conjunction porque, both languages use the normal declarative order. In reality it is not even necessary to fully specify the remaining parts of the sentence in order to substitute the acceptability of a shift following the conjugation. In other words, we may postulate that following the conjugation nearly any final clause could theoretically occur, since it is already implicitly known that a declarative order will result in both cases. The subject pronoun is optional in Spanish, but if it occurs it will be found in the same place as in English. Adverbs will also occupy the same additive position. With processus present the only major difference (although fully specified direct and indirect objects are identically placed in both languages), but in a case of their syntactic and lexical differences—syntactic parts of the verb phrase—it is probably not as significant that the order of the individual constituents is somewhat different.

The above observations suggest that the constraint on relative syntactic identity following the point of the switch can be supplemented by subordinated to a more general condition, that the material following the switch in the two languages be somehow comparable without the need to produce a complete sentence in each language either through synthetic concomitance or through a reasonable translation based on clues found in the previous portion, which must be the postswitch portion, even if slight deviations from total concomitance may occur. Then,

(13) It's the first thing (que se nos cruzó) que veíamos a los santos.

Here the inverted se nos cruzó que is considerably different from English it seems to me that, I think, that, etc.; however, following the concomitance suggestion, we need not express the notion of "looking good on a girl," one knows that as an additional condition, which hereafter, with que as a similar element must occur. One knows that in general the word order is predictable following such a concomitance, although Spanish exhibits more variations than does English, for examples the inversion of subject and verbs

(14) Es una cosa que veíamos a los santos.

This is a fact that makes sense in Spanish. It is not crucial to the possibility of a switch, since both expressions are short, stereotyped forms, almost automatized, which fit nicely in between the two complements, thus not affecting the overall semantic value of the sentence. The main constituents are quite similar.

(15) It's the first thing that looks good on a girl.

(16) Es el primer thing que veíamos a los santos.

Such parallel concomitances have apparently motivated the "dual structure principle" of Brachter (1980), roughly that the internal structure of an L sentence is the same as the L sentence in a declarative sequence as long as its overall co-location corresponds to L rules. It must still be postulated, however, that a stronger constraint may be defined, at least for Spanish, for a certain amount of looking ahead does occur in such cases as objective case, where an adjective or other pronominal must agree with an element that may not occur until much later in the sentence.
Additional evidence for a vague but nonetheless real perception of material about to occur in a sentence comes in what Jacobson (1976) calls an "anticipatory embedding," where a switch is caused by a lexical item occurring later in the phrase which is unexchangeable with the language of the first portion. In most cases, these lexical items are proper nouns. Jacobson (1976: 22-23) gives examples, such as Sonny's line of a bar, a name that cannot be translated into Spanish and which itself causes a sentence originally begun in Spanish to be switched into English. However, although an item such as paster (in gold) or some for granted may not be easily rendered into Spanish so as to achieve syntactic fluency, it is harder to accept that the word paster in 

There is some evidence that Sonny asks a lot of people whether they speak Spanish to English that it forces the sentence to be switched to English. Thus it is necessary to avoid the circular reasoning that switches necessarily occur because of unexchangeability or lexical unavailability, within a given group of speakers. On the other hand, it is impossible to argue that a speaker, whose somewhat early in the sentence, that remains to be determined. (It is interesting to observe that a switch may occur only at certain boundaries. In (15), for example, switches are possible after conjunctions. Such word introduction of new clauses, that is, new propositions, into the sentence, therefore allowing for a single coherent idea to be presented in one language before switching to the other. Noisy may also be subdivided in an L1 environment, for the reasons mentioned above. This suggests that the speaker who switches is aware, consciously or unconsciously, of which language he or she is using at all times or at least of the necessity to stay within the same language except at certain indicated points. On the other hand, it is an observable fact that after a switch many speakers often are not aware of having switched or of the precise point when the switch occurred, particularly if there is more than one acceptable position within the sentence. The same holds for sentences which are asked to report on a switched phrase. The fact that speakers will in fact be switched with sentences in which the speakers will not necessarily switch. These sentences do not contradict the observation that they may not be aware of where the switch took place.

There exist certain pivotal points in the typical English or Spanish sentence, points which represent a convergence in the material representations in the two languages. Occurring of potential code switches may be grouped into two categories lexical substitutions and what may be called syntactically or grammatical shifts. Lexical replacements usually involve nouns, less often verbs or other parts of speech. The L2 word may be inserted into an L1 discourse due to lack of familiarity with the L1 term, or if an L1 term does not exist, due to psychological pressure, etc. The important point is that the inserted L2 items are effectively bracketed by L1 elements, enough so as to be regarded, both subjectively and objectively, as insertions. In congruent shifts, the discourse passes smoothly from one language to the other and remains in L1 at least long enough to shift the linguistic focus from L2 to L1. The duration in L1 varies enormously: the discourse may shift back to L1 in the same sentence or considerably more L1 discourse may occur. The crucial point is that following the shift there is every indication that the speaker has transferred his or her attention entirely to L2, and is no longer merely inserting items in the midst of an otherwise L1 context. The actual point of the switch, however, cannot remain exclusively to one language or the other, regardless of the lexical source of the words involved. This is because the elements in question serve as pivot points or entry points between the two codes and must therefore remain in some sort of metasyntactic relationship, words, which in a sufficiently well-defined context, permit a code shift to occur. On the other hand, to postulate an entirely separate metasyntactic perception neither to L2 nor to L1, merely to accommodate the pivot points (which do, after all, belong to real languages available to the speaker) is entirely gratuitous, especially since these same elements in other contexts may not be switch points and may be unambiguously analyzed as pertaining to a single language. Needed is a model of the situation by means of which certain elements cause (or more accurately, facilitate) a switch by virtue of a unique form of category inclusion. The highly syntactic state of research into the psycholinguistics of code-switching presents little more than a black-box situation in which one sees the input and output of a system without gaining any substantive knowledge as to the system's internal mechanism. The system in this case is the linguistic organization of two codes and the process permitting congruent shifts, and the black box is the assignment of appropriate category values to the specific elements of phrases. To model this situation, the mathematical theory of fuzzy subsets is of great utility and some tentative first steps in the direction of an integrated theory of code-switching have already been taken.

In essence, the theory of fuzzy subsets represents a generalization of the notion of set inclusion. In classical Boolean set theory, a particular element x is a member of a given set A if x is not A. Fuzzy logic permits the membership of a set inclusion to range continuously between zero (representing no membership) and one (representing full membership). The intervening values perturb the "fuzzy" portion of the spectrum, where an element in a set both belongs and does not belong to the set in question. An elaborate computational theory has been developed to permit the arithmetic manipulation of fuzzy sets and subsets, but in order to apply them in particular circumstances the theoretical notions must be given a substantive content.

We may, for the purposes of discussion, assume the entire universe of discourse to consist of the union of the two languages L, L2. Therefore, we may define the complement of L, to be L and vice versa. Furthermore, one may assume that the intersection of the two languages L1, L2 (i.e., those elements common to both) is empty, although strictly speaking this is not true in the case of English and Spanish. It is then necessary only to define coefficients c, of inclusions in one language since the complement \[ c = 1 - c \] represents the degree of inclusion in the other language. Thus for every element c one may define the coefficient of inclusion c, which represents the degree to which c belongs to L, \[ c = 1 - c \] then represents the extent to which the opposite c belongs to L, in other words, \[ c = e \]. These coefficients are a natural expression of the logical code-switched phrase. In most cases, it is assumed that the
coefficients of the elements will be either zero or one, or close to these points, that is, the words will be identified as either L1 or L2. The case of mixed nouns or partially non-conjugated verbs in more complex gives the range of variation that has been shown for each borrowing. If only one L1 item is inserted into an otherwise L2 context, this suggests that the coefficient of the L1 item is relatively low. It is, however, probably not zero, given that the following context influences it to all L1 orientation. It is also necessary to consider the degree to which the L2 item has been integrated into the lexicon of L1.

Some borrowed words have become so frequent that they become lexicalized, and it is not always possible to positively identify such words. In many cases pronunciation will provide clues. For example, when speaking Spanish a bilingual speaker pronounces an English word with a Spanish accent, this may suggest complete integration of the word. However, it is also possible that bilingualism and in particular the more pronounced speaker's command of English phonology, the less the likelihood of doing so. So-called "cultural quotes" are another indication. When a speaker verbally brackets an inserted L1 word by a pause, an exaggerated pronunciation, a particular facial or body movement, etc., one may assume that the word is still identified as foreign to L1. The same would hold for words which, regardless of their pronunciation, do not participate in the normal morphological and syntactic patterns of L1. For example, if someone says "very rarely he is a student", the word is probably L1, with a low coefficient, although one might argue in this case that the entire combination of L2 and English word has become lexicalized. Similarly, when one says, perhaps facetiously, "he's going to get so much madder, pronouncing madder with English phonological patterns, the word madder behaves neither as an English word nor as a Spanish word; it is foreign to the overall context of the sentence.

Clyne (1987, 1988) in the course of an elaboration of the "trigger categories" speaks of "overlap borrowing" words, that is, words which have the same essential form in both languages, such a word "assesses the speaker's linguistic position". He momentarily forgets which language he is speaking, and later unites automatically is the other language.

Overlapping words in Clyne's theory are also characterized by fuzzy category membership, in this case because of morphological configurations that must be bound up with syntactic considerations, since the same word may be ambiguous in one context and unambiguous in another. It is this type of lexical ambiguity that has been employed in many bilingual dominance tests, where the same item is either graphically ambiguous (Spanish: English dune, capital, pam or phonetically ambiguous (Spanish: English ay) is presented to subjects to elicit a category membership value. Bakin (1976, 1978) similarly reveals a mechanism for unambiguous switching "caused by a trigger word, usually resulting from pragmatic association." Johnson (1974, 1986) notes that "conjunctions like que seem to leave the speaker's level of awareness and surface therefore unapparent." At the lexical level, Albert and O'Brien (1978, 215-17) review pertinent literature and indicate that even under the best circumstances language switching is imperfect, although there is a tendency for accuracy to increase with the speaker's competence.

Most previous discussions of categorical ambiguity have dealt with the lexical level, although Albert and O'Brien (1976, 250) remark that "in some cases these syntactic structures that occur in only one of the two languages must be tagged as pertaining to that language." It is clear that the notion of ambiguous category membership must be extended to the syntactic function of individual items as well as to more expressive syntactic structures in order to fully characterize the language switching potential of the bilingual speaker. The question of fuzzy set membership becomes most useful when considering the pivotal points at which component shifts occur, for it is at these points that one finds the strongest

Spanish-English language switching

evidence of vague category membership. Syntactic switchings such as porque, since, and, pero, etc., lexically belong to a single language, but in view of their relational function and the potential for redirecting the discourse into the other language, they are prime candidates for fuzzy set inclusion. In a sentence such as

(19) They are various families in the neighborhood with whom I chat.

we are to the fuzzy joining, belonging with others entirely to English not despite its lexical origin entirely in Spanish. The precise value of its coefficient cannot be precisely specified at this time, but the mere fact of its Spanish origin is not enough to argue for a coefficient less than 0.8 since if the word was replaced by a less acceptable sentence would read.

(20) They are various families in the neighborhood that I chat with.

This is presumably a question of transition probabilities. In English due is regularly followed by a minimally conditioned form often identical to the definite. In Spanish, que usually demands a subjunctive form, which, as we have seen, conveys more information about its English counterpart. The opposite switch sounds equally strange.

(21) Hay varias familias en el barrio que he visto.

In definition, a coefficient of 0.5 implicates the possibility of a congruent shift at that point, although it is possible that additional research will reveal more subtle distinctions that result in finer subdivisions. The connection and is another candidate for a value of 0.5. Not only does it permit ready switches, but semantically as well syntactically it contains equivalent phrases. Neither is considered synonymous to the other, except in such linear order domains that one seems first. Even a correctly subordinated conjunction, the equivalence of clause structure stems to hold, although a dominance relation is defined. When dealing with adjectives, another frequent source of shifts, it is difficult to separate true switches from lexical insertion. In most cases it is easier to shift from English to Spanish than vice versa.

(22) Los viejos caballeros

(23) Los viejos caballeros

The second possibility may be related to general grounds of providing too many switches in a short space. The relative position of adjectives in the two languages does not need. In most cases, Spanish prefers adjectives occurring after nouns, although some exceptional adjectives may also precede the noun. This occurs especially with several adjectives in a combination, to avoid difficult or impossible constructions.

(24) Los principios de otras modernas escuelas

Plant (1979, 306) points out that in noun + adjective combinations, it is necessary to match the word order of both the language of the adjective and the language of the head noun. In English in nearly all cases adjectives precede the noun; this is often sufficient to define as adjective formed from a noun or verb. In switching between adjective and noun from English to Spanish, a possible although less likely syntactic congruence is forced; one could say

(25) Los viejos caballeros

Although (25) would be more common

(26) Los viejos caballeros

Thus some form
On the other hand,
(27) his truck red
would be impossible in English; thus by beginning the phrase with su camioneta, the speaker has excluded the possibility of inserting a simple adjective; only an appropriate prepositional phrase or clause, following the same relative order in both languages, could be added:
(28) su camioneta que le da sabores.

In such a case it is not immediately clear how coefficients of category membership are to be defined. In the sentence with the phrase le da sabores... there is nothing in the context to suggest fuzziness of category membership, rather than the fact that a similar sentence could be formed in Spanish. It is not until the moment of the lexical insertion of a Spanish word such as camioneta that the context becomes shifted toward English. If camioneta is considered by the speaker to be a purely lexicalized borrowing from English, then a switch has not really occurred and there is no reason for the context to shift so Spanish. A high coefficient could be posited in these circumstances. If, on the other hand, the word is used with full awareness of its membership in Spanish and its non-inclusion in most styles of English, then a shift has occurred and the coefficient of camioneta must be .5 or less. What constitutes the difference in coefficients for the same item in the same syntactic and semantic context? The only available differentiating factors are pragmatics and psychology, which underlies again the impossibility of providing a purely mechanical algorithm for assigning category values. In this particular case one may postulate a multistage process. Assuming that the context continues in Spanish, the first stage would be lexicalization. If the word is felt to be entirely Spanish then merely has lexical replacement.

The same word, however, may shift to a higher coefficient closer to the value of .5 needed to occasion a shift, if the combination of a permissible environment and the frame of mind necessary to shift languages is present. Thus the value of the coefficient of camioneta would be composite arrived at by combining the following orientations: the category value of the item in absolute terms; the intent to switch languages or to merely insert a foreign word; and the permeability of the syntactic environment toward a congruent shift. In the above case, we assume in absolute terms that camioneta has a relatively low value, signaling that it belongs to Spanish. If one assumes that the two coefficients, strength of the scale of semantic permeability and willingness to switch, increase according to the parameters involved, these factors would raise the value of the item; in a properly weighted mixture, if the palliating coefficient is around the hypothesized value of .3, a switch would occur. Such an approach is only a first approximation, but all evidence points to the contributions both of specific syntactic elements and of psychological and pragmatic factors in assigning the value of category membership; it is the precise weighting mechanism that remains to be worked out.

A promising line of research currently being pursued is the determination of category membership values by means of short-term memory repetition tasks, in which subjects are asked to repeat sentences that contain internal code shifts. Errors in language identification appear to correlate rather well with postulated "fuzzy pointers" such as conjunctions and it is certain other configurations where a switch is possible more than one in a sentence. It is hoped that an extension of this methodology will enable the determination of category inclusion values for other sentence constituents, although for elements at some distance from the point of the shift such a procedure will probably never be refined to the point where it will yield useful results. On the other hand, items far from potential switchpoints offer fewer problems to the bilingual theoretician: it is a determination of the increased potential gradient that eventually triggers the switch that is the hoped-for result of fuzzy models of language switching.

SPANISH-ENGLISH LANGUAGE SWITCHING

Kaufman (1975: 47) has stated that

non-possessed, in addition to the facility of reckoning and thinking logically, that of taking things into account globally or in parallel,... the global or parallel reasoning, as opposed to logical reasoning, is fuzzy and must be fuzzy. A being having the possibility of intuitive, preverbal, and even a point of view, more or less fuzzy information and acts itself.

The incorporation of a mechanism of fuzzy inclusion presumes a greater rapprochement between the two grammars of the bilingual than has frequently been postulated, but such interconnections are already signaled by the comparative case with which the transition is made between the languages. Given the lack of precise psychological or physiological information on language storage and transfer, bilingual code-switching must be modeled as a black box. Such a methodological approach in no way purports to explain language switching from a developmental point of view but rather to characterize language usage in a bilingual context. Semantic factors alone are not sufficient to account for allowable switches; neither are linguistic property considerations or psychological desires (although the latter could, if forcefully enough driven, cause a switch under nearly any condition). What is needed are synthetic approaches that provide for an evaluation of the contribution of these various factors, modeling the manner in which they interact to provide a smooth and often unconscious transition from one language to the other.

Fuzzy subset theory is a form of statistical modeling and yields numerical results that represent, in effect, percentages of occurrence, real or potential. As such, fuzzy subset modeling shares a similarity with the methodology of variable rules, which has arisen from detailed sociolinguistic investigations and has reached a high degree of formal mathematical precision. In particular, variable rule models have been applied to Spanish-English code-switching by Poplack and Sanzoff (1981), as part of an ongoing research program designed to yield a precise model of bilingual code-switching. Numerical data for the establishment of variable rules and fuzzy category values may in fact be derived from the same corpus of code-switched data; the principal difference lies in the interpretation of the data and the metalanguage on which they are applied.

A variable rule deals directly with the level of discourse, indicating the frequency of occurrence of a given phenomenon and relating this frequency to other parameters under investigation. The frequency of given code-switching types is not tied automatically to the determination of category membership values, although it is clearly related. The variable rule describes the dynamic occurrence of the switch, while the category inclusion value, which must be inferred indirectly and therefore operates at a higher level, relates to the intuitive psycholinguistic representation of individual elements in a sentence. A category value which is sufficiently fuzzy may trigger a switch, and vice versa; the category inclusion value, which is sufficiently high, may prevent a switch, and vice versa. Therefore, the relationship between the variable rule and the category inclusion value is one of interaction or mutual regulation.

The great proliferation of models and methods employed to study bilingual code-switching, even when remaining within the relatively limited purview of Spanish-English bilinguals, demonstrates that the ultimate goal of a unified linguistic description is still distant. However, with respect to the psycholinguistics of bilingualism, as reflected by language switching, significant progress is being made. It can be seen that several distinct research programs are progressing in parallel fashion and may eventually be unified and refined further.
A key feature in the contemporary analysis of code-switching is an abandonment of dichotomous linguistic compartmentalization models which posit either wholly separate grammars for a single homogeneous underlying grammar, or single homogeneous underlying grammars for a single heterogeneous underlying grammar. Researchers are coming to accept that all bilingual speakers, regardless of their ethnic background, determine in the manner in which they learn the language and the community in which they live, exhibit characteristics of both homogeneous grammars and a unified underlying system and that it is infeasible to force a choice between whether or not a real two- aspects of a single phenomenon. Once this fundamental hurdle has been overcome, it becomes possible to accept language switching behavior as a manifestation of the degree of integration of the bilingual mentality and to use the derived data to model the lingual competence of the bilingual speaker. This competence is itself subject to formalizable linguistic constraints and governed by the infinite variable psychological forces that interact and unite to produce the singular behavior that is language switching. The search for adequate models and refinements, already well underway, will go on, as code alternation is seen less as a curiosity and move as a subject for serious research, and the less word probably will never be taken on the topic. These are certain justities to be found in the fact that the language behavior of a group of language-composed linguistics is now proving to be the most fertile territory for the investigation of all levels of bilingualism. Even more important, the interaction of English and Spanish is seen as a structured process, forging new forms and creating a distinctive place for itself among the linguistic communities of the world.

UNIVERSITY OF HOUSTON

None

The search for adequate models and refinements, already well underway, will go on, as code alternation is seen less as a curiosity and move as a subject for serious research, and the less word probably will never be taken on the topic. These are certain justities to be found in the fact that the language behavior of a group of language-composed linguistics is now proving to be the most fertile territory for the investigation of all levels of bilingualism. Even more important, the interaction of English and Spanish is seen as a structured process, forging new forms and creating a distinctive place for itself among the linguistic communities of the world.

UNIVERSITY OF HOUSTON

Notes

1. Slavin (1978, 20) notes that there is little research evidence of code switching in written documents, but literary ellipses are excluded from this discussion.

2. Cf. the discussion in Kupisch (1979, p. 168) for a similar argument in written and spoken Spanish-English bilingualism.

3. Variations in the argument, although often supported by similar rhetoric, have been noted by Gumperz (1977, p. 110), Traum (1974), and others.

4. See Lipke (1976) for a discussion of the essentialist and practical aspects of this phenomenon, including a review of pertinent literature.

5. For example, notes Rosenshine (1972), the nearly self-evident fact that students, and social conditions that are in a social situation, are influenced by the speech acts performed. The same argument could be made for language spoken in a social setting, in which the language acts performed are determined by the speech acts performed in the social setting.

6. See Lande (1978, p. 328) for further discussion of this issue and for the social setting in which the language acts performed are determined by the speech acts performed in the social setting.


8. Cf. the discussion in Kupisch (1979, p. 168) for a similar argument in written and spoken Spanish-English bilingualism.

9. For example, see Lande (1978, p. 328) for further discussion of this issue and for the social setting in which the language acts performed are determined by the speech acts performed in the social setting.

10. Cf. Lande (1978, p. 328) for further discussion of this issue and for the social setting in which the language acts performed are determined by the speech acts performed in the social setting.


12. Cf. the discussion in Kupisch (1979, p. 168) for a similar argument in written and spoken Spanish-English bilingualism.


---


---


---


---
