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The most important controversy in the study of syntactic constraints on code mixing concerns the question of whether these should be linear and/or structural in nature. Linear constraints generally involve the idea that mixing is allowed when the orders of both languages are respected. Structural constraints state that mixing is allowed when the requirements of structural 'coherence of both languages are respected. Here I want to argue that these views may in fact both be correct, and focus on ways of evading these constraints, by creating linguistically 'neutral' sites in the sentence, sites at which consequently switching becomes possible.

I will illustrate the perspective that emerges with examples from French-Dutch (Treffers, 1987) and Moroccan Arabic-Dutch (Nortier, 1987) code mixing, all work done by the Amsterdam research group, and from other sources in the rapidly growing literature on code mixing. In section 1 I will explain in what way I am using the term code mixing, and what that entails. In sections 2 and 3 I look at the two principal types of constraints on code mixing proposed in the literature already mentioned above. Section 4 is dedicated to neutrality in code mixing.

1. Code mixing

**Code mixing** I define as the use of two languages in one clause. By language I mean a matched pair of a grammar and a lexicon. As such code mixing is different both from **lexical borrowing**, which involves one grammar, and perhaps more than one lexicon, and from **grammatical interference**, which involves one lexicon, and more than one grammar. Schematically:
I am using subscripts to indicate the language to which an element belongs.

In (2) we see an example of structural interference:

(2) You can it Friday do.

Here the German or Dutch word order pattern with the main verb at the end shows up in an English sentence. It should be mentioned right away that little is known about this type of process, except that it exists. We do not know with what kind of bilinguals it occurs, in which speech situations, how it is structurally constrained, etc. Neither do we know how it is related, if at all, to the type of interference or transfer found in second language learning processes, etc.

The phenomenon of lexical borrowing likewise poses considerable problems, but it is fair to say that more is known about it. Notice that the definition above is purely synchronic, it does not cover words that have been integrated into the lexicon at some earlier stage in history. In (3) we see elements in various stages of integration into the lexicon:

(3) a. guest ellaam paathein
    all see (1p-sg-past)
    I saw guests and all.

    Tamil-English
    Sankoff, Poplack & Vanniarajan, 1984

    b. The maitre d' helped us find a table.

    c. denial

    d. priesthood

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In (3a) the borrowed element is completely unintegrated into the language; in (3b) it is partly integrated phonologically, but recognizably foreign; in (3c) it is integrated but has "non-native" morphology, -al, and in (3d) finally it is integrated with "native morphology", -hood. Schematically, the progression from (3a) to (3d) may be represented as in (4):

(4)

How it is possible that there are such intermediary stages and how to account for these stages is not known yet. For one thing, it involves a more precise theory about the relation between the lexicon and the phonology, since one of the indices we have for lexical integration is phonological. An element of type (3a), i.e. a completely unintegrated borrowing, is called a nonce borrowing.

An important question is whether in the case of nonce borrowing still belongs formally to the non-native lexicon, or has been incorporated into the native lexicon without yet having been integrated into it. This question will come up again in section 4. The two options are sketched in (5):

(5) a. lexical borrowing    b. code mixing

In most cases there is no way to distinguish these situations empiric-
ally, but I will argue in section 4 that the classification of an element as belonging to a non-native lexicon implies that the syntactic node at which point it is inserted also is indexed as non-native. One set of cases that is problematic is when the syntactic category of the imported item is not present in the host language, as in (6):

(6) sin kachi
    without salt

Here the Spanish preposition sin is introduced into a (Ecuadorian) Quechua text, but there are no prepositions (and in fact very few real postpositions) in Quechua. We have to assume here that syntactic categories can be borrowed as well as words belonging to a syntactic category.

Code mixing, finally, can be illustrated with examples such as (7)-(9):

(7) You can it ZONDAG DOEN   English-Dutch (Crama & van Gelderen, 1984)
    You can do it on Sunday.

    Women and wine I don’t know much about.

(9) Lo puso UNDER ARREST   Spanish-English (Lance, 1975)
    He arrested him.

Code mixing is not an isolated phenomenon, but a central part of bilingual discourse, characteristic of fluent bilinguals. It appears, however, that it is not possible to mix two languages arbitrarily. The process seems to be subject to linguistic constraints, and a number of researchers have tried to discover what these constraints are.

Before looking at constraints on code mixing in more detail I will make a few more general remarks. First of all, I will continue making the perhaps counterfactual assumption that there is a general phenomenon of code mixing, which can be studied in different linguistic and societal settings, but for which general laws hold. Second, we must find a way to allow for performance errors in code mixed discourse, in order to be able to formulate general constraints, without reducing the empirical validity of our theory to nought. Third, just as the study of lexical borrowing crucially depends on a precise theory about the interrelation between phonology and the lexicon, the study of code mixing, at least as I view it, presupposes a clear understanding of the interrelation between syntax and the lexicon.
2. Linearity constraints

**Linearity** constraints generally state that switching from one language to another in the middle of a sentence is only possible if the linear order of sentences in both languages is preserved. Although Lipsky (1978) and Pfaff (1979) already had made a similar observation, the first explicit statement of this principle we find in Poplack (1980): "Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, i.e. at points around which the surface structures of the two languages map onto each other."

To see what Poplack meant, consider an example such as the following involving possible switches between Spanish and English:

(10) **Eng** I told him that so that he would bring it fast
    **Sp** (Yo) le dije eso pa'que (el) la trajera rapido

In (10) the vertical lines indicate places where the word order in both languages is equivalent, and hence, where a switch is possible. Where there are crossed lines, switching is impossible. Note in passing that the idea of base language plays no role in Poplack's theory.

Woolford (1983) gives a reformulation of Poplack's equivalence constraint in generative terms: when the phrase structure rules (that specify word order) of both languages are identical, switching is possible; otherwise, it is not. An example would be the relation between a verb and a full noun phrase in English and Spanish. In both languages we have a phrase structure rule as in (11):

(11) \[ VP \rightarrow V \ NP \]

This implies that in (20) it is possible to switch:

(12) **Eng** sees the house
    **Sp** ve la casa

Joshi (1981) and Doron (1981) have come up with the claim, on the basis of considerations from the mathematical theory of syntactic parsing, that the first word of a sentence or a constituent determines
the host or base language, and properties of the host language determine whether switching is possible or not. For a case such as (12) this leads to the same predictions as the theory of Poplack and Woolford, but for adjective-noun order different predictions follow. For a large class of Spanish adjective-noun combinations, we have a phrase structure rule as in (13a), and for all English cases a rule as in (13b):

(13) a. Sp NP → Det N Adj  
b. Eng NP → Det Adj N

Poplack’s Equivalence Constraint predicts no Spanish/English adjective-noun switches, while the model of Joshi and Doron predict that the following are possible:

(14) a. the BLANCA house  
b. la casa WHITE

In (14a) the English determiner imposes English syntax on the noun phrase, and in (14b) the Spanish determiner Spanish syntax. Predicted to be impossible, on the other hand, are the forms in (15), the mirror of (14):

(15) a. * the house BLANCA  
b. * la WHITE casa

Sobin (1984), finally, comes up with the following constraint: when there are semantically relevant word order contrasts within a given language, it is impossible to switch at that point. Again, the example of adjective-noun combinations is pertinent, since in Spanish the pre-noun position of the adjective is semantically restricting, and the post-noun position modifying. This implies that (14b) and (15b), where the adjective is English, would be alright, and (14a) and (15a) out. Clearly the predictions of all these theories differ wildly; we will not go into the question here of which of these theories is right. Most probably none of them is in its present form, and the data, in part recorded, and in part panel judgements, are contradictory. What the theories share, however is that the linear order of the elements determines what is an allowable switch or not.

3. Structural constraints

A rather different approach is taken within models which stress structural dependency rather than linearity. The basic idea in this approach is that there cannot be a switch between two elements if
they are lexically dependent on each other. A first implicit statement of this restriction is given in Shaffer (1978), but the most explicit formulation is given in work by DiSciullo, Muysken and Singh (1986). These authors develop a restriction in terms of government, a traditional grammatical notion which has received a formulation within the theory of Government and Binding of Chomsky (1981). The restrictions is that whenever constituent X governs Y, both constituents must be drawn from the same language. Typical cases of government would be case assignment, as in the Latin example (16), or subcategorization, as in (17):

(16) ad Urbem
    'to the city'

(17) to wait for somebody

In (16) the Latin preposition ad takes an accusative complement (-m), and in (17) the verb wait subcategorizes for the preposition for.

The government restriction on code mixing predicts that ungoverned elements, such as tags, exclamations, interjections, and most adverbs can easily be switched. This prediction is overwhelmingly supported by the available evidence. However, governed elements are also switched sometimes. How can this be reconciled with the government restriction? DiSciullo, Muysken, and Singh (1986) claim that this is accomplished through a neutralizing element, such as a determiner. The theory predicts the following contrast in acceptability:

(18) a. veo los HORSES
    b. *veo THE HORSES
    I see the horses.

The switch in (18a) would be acceptable, since the Spanish determiner los would make the whole noun phrase Spanish, as far as the government restriction is concerned, and (18b) would be an impossible switch because the whole noun phrase, even though governed by a Spanish verb, would be English. Again, it is much too early to see if the predictions made by the government theory are factually correct, but the large number of switches between the determiner and the noun found, among others, by Pfaff (1979) suggest that something like the contrast between (18a) and (18b) may be relevant.

Proposals similar to the one by DiSciullo, Muysken, and Singh (1986) have been put forward by Klavans (1983) and by Bentahila and Davies
Klavans argues that it is the language of the inflected main verb or the auxiliary of a clause that determines the restrictions on code mixing in that particular clause, since those elements constitute in some sense the syntactic head of the clause and govern the rest. Bentahila and Davies, using Moroccan-French code mixing as an example, argue that the subcategorization properties of a word determine what elements, including elements of another language, may appear within the phrase syntactically headed by that word. The following contrast illustrates their approach. There is a contrast the switches in (19) and (20) are ungrammatical, in their view because the French determiners in (19) subcategorize for a simple noun without the article /, and the Arabic determiners in (20) subcategorize for a noun with an article. In neither case is there a violation of the word order of either language:

(19) * CETTE xubza
    * UN fqi
    * this the loaf
    * one the teacher

(20) * had PAIN
    * wahed PROFESSEUR
    * this loaf
    * a teacher

Again, something like the notion of government is at play: for Bentahila and Davies' proposal to work, they have to assume that the determiner and the rest of the noun phrase are in a government relation.

It is important to stress that the linear and the dependency approaches to code switching correspond to two aspects of the sentence planning process: linear planning (how am I going to put the words in a string) and content word planning (which main content words is my sentence going to contain).

4. The search for neutrality

Now that a wider range of data is becoming available, it is important to see how the general principles sketched in 2 and 3 interact with relativized constraints, resulting from the interaction of universal principles and aspects particular to each code mixing situation. The need for relativized constraints becomes clear when code mixing involving more languages is studied and when different types of mixing are taken into account. On the empirical level we find the extension of code mixing studies to mixing involving non-Indo-European languages. On the theoretical level there is a widening of the scope of the concept of neutrality. So far we have seen two general kinds of neutrality, claimed to allow for intra-sentential mixing: linear neutral-
lity and grammatical independence. Linear neutrality involves a parallel word order of the two languages around the switch point, and grammatical independence the absence of strong syntagmatic links across a switch point.

Other types of neutrality exist and are systematically being explored, however. One type involves closely related languages, where neutrality may be achieved by a word being phonetically identical or very similar in both languages. This idea we find already in Clyne’s work, who terms these identical words *homophonous diamorphs*, and it is systematically explored in Crama and Van Gelderen (1984). They give examples such as the following Dutch-English switch:

(21) a. weet je (do you know) **what** SHE IS DOING

   b. you can it ZONDAG DOEN (do it on Sunday)

In (21a) the bold form could be equally well Dutch *wat* pronounced with a somewhat English accent or the English *what*. In (21b) it likewise can be considered neutral between Dutch and English. This type of ambiguity can be seen as an additional type of neutrality.

Another form of neutrality can be achieved by morphological means: the introduction of a morpheme that serves to nativize a word. A very frequent pattern here is the introduction of a ‘helping verb’, often a form such as ‘make’ or ‘do’. This is common in the Indic languages, and we see a good example of it with Surinam Hindustani-Sranan/Dutch/English mixed verbs (from Kishna, 1979):

(22) ONTI kare 'to hunt' SRANAN
    BEERI kare 'to bury'
    TRAIN kare 'to train' ENGLISH
    BEWIJS kare 'to prove' DUTCH
    DISCRIMINEER kare 'to discriminate'

You might say that the elements in capitals in (22) are really borrowings (from Sranan, English, and Dutch, respectively), but note that the process is completely productive and does not entail phonological or semantic integration into the host language. In fact there is a lexical structure of the type (V *kare*) available to insert alien
elements into, in which kare 'do' serves as the helping verb.

Similar examples are found in Tamil-English 'nonce-borrowing' (from Sankoff, Poplack & Vanniarajan, 1985)

(23) THROW pannaradu 'throw (inf.)'
     REPEAT panninde 'repeat (prog.)'
     USE pannuvaan 'use (3sg-masc.)'

Here a Tamil verb pann- 'do' serves as a helping verb.

It is not clear whether this type of example counts as a counter-example to the Free Morpheme Constraint formulated by Poplack (1980): no switch may take place between two morphemes which are morphologically bound to each other. Poplack illustrates this constraint with examples such as:

(24) * eat - IENDO
     'eating'

This switch would be ungrammatical because the verbal root is from English, and the gerund affix attached to it from Spanish. Now -iendo '-ing' is not a free morpheme, and hence there is a violation of the constraint. At the same time, she proposes to subsume lexicalized expressions under the constraint, and this would presumably include lexicalized expressions such as the ones in (22). One way out would be to say that the Free Morpheme Constraint holds for affixation, as in (23), but not for compounding, as in (22). This may not be a possible solution however, for examples such as the following.

We also find helping verbs in switches involving Amerindian languages with a complex morphology. The following example is from Navaho-English mixing (Canfield, 1980); here the Navaho verb anileek 'make-2nd person' carries the inflection, and is added to the uninflected verb show:

(25) Nancy bich'i SHOW anileek
     Nancy 3rd:to show 2nd:make
     Show it to Nancy.

In examples such as the Surinam Hindustani, Tamil, and the Navaho cases, the helping verb can be thought of as forming a complex with the verb from the other language, and neutralizing it as it were. Interestingly enough, this strategy is language specific, in the
Spanish-English code mixing literature, I know of only one example, from Pfaff (1979):

(26) hace TEACH    'teaches'

With nouns, we often have case suffixes functioning as morphological neutralizers. An example may be one drawn from the Hindi-English data in DiSciullo, Muysken and Singh (1986):

(27) BREAD_ne nás kar diyá
    erg. ruin aux
    The bread ruined it.

Perhaps the ergative particle _ne_ serves here to neutralize the offending English element _bread_, to which it is attached.

A similar example is mentioned in the analysis of Finnish-English code mixing (Sankoff & Poplack, 1985):

(28) Misis K. oli housekeeper_iina
    Mrs. K. was essive
    Mrs. K. was housekeeper.

Here the essive case marker _iina_ serves as the neutralizer.

A strategy similar to the use of helping verbs as in Sarnami Hindustani, (22), is by incorporating the alien element as a stem into a verbal compound. An example, again from Navaho (Canfield, 1980):

(29) na'iísh -CRASH la
    1st:pass out crash emphatic
    I am about to pass out.

Again, this strategy is very language particular, depending on morphological patterns of Navaho.

A less frequently found pattern of neutralization is found in Japanese-English switching (Nishimura, 1984). Here the verb is included in both languages, to avoid the problem of the conflicting VO/OV order of Japanese and English (switches between which would pose a problem for the equivalence constraint). A similar type of neutrality is achieved with Finnish-English adpositions (Sankoff & Poplack, 1985)
(30) Mutta se oli KIDNEYsta to AORTAan  
but it was from to to  
But it was from the kidney to the aorta.

Here both the English preposition to and the Finnish postposition -an occur.

An alternative to morphological neutralization and to the reduplication of elements the order of which may conflict is flagging, described for Finnish-English code mixing by Sankoff & Poplack (1985):

(31) Oli oikein niin kuin LATEST  
was really like  
It was really like the latest.

In (31) the semantically element niin kuin 'like' signals that there will be a switch, according to Sankoff & Poplack (1985). Similar cases of flagging have been reported for French-English code mixing in Ottawa in the Poplack corpus, and they occur also in the Brussels corpus of French-Dutch code mixing reported on in Treffers (1987).

(32) Ze hebben altijd zo’n kop, però, TÊTE CARRÉE  
They have always such a head, huh, square head

The reader should note in passing that the flagging strategy is the linear equivalent of the language index carriers discussed in the previous section with respect to (18). Two more examples are given in (33):

(33) a. es eso color como muy DARK MAROON (Pfaff, 1976)  
is that colour like very  
It is that colour like very dark maroon.

b. Io posso fare i CHEQUES (DiSciullo, Muysken & Singh, 1986)  
I can make the cheques.

The modifier muy 'very' in (33a) marks the transition from Spanish to English, coloring as it were the noun phrase 'dark maroon', and in the same way in (33b) the Italian determiner i colors the French noun phrase cheques.
A final strategy, which remains to be explored and may reduce to something else, is what might be termed the suspension of syntax. Both in (34a) and (b) the omission of the article (marked with a $\phi$) is ungrammatical in both languages in the mixing pair:

(34) a. Spanish-Hebrew (Berk-Seligson 1986)

    I ande ez $\phi$ KOTEL HAMARAVI, HAIR ATIKA, ai nasyo mimadre
    And where is Western Wall, the Old City, there was born my mother.

b. Moroccan-Dutch (Nortier, 1987)

    melli kanet 9end-i gad hak f-$\phi$ VIJFDE KLAS galet-hia
    when she-was with-me like this in 5th grade she-said
    When I was in fifth grade, (little) like this, she said.

Here there are morphological conflicts between Dutch and Spanish on the one hand and Moroccan and Hebrew on the other, with respect to the question of whether the article should be phonologically separate or attached to the noun. The way the conflict is resolved, Berk-Seligson suggests, is by simply omitting it.

We have seen a number of ways in which neutrality may be achieved by auxiliary strategies, that interact with the general constraints mentioned. These strategies depend on the characteristics of the particular language-pair involved, and perhaps also on the type of bilingual community. The challenge for future research is to arrive at a predictive theory with a higher level of generality. In any case it is clear at this point that in languages with agglutinative morphology, such as Finnish or Hindi, it is possible to neutralize an element by adding an affix or helping verb to it. This observation has two consequences: first, the non-native element apparently cannot be introduced without a native affix or helping verb to neutralize it; hence nonce borrowing does not involve one grammar with two lexicons, as in (1) above, but rather code switching inside a word or morphological phrase. Second, if that conclusion is correct, the Free Morpheme Constraint of Poplack (1980) is not correct for agglutinative languages.
REFERENCES


Sankoff, D., S. Poplack & S. Vanniaraian. 1985. The case of the nonce
loan in Tamil. Ms., Université de Montréal.
Shaffer, D. 1978. The place of code-switching in linguistic contacts. In
Sobin, N. 1984. Word order constraints on code mixing. *Journal of
   Applied Psycholinguistics*.