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RESEARCH NOTE

A response to MacSwan (2005): Keeping the Matrix Language*

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This comment responds to some of the criticisms that MacSwan (2005) presents of the Matrix Language Frame (MLF) model of codeswitching (CS) in general and of Jake, Myers-Scotton and Gross (2002), in particular. The goal is to point out misunderstandings and misinterpretations that are the basis of MacSwan's critique. His attempt to show how the Minimalist Program can explain CS on its own fails. Theoretically, while either of the participating languages in CS could frame the bilingual CP, only one, the ML, does. That is, recognizing the construct of the ML as the source of the morpho-syntactic frame of each bilingual clause showing CS is necessary.

This short comment is in response to Jeff MacSwan's "Codeswitching and generative grammar: A critique of the MLF model and some remarks on 'modified minimalism'" (MacSwan, 2005). Because MacSwan specifically critiques the Matrix Language Frame (MLF) model and our 2002 contribution to *Bilingualism: Language and Cognition* 5 (1), 2002, we feel it is appropriate for us to respond in this format because it can appear in a timely fashion. We would like to make six general points. When we refer to bilingual data or clauses, we are referring specifically to codeswitching (CS). Hereafter Jake, Myers-Scotton and Gross (2002) will be referred to as JMSG.

1. First, we differ with MacSwan on the very basics. MacSwan begins by stating, "A formal grammar is a DEFINITION of a language" (p. 2). Of course we don't dispute this, but its relevance in an article about bilingualism escapes us. The task here is not to define a language, but rather to evaluate a model explaining how the grammars of two languages participate in a bilingual clause. In his evaluation of a model of CS, MacSwan sees no difference in the principles governing monolingual and bilingual data. That is, he approaches bilingualism in terms of a model designed to explain monolingual data. Of course, any researcher would favor the most economical approach that explains a data set. That said, it is not surprising that different, modified, or additional rules, principles, or other constructs beyond what accounts for monolingual data are, indeed, necessary to account for bilingual data. That is, part of recognizing that monolingual and bilingual data are not the same thing is to acknowledge that such additions or modifications are likely to be necessary. However, MacSwan does not consider that such modifications may be necessary. He says, "it makes sense to formalize the grammar used for CS as the UNION of the two lexicons, with no mediating mechanisms" (p. 5). What he means by this is unclear, especially in light of his previous statement on the same page which refers to "mixed grammars". He never elaborates on what this "UNION" might be. However, later (p. 18), he argues that recognizing an asymmetry between the participating languages based on counting φ-features offers an explanation of CS data (i.e. CS follows the grammar of the language with more uninterpretable features in mixed XPs).

2. Throughout the paper, MacSwan sets himself up as the arbiter of what counts as legitimate CS data. Adopting the methodology of some syntacticians studying monolingual data, he asserts that "only negative evidence can identify the ungrammatical ones [expressions]" (p. 2). Presumably, this means grammaticality judgments are required. However, if certain structures do not occur in large CS corpora, we argue that this is equivalent to negative evidence – in fact, we would argue that it is superior. The problem is that testing grammaticality judgments does not take into account the negative evaluation that some bilinguals have of CS, including some who do engage in CS themselves (cf. Jake and Myers-Scotton, 1999). Elsewhere, MacSwan makes the curious statement that CS research should be based as much as possible on "the language of simultaneous bilinguals" (p. 2). But this is hardly possible. First, getting an accurate linguistic history of (adult) speakers is difficult. Second, studying only certifiable simultaneous bilinguals would mean ignoring the bulk of CS in the world. In addition, MacSwan determines which of the

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existing CS examples are acceptable, which are to be rejected, and which are to be reanalyzed, especially in response to JMSG.

3. Much of MacSwan (2005) is a rejection of the counter-examples to his PF-Disjunction Theorem cited in JMSG.

3.1. Consider what he writes about one of the counter-examples. On p. 14 his argument against the evidence that English verbs are typically not phonologically integrated into Swahili when they receive Swahili prefixes in a Swahili-framed verb form is that Bantu verb prefixes are clitics "as one would find in the Romance languages." MacSwan's analysis requires a rethinking of what it means to be an agglutinating language. That is, he argues that in the example *m-tu-evaluate* [2PL.SUBJ-1PL.OBJ-evaluate] "you should evaluate us", *evaluate* is not part of a word that includes Swahili agreement prefixes. Thus, his fragile argument is that *m-tu-evaluate* is not an example of intra-word switching, and that, therefore, one cannot argue that this is a word in CS data with phonetic material from two languages and, consequently, not a counterexample to the PF Disjunction Theorem.

3.2. Further, we are puzzled as to why he creates non-occurring examples (e.g. *a-tu-evaluate-s* [3SG.SUBJ-1PL.OBJ-evaluate-3SG-ENG] "he evaluates us") and then states that they do not occur. He also implies that because Pollock (1994) argues that verb raising does not apply to English verbs, it, therefore, does not apply to an English verb in a Swahili frame. He might have consulted published accounts of verb raising in Bantu languages (see Demuth and Harford, 1999; Harford and Demuth, 1999; and Ngonyani 1999). Under the MLF model, Swahili is the Matrix Language, and therefore, the frame requirements come from Swahili. That is, what happens in monolingual English is irrelevant.

3.3. MacSwan dismisses other data in two ways. First, he questions the veracity of examples that occur in unpublished corpora. He goes to great lengths to dismiss g*e-cured* as a possible example with phonological material in a single word from two languages (i.e. German–English); he dismisses the *ge-cured* datum on grounds that it is "spurious" (p. 13). Yet, when presented with the following example said by a German–English bilingual who has lived in the U.S. for ten years, *Da habe ich ge-hired und ge-fired wie ich lustig bin* "Then I hired and fired at my whim", Clyne, a recognized authority on German–English bilinguals in Australia, responds, "My corpora in Australia are absolutely full of past participles like that" (Clyne, 2005, personal communication). The example comes from Fuller (1996, unpublished data). MacSwan cites some examples from Fuller's (1997) dissertation to support his argument that the final consonant in "ge-verbed" forms does not retain English (Embedded Language) phonology. When asked to comment on the examples in MacSwan, Fuller (2005, personal communication) states "I would NOT advocate simply using my transcripts as a guide on this [the phonology of final consonants of past participles], as MacSwan does – they may or may not be reliable on this point". MacSwan's other evidence that such examples do not occur is the "strongly negative reaction" of "two German–English native bilinguals" in Arizona. He gives us no information about their linguistic histories nor about their attitudes toward CS.

4. In an attempt to reject the MLF model, MacSwan redefines some parts of the model. For example, he follows his own definition of Embedded Language (EL) islands. He cites example (17a) as an example of a violation of the System Morpheme Principle (SMP) of the MLF model because the NP containing *the computer* also contains a Spanish PP (*de tu hermano*). The example is *Funciona* the computer *de tu hermano en la oficina?* "Does your brother's computer in the office work?" (MacSwan's translation, p. 10). More literally, this translates as "Does the computer of your brother in the office work?"

MacSwan's reanalysis of this putative counter-example fails in two ways. First, *the computer* is, in fact, a well-formed EL island. It happens to be an NP within a larger NP (compare *the computer* with *the pigeons* in a familiar syntactic textbook example, [$_{NP}$[$_{NP}$*the pigeons* [$_{PP}$ *in the park*]]). Under the MLF model, the definition of an EL island is this: the constituent (i) is well-formed in the EL, (ii) shows structural dependency, and (iii) is composed of only EL morphemes. As constituents of the larger bilingual CP, EL islands must occur in the bilingual clause according to ML well-formedness conditions. The second way this example fails to violate the SMP is based on MacSwan's mis-classification of definite articles in English as outsider late system morphemes, the type of morpheme that the EL cannot contribute to a mixed constituent (under the SMP). MacSwan misunderstands this principle; English determiners are early system morphemes under the 4-M model, not the type of system morpheme covered by the SMP. Thus, even if "the computer" were not an NP EL island within a larger NP, the EL morphemes "the computer" within a larger Spanish constituent would not violate the SMP.

4.1. As is apparent in the above example, many of MacSwan's other criticisms of the MLF model stem from a mis-reading of the model. A reason for this may be that he only refers to the 1993 version of the MLF model, ignoring any developments since then (Myers-Scotton, 1997, 2001, 2002, 2003; Myers-Scotton and Jake, 1995, 1998, 2000a, b, 2001). All his quotations come from the Myers-Scotton (1993) version, even though his list of references includes more recent publications that might have kept him from going astray. For example, MacSwan criticizes the notion of identifying the Matrix Language by counting morphemes, a notion which was dropped in the 1997 second edition of *Duelling languages* and

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does not appear in any subsequent articles or books. Also, he mis-represents the SMP as ruling out outsider system morphemes from the Embedded Language (EL) everywhere; but the principle applies only to mixed constituents, not EL islands.

4.2. The heart of the MLF model is that it restricts the participation of the EL to content morphemes in mixed constituents and in EL islands. Its two principles, the Morpheme Order Principle (MOP) and the SMP, do this at the same time as they identify the Matrix Language. These principles are falsifiable hypotheses because they limit the participation of the EL in specific ways. MacSwan evaluates and dismisses both principles based on a fundamental misunderstanding of these principles and of the 4-M model. He confuses the 4-M model with the MLF model; the 4-M model was not yet developed in Myers-Scotton (1993). Yes, the 4-M model has applications to CS, but it is a model of morpheme classification, not a model of CS. The 4-M model of morpheme classification allows for a more precise and explanatory application of the MLF model; elsewhere we have applied the 4-M model to an explanation of other data such as some types of agrammatic Brocca's aphasia (Myers-Scotton and Jake, 2000b). Similarly, researchers can attempt to apply the Minimalist Program, a model developed to account for monolingual data, to CS. However, JMSG concludes that the Minimalist Program can only account for CS if it includes the notion of Matrix Language.

4.3. MacSwan's effort to discount the empirical validity of the SMP exemplifies his misunderstandings of the MLF model in general. His discussion seems to be partly based on an empirically attested example in JMSG (p. 81). Here is the original example: *Pero tú te refieres a tus coworkers* "But are you talking about your coworkers?" MacSwan constructs two additional examples that include *tus coworkers* and states that they are "well-formed" (p. 8). The thrust of his argument is that the MLF model cannot explain their well-formedness. We reject this.

The first example follows the MLF model completely. It is: *Tus coworkers no tuvieron vacaciones todavía, verdad?* "Your coworkers haven't had a vacation yet, right?" Under the MLF model, Spanish is identified as the Matrix Language by the MOP and the SMP. The NP *tus coworkers* is a mixed constituent in an otherwise Spanish clause. That is, the order identifies one language as the ML, Spanish. All of the system morphemes relevant to the SMP come from Spanish. The SMP states that system morphemes with "grammatical relations external to their head constituent . . . will come from the ML" (Myers-Scotton 1993, 1997, p. 83; 2002, p. 59). Obviously, the principle refers to only one type of system morpheme, not all; under the 4-M model, this type of morpheme is called an outsider late system morpheme.

MacSwan says, "The structure [of the first example] violates the System Morpheme Principle because system morphemes are contributed by both languages" (p. 8). This means that he must mistakenly view the English plural *-s* on *coworkers* as an outsider late system morpheme; this is the only English system morpheme in the example. Under the 4-M model, English plural *-s* is an early system morpheme. Alternatively, it could be that he does not recognize that the SMP only blocks outsider late system morphemes from the EL. In this example, no late outsider system morphemes come from English, the EL.

The second example with *tus coworkers* is admittedly problematic for the MLF model. Recall that MacSwan says both examples are well-formed. *Tus coworkers* occurs as the subject of an otherwise English clause: *Tus coworkers haven't had a vacation yet, right?* One way that this example with *tus coworkers* can be well-formed is if the ML is English and *tus coworkers* is a Spanish EL Island. That is, *coworkers* would have to be an established borrowing in Spanish under this analysis. Otherwise, this second example should not occur. Empirical data argue against the notion that such a clause is attested. The empirical data to which we refer are found in the Spanish/English corpus cited in JMSG. Of the 230 NPs in this corpus with morphemes from both Spanish and English, there is not one example of a Spanish determiner with an English noun in a clause WITH ENGLISH STRUCTURING THE REST OF THE CLAUSE, as in MacSwan's second example. Therefore, we question the veracity of this apparently constructed example. Space does not permit consideration of the additional examples MacSwan offers in his critique of the SMP.

4.4. A second principle of the MLF model is the Morpheme Order Principle (MOP). MacSwan argues that the MOP is violated by complex NPs, that is, those NPs containing smaller NPs. Thus, he fails to recognize the basics of simple constituent structure. For example, he takes an English–Farsi example (with English as the ML) from Mahootian (1993) with an NP Embedded Language island (*xune jaedid* "new house") and adds to the example the English prepositional phrase *with blue shutters*. Not surprisingly, his bilingual Farsi–English consultant judges this new example as "well-formed" (pp. 9f.). But now MacSwan claims that *xune jaedid* can no longer be called an EL island. Yes, the example is well-formed, but *xune jaedid* is still an EL island. (See the definition of an EL island given under section 4 above.)

In this example, the morpheme order within the Farsi NP EL island observes Farsi noun–adjective word order, although it occurs as part of a larger NP framed by the ML, English. We bracket the relevant CP of the example below to show what is, in fact, the Farsi EL island and the correct analysis:

[$_{CP}$ *Tell them* [$_{CP}$ *you'll buy* [$_{NP}$ [$_{NP}$ *xune jaedid*]

[$_{PP}$ *with blue shutters*]]]]

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5. The major motivations for JMSG were to show not only how the MLF model accounts for what does and does not occur in CS, but also to show specifically how the model explains various asymmetries observed in a Spanish–English corpus of naturally occurring CS. To explain such data, MacSwan rejects the notion that a Matrix Language is needed. He also takes us to task for suggesting that the Miminalist approach needs to be modified in order to explain CS. However, JMSG is not "a revision of the MLF Model as a 'modified Minimalist approach'" as MacSwan suggests (p. 1). Instead, JMSG goes no further than suggesting that the MLF model is compatible with a modified Minimalist approach to CS that would include the construct of Matrix Language.

MacSwan argues that "a Minimalist analysis of CS data – specifically the data analyzed in JMSG – may succeed without reference to the ML construct" (p. 19). MacSwan's analysis is based on counting φ-features. That is, "in Spanish, GENDER and NUMBER are morphologically marked on determiners and nouns, but in English only PERSON and NUMBER are marked while GENDER is absent" (p. 18). In the data considered in JMSG, there are no mixed NPs with English determiners and Spanish nouns. MacSwan explains this by noting that English determiners do not occur with Spanish nouns because the φ-features of English nouns are a subset of the φ-features of Spanish nouns. Specifically, he says that for (37d), one of four configurations in (37), an English determiner and a Spanish noun is "an ill-formed case" (p. 18). He goes on to say, "we note that the configurations in (37) are well-formed if the φ-set of N is included in the φ-set of D" (p. 18). Those configurations in (37) that meet this requirement are NPs composed of (a) Spanish determiner + Spanish noun, (b) English determiner + English noun, and (c) Spanish determiner + English noun. MacSwan's account does fit the Spanish–English corpus in JMSG, which is, of course, also explained by the MLF model under the analysis with Spanish as the ML.

However, MacSwan's feature-counting analysis of the distribution of determiners and nouns in mixed NPs also makes predictions for other corpora that are not borne out. First, his analysis obviously would not account for Spanish–English CS in which English is the ML, which would presumably contain some mixed NPs with English determiners and Spanish nouns, which he classifies as ill-formed.

Such data are rare in the literature. They are probably rare because most subjects of Spanish–English CS research seem to be Spanish L1 speakers; such speakers tend to select Spanish as the ML. For example, Pfaff (1979, p. 304, Table 5) reports 12 switches from English to Spanish in NPs with unmodified nouns in conversational CS and 121 in prose, when English is the ML. This means that the switch is between an English determiner and a Spanish noun. While these 133 NPs are fewer than the 747 switches between a Spanish determiner and an English noun that she cites, it is not an inconsequential number. Yet the significance of these numbers is not entirely clear, since Pfaff represents these mixed NPs as "(D)N", suggesting that some of the mixed NPs do not have overt determiners. Callahan's (2004) study of CS in written texts includes examples in which the determiner is from English and the N is from Spanish. In addition, in an E-mail exchange, a Spanish–English bilingual researcher offers two examples in which English is the ML, that is, the frame-building language. Spanish nouns occur with English determiners in clauses that are otherwise in English (Flores-Ferrán, 2005, personal communication). The examples are:

(1) A *coso* is walking on the table. (*coso* = "doohickey", an insect of some sort)

(2) An *abeja* bit me.
"A bee bit me."

Second, there are other corpora not accounted for by MacSwan's analysis. We cite only one example. Myers-Scotton and Jake (1995, 2001) discuss a corpus of Italian/Swiss German from Preziosa-DiQuinzio (1992) in which MacSwan's feature-counting analysis fails. Mixed NPs with Italian determiners and Swiss German nouns occur freely in examples with Italian as the ML. Swiss German nouns occur with Italian determiners twice as frequently (9/13, or 69%) as full Swiss German NP EL islands when Italian is the ML.

But if we are counting features, it is clear that Swiss German determiners have more features than Italian determiners. Italian determiners are marked for person, number, and gender. Swiss German determiners are marked not only for person, number, and gender, but also for CASE. AS LONG AS ITALIAN CAN BE IDENTIFIED AS THE ML under the MLF model (it is the language of morpheme order and outsider late system morphemes), we are not surprised that Italian determiners occur with Swiss German nouns in mixed NPs. Only determiners from Italian satisfy the Italian frame (see Myers-Scotton and Jake, 2001, for an explanation of Italian frame requirements). The fact that Swiss German determiners have more features is not relevant.

To account for these and other CS data, we argue that one must look at the abstract level for a fuller explanation. Determiners are indirectly elected in the mental lexicon at the lemma level (cf. Bock and Levelt, 1994) because they encode definiteness. The φ-features that they carry for person, number, and gender are projected at this level. But definiteness can interact with other grammatical features not activated at the lemma level. In Swiss German, determiners are inflected for person, number, gender, and case. Unlike Italian determiners, they are not available until the level of the formulator. Their form

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depends not only on person, number, and gender. They also have overt case and case cannot be spelled out until grammatical information outside of the NP is available, until constituents larger than the NP are assembled at the formulator (cf. Levelt, 1989). The verbs and prepositions of which they are arguments determine these forms.

Thus, we argue that MacSwan's version of Minimalism alone – with no Matrix Language – does not explain the data as well as the MLF model does. It is not a matter of counting φ- or other features that is important. Given that the two central principles of the model are supported so universally in CS, grammatical competence must be behind the MLF model, too. But, in addition, a theory of language production is necessary which includes the hypothesis that morphemes (i.e. their underlying abstract forms) are differentially accessed (see Myers-Scotton, 2005, on late system morphemes and language production). There are different types of morphemes. It is not enough to treat morphemes realizing the Minimalist Program's uninterpretable features as a uniform class.

6. Revisiting JMSG, we admit that we ourselves made some errors. We were mistaken in claiming MacSwan does not accept any singly-occurring EL words as code-switches; clearly, there are some such words in MacSwan (1999) that he seems to treat as CS. Also, we should not have indicated that the example we cite from Hlavac (2000) shows that EL words from English do not show phonological integration – even though that was not our primary purpose in citing that example. We mis-read Hlavac (2000). However, in that volume, as well as in Hlavac (2003), and in recent personal communication, Hlavac (2005) makes abundantly clear that phonologically unintegrated English words are the norm; he cites examples which show Croatian affixes with English stems that are not phonologically integrated. Such forms (but not the one cited in JMSG, p. 74) are counter-examples to MacSwan's PF Disjunction Theorem.

We have not by any means exhaustively discussed the many errors that MacSwan makes in attempting to discredit the MLF model and to deny the validity of our counter-examples to his PF Disjunction Theorem. For all his rhetoric against the MLF model and our examples, and his exposition of Minimalism, MacSwan never shows how any monolingual model can explain CS – because CS data sets (beyond Spanish–English with Spanish as the ML) do exist in which either of the participating languages can set the morpho-syntactic frame (as the ML). Thus, MacSwan's claim that Minimalism alone will explain CS is not supported. The MLF model, along with the 4-M model, accounts for the structure of bilingual CPs in naturally-occurring CS corpora. It limits the role of the EL and explains the asymmetries in bilingual CPs in a way that can be extended to explanations of other linguistic phenomena, bilingual and otherwise.

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