Context Sensitive Morphology:
Adaptations of English and French Verbs into Kirundi[*]

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This paper discusses word internal code-switching in verbal structures between Kirundi, a Bantu language, French and English. It first describes code switching in Kirundi-French and Kirundi-English verbal forms. It then analyzes grammatical constraints that apply in code switching, and aims to show that the Equivalence Constraint (Poplack 1980) and the Matrix Language Frame (Myers-Scotton 1993) fail to account for the code switching that occurs when French and English verbs are integrated into Kirundi structure. The paper concludes that research on code switching should focus on the variability of multilingual grammars rather than seeking universal predictive rules.

Keywords: Kirundi (Rundi language), intralexical codeswitching, verbal structures, morphological adaptations, phonological processes, Bantu languages

1. Introduction

Trilingual code switching between Kirundi,[1] French and English is a common form of discourse among educated Burundians (Appendix 1), especially in the US. It is used in both spoken and written (particularly in e-mail) discourses, at all levels from word-internal, intrasentential, extrasentential, to intersentential switches. The focus of this paper is on word-internal code switching in verb structures, i.e., switches occurring at verb morpheme boundary in which French and English are the embedded languages. The analysis shows that the speakers morphologically adapt them into the patterns of the Matrix language, Kirundi. The purpose of this paper is threefold. Firstly, I describe code switching in Kirundi-French and Kirundi-English verbal forms. Secondly, I show that Kirundi borrows verb stems rather than roots, thus defying Poplack's (1980) Equivalence Constraint in each of the three languages. Thirdly, I demonstrate that the Matrix Language Frame (MLF) (Myers-Scotton 1993), as successful as it has been in accounting for other kinds of data, even from other Bantu languages, such as Swahili/English code switching, fails to account for

[1] Kirundi (classified as D 62 by Guthrie (1948), also called Rundi in the literature), is a Bantu language (Appendix 2) spoken primarily in Burundi by about six million people. Phonologically, just like many other Bantu languages, it is characterized by a contrastive tone and open syllables. Morphologically, it is an agglutinative language with a rich noun class system (16 noun classes in all, shown in Appendix 4).

the code switching that occurs when French and English verbs are integrated into Kirundi structure. As the data presented in this paper show, the Matrix Language Frame can only be supported if and only if the English *-ing* suffix is treated as a derivational rather than inflectional morpheme.

2. Theoretical background

Many terms have been used to describe the combination of two or more languages used within a discourse. Code switching is one of those that have received great scholarly attention in recent years. Eastman (1992), Fishman (1971), Gumperz (1982a, 1982b), Heller (1988) and Jacobson (1997) are only a few of those who have written on the subject. Theoretical accounts of the purely linguistic aspects of code switching include those of Woolford (1983), Di Sciullo, Muysken, and Singh (1986), Romaine (1989) and Poplack (1980). Poplack (1980) suggests two constraints on code switching. The first one is "the free morpheme constraint", which prevents switching between a bound morpheme and a lexical form, and the second one is "the equivalence constraint", which prevents switching at points where it breaks the syntactic rules of either language (Poplack 1980:585-586). Myers-Scotton (1993) provides a model to account for the linguistic consequences of code switching, claiming that one language is dominant and the other is subordinate, and that the word structure of the dominant language determines the outcome in the subordinate language. The following definitions are crucial to the understanding of the discussion that follows.

(1) Code switching

Alternation of speech varieties in the broadest sense in discourse (Gumperz 1982a, Blom and Gumperz 1972, Myers-Scotton 1988, 1993, 1998).

(2) Matrix Language (ML)

The language the mixed sentence is coming from. It is also called host, base, or recipient language (Joshi 1985, Myers-Scotton 1993).

(3) Embedded Language (EL)

The other language, also called guest language.

In this paper, I maintain, as Myers-Scotton (2000) does, that there is a continuum between borrowing and code switching processes. Under her MLF model (Myers-Scotton 2000:182), code switched forms may become borrowed forms

through an increase in their frequency and their adoption by monolinguals. For the sake of the present paper, I have opted not to delve into the problem of distinguishing code switching from language mixing, borrowing, or language choice, since this distinction is not relevant for our present purposes. I will use the term code switching as a cover term for switching, mixing, or borrowing.

3. Data collection

Data for the present study were obtained from two main sources. They were collected from casual oral communication among educated Burundians at various social gatherings in the US. In addition, they were gathered from audio-taped and videotaped conversations. Each of the speakers has at least one academic degree obtained in Burundi, whose official language is French, and at least one degree from the US. They all moved to the US as adults and speak Kirundi, the national language of Burundi, natively. These speakers are therefore all fluent adult speakers of the three languages Kirundi, French, and English. Research has shown that proficiency level is a very important factor in the production of intrasentential code switching because the more balanced the bilingual speaker, the greater the incidence of intrasentential switching (Poplack 1980, Nortier 1990).

4. Constraints under consideration

This paper investigates specific constraints imposed on intralexical code switching in verb forms involving three languages, Kirundi, French, and English. Poplack (1980) proposes two structural constraints on code switching. The Equivalence Constraint and the Free Morpheme Constraint are described in (4) and (5).

(4) The Equivalence Constraint states that codes will tend to be switched at points where the surface structures of the languages map onto each other.

(5) The Free Morpheme Constraint prohibits a switch between a lexical form and an affix unless the former has been phonologically integrated into the language of the latter.

Data presented in this paper, whether in Kirundi-French or Kirundi-English verbal code switches, show that the surface structures of the languages that map onto each other are not equivalent. The infinitives do not map onto each other, roots do not map onto each other, and stems do not map onto each other. Kirundi borrows stems (rather

than roots) to match onto its roots. Similarly, the Free Morpheme Constraint is violated by data that involve a highly agglutinative language, Kirundi.

In Kirundi-English and Kirundi-French code switches, verbs may occur with Kirundi functional categories such as tense, person/number agreement markers, and negative particles in violation of the Free Morpheme Constraint. Many borrowed verb forms retain their original phonology (from the Embedded Language) such as unacceptable phonemes (e.g. /y/ and /l/) or consonant clusters (e.g. /tr/) to the Matrix Language and yet pick up affixes from the Matrix Language.

Based on the data presented in this paper, I concur with researchers such as Nishimura (1986), Mahootian (1993), Myers-Scotton (1993) and MacSwan (1997, 2005) that have shown that these constraints cannot be maintained as universal constraints. Similarly, the System Morpheme Principle (6), as presented by Myers-Scotton (1993:98), can only be supported if and only if the *-ing* morpheme is treated as a derivational rather than an inflectional one in the Kirundi-English switches.

(6) The System Morpheme Principle

In ML+EL constituents, all system morphemes which have grammatical relations external to their head constituent will come from the ML.

This study outlines an alternative analysis that relies only on the general principles of language-specific morphophonological structure and rejects the constraints that are specific to code switching theories. One of the hypotheses that was considered in support of the Equivalence Constraint was that nominal structures were being mapped onto each other as the Kirundi-English switches seemed to demonstrate. This hypothesis will best be understood in light of a note on the status of infinitives in each of the three languages. A closer look at the Kirundi-French switches proves otherwise.

5. The status of the infinitives and verb roots

In Kirundi, the addition of an augment (a noun initial vowel, also found in many other Bantu languages) and a noun class marker (CL) suffices to test the nominal status of a root since only nouns can be prefixed with an augment and a noun class marker. In the case of English, the verb root occurs with a determiner and a suffix, such as the gerundive *-ing* for nominals. In French, the verb root takes a determiner plus the infinitive marker, *-er* for French regular verbs (irregular verbs carry various endings in the infinitive form). These constitute an adequate test for the nominal status of the forms. The following examples (7)-(9) and Tables 1-3 serve to test the

nominal status of the verb roots so as to establish legitimate equivalences in the code switched data.

Kirundi verb root has a nominal status as illustrated in example (7) and Table 1. Please note that the abbreviation FV in Table 1 is "final vowel" and INF is "infinitive".

(7) The different status of Kirundi verb roots

    a. Infinitive structure

      ku- verb root   -a

      ku- *baz*   *-a*

      'to ask'

    b. Nominal structure

      augment- **ku-** verb root   -a

      u-   ***ku-*** *baz*   *-a*

      'act of asking'

Table 1. Nominals and infinitives in Kirundi

Infinitive	Gloss	Nominal	Gloss
ku-geend-a	INF-go-FV 'to go'	*u-ku-geend-a*	augment-INF-go-FV '(the) go-ing'
ku-raab-a	INF-look-FV 'to look'	*u-ku-raab-a*	augment-INF-look-FV '(the) look-ing'
ku-meny-a	INF-succeed-FV 'to succeed'	*u-ku-meny-a*	augment-INF-succeed-FV '(the) success'

As attested in Table 1, the prefix *ku-* has a double function, an infinitive marker and a noun class marker (Appendix 3). It is important to note that almost every noun in Kirundi has an overt noun class marker. The augment, or initial vowel, applies to stems that carry the feature [+noun]. This vowel is a copy of the prefix in most Kirundi nouns as in **a-*ka*-*ntu*** 'small thing', **i-*ki*-*raya*** 'potato' and **u-*mu*-*ceri*** 'rice'.

(8) The different status of French verb roots

    a. Infinitive structure

      root   -**er** (for regular verbs)

      chant   *-er*

      'to sing'

b. Nominal structure

DET   root   **-er**

le   *parl*   ***-er***

'the   dialect'

Table 2. Nominals and infinitives in French

Infinitive	Gloss	Nominal	Gloss
*all**er***	go-INF	*L'all**er***	DET go-INF
	'to go'		'the going'
*mang**er***	eat-INF	*Le mang**er***	DET eat-INF
	'to eat'		'the meal/food'
*couch**er***	sleep-INF	*Le couch**er***	DET sleep-INF
	'to sleep'		'the sun set'

(9) The different status of English verb roots

    a. Infinitive structure

        to   root

        to   *sing*

    b. Nominal structure

        (DET)   root   *-ing*

        his   *sing*   ***-ing***

Table 3. Nominals and infinitives in English

Infinitive	Nominal
to feed	*(the) feed**ing***
to dance	*(the) danc**ing***
to meet	*(the) meet**ing***

Leaving aside the determiners, the English nominals correspond to the gerundive form and the French nominals simply correspond to the infinitive form. Based on the status of the Kirundi infinitive, one would expect that Kirundi would borrow these nominals as they are to make them fit into Kirundi structure. As the code switching data presented in this paper show, Kirundi borrows verb stems rather than verb roots or infinitive forms as discussed in the coming section.

6. Lexical code switching

Data in this section are presented as follows. The first line contains morphological distribution of this form; the root/stem of the EL is in its spelling form so as to increase correspondence clarity. The second line in each example reflects the phonological form, excluding the tone marking (to avoid the confusion with French accent marking). The form of interest is in bold. The third line is word by word or morpheme by morpheme gloss. The fourth line provides the general meaning of the word, phrase or sentence. Some native Kirundi morphophonological rules are illustrated in the code switched data to show that the EL (French or English) verb forms adapt to ML (Kirundi) structure, not only morphologically but also phonologically at the morpheme boundary. These are final vowel affixation, voice dissimilation (or Dahl's law), consonant hardening, homorganic nasal assimilation, consonant prenasalization, vowel lengthening, and spirantization. These rules apply concomitantly with ML affixation to the EL stem. It is important to note that the EL verb does not always completely adapt to the ML phonology as illustrated by /gu**tr**ansil**e**tii^{n}ga/, /gu**tr**adwiza/, /gupa**rk**a/, and /gus**y**fiza/.

6.1 Kirundi (ML) and English (EL)

The Equivalence Constraint, which states that "codes will tend to be switched at points where the surface structures of the languages map onto each other", is violated by the Kirundi-English data. As the data in (10)-(11) show, native rules only apply after the English stem, not the root, is imported into the Kirundi structure. Morphophonological rules such as consonant prenasalization and compensatory lengthening, illustrated in examples (10)-(11), apply to the English stem (root+-*ing*) rather than the root.

(10) a. *ku   move   iing   a*

   [**ku**   **muv**   **ii^{n}g**   **a**]

   INF   move   ing   FV

   'to move'

   b. *ya   pop   iing   ye   in*

   [**ya**   **pop**   **ii^n**   **ze**   ]   in

   3PS.SUBJ   pop   ing   PERFECTIVE   in

   'S/he popped in.'

Three rules apply in (10b): consonant prenasalization, and compensatory lengthening (-ing → ii^{n}g) and spirantization (g → z).

(11) a. *ku   translate   iing   a*

    [gu   traa^{n}siret   ii^{ŋ}g   a   ]

     INF   translate   ing   FV

    'To translate'

  b. *ku   hire   iing   a*

    [gu   hayar   ii^{ŋ}g   a   ]

     INF   hire   ing   FV

    'To hire'

  c. *ku   mess   iing   a*

    [ku   mes   ii^{ŋ}g   a   ] up

     INF   mess   ing   FV   up

    'To mess up'

It is not unusual that bilingual Kirundi-English speakers living in the US use English verb forms and use them with Kirundi inflection; what is quite interesting, however, is that the English verbs are borrowed in inflected forms, the gerundive. This is quite unusual in that borrowings in general are typically used in their uninflected forms. Myers-Scotton (1993) formulated Principle (6) mentioned earlier, the System Morpheme Principle (SMP), to account for this regular case. SMP basically states that inflectional morphology always comes from the matrix language. If so, the Kirundi-English data violate this generalization. If the gerundive **-***ing* is considered in this case to be a derivational (rather than inflectional) morpheme which turns a verb into a noun, then Kirundi data would not be a contradiction to SMP. The account that Kirundi borrows English verb stems (root + **-***ing*) to which it can now attach its own inflections is further supported by the Kirundi-French code switching data. Now the question is: would the infinitive equivalence hypothesis be supported by the Kirundi-French verb code switches? Evidence points otherwise.

6.2 Kirundi (ML) and French (EL)

Not only do the examples in this section illustrate the mapping of French stems to Kirundi verb roots, but they also illustrate Kirundi morphophonological rules that apply in Kirundi-French code switched verbs.

(12) *a   zoo   pass   a*

  [a   zoo   pas   a   ]

   3PS.SUBJ   will   take   FV

  'S/he will take.' (in the context of an exam)

Just like in all the examples to follow, final vowel (FV) affixation applies in (12) to fit Kirundi word structure. Kirundi has an open syllable structure, i.e. every Kirundi syllable takes the consonant-vowel shape. Therefore, every word in Kirundi ends with a vowel, which is often referred to as FV in Bantu linguistics. In the example (12) the EL French verb ends with /a/ to fit the Kirundi structure. All the infinitive verb forms end with /a/ whereas the rest of the forms vary between /a/ and /e/ depending on the mood. For example, in the indicative mood, the verb ends in [a] whereas it ends in [e] in the subjunctive mood.

Voice dissimilation is another very productive morphophonological rule in Kirundi. It is realized at the morpheme boundary in the prefix position. A voiceless consonant becomes voiced if it is preceded or followed by a voiceless consonant at the morpheme boundary. Thus, we say [kumuha] /ku-mu-ha/ 'to give him/her', [ku^{m}pa] /ku-n-ha/ 'to give me' but [guha] /ku-ha/ 'to give'. This rule applies in the code switched forms as well, as illustrated in (13).

(13) *ku tap a   a la   machine biragoye*
   [gu tap a] a la   machine biragoye
   to type FV   on the machine difficult
   'To type (on the machine) is difficult.'

Other very productive Kirundi rules are homorganic nasal assimilation and consonant prenasalization. All Kirundi native nasal-consonant clusters agree in place of articulation and are realized as prenasalized consonants as illustrated in the code switched form in (14). These rules also apply to borrowed words, as long as the conditions for their realization are met.

(14) *n   parqu a   hanze*
   [^{m} park a] hanze
   1PS.SUBJ park FV   outside
   'I park outside.'

In example (14) the nasal consonant, a Kirundi first person singular subject pronoun, takes the same place of articulation as the following consonant, a phenomenon widespread in other languages of the world. A subsequent prenasalization process applies, just as it does in the native forms.

Not only does example (15) illustrate prenasalization, but it also exemplifies the rich productivity of Kirundi morphology, inflectional as well as derivational, when borrowed words are embedded. The phrase *tais toi* [tetwa] 'shut up' is usually used as

an imperative utterance in French. Kirundi speakers often use it as a stem in many declensions. In this case, [^{n}tet^{w}e] '(that) I be quiet' includes a Kirundi first person singular subject pronoun, /n/, a reanalyzed stem (not a stem in French but a phrase, verb and pronoun), /tetw-/, and a final vowel /e/, which marks the subjunctive mood. This example shows that Kirundi morphology reanalyzes French input as a chunk.

(15) *Reka   n   tais   toi   e*

Let   [^{n} **te**   **tw**   **e**   ]

Let   1SG.SUBJ   be.quiet you   SUBJUNCTIVE

'Let me be quiet.'

Prenasalization is also illustrated in examples (16a)-(16e). However, these examples add a level of complexity because another rule, compensatory lengthening, applies as a result of prenasalization. In example (16a), many rules apply consecutively. It shows how consonant fortition (h $\rightarrow$ p / n ___) feeds (no commitment to any theoretical framework at the moment) homorganic nasal assimilation (n $\rightarrow$ m / __ p) and consonant prenasalization (mp $\rightarrow$ ^{m}p) which feeds compensatory vowel lengthening (u $\rightarrow$ uu / __ ^{m}p). In most Bantu languages, there is no vowel length opposition before a nasal-consonant sequence (NC). Rather, as seen in many of the cited examples, the preceding vowel is frequently lengthened. The standard interpretation is that this nasal is moraic; that is, it contributes a unit of length or beat, which is readily transferred to the preceding vowel. It also is potentially a tone-bearing unit. The vowel of the infinitive morpheme /ku/ in (16a) is therefore lengthened when it precedes a prenasalized consonant, i.e. moraic compensation. All these rules are native to Kirundi and apply to the borrowed verbs systematically to the point that some of the borrowed stems are recognizable in their surface forms, once embedded in the Kirundi structure.

(16) a. *Reka   ku   n   harass   a*

Let   **[kuu ^{m} paras   a   ]**

Let   INF   1SG.OBJ   harass   FV

'Stop harassing me!'

b. *ku   conduis   a*

[gu   koo^{n}dwiz a   ]

INF   drive   FV

'to drive'

   c. *ku   vend   a*

     [ku   vaa^{n}d a]

      INF sell   FV

     'to sell'

   d. *ku   sent   a*

     [gu   saa^{n}t a]

      INF smell   FV

     'to smell'

   e. *ku   compren   a*

     [gu   koo^{m}pren a]

      INF understand FV

     'to understand'

(17) a. *ku   trahiss   a*

     [gu   trahis a]

      INF betray   FV

     'to betray'

   b. *ku   souten   a*

     [gu   suten a]

      INF **suten** FV

     'to support'

   c. *ku   suffis   a*

     [gu   syfiz a]

      INF suffice FV

     'to suffice'

   d. *ku   soufr   a*

     [gu   sufr a]

      INF suffer FV

     'to suffer'

As the data show, the EL French verb can only be inserted in Kirundi, the ML, as a stem rather than as an infinitive verb root. Compare the examples in (16) and (17) with those in (18) below from French borrowings into Dutch. Muysken (2000:191) points out the fact that French verbs can only be introduced into Dutch when the root is affixed with *-er* as in (18a-b). Some French verbs take *-er* when they are borrowed into Dutch even if their normal French ending is *-ir* as in (18c). The *-ir* ending is dropped and is replaced by *-er* before the affixation of the Dutch morpheme *-en*.

Other Dutch verbs are not derived from French infinitive verbs but from French nouns as in (18d).

(18) French borrowing into Dutch (Muysken 2000:191)
a. *bless-er-en*   'hurt' (French *blesser)*
b. *condemn-er-en*   'condemn' (French *condamner*)
c. *offr-er-n*   'offer' (French *offrir*)
d. *traduct-er-n*   'translate' (French *traduct-ion* 'translation')

Notice that while Dutch accepts French infinitive forms (with the *-er* ending), Kirundi does not accept infinitive forms with the endings but accepts only stems; in other words, it strips off the infinitive marker in regular verbs and adds native affixation.

In contrast, Dutch and Arabic are similar in the way they integrate French verbs in their structures. Morrocan Arabic keeps the French infinitive marker *-er* for regular verbs before the ML suffix as in *sécréter-na les hormones* (Myers-Scotton 1993:33). In this regard, Kirundi is different from Dutch and Arabic since it borrows stems to which it affixes its inflections. This is illustrated in examples (16)-(17).

A closer look at French irregular verbs sheds light on the nature of the borrowed verb form. There are three major groups of French verbs, which are classified according to the conjugation categories, as illustrated by Tables 4 and 5. The main, fully regular and most productive class is Group I, which contains verbs with infinitives ending in *-er* (such as *chanter* 'sing', *marcher* 'walk'). The second category is Group II, which is composed of verbs that have an infinitive in *-ir* and a stem in *-iss-* (such as *finir* 'finish' and *salir* 'to make dirty'). It is smaller than Group I and it is no longer productive, but it is fully regular. The third category, Group III, contains verbs with infinitives ending in *-ir* (and that do not have a stem in *-iss-*), **-oir**, **-re** (such as *courir* 'to run', *s'asseoir* 'to sit', *prendre* 'to take') and the verb *aller* 'to go'. Verbs contained in this group are highly irregular. The data analyzed in this paper demonstrate the fact that it is the present tense first (same as the second) person plural stem of the French verb (without the tense ending) that is imported in the ML. This stem is found in many other verb declensions in French. Kirundi borrows this stem, rather than the infinitive or the verb root, regardless of the verb membership in the various groups (see Tables 4 and 5). The Equivalence Constraint, which states that, "codes will tend to be switched at points where the surface structures of the languages map onto each other" (Poplack 1980: 586) is therefore violated in the Kirundi-French code switches.

Table 4. French first person plural declension in the present tense

Infinitive	Gloss	Type of verb	First person plural present tense form	Morphological breakdown
1. marcher	'to walk'	Group I (regular)	*marchons*	**march**-*ons*
2. danser	'to dance'	Group I (regular)	*dansons*	**dans**-*ons*
3. finir	'to finish'	Group II	*finissons*	**finiss**-*ons*
4. trahir	'to betray'	Group II	*trahissons*	**trahiss**-*ons*
5. vendre	'to sell'	Group III	*vendons*	**vend**-*ons*
6. perdre	'to lose'	Group III	*perdons*	**perd**-*ons*
7. courir	'to run'	Group III	*courons*	**cour**-*ons*
8. partir	'to leave'	Group III	*partons*	**part**-*ons*
9. conclure	'to conclude'	Group III	*concluons*	**conclu**-*ons*
10. apparaitre	'to appear'	Group III	*apparaissons*	**apparaiss**-*ons*
11. éteindre	'to turn off (light)'	Group III	*éteignons*	**éteign**-*ons*
12. atteindre	'to reach'	Group III	*atteignons*	**atteign**-*ons*

Table 5. Summary of French endings

Group	Infinitive ending
Group I (regular)	*-er*
Group II	*-ir*
Group III	*-ir* *-indre* *-oir* *-ettre*

Poplack's (1980) claim that the word structure of the dominant language determines the outcome in the subordinate is based on surface structure syntactic grounds. However, the data presented in this paper show that there is indeed an equivalence constraint on "morphological" grounds. The examples (10)-(11) show that the English verb stem, root+-*ing*, is borrowed into Kirundi, during the code switching process. Similarly, it is the French verb stem, rather than the infinitive or the verb root, which is borrowed into Kirundi verbal structure.

Thus, the data in (10)-(11) all constitute counterexamples of Myers-Scotton's (1993) System Morpheme Principle, which states that if system morphemes are required in ML-EL switches, they will be ML system morphemes (Myers-Scotton 1993:98) and that if there are EL system morphemes inflecting a stem, there also must be the ML version of the inflection. Since Kirundi does not form nouns using

gerundives, there is no equivalent system morpheme for the EL *-ing*, making the data presented in (10)-(11) violate the System Morpheme Principle if the morpheme *-ing* is borrowed as an inflectional morpheme rather than a derivational one. The embedding of the English (EL) verb stem (root+*-ing*), instead of just the root, into Kirundi (ML) is best accounted for by assuming that the borrowed verb root lacks a nominal status and has to be nominalized by the gerundive **-ing**. The data presented in this paper show that both French and English inflected stems are fully integrated morphologically and phonologically into Kirundi word structure as shown in the output of the juxtaposed morphemes. All in all, these data not only violate the Free Morpheme and the Equivalence Constraints but also the System Morpheme Principle.

7. Additional support for Kirundi borrowings

Both French and English cognates borrowed into Kirundi support the proposal in this work. This is illustrated in (19a)-(19f). The first column contains Kirundi-French verb code switches whereas the second column contains Kirundi-English verb code switches.

(19) a. *gu-**post**-a* ⟷ *gu-**post**-iing-a*   'to mail'
    b. *ku-**sign**-a* ⟷ *ku-**sign**-iing-a*   'to sign'
    c. *ku-n-**harrass**-a* ⟷ *ku-n-**harass**-iing-a* 'to harass me'
    d. *ku-**beep**-a* ⟷ *ku-**beep**-iing-a*   'to beep/page'
    e. *ku-**balanc**-a* ⟷ *ku-**balanc**-iing-a*   'to balance'
    f. *ku-**parqu**-a* ⟷ *ku-**park**-iing-a*   'to park'

The first column contains French verb roots (in bold). The second column contains English verb roots (also in bold).

8. Conclusion

This paper analyzed grammatical constraints that apply to code switched verbal structures in Kirundi-English and Kirundi-French. These constraints determine the structural equivalence of lexis at switching junctures and ensure the integration of morphemes into the phonology and morphology of the Matrix Language. In relation to lexical code switching of the trilingual speech modes of Kirundi, French, and English speakers, the data confirm the fact that the guest as well as the host language grammars play an important role in the analysis of code switching. Concomitantly, code switching is especially well positioned to reveal the internal operations of language. All in all, the data presented in this paper show that speakers

morphophonologically nativize the foreign verbs into Kirundi structure, endeavoring to fit the foreign verbs into the patterns of the ML, Kirundi. The analysis demonstrates that data presented in this paper not only violate the Free Morpheme and the Equivalence Constraints but also the System Morpheme Principle. We, therefore, may conclude that instead of seeking universal, predictive grammatical rules, research on code switching should focus on the variability of multilingual grammars.

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Appendix 1. Trilingual (Kirundi, French, and English) Burundians

	Age	Emigration Date (USA)	Education level	Place of Birth	Male/ Female
EN	51	1993	BA	Burundi	M
JN	47	1991	PhD	Burundi	F
GN	51	1997	MA	Burundi	M
CN	48	1997	BA	Burundi	F
YN	35	1999	MA	Burundi	F
LH	41	2000	BA (and five computer certificates)	Burundi	M
AN	35	2004	BA and RN	Burundi	F
LN	49	1990	PhD	Burundi	M
GK	48	1994	MA	Burundi	F
ON	46	1995	PhD	Burundi	F
AG	52	1992	PhD	Burundi	M
CK	42	1994	BA	Burundi	F
SK	49	1990	PhD	Burundi	M
D M	51	1997	MA	Burundi	M
M N	56	1989	PhD	Burundi	M
M M	49	1990	PhD	Burundi	F
KH	35	2004	BA	Burundi	F

Appendix 2. Map of Bantu languages
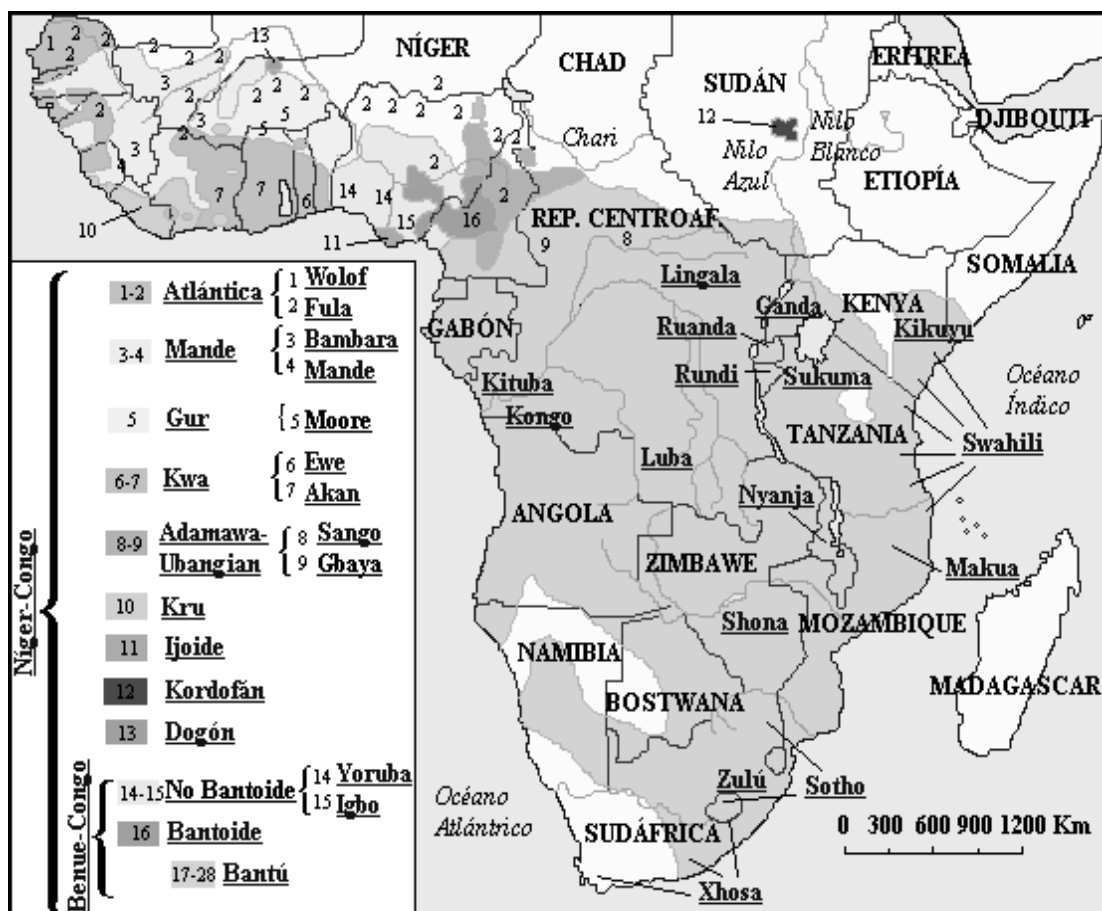
(Source: www.ethnologue.com)

Appendix 3. Language map of Africa

(Source: http://en.wikipedia.org/wiki/Bantu_languages)

Appendix 4. Kirundi noun classes (sometimes referred to as gender system)

Class number	Class Marker (infix)	Examples
1.	*-mu-*	*u-**mu**-ntu* 'person'
2.	*-ba-*	*a-**ba**-ntu* 'persons'
3.	*-mu-*	*u-**mu**-ti* 'medication'
4.	*-mi-*	*i-**mi**-ti* 'medications'
5.	*-ri/Ø*	*i-**ri**-gi* 'egg'/ *i- **Ø** -meeza* 'table'
6.	*-ma-*	*a-**ma**-gi / a-**ma**-meeza* 'tables'
7.	*-ki-*	*i-**ki**-nyoni* ' big bird'
8.	*-bi-*	*i-**bi**-nyoni* 'big birds'
9.	*-n-*	*i-**n**-ka* 'a cow'
10.	*-n-*	*i-**n**-ka* 'cows'
11.	*-ru-*	*u-**ru**-syo* 'mill'
12.	*-ka-*	*a-**ka**-yaabu* 'cat'
13.	*-tu-*	*u-**tu**-yaabu* 'cats'
14.	*-bu-*	*u-**bu**-twaari* 'bravery'
15.	*-ku-*	*u-**ku**-guru* 'a leg'
16.	*-ha-*	*a-**ha**-ntu* 'place'

(Ntahokaja 1994:88)

受語境影響的構詞現象：
奇隆地語中英語及法語動詞借字的適應變化

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　　本文探討奇隆地語（屬班圖語的一種）與英語和法語之間的動詞結構中詞彙內語碼轉換的情形。首先，本文描述奇隆地語和法語以及奇隆地語和英語之間的動詞結構內的語碼轉換。接著，本文分析適用在這些語碼轉換的語法限制，並指出當法語動詞借字及英語動詞借字已整合入奇隆地語的結構時，由 Poplack (1980)所提出的等值限制和 Myers-Scotton (1993)所提出的母語框架等理論已無法解釋這樣的語碼轉換現象。本文最後提出關於語碼轉換的研究應該著重在多種語言的文法變異性，而不是在尋求具普遍性的可預測性法則。

關鍵詞：奇隆地語（隆地語）、語彙內的語碼轉換、動詞結構、構詞
　　　　適應變化、音韻變化、班圖語