KEYNOTE ARTICLE

# Language contact outcomes as the result of bilingual optimization strategies*

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*This paper sketches a comprehensive framework for modeling and interpreting language contact phenomena, with speakers' bilingual strategies in specific scenarios of language contact as its point of departure. Bilingual strategies are conditioned by social factors, processing constraints of speakers' bilingual competence, and perceived language distance. In a number of domains of language contact studies important progress has been made, including Creole studies, code-switching, language development, linguistic borrowing, and areal convergence. Less attention has been paid to the links between these fields, so that results in one domain can be compared with those in another. These links are approached here from the perspective of speaker optimization strategies. Four strategies are proposed: maximize structural coherence of the first language (L1); maximize structural coherence of the second language (L2); match between L1 and L2 patterns where possible; and rely on universal principles of language processing. These strategies can be invoked to explain outcomes of language contact. Different outcomes correspond to different interactions of these strategies in bilingual speakers and their communities.*

## 1. Introduction

This paper attempts to sketch a broad framework that can be used to model processes of language contact. The key theoretical notion adopted is that of bilingual optimization strategies, adopted by speakers in specific contact scenarios. This notion is adopted because it hopefully helps to overcome a number of challenges for adopting a unified model or framework for language contact studies. These challenges include the internal diversity in the field (Section 1.1), the multiplicity of outcomes of language contact (Section 1.2), and the need to integrate various types of factors and levels of explanation: social, cognitive, linguistic (Section 1.3).

### 1.1 Internal diversity in the field

Language contact studies started out as a branch of historical linguistics, most prominently in the work of Hugo Schuchardt (e.g. 1890). Since then the field has diversified tremendously, so as to become part of a number of separate sub-disciplines: sociolinguistics, psycholinguistics, and historical linguistics (for an overview, see Appel & Muysken, 1987; Clyne, 2003; Goebl, Nelde, Starý & Wölck, 1996, 1997; Matras, 2009; Myers-Scotton, 2002; Romaine, 1994; Thomason, 2001; Winford, 2003). Thus there are studies on language contact at least within the fields listed below, distributed across different linguistic sub-disciplines. I have organized them here under the headings "Language systems in contact", "Bilingual individual", and "Bilingual speech community".

*Language systems in contact: Grammatically-oriented and historical linguistics*
code-switching
pidgin and Creole studies
contact-induced language change
areal typology

*Bilingual individual: Psycholinguistics*
bilingual first language acquisition
second language acquisition
bilingual production and comprehension
bilingual aphasia and neurolinguistics

*Bilingual speech community: Sociolinguistics*
interactional sociolinguistics
variation and dialect contact
sociology and social psychology of language choice

Most researchers will acknowledge that these fields are closely interconnected, through their focus on interaction between languages and its outcomes; however, many of the topics listed have been studied in relative isolation from one another. In actual academic practice, separate conferences are held for most of these sub-disciplines, with different journals and debates, and apparently unrelated conceptual frameworks and terminologies. The aim of this paper is to explore the possibility of unifying these fields, all different approaches to language contact, creating a single framework within which it is possible to link results from different sub-fields. If indeed we can analyze different language contact situations in terms of the same framework, we have come one step further towards a unified model of language contact.

It should be borne in mind that this does not imply that all sub-fields have the same intermediate or even ultimate theoretical aims: some researchers are interested in finding out what happened in the past, others in properties of the processing systems, and yet other in the role of identity formation in social processes, etc. However, even though research aims are distinct in different sub-fields, outcomes and findings can and should be linked to what is found elsewhere. In particular, what unites the different fields mentioned is that they manifest the interaction of different languages. By necessity, the focus of a unified model will also be on the respective roles of the two languages rather than on some concept specific to a particular sub-field, such as "cognitive control" or "lexical expansion".

In addition to the conceptual attractiveness of a single unifying model, the most important reason for such a model is that language contact phenomena cannot be seen in isolation. To name but one example, psycholinguistic studies of interlingual word recognition often yield contradictory results because the context in which the different languages are learned and used by the multilingual language user are not taken into account. This concern is further addressed in the next section.

## 1.2 Multiple outcomes

A second important challenge to a unified model of language contact concerns the fact that language contact may have multiple outcomes. It is important to realize that there are many different results of language contact. Languages do not interact in a single way, but rather in many different ways, depending on the social setting of the contact. This important insight had been lingering in various publications previously, but was most clearly articulated in work that appeared towards the late 1980s, notably Thomason and Kaufman (1988) and Van Coetsem (1988). In other words, it does not suffice to say: when two languages A and B come into contact, X happens, but we need to specify the circumstances (e.g. maintenance of language A, shift to B of the original speakers of language A, prolonged coexistence of A and B) under which the contact occurs. This recognition will be referred to here as the scenario approach (see also Muysken, 2010b). A scenario could be defined as a socially contextualized interpretation of a certain outcome of language contact. Within scenarios, language contact processes such as code-switching, lexical change, Creole genesis, relexification, and bilingual convergence take a specific shape.

We find multiplicity and variation not only at the level of processes of the type just listed, but also at a more detailed level. Code-switching is not a unified phenomenon, it is argued in Muysken (2000), but can have different manifestations, depending on the languages involved, the nature of the speech communities, degree of normativity, etc. Likewise, Creole languages fall into different classes, again depending on different factors. In this paper I will argue that this holds for most or all manifestations of language contact, and that we need a model to account for these multiple outcomes. Although there is tremendous variation in eventual outcome, it is incumbent on a model for language contact to try to understand the factors underlying this variation.

## 1.3 Different factors and levels of explanation

A third challenge is that a number of rather diverse key notions need to be linked to each other in a full model. These notions include at least social factors and contact scenarios (Thomason & Kaufman, 1988), cognitive constraints and stability hierarchies, and the distance between languages or language varieties (Clyne, 2003). These notions are represented below. I do not claim that all of these are independent, and ultimately some are in part or wholly reducible to others, but they certainly play a role when contrasting different language contact settings and outcomes.

| | | |
|---|---|---|
| *Social factors instantiated in contact scenarios* | Social factors determine the outcome of contact on a macro-level, leading to different sociolinguistic scenarios or settings in which language contact takes place; there are inventories and taxonomies, but not yet a comprehensive model. | Examples include language and speaker status, speaker numbers, identity issues, agency, audience design, etc. Scenarios include borrowing from a dominant language, shift to a dominant language, language creation, etc. |
| *Cognitive constraints and stability hierarchies* | Constraints of the language processing system limit the range of possible outcomes of language contact, imposed by the language processing capacities of individuals, both specific and general. Constraints may condition stability, the probability that some element remains part of a language repertoire over time. | Examples include learnability, first versus second language development and issues of dominance, the lexical entrenchment of core versus cultural vocabulary, the processing status of verbs versus nouns, etc. |
| *Language distance* | The degree to which two languages resemble each other in their lexicon, morpho-syntax, semantics/pragmatics, and phonology | Examples include cognate status of lexical items, linear equivalence in syntactic patterns, case marking, etc. |

These factors play a role in all three sub-disciplines, namely that focusing on the bilingual individual, the bilingual speech community and the language system. The challenge is to interpret the relative weight and the interaction between these factors in all three levels.

If we want to link languages to behavior of individuals across different sub-fields, we need to distinguish the elements that are responsible for the differences between individual behavior and shared results. The two main points of distinction are: PROCESSES versus OUTCOMES, and INDIVIDUAL behavior versus the speech COMMUNITY.

### Processes versus outcomes

As regards the distinction between the processes involved in language use versus the resulting outcomes in individual language systems, Weinreich (1953, p. 11) likens contact-induced language change – as resulting from individual interferences – to the sediment left at the bottom of a lake by the sand carried along in a stream. The way individual choices become fixed and part of a commonly shared code is quite complex. It needs to be studied in a more general perspective, as part of general processes of change and consolidation involving both individual and group innovations.

### Group versus individual

Slightly less complicated is the distinction between the group and the individual. The notion of strategy employed

here suggests an individual choice; however there is increasing evidence that much language behavior emerges through interaction. Individuals are members of groups and tied into various networks, some of which are actually quite closed-knit. Hence, group behavior is more than the sum of a set of separate individual choices. Findings of the code-switching research actually suggest roughly parallel choices made by members of a group or network, e.g. where different factors affect the choice for insertion, alternation, or congruent lexicalization (see Section 3).

### 1.4   Earlier analyses of language contact and the contribution of the present paper

Key in the model proposed are the bilinguals and the bilingual optimization strategies at their disposal; these strategies are directed at the roles attributed to the various languages in their environment, in particular the first language versus the second language.[1] The

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[1]  Another general point of great importance concerns the distinction between "bilingual" and "multilingual". I use the term "bilingual" as the general one, using "multilingual" only loosely in generic contexts. Ultimately we will need to handle situations with more than two languages involved. I hope that in future work the model can be extended to really handle more than two languages.

notion of "optimization strategy" in itself presupposes a dynamic and multifactor perspective on language behavior. Speakers are influenced by different constraints on language behavior, given the different circumstances in which they find themselves and the languages involved.

There have been a number of earlier attempts to define a global model for language contact; what these models have in common is that they stress two dimensions, through the contrast between L1 and L2. They range from Whitney's borrowability hierarchies in historical linguistics (1881), through Schuchardt's language contact formulas (1890; see also Muysken, 1999), to Haugen's (1950) distinction between importation and substitution, and Weinreich's (1953) interference. A wider sociolinguistic perspective is introduced by Thomason and Kaufman (1988) in the borrowing/shift contrast, and between different kinds of agentivity in Van Coetsem (1988, 2000).[2] A focus on the structures involved comes in the concept of code copying of Johanson (1992) and the matrix/embedded language contrast of Myers-Scotton (1993, 2002).

The model proposed here differs from these earlier models in two ways, at least: (a) it is formulated in terms of speaker optimization strategies rather than structural or sociolinguistic processes; and (b) it is not two-dimensional, like most other models, but expands to four dimensions, also explicitly taking into account the language and distance and convergence dimension, on the one hand, and universal processes on the other.[3]

Two recent approaches are potentially more-dimensional. First of all the Language Ecology model developed by Mufwene (2001) stresses competition and selection from various feature pools with internally heterogeneous linguistic systems, selective advantage, and adaptation as the fundamental principles leading to both language creation and contact-induced language change. Heine and Kuteva (2005) link the study of language contact with grammaticalization and typology: the ways in which elements are transferred are constrained by universal principles of grammaticalization, and obey principles of interlingual identification which also include a notion of grammaticalization path. Thus their discussion is enriched by appeal to universal principles.

This paper is organized as follows. In Section 2 the model is outlined on the basis of code-switching and Creole language material. In Section 3 I extend the model to other new language varieties, in Section 4 to contact-induced language change, and in Section 5 to the bilingual individual and to bilingual interaction. Section 6 concludes the paper. I now turn to the discussion of various contact processes, starting with code-switching and Creole studies.

## 2. Optimization strategies in code-switching and Creole studies

### 2.1 Code-switching

The original point of departure for this paper was the claim elaborated in Muysken (2000) that there are three distinct, if not always clearly separable, strategies in code-switching operant in different bilingual speech communities: insertion, alternation, and congruent lexicalization, illustrated in (1)–(3). This is to say, there is considerable variation in code-switching patterns, and this variation needs to be captured. (For abbreviations used in example glosses see list at the end of the paper.)

(1)  INSERTION: The insertion of well defined chunks of language B into a sentence that otherwise belongs to language A.
   a. Q'aya    suya-wa-nki   [*las    cuatro*-ta].
      tomorrow wait-1OB-2SG  at       four-AC
      Qo-yku-sqa-sun-ña      [*bukis*].
      give-ASP-ASP-1PL.FU-con box
      "Tomorrow you wait for me at four. We'll have a go at boxing."
              (Quechua/Spanish; Urioste, 1966, p. 7)
   b. Tu-ko   ba-ntu    ba-moya b-a      chini.
      we-COP  CL2-man   CL2-DET CL2-CON low
      *Donc* tu-ko [ba-*faible*], eh?
      so     we-COP CL2-weak  eh
      "We're a low kind of people. So we're weak, aren't we?"
      (Shaba Swahili/French; de Rooij, 1996, p. 456)

In the Bolivian example (1a), a fragment from Spanish, the compound expression *las cuatro* "at four", with the Quechua accusative marker -*ta* is inserted into a Quechua clause. Similarly the expression *bukis* "box" is taken from Spanish (and ultimately from English), and occurs without the accusative case marker. This lexical loan and the SVO order (rather than traditional SOV) suggest Spanish influence, but this influence is much more general and not directly linked to code-switching.

In the Shaba Swahili/French example from Lumumbashi, Congo, (1b), we find an inserted element like *faible*, from French, prefixed with a 2nd noun class marker agreeing with elements from the previous sentence. The

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[2]  Van Coetsem's approach has been further elaborated and given a wider empirical coverage in Winford (2005; see also Winford 2009, to appear).

[3]  In all fairness, it should be mentioned that some of the other models also incorporate other dimensions. Schuchardt's model contains a notion of similarity in addition to identity, and Thomason and Kaufmann explicitly mention pidgins and Creoles as alternatives to maintenance and shift.

element *donc* is more like an alternational, discourse-oriented switch (see below).

(2) ALTERNATION: The succession of fragments in language A and B in a sentence, which is overall not identifiable as belonging to either A, or B.

    a. "*Ya    está*" ni-sqa. Chanta mut'i
       already is    say-EVI then    mote
       chura-ku-sqa.
       put-RE-EVI
       "'Ya está' he told him. Then he had put
       *mote* [in front of] him."
                      (Quechua/Spanish; Urioste, 1966, p. 7)
    b. *Ándale pues*, and do come again.
       "That's all right then, and do come again."
             (Spanish/English; Gumperz & Hernández
                          Chavez, 1971, p. 118)

In (2a) a Spanish fragment is cited in an otherwise Quechua utterance. In (2b), recorded in a Mexican-American community, an expression from Spanish, *ándale pues*, is combined with, or juxtaposed to, an English expression, without either one being subordinated to the other.

(3) CONGRUENT LEXICALIZATION: The use of elements from either language in a structure that is wholly or partly shared by languages A and B.

    a. Això <u>*a él*</u>   a ell   no li
       this  to him to him not 3SG.CPRO
       i(m)porta.
       matters
       "This he, he doesn't care."
         (Catalan/Spanish; Vila i Moreno, 1996, p. 393)
    b. (A) Why make Carol *sentarse atrás* (B)  *pa'que*
       . . .                     sit at the back     so that
       everybody has to move (C) *pa'que se salga*
       . . .                   so that [she] may get
                               out
          (Spanish/English; Poplack, 1980, p. 589)

Congruent lexicalization, as proposed in Muysken (2000), involves cases of code-switching where languages have substantial parts of their grammar in common, and the switching mostly involves inserting words from either language into the shared structure. In (3a), from a non-fluent Catalan speaker (with Spanish as an L1 background), a single Spanish preposition+pronoun combination, *a él* "to him", is inserted into an otherwise Catalan utterance, facilitated by both structural and morpho-lexical similarities between the languages. In (3b), from the New York Puerto Rican corpus reported on in Poplack (1980), Spanish and English fragments alternate in rapid succession, but the switch boundaries do not always correspond to the clause boundaries, as in the case of (B).

Here I propose to incorporate a fourth strategy into this taxonomy of code-switching, which I term "backflagging". In this strategy the principal or matrix language in the code-switched discourse is not the original community language, but the language some speakers have shifted towards as an L2, and this L2 is marked with flagging elements from the original community language. This type of element is encountered in ethnolectal speech varieties in many bilingual communities. Speakers select the strategy of backflagging to signal their traditional ethnic identity even though they themselves may have shifted to a dominant non-ethnic language. An example would be (4a), where the Moroccan Arabic conjunction *wella* "or" is inserted in an otherwise Dutch utterance, the L2 for the community involved. Only Moroccan Arabic discourse markers show up in Dutch utterances, no other elements. Similarly in (4b), in a chat on Suriname community website, Sranan *no mang* "no man" is inserted into an otherwise Dutch comment.

(4) BACKFLAGGING: Insertion of heritage language discourse markers in L2 discourse.

    a. Q:  What will you be when you grow up?
       A:  Ik ben doctor *wella* ik ben ingenieur.
          I  am doctor  or   I  am engineer
          "I will become a doctor or an engineer."
      (Dutch/Moroccan Arabic; Nortier, 1990, p. 142)
    b. N*o mang* vrouw-tje,   vind    juist z'n
       no man  woman-DIM find.1SG just  his
       accent hinderlijk.
       accent irritating.
       "No, woman, I just find his accent irritating."
                  (Dutch/Sranan; www.mamjo.com,
                               March 20, 2009)

The following discourse fragments cited from an educational television program show the very frequent use of Spanish elements in Latino English speech in the US:

(5) a. Man:  Sure, go for it.
       Maya:  *Gracias*. You won't regret this.
           (English/Spanish; Specker, 2008, p. 111)
    b. Maya:  It was the only way, Mama.
       Rosa:  ¡*Ay*!, Maya, you're taking this too far.
           (English/Spanish; Specker, 2008, p. 114)

Characterizing features of these backflagging markers are that they are clause-peripheral, concern single items, are simple and frequent, and have a clear ethnic connotation.[4]

    Much more can and needs to be said about these types of code-switching, but the above will suffice to give a

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[4] Backus (1996, p. 316) likewise cites examples of backflagged Turkish discourse markers in second generation Dutch: *ama* "but", *falan* "etcetera", *doğru* "right", *sey* "thing", and *niye* "why".

general idea. The choices that speakers, as members of speech communities, make in their code-switching for one of these strategies depends on a number of factors (see Muysken, 2000, for further discussion).[5]

Social factors include power relations, normativity, political comnpetition, and network membership. Highly unequal POWER RELATIONS between the languages lead to insertion, while a more egalitarian relation can lead to other alternatives. Thus both (post-)colonial settings, in which there is a (often European) prestige language, and settings involving immigrant minority languages and a dominant national language, typically show insertional code-switching patterns (Myers-Scotton, 1993).

A high DEGREE OF NORMATIVITY for the languages in the speech community prevents convergence and hence easy congruent lexicalization, while relaxed norms for the languages involved stimulates it. Typical examples include Moluccan Malay in the Netherlands, which long developed separately from the varieties spoken in Indonesia, for political reasons, and Sranan Tongo, for which a norm was never developed. In contrast, purism may hinder extensive and intimate code-switching practices.

Strong POLITICAL COMPETITION between the languages involved tends to lead to alternational code-switching, while e.g. congruent lexicalization depends on a much less sharply perceived contrast between the two languages in the speech community. Thus Ottawa (French/English; Poplack, 1985), Barcelona (Catalan/Spanish; Woolard, 1989), and Brussels (French/Dutch; Treffers-Daller, 1999) are three cities with strong competition, and relatively rigid separation, between the languages, leading to alternational code-switching.

Finally, MEMBERSHIP IN A PARTICULAR NETWORK OR GENERATION and DURATION OF LANGUAGE CONTACT play an important role. Typically, congruent lexicalization depends on a closely-knit network. In immigrant communities, first generation speakers show insertional code-switching, while other types are more typical of second-generation speakers, particularly backflagging. Networks of switchers have been studied, among others, by Backus (1996) and Milroy and Li Wei (1995). Longer duration of contact may lead to preferences for congruent lexicalization.

Cognitive factors include proficiency. High PROFICIENCY in the languages involved generally leads to congruent lexicalization or alternation, while lower proficiency in one of the languages leads to insertion. Both Poplack (1980) and Nortier (1990) have shown that bilin-

guals with considerable proficiency in both of their languages are best capable of fluent and intimate switching.

Linguistic factors include typological and lexical distance. Considerable TYPOLOGICAL DISTANCE of the languages leads to either insertion or alternation, while CONGRUENT LEXICALIZATION is only possible when the languages are close typologically. Muysken (2000) argues this for a number of language pairs, including Dutch Ottersum dialect/Dutch, Frisian/Dutch, Sranan/Surinamese Dutch.

Similarly, congruent lexicalization occurs when there is limited LEXICAL DISTANCE between the languages. This has been argued to be the case for code-switching between Australian English and Australian Immigrant Dutch (Clyne, 2003).[6]

Taken together, combinations of factors such as the ones outlined favor particular strategies, often not excluding occasional use of another strategy. If we want to explore the possible application of these strategies – insertion, alternation, congruent lexicalization, and backflagging – to other domains of language contact, we need to reformulate them in more general terms. I will do so first in terms of different outcomes for code-switching:

(6) INSERTION: Use the L1, i.e. the grammatical and lexical properties of the first language, as the matrix or base language.

(7) CONGRUENT LEXICALIZATION: Produce structures and words which share properties of L1 and L2.

(8) ALTERNATION: Use universal combinatory principles, procedures by which fragments from different languages can be combined independently of the grammars involved.

(9) BACKFLAGGING: Use as much as possible of the L2, i.e. the grammatical and lexical properties of the second language, as the matrix or base language.

These four principles can be arranged in the schema in Figure 1. In this quadrangle, the L1- and the L2-focussed strategies are in opposite corners (as in the earlier models), with the matching and the universal strategies as the other options.

These four code-switching outcomes can be modeled in terms of optimization strategies, which have been formalized in the grammatical model of Optimality Theory (see e.g. Prince & Smolensky, 2004). Following this approach, the external factors determining outcomes of language contact are modeled as ranked constraints

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[5] I should point out, as one of the reviewers notes and which s/he characterizes as "anemic", that much of the following discussion concerns overall patterns of code-switching within a given bilingual speech community rather than the more specific choices that speakers may make with a specific interlocutor.

[6] One reviewer rightly wonders what the exact relation is between these two distance measures in contact studies. The answer is that both are relevant, but we do not know exactly which one is more important in which circumstance.
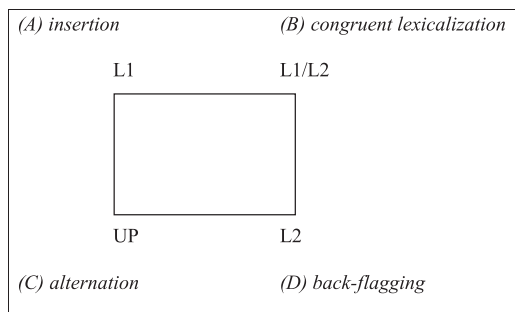
(A) insertion          (B) congruent lexicalization

L1                     L1/L2

UP                     L2

(C) alternation        (D) back-flagging

Figure 1. Schematic representation of extended range of code-switching options.

on language behavior.[7] With respect to the four code-switching strategies mentioned, I will take four constraints into account, following in part the model for code-switching in Optimality Theory proposed in Hogeweg (2009, pp. 185–190):

(10) a. FAITHFEAT = features of the input (meanings, cultural connotations, etc.) must be reflected in the output
     b. SL1 = Select L1
     c. SL2 = Select L2
     d. *CSL = Don't switch between separate languages, either in their lexicon or in their grammar

In the case of code-switching, the input (for which FAITHFEAT requires that the output reflects it) contains the intention of the speaker to switch, i.e. to use words from both L1 ($W_1$ in the representations below) and from L2 ($W_2$), to adequately reflect the intentions of the speaker in terms of meanings, cultural connotations, etc.

We now can have different rankings for the different strategies. The optimization model allows for flexibility, since other strategies than the one ranked highest always play a secondary role. Before formally implementing the four strategies in terms of an Optimality framework I should stress that indeed this use of Optimality in bilingual speech constitutes a radical departure from its use in phonology or syntax. The principles are quite different and fairly general, and their application is stochastic rather than absolute.

For the code-switching patterns analyzed in this paper, we can present the information in four tableaux (the term used in Optimality Theory for these schematic representations). In each tableau, a different strategy is

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Tableau 1. *Evaluation of insertion as a choice in code-switching.*

|  |  | $W_1W_1W_1W_2W_2W_2$ | FAITHFEAT | SL1 | *CSL | SL2 |
|---|---|---|---|---|---|---|
| ☞ | A | Insertion | | | * | * |
|  | B | Congruent lexicalization | | *! | | * |
|  | C | Backflagging | | *! | * | |
|  | D | Alternation | | | **! | |
|  | E | Non-switch, L1 | *! | | | * |
|  | F | Non-switch, L2 | *! | | * | |

Tableau 2. *Evaluation of congruent lexicalization as a choice in code-switching.*

|  |  | $W_1W_1W_1W_2W_2W_2$ | FAITHFEAT | *CSL | SL1 | SL2 |
|---|---|---|---|---|---|---|
|  | A | Insertion | | *! | | * |
| ☞ | B | Congruent lexicalization | | | * | * |
|  | C | Backflagging | | *! | * | |
|  | D | Alternation | | **! | * | * |
|  | E | Non-switch, L1 | *! | | | * |
|  | F | Non-switch, L2 | *! | | * | |

Tableau 3. *Evaluation of backflagging as a choice in code-switching.*

|  |  | $W_1W_1W_1W_2W_2W_2$ | FAITHFEAT | SL2 | *CSL | SL1 |
|---|---|---|---|---|---|---|
|  | A | Insertion | | *! | * | |
|  | B | Congruent lexicalization | | *! | | * |
| ☞ | C | Backflagging | | | * | * |
|  | D | Alternation | | | **! | |
|  | E | Non-switch, L1 | *! | * | | |
|  | F | Non-switch, L2 | *! | | | * |

Tableau 4. *Evaluation of alternation as a choice in code-switching.*

|  |  | $W_1W_1W_1W_2W_2W_2$ | FAITHFEAT | SL1 | SL2 | *CSL |
|---|---|---|---|---|---|---|
|  | A | Insertion | | | *! | * |
|  | B | Congruent lexicalization | | | *! | * |
|  | C | Backflagging | | | *! | |
| ☞ | D | Alternation | | | | ** |
|  | E | Non-switch, L1 | *! | | * | |
|  | F | Non-switch, L2 | *! | | * | |

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[7] One reviewer correctly suggests that in many multilingual contexts, as e.g. the highly complex patterns of multilingual interaction found in South-Asia, these four possibilities are present at the same time. It is precisely the strength of optimization models that they assume simultaneous, even though differently ranked, presence of the different options, i.e. they model variation.

selected because it offends only lower ranked constraints. Insertion respects SL1, congruent lexicalization *CSL (that is, in congruent lexicalization the languages are treated as non-separate), alternation respects both SL1 and SL2, and backflagging SL2. A star indicates the

violation of a constraint by a strategy, and the notation *! marks the fatal violations. The double star marks a double violation (in the case of alternation the full grammar of the two languages involved is activated). The non-switch options E and F violate FAITHFEAT, because the speaker wants to convey a meaning in terms of words from different languages.

There have been several attempts to model language contact phenomena within versions of Optimality Theory. Koontz-Garboden (2004) has tried to model the changing distribution of Spanish progressive aspect in heritage speakers in terms of Stochastic Optimality, which involves quantitative weighing of different strategies. Hogeweg (2009), cited above, gives a stochastic Optimality account of insertional code-switching in the framework of a model of lexical selection. Bhatt and Bolonyai (2011) have modeled a number of pragmatic and socio-linguistic strategies in code-switching in terms of classical Optimality Theory rankings, as in the approach taken here. However, the constraints proposed in their work, except for their FAITH (11a), are somewhat different from the ones listed in (10). They are:

(11) a. FAITH: Principle of interpretive faithfulness, which serves 'to maximize informativity with respect to specificity of meaning and economy of expression' (p. 526)
   b. POWER (symbolic domination) (p. 528)
   c. SOLIDARITY (symbolic concurrence) (p. 530)
   d. FACE: Principle of face management, which serves "to maximize effective maintenance of 'face' or public image" (p. 531)
   e. PERSPECTIVE: Principle of perspective taking serves to "maximize perspectivity in interaction" and "signal what is assumed to be currently salient point of view and socio-cognitive orientation in discourse" (p. 533)

Notice that the constraints that Bhatt and Bolonyai (2011) propose are quite general ones, and hold for all types of interaction. They are grounded in the pragmatic and sociolinguistic theories that have been developed over the last five decades, and undoubtedly play a role in explaining naturalistic interactions. However, since they are not directly attuned to language contact and bilingualism, they are only partly useful for the broader purpose of making different types of language contact comparable, the purpose of the present paper.[8]

I will now turn to a discussion of other contact settings, starting with Creole studies, and argue that the metaphor of a quadrangle representing the major strategies involved

in language contact may help us understand the dynamics of different areas of language contact studies better.

## 2.2 Universal principles and Universal Grammar (UG)

The universal principles in my approach are assumed to be distinct from Chomskyan UG-principles, which are universal properties of the language faculty as instantiated in each individual language and governing the well-formedness of individual grammars. Examples would be X-bar theory or locality principles holding for binding and movement operations. The language-independent universal principles (UPs) assumed here are much more like general combinatory principles governing improvised language behavior, such as radical foreigner talk or incipient pidgin construction (Ferguson, 1971), and the principle a child has recourse to when constructing adjoined relative clauses without the appropriate input (Goodluck & Tavakolian, 1982). Key elements in this set of universal principles are discourse sequencing (a), iconicity, which plays a role in (b, c, d, e), and paratactic adjunction (e, g):

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*Universal principle family of strategies*

(a) Use TopicComment sequences.
(b) Let Circumstance precede Realization, in an adverbial clause/main clause combination (*if . . . , then . . . ; although . . . , still . . .* ).
(c) Narrate events in the order in which they occurred, in a coordinated clause chain.
(d) Reduplicate elements to mark emphasis or iteration.
(e) Use single elements, on the basis of the "one form, one meaning" principle.
(f) Use Left and Right Dislocation.
(g) Adjoin information relevant to something just mentioned in an adverbial clause.

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Since these UP strategies are not linked to any particular grammar, I assume them to hold for all languages and language combinations.

## 2.3 Creole studies

A second domain that is profitably viewed in the perspective of competing strategies is Creole studies, research into the class of languages for which we can pinpoint the time and circumstances of genesis with some precision. Creoles sometimes have been treated as a unified class of languages as well, but in actual fact differ in important respects, and in my view these differences point to different scenarios leading to their genesis.

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8  In further work, it could be investigated whether (11b), POWER, and (11c), SOLIDARITY, could not be linked to the constraints in (10) (compare the discussion of factors governing language selection in Section 6).

A multitude of scenarios have been proposed for the genesis of Creoles, but these may be reduced to four main strategies. In listing these strategies, I try to mention an important early source as well as a recent formulation, stressing the continuities in the research traditions.

(A) Relexification or transfer of L1 structures (Adam, 1883; Alleyne, 1980; Lefebvre, 1998), leading to strong substrate influence in the Creoles. When there are few speakers of the L2 present, many speakers of at most a few L1s, with dominance of one or two of these L1s and structural similarities between them: this leads to relexification or transfer, as in the case of Saramaccan. Saramaccan may be the best example of an L1-oriented Creole (Alleyne, 1980), given its origin as a Maroon Creole and the dominant contribution from the Gbe languages.

(B) Convergence of sub- and superstrate patterns (Kihm, 1988; Kouwenberg, 1992; Schuchardt, 1890; Silverstein, 1972a, b), leading to highly mixed systems. A relative balance over a longer period between speakers of the L2 and a single important L1 leads to convergence, as in the case of Berbice Dutch Creole and Senegal Portuguese Creole. These may be very good examples of convergence (Kihm, 1988; Kouwenberg, 1992), given the prolonged co-existence in the period of genesis of these languages of a lexifier and a substrate.

(C) Reliance on universal principles (Bickerton, 1981; Coelho, 1880–6) causes the Creole features to directly reflect a Language Bioprogram or Universal Grammar, or at least show highly unmarked patterns. The presence of several L1s with considerable structural differences between them leads to important universal effects, portrayed in the Bioprogram, as in the case of Hawaii Creole English. Hawaii Creole English may well reflect a number of universal patterns (Bickerton, 1981), given the diversity of substrate languages involved and the limited access to the L2 lexifier English.[9]

(D) There is imitation of European vernacular varieties (Bloomfield, 1933, p. 472; Chaudenson, 1992), leading to Creoles which resemble European settler languages. Relatively many speakers of the L2 are present in the formative stage, leading to strong European L2 lexifier input, as in the case of Réunion French Creole (Chaudenson, 1992); here Creole formation is closest to language shift.

[9] A reviewer rightly points out that Bickerton's (1981) model as such is no longer widely accepted among creolists. Still, slightly weaker universalist claims are very common in the literature.
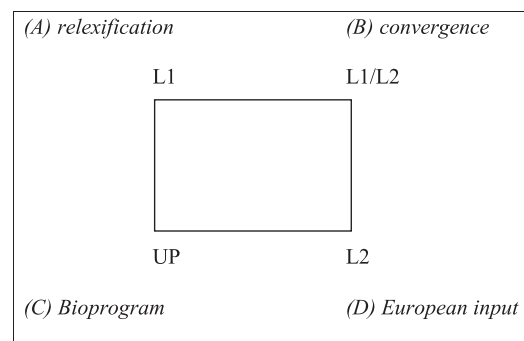


Figure 2. Schematic representation of options for Creole genesis in Creole studies.

The constructed sentence in (12) below from the Caribbean Ibero-Romance-based Creole language Papiamentu illustrates the effect of these strategies, where different fonts have been used to mark these strategies. The serial chain *kana bini* illustrates L1 SUBSTRATE INFLUENCE, the result of transfer; the use of the third person plural pronoun *nan* as a nominal plural marker may be taken as a case of a UNIVERSAL STRATEGY; the use of the particle *bèk* may be viewed as a case of CONVERGENCE between the English V+particle pattern and an African serial verb chain; finally, the choice of lexical items, the aspectual marker *ta* and the preposition *di* may have resulted from superstrate influence.

(12)  e       mucha-NAN   ta   **kana bini *bèk*** di
      DET  child-3PL       ASP  walk  come  back  from
      Punda
      Punda
      "The children are walking back from Punda (the center)."

The four strategies correspond directly to the four bilingual strategies listed above for code-switching.[10] We may represent them in a quadrangle, as in Figure 2.

Following the logic of the code-switching studies in terms of optimization strategies, the claim inherent here is that no single strategy may explain the genesis of Creoles. Rather, the four competing strategies have played a role in different combinations, in the genesis of specific Creoles, thus explaining why they do not form a uniform class of languages. Most theories of Creole genesis contain a

[10] One reviewer suggests that "clearly, there is no empirical justification to unite theoretical accounts of Hindi–English code-switching and Jamaican Creole!". I do not think this is so clear, considering a more abstract level than the contrast Hindi versus Jamaican Creole. If bilinguals both in command of one of the emergent pidgin/Creole languages and of a West-African language such as Fongbe were instrumental in transferring West-African structural patterns into the developing Creole, as many researchers think now, the code-switching patterns in their bilingual speech as discussed here may have played an important role in substrate formation.

grain of truth, but none is applicable to all situations. None of the Creoles listed are "pure" cases, and other Creoles (a typical case would be indeed Papiamentu) are even more the result of a mixture of these strategies and can be located somewhere nearer the center of the abstract space delineated in Figure 2.

## 3. Other new languages

In this section I will discuss some other cases of new linguistic forms arising out of contact: pidgins, mixed or intertwined languages, and ethnolects.

### 3.1 Pidgins

It comes as no surprise perhaps, that pidgins can also be viewed in terms of the quadrangle just illustrated. Pidgins are more or less stable communication systems that lack native speakers, with a reduced vocabulary and grammatical structure. Winford (2003) provides an excellent overview of pidgins, stressing the multi-dimensional character of the notion. In part following his suggestions, we may distinguish four types of pidgins, or alternatively, four scenarios for the genesis of pidgins may be classified.

(A) L1-oriented pidgins, such as Ndyuka-Trio Pidgin, which is based primarily on Trio grammatical properties (Huttar & Velantie, 1997; Winford, 2003, p. 283), which have been reinterpreted morphologically, and such as Pidgin Delaware, a variety simplified on purpose by target language native speakers (Goddard, 1997; Winford, 2003, p. 278). Such pidgins arise when there is a resident community dealing with newcomers.

(B) Compromise pidgins, such as Russenorsk, in which both languages, in this case Russian and Norwegian, have contributed vocabulary and structural elements (Jahr, 1996). There is a relative balance in power and numbers between the two speaker groups.

(C) There are no pidgins based exclusively on universal communicative strategies, since the contributing languages always play a role, but it is clear that general principles of grammar development play a role in many pidgins, as in Naro's "factorization principle" assumed to operate in the genesis of West-African Portuguese Pidgin (Naro, 1978).

(D) Lexifier-oriented pidgins, which are primarily the result of second language acquisition; in this class would be simplified immigrant varieties of dominant languages, which arise when there is social distance between a dominant society and a low prestige immigrant group (Clyne, 1968).

This leads to four main proto-types of pidgins. Many pidgins will of course have features from several of these different types.

### 3.2 Mixed languages

Mixed, relexified, or intertwined languages share some properties with pidgins but are characterized by deriving substantial components of their lexicon and/or structure from more than one source language, without much reduction of morpho-syntactic distinctions. However, the group of mixed languages is far from forming a single type. I propose to also organize the complex phenomena surrounding the class of bilingual mixed languages into a more coherent framework using the model. Different mixed languages have different properties, and they can be grouped as in (A)–(D);

(A) L1-oriented mixed languages which primarily have resulted from relexification of elements from the original language by target language phonetic shapes, as in the case of Media Lengua from Ecuador, which is built with the grammatical components from Quechua and lexicon from Spanish (Muysken, 1981, 1997). In this case, the lexifier language had a very limited presence in the community.

(B) Compromise mixed languages, in which both languages have contributed substantial components of lexicon and structure, such as Michif, which has noun phrases from French and a verbal system from Cree (Bakker, 1997). Involved were bilingual settings with a clear division between the two languages.

(C) Universal communicative strategies in mixed languages. To give but one example, Media Lengua has reduplication to mark emphasis (Muysken, 1981) while this is largely absent in the relevant varieties of Quechua and Spanish. Similarly, the mixed language Kallawaya has been shown to have extensive reduplication, again with the relevant variety of Quechua and, as far as we know, Puquina, the other contributor, lacking it (Hannss & Muysken, in press).

(D) L2-oriented mixed languages show a much stronger presence of the second language. Typical examples would be Copper Island or Mednyj Aleut (e.g. Thomason, 1997), Light Warlpiri and Gurindyi Kriol (Meakins & O'Shannessy, 2010; O'Shannessy, 2005; O'Shannessy & Meakins, 2012). In these cases the "new" language provides essential components of the grammatical skeleton, in contrast with e.g. Media Lengua, as the result of language shift.

### 3.3  Ethnolects

A third category of new linguistic contact varieties concerns ethnolects: ethnically specific forms of speech that characterize ethnic minority communities that form part of a larger dominant society. Often ethnolects are spoken in immigrant communities, but they may also result from progressive assimilation of traditional ethnic minorities into the mainstream.

I have kept the definition of ethnolect somewhat vague because their linguistic properties differ from case to case. It may be useful to distinguish between an ETHNOLECT NARROW as a variety of a dominant (often national) language spoken by a specific (non-dominant) ethnic group, and an ETHNOLECT BROAD as the range of varieties in the repertoire of a non-dominant ethnic group used in a larger context (including the heritage language, code-switching, etc.).

Keeping this in mind, we can usefully distinguish four dimensions in ethnolects, as suggested in Muysken (2010a):

(A) L1 dimension: The local variety of the maintained original language, as in the heritage languages Italian in Toronto, American Finnish, Turkish in Germany and the Netherlands, a research tradition pioneered by Haugen's (1953) monumental *The Norwegian Language in America*.

(B) L1/L2: Convergence between L1 and L2 in the ethnolect, as found e.g. in Melayu Sini, the Malay spoken in the Moluccan community in the Netherlands, characterized by code-switching and grammatical convergence between Malay and Dutch (Tahitu, 1988).

(C) Simplification and omission of unstressed functional elements: In the reports on ethnolects in different immigration settings the systematic reduction in the morpho-syntactic inventories of the dominant languages is constantly mentioned; it involves gender and number, the copula and tense markers, determiners and definiteness markers.

(D) Finally, the L2 dimension in the narrow definition of ethnolects speaks for itself, since they are defined as the product of language shift.

A number of social factors contribute to what form particular ethnolects take, if they emerge at all. These include power relations and the openness of the dominant community to newcomers (a distinctive ethnolect or not), immigration history and time depth of language contact, social or demographic barriers to complete learning of the dominant language, constructions of ethnicity in a subordinate community (degree of influence from specific ethnic languages), numbers of speakers, competing varieties in the form of local varieties of

the community language (local dialect influence or not), and cross-ethnic identifications (multi-ethnolects or not; Quist, 2000).

### 3.4  Summary

In Table 1 the underlying factors, as far as known, strategies, and outcomes in code-switching and new languages are summarized. It is clear that there are many parallels between the different domains.

## 4.  Contact-induced language change

Following up on the earlier discussion of Creoles and other types of new languages, I now turn to language change in a number of components of language which may be profitably viewed in the light of the model proposed here, starting with contact-induced morphological change.

### 4.1  Morphological change

It is insightful to model specific types of morphological change, in particular the borrowing of affixes, in this way as well. Although affix borrowing is assumed to typically proceed through word borrowing (Joseph, 2002, p. 261), Muysken (2011a, b) distinguishes four types of Spanish affix borrowing processes in different Quechua varieties:

(A) L1-oriented morphological change through affix borrowing can involve the replacement of the phonetic shape of an affix by a form from the donor language while retaining the grammatical and lexical behavior of the original affix. An example is relatively isolated Inga Quechua (Colombia) agentive -*k* replaced by Spanish -*dor*, remaining a past habitual marker.

(B) Sometimes properties of both languages are conditioning factors, e.g. the Spanish diminutive -*itu*/-*ita*/-*situ* (in which Spanish /o/ is pronounced as [u] under Quechua influence), where phonological properties of Bolivian Quechua (final vowel of the base word) replace semantic and grammatical properties of Spanish (gender), but on the basis of the same distinctions. In Bolivia there has been prolonged bilingualism.[11]

(C) The creation of a class of "characterizing" or "descriptive" suffixes in different varieties of Quechua, loosely modeled on Spanish morphological material, of the type *macha-q-nyintu* [imbibe-AG-CHAR] "drunkard".

(D) The generalization of Spanish plural markers in Ecuadorian Quechua, on the basis of borrowed items,

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11  A reviewer suggests that the very common phenomenon of double plural marking would be a better example. This is indeed found in Bolivian Quechua as well.

Table 1. *Factors, strategies, outcomes in code-switching and new languages.*

| Factors | Strategies | Outcomes |
|---|---|---|
| **Code-switching** | | |
| Unequal power, (post)colonial settings, low proficiency | L1 | Insertion |
| Relaxed language norms, closely-knit network, high bilingual proficiency, little typological and/or lexical distance, long contact | L1/L2 | Congruent lexicalization |
| Political competition, high bilingual proficiency | UP | Alternation |
| Shift in second or third generation | L2 | Backflagging |
| **Creoles** | | |
| Few speakers of the L2 present, many speakers of a few L1s | L1 | Creoles with strong substrate influence such as Saramaccan |
| Relative balance over a longer period between speakers of the L2 and a single important L1 | L1/L2 | Creoles resulting from convergence such as Berbice Dutch Creole and Senegal Portuguese Creole |
| Diversity of substrate languages involved and limited access to the L2 | UP | Creoles with mostly general properties such as Hawaii Creole English |
| Relatively many speakers of the L2 present in the formative stage | L2 | Creoles with strong European lexifier input such as Réunion French Creole |
| **Pidgins** | | |
| Resident community dealing with newcomers | L1 | L1-oriented pidgins such as Ndyuka-Trio Pidgin and Pidgin Delaware |
| Relative balance in power and numbers between the two speaker groups | L1/L2 | Compromise pidgins such as Russenorsk |
| | UP | |
| Social distance between dominant society and low prestige immigrant group | L2 | Immigrant pidgins in industrial societies |
| **Mixed languages** | | |
| Lexifier language with a very limited presence in the community | L1 | L1-oriented mixed languages such as Media Lengua |
| Bilingual settings with a clear division between the two languages | L1/L2 | Compromise mixed languages such as Michif |
| | UP | Universal communicative strategies in mixed languages |
| 'New' language provides essential components through language shift | L2 | L2-oriented mixed languages such as Copper Island or Mednyj Aleut, Light Warlpiri and Gurindyi Kriol |
| **Ethnolects** | | |
| Partial maintenance | L1 | Local variety of original language, such as American Finnish |
| Convergence and mixing | L1/L2 | Convergent ethnolects such as Melayu Sini |
| | UP | Simplification and omission of unstressed functional elements in almost all ethnolects |
| Language shift | L2 | Ethnolectal variant of dominant language |

mostly mass nouns and nouns describing body parts, such as *ala-s* "wing/wings", the result of extensive lexical borrowing.

Thus the phenomenon of affix borrowing is far from straightforward, and involves L1, L2, universal, and convergence dimensions.

### 4.2 Syntactic change

Consider then syntactic change due to language contact. The extent to which this occurs and the constraints on the process are a matter of some controversy. However, the four-way division I am proposing here yields a useful perspective to distinguish four kinds of change:

(A) Perhaps the best candidate for L1-oriented syntactic change is the relative increase in use in partial maintenance settings, under influence of another language, of a construction which is already present in a language (the frequential dimension of code-copying in Johanson's 1992 framework). Silva-Corvalán (1993, 1994, 2008) has argued that syntactic change nearly always involves adaptation in the frequency distribution of already existing patterns in the recipient language, so-called indirect transfer.

(B) Syntactic convergence (Gumperz & Wilson, 1971) is of course quite frequent, particularly when there is prolonged bilingualism, resulting e.g. in pragmatic bleaching in word order change. To take but one example, in some varieties of Quechua, many sentences now have VO order rather than the original OV, while in rural Spanish, many sentences are OV rather than the original VO (Muntendam, 2009, 2012; Muysken, 1982).

(C) Simplification due to contact (Mühlhäusler, 1974), particularly when the languages contrast. Simplification in many cases involves morpho-syntactic features (Kusters, 2003), but also word order patterns may change in contact situations, such as the original German- or Dutch-like orders of Old English – with OV in subordinate clauses and V2 in main clauses – being replaced by an SVO system due to contact (e.g. Weerman, 1993).

(D) The wholesale adoption of a grammatical pattern from another language (Nadkarni, 1975). The most controversial kind, to be sure, is the wholesale adoption of a grammatical pattern from another language, such as the one involving Konkani relative clauses described by Nadkarni (1975). Often there are strong differences in prestige between L1 and L2.

### 4.3   Contact-induced change at the lexical level

Turning from grammar change to the contrasting area of lexical change, including but by no means limited to the familiar lexical borrowing, the differences are striking. For lexical change four options can be distinguished in the framework adopted here:

(A) "Classical" relexification, the grafting of the phonetic form of an L2 lexical item onto an L1 lemma (Lefebvre, 1998; Muysken, 1981, 1997), or calquing, the borrowing of lexical meanings without their forms. Often this is when the dominant language has a limited presence.

(B) Lexical change can be due to partial overlap in meaning or form between elements in the two languages. Convergent change is likewise very common when the situation of contact is more developed. An example given by Campbell (1998, p. 266) is K'iche' (Mayan) *kje:x*, which originally meant "deer" and then after European contact also came to mean "horse".[12]

(C) Autonomous processes of lexical enrichment or simplification/loss, documented for Tok Pisin by Mühlhäusler (1974, 1979).

(D) Straight lexical borrowing, the wholesale adoption of L2 lexical items, very frequent when there is an unqueal relation between the languages (Poplack, Sankoff & Miller, 1988).

It should be noted that the L2 option of borrowing, (D), is entirely uncontroversial, and indeed the paradigm case, in lexical change, while it is the most extreme option in grammar change. This contrast can be explained in terms of the different systemic properties of the lexicon and the grammar: the latter is inherently much more structured, and hence more resistant of external influence. Following particularly the work of Myers-Scotton (2002), it will be useful in this respect to separate syntactic change from lexical change.

### 4.4   Phonological change

A fourth domain of contact-induced language change that may be addressed in this way is phonological change. Contact phonology is a very rich but as yet not fully explored area, and it does not have much internal coherence as yet (but see Singh, 1995). Again there are a number of sub-domains, the most important ones of which are the phonological adaptation of lexical loans (L1-oriented) and interlanguage phonology (L2-oriented).

(A) The phonological adjustment of loanwords, particularly in early stages of contact (Haugen, 1950; Weinreich, 1953).

(B) Phoneme matching through phonetic overlap in L2 acquisition, as studied by Flege (1987), particularly in intermediate stages of L2 development.

(C) Fall-back on unmarked structures, e.g. in phoneme inventories and syllable structures (see Eckman, 1977, on the Markedness Differential Hypothesis).

(D) L1 transfer in L2 pronunciation (Major, 2001; Tarone, 1980), as part of processes of shift.

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[12] A reviewer suggests the possibility of loanblends, which combines morphemes from two languages, such as the often cited "monolingual" with a Greek prefix and a Latin root.

The distinction made in Haugen (1950) between "importation" and "substitution" of mostly phonological material in loans corresponds to the L2- versus L1-orientation adopted here. Likewise, Van Coetsem's (1988) distinction between Agent and Source Agentivity also has to do with the relative importance of L1 and L2.[13]

To summarize this discussion of contact-induced language change, modeling different kinds of change in terms of the four-way distinction proposed here has yielded insights into stability differences between these different components of the grammar in language contact, where stability can be defined in terms of the dominant role of the L1. The discussion in historical linguistics about the stability of particular features, brought into the domain of language contact once again by Thomason and Kaufmann (1988) and further elaborated in Nichols (2003), has become increasingly complex and sophisticated. Recent work by Parkvall (2008) on different components, Tadmor, Haspelmath and Taylor (2010) on the lexicon, and Bickel (2011) and Wichmann and Holman (2009) on grammatical features departs from larger cross-linguistic comparisons and requires further elaboration within the framework proposed here. In any case, it is clear that there are stability differences both within components (e.g. phonology, lexicon) and across components. The latter are reflected in the different weights between the four dimensions proposed here that play a role in different components of language: in phonological and syntactic change, L1-oriented options A and B play an important role, while in lexical and morphological change, L2-oriented options C and D are prevalent. In Table 2 the different types of contact-induced language change are summarized.

## 5. The bilingual individual and bilingual interaction

In the study of the bilingual individual a first perspective relevant to the model proposed here concerns second language development. I will briefly analyze it, then subsequently bilingual interference and bilingual interaction.

### 5.1 Second language development

Perhaps not surprisingly given the dominant role of L2 learning in Creole genesis, the field of L2 learning resembles that of Creole studies in that many rivaling explanations and models have circulated over the years. However, leaving aside a host of factors, again four main theories about the respective roles of L1 and L2 can be discerned in the research literature:[14]

(A) The traditional transfer or cross-linguistic influence hypothesis, now given new fire by the conservation hypothesis and the full access/full transfer model (Schwartz & Sprouse, 1996; van de Craats, Corver & van Hout, 2000; van de Craats, van Hout & Corver, 2002), particularly in initial states of L2 development.

(B) Approaches that favor transfer only in relation to patterns in the L2 (such as Transfer to somewhere (Andersen, 1983) and the Alternation Hypothesis (Jansen, Lalleman & Muysken, 1982)), require matching strategies on the part of the learner.

(C) Approaches that stress UG and general properties of learning, which had an early impulse in Dulay, Burt and Krashen (1982), and were later taken up by researchers such as White (1989) and much subsequent work;

(D) Approaches that focus on the nature of the input, and stress the dominant role of patterns in the target in shaping interlanguage (Gass, 1997).[15]

### 5.2 Bilingual interference

Another major field of study concerning the bilingual individual is bilingual interference. The phenomenon of interference has remained rather mysterious, except for the domain of the lexicon, where a number of proposals have been made. To name but one

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[13] A fifth type of contact-induced language change (brought to my attention by Bruce Mannheim, p.c.) that may be studied in this perspective is pragmatic change. Contrastive pragmatics is a very complex area, with many interesting studies, particularly by linguistic anthropologists, but as yet no overarching framework, and not much internal coherence. Again there are a number of sub-domains, the most important ones of which are: (A) The replacement of pragmatic strategies (Gumperz, 1982); (B) Matching of overlapping pragmatic patterns, leading to compromise practices (Argente & Payrató, 1991); (C) Fall-back on universal pragmatics (Schiffrin, 1996); (D) Transfer of L1 pragmatics to L2 behavior (Meeuwis, 1991).

[14] There are of course many overviews of this complex field, such as Ellis (2008).

[15] Along these same lines we may also take the the complex and rich domain of child bilingualism into consideration. As already shown in Romaine (1994), the circumstances under which children grow up with several languages at a time are extremely varied. Much of the literature has focused on the question of whether children are able to keep the various languages they are growing up with grammatically apart. While Meisel (2004) and associated researchers have frequently argued for the autonomy of the several developing language systems at the structural level Hulk and Müller (2000), using data from children learning French, Italian, German, and Dutch have argued for limited interference at the syntax-pragmatics interface. Sánchez (2003), in contrast, working with Quechua–Spanish bilingual children, has noted considerable interference. Further work is needed to see whether the results from the child development literature can be neatly categorized in terms of the model proposed here.

Table 2. *Factors, strategies, outcomes in different types of language change.*

| Factors | Strategies | Outcomes |
|---|---|---|
| **Morphological change** | | |
| Relative isolation of the L1 | L1 | Replacement of phonetic shape of affix by form from donor language |
| Prolonged bilingualism | L1/L2 | Affix borrowing with substantial adjustment |
| | UP | 'Characterizing' or 'affective' suffixes as innovations |
| Strong lexical presence of L2 | L2 | Generalization of affixes from borrowed lexemes |
| **Syntactic change** | | |
| Frequent in partial maintenance | L1 | Adaptation in the frequency distribution of already existing patterns |
| | L1/L2 | Syntactic convergence and pragmatic bleaching in word order change. |
| | UP | Simplification due to contact |
| | L2 | Wholesale adoption of a grammatical pattern from another language |
| **Lexical change** | | |
| Limited presence of L2 | L1 | Classical relexification, the grafting of an L2 phonetic form onto an L1 lemma |
| More developed contact setting | L1/L2 | Convergent change due to partial overlap in meaning or form between elements in the two languages. |
| | UP | Autonomous processes of lexical enrichment or simplification/loss |
| Unequal relation between the languages | L2 | Straight wholesale adoption of L2 lexical items |
| **Phonological change** | | |
| Early stages of borrowing | L1 | Phonological adjustment of loanwords |
| Intermediate stage of L2 development | L1/L2 | Phoneme matching through phonetic overlap in L2 acquisition |
| | UP | Fall-back on unmarked phoneme inventories and syllable structures |
| Language shift | L2 | L1 transfer in L2 pronunciation |

recent reference, Dijkstra, Hilberink-Schulpen and Van Heuven (2010) have developed the BIA+ model in this area.[16] The direction of the interference (from L1 to L2 or vice versa) and the role of distance (in particular cognate/non-cognate distinctions and phonetic and orthographic similarity) have been hotly debated. In recent years, however, the field is gaining increasing impetus in areas outside the lexicon through work in the cross-linguistic syntactic priming paradigm. Jarvis and Pavlenko (2008) provide a comprehensive overview of the second language development literature in this domain, Hartsuiker and Pickering (2008) of the processing literature.

(A) L1 patterns interfere in a weaker second language (Hartsuiker, Pickering & Veltkamp, 2004). These authors have developed a paradigm to study cross-language activation (their term for interference) from L1 to L2 and concluded that Spanish–English bilinguals would use more passives in their English L2 when primed by a passive in their Spanish L1.

(B) Mutual interference and convergence. In one study related to passives, Heydel and Murray (1997) have shown that bilingual German–English speakers, when primed with German topicalized sentences, produced English passive structures rather than topicalizing in English; this suggests that cross-linguistic priming can lead to searching correspondences rather than direct transfer. Similarly, Bernolet, Hartsuiker and Pickering (2007) have found that syntactic priming is strongest when word orders are similar between the languages involved. Finally, Kootstra, Van Hell and Dijkstra (2010) have shown that alignment in code-switching is strongest when syntactic contexts are similar. For comprehension, the competition model developed by Bates and MacWhinney has provided insight into the role of interference as well (e.g. MacWhinney, 1987). In all cases it is a perceived similar structure in the languages involved which triggers the priming effects.

(C) Interference constrained by universal patterns of markedness. Vasilyeva, Waterfall, Gámez, Gómez, Bowers and Shimpi (2010) show that this type of influence need not be bidirectional and may also

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[16] The original BIA+ model was proposed in Dijkstra and Van Heuven (2002).

involve markedness considerations. Priming from Spanish passives to English passives was found, but not the other way around, suggesting a strong role for universal principles related to the markedness of passive.

(D) L2 patterns interfering in the L1, so-called reverse transfer (Odlin, 1989). It is clear that the study of bilingual individuals is rapidly developing as new research paradigms and experimental techniques become available. The survey given in this section barely scratches the surface of this exciting domain of research.

### 5.3   Bilingual interaction

With respect to bilingual interaction, the topic in the present section, the model proposed sometimes is revealing, but at other times complicated to apply.

The field of study of what Georges Lüdi calls exolingual communication (Lüdi, 1987) involves communication between speakers with different L1s. It has not been approached systematically as a sub-specialty. One of the ways to consider bilingual interaction is through Foreigner Talk (FT), the way native speakers of a language address foreigners in that language. This has been studied in a comparative perspective in a volume assembled by Michael Clyne (Clyne 1981), who was inspired by work of Ferguson (1971). It turns out that the use of foreigner talk can take two different forms: (i) Fixed patterns of simplified language use (infinitives, absence of articles and the copula) independent of the competence of the addressee (Ferguson, 1971). These patterns consist mostly of single units, obeying a "one form, one meaning" principle; (ii) Adaptive L1 language use, fine-tuned in complexity to the level of L2 competence of the addressee (Snow, van Eeden & Muysken, 1981).

The first type is found particularly when there is considerable social distance between the speakers involved; often with a difference in social status and an assumption of non-competence of the addressee, as in the following case, from Ecuador:

(13)   *¿mister*   Quito   ir?
          mister    Quito   go.INF
          "Are you going to Quito,   mister?"

The part *Quito ir* results from simplification, in that a directional phrase is used without a preposition, while the verb is in the infinitive form, and the italic part involves adaptation to a putative non-Spanish address form (pronounced as [mí:ster]).

The second type was found e.g. in the speech of municipal employees who address non-native speakers
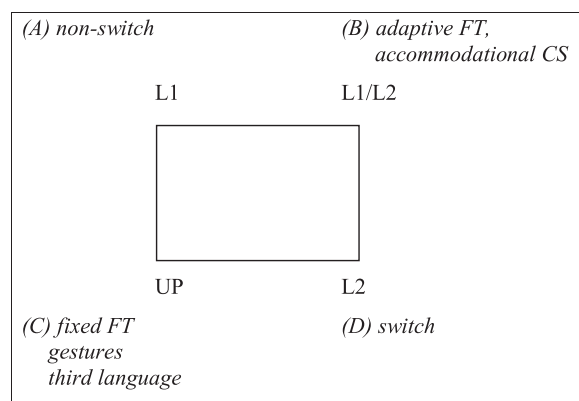


Figure 3. Schematic representation of possible types of bilingual interaction.

professionally on a daily basis (Snow et al., 1981). Here we find proportional adjustment to the syntactic complexity of the speech of the non-native interlocutor, and subtle restructurings to facilitate comprehension, such as SVO in Dutch subordinate clauses.

Another issue that has been studied in the general domain of bilingual interaction is obviously the determining factors of language choice, speaker accommodation, and negotiation of language use. What brings a speaker to use either the native language (the non-switch) or the second language (the switch strategy) when interacting with someone speaking a second language (Fishman, 1965; Giles, Bourhis & Taylor, 1977; Myers-Scotton, 1976)?

The binary choice a speaker has of either L1 or L2, coupled with the choice between the two types of Foreigner Talk, again leads to four possibilities, along two separate dimensions. It can be enriched if we include accommodational code-switching (Myers-Scotton, 1976) in the L1/L2 corner, and the use of a neutral third language, gestures, etc. in the UP ( = –L1/–L2) corner (see Figure 3).[17] The result yields a framework to organize the results of research in bilingual interactions, a field that has not been very organized in the past.

### 5.4   Summary

In Table 3 I have tried to summarize the main findings so far regarding factors, strategies, and outcomes in the areas of second language acquisition, bilingual interference, and bilingual interaction.[18]

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[17]   Recall the discussion about various "strategies of neutrality" in Appel and Muysken (1987).

[18]   It should be kept in mind that there is relatively little research on social factors in psycholinguistic approaches to bilingualism. Thus some cells in Table 3 are (half)empty. The main reason for this is

Table 3. *Factors, strategies, outcomes in Second language development, Bilingual interference, and Bilingual interaction.*

| Factors | Strategies | Outcomes |
| --- | --- | --- |
| **Second language development** | | |
| Initial state of L2 development | L1 | Traditional transfer |
| Requires matching strategies | L1/L2 | Transfer to somewhere and alternation |
| | UP | UG conditioned general L2 learning |
| | L2 | Input and patterns in the target shaping interlanguage |
| **Bilingual interference** | | |
| Weaker second language | L1 | L1 patterns interfere |
| Languages similar | L1/L2 | Cross-linguistic priming can lead to searching correspondences rather than direct transfer |
| | UP | Interference constrained by universal patterns of markedness |
| | L2 | L2 patterns interfering in the L1, so-called reverse transfer |
| **Bilingual interaction** | | |
| High status, low proficiency | L1 | Non-switch |
| Frequent interaction with non-native speakers | L1/L2 | adaptive Foreigner Talk, accommodational CS |
| Considerable social distance between speakers | UP | Fixed Foreigner Talk, Gestures, Third language |
| Low status, high proficiency | L2 | Switch |

## 6.  Concluding remarks

In Sections 3–5 above I have applied the model for language contact strategies originally developed for code-switching and Creole studies to different kinds of language genesis, to language change, second language learning, bilingual interference, and bilingual interaction. I now turn to a few more general issues concerning this model, starting with the question what the model has brought us.

I have argued that the quadrangle model may be successfully applied to model different situations of language contact. This has several advantages. First of all, the model makes it possible to compare results from one domain (e.g. different types of Creole languages) to those in another (e.g. different code-switching strategies). This allows us to compare different types of contact, and discern similarities as well as differences between them, both in terms of outcomes and in terms of conditioning factors. An example is language change. In some areas, such as lexical change, the L2 plays a dominant role, while in others, such as syntactic change, the L1 is more important. This tells us something about the stability of different components of language, such as the lexicon and the syntax.

Second, it allows us to systematically organize the findings in a specific domain. This is relevant both

the universalist assumptions in much earlier psycholinguistic work, leaving social factors out of consideration.

when a domain has been relatively undeveloped as a systematic field of study (e.g. bilingual interaction or contact phonology), and when a field is so much developed that it becomes difficult to see the overall patterns in it, as in the case of code-switching.

Third, since it is formulated in terms of optimization strategies and linked to Optimality Theory, it allows for a fairly precise definition within an established framework. It also allows a game theoretic approach to the choices made by bilinguals (Dekker & Van Rooij, 2000), in principle making a link possible with the growing literature in game theory – the mathematical modeling of rational decision making in interactions between individuals – a theory which has been applied in language studies as well (see further Benz, Jäger & van Rooij, 2005; Jaeger, 2008). In these approaches (networks of) language users have to find a balance between the strengths derived from their entrenched L1-system and the requirements of communicating in an environment in which other languages are also used, and taking into account the strategic choices of their interactants.

Finally, it will allow us to see whether the same factors are responsible for specific options in different contact settings. One of the potential advantages of developing a comprehensive model of language contact is that it is possible to comparatively study the role of social factors and contact scenarios that operate in various domains at the same time. In Sections 3–5 a number of social, linguistic, and psychological factors were mentioned that

| | |
|---|---|
| *L1 prestige* | *Lexical similarity* |
| *Low L2 proficiency* | *Typological similarity* |
| *Limited access to L2 speakers* | *Low normativity* |
| L1 | L1/L2 |

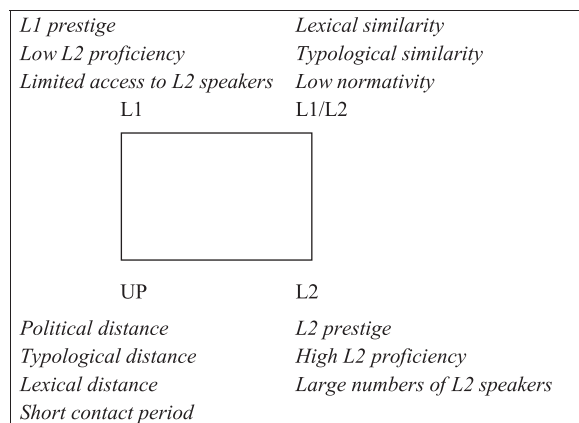| | |
|---|---|
| UP | L2 |
| *Political distance* | *L2 prestige* |
| *Typological distance* | *High L2 proficiency* |
| *Lexical distance* | *Large numbers of L2 speakers* |
| *Short contact period* | |

Figure 4. Schematic representation of factors influencing the four options.

influence specific outcomes of language contact. These factors can be divided into:

(a) SIMILARITY FACTORS: Lexical similarity/distance, Typological similarity/distance;
(b) PRESTIGE AND STATUS FACTORS: L1 prestige, L2 prestige;
(c) PROFICIENCY FACTORS: Low L2 proficiency, High L2 proficiency;
(d) CONTACT FACTORS: Large/Small numbers of L1 or L2 speakers present, Type of network;
(e) TIME FACTORS: Long/Short contact period;
(f) ATTITUDINAL FACTORS: Low normativity, Political distance.

The interaction between these different types of factors may, as a first approximation, be represented as in Figure 4 with respect to the quadrangle that we have been operating with. Prestige of the L1 and low proficiency in the L2 lead to choices in the upper left-hand corner, while prestige of the L2 and high proficiency in the L2 lead to choices in the lower right-hand corner. Similarity in lexicon and grammar, as well as low normativity, lead to choices in the upper right-hand corner, while political distance and purism, as well as typological and lexical distance and a short period of contact lead to choices in the lower left-hand corner. Other factors intervene, but these are the most important ones. These factors are the key elements in the different contact scenarios.

There are several potential problems with the model proposed here. A conceptual problem arises because it may not always be clear at what level of analysis a particular construct is being used: when L1-oriented approaches are favored, are we talking about the community language from the perspective of ethnic identity or truly of the first language of all individual speakers? Does a given strategy reflect a resulting state or an ongoing process? As I mentioned in the introduction, the approach taken here necessarily abstracts away from many of these distinctions.

Second, many of the processes listed above may and often do interact. A typical example is the emergence of a linguistic area or *Sprachbund*. Linguistic areas are the result of convergence in the grammar over a very long time, but the processes which have led to their emergence may well vary and be difficult to tease apart. Hence it is not entirely straightforward to approach this phenomenon directly from the perspective of the four dimensions taken as central here.

A third potential problem is that the model used here may be thought to presuppose an asymmetry between L1 and L2: either one is dominant in the strategies adopted here. However, there are cases, both within the individual (as in e.g. simultaneous bilingual acquisition) and the bilingual community, in which no such dominance relation holds. However, the upper right- and lower left-hand corners can be viewed as the neutral cases in this respect. Possibly, convergence-related options are preferred when there is some kind of space for overlap, or universal options if the structural conflicts between the languages are simply too great.

Fourth, the factors interact, necessarily, and the model as presented here does not by itself assign weights. How does the similarity between the languages involved compare with weak network ties of the speakers? This lack of weight for factors necessarily makes this an interpretive model rather than a predictive one, as noted by a reviewer. More explicit information is needed, for the model to gain more power, about which factors constitute necessary and which sufficient conditions for a particular outcome. An even further goal would be some kind of quantitative weighing of the factors, allowing for more specific predictions.

## 7. Conclusion: Speakers choose strategies

I hope to have been able to show that a large range of types of language contact can be profitably modeled in terms of a simple four-way division in terms of speaker strategies. Modeling language contact necessarily involves modeling the choices of speakers. Speakers are individuals but part of networks and speech communities. Choices are made in terms of external (dominance and proficiency) as well as internal (various types of distance) factors and these choices can be ranked in terms of Optimality constraints.

## Abbreviations in glosses

| | | | |
|---|---|---|---|
| 1, 2, 3 | first, second, third person | DET | determiner |
| AC | accusative | DIM | diminutive |
| AG | agentive | EVI | evidential |
| ASP | aspect | FU | future |
| CHAR | characterizer | INF | infinitive |
| CL2 | noun class 2 | OB | object marker |
| CON | connective | PL | plural |
| COP | copula | RE | reflexive |
| CPRO | clitic pronoun | SG | singular |

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