Adverb code-switching among Miami's Haitian Creole–English second generation*

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The findings for adverbs and adverbial phrases in a naturalistic corpus of Miami Haitian Creole–English code-switching show that one language, Haitian Creole, asymmetrically supplies the grammatical frame while the other language, English, asymmetrically supplies mixed lexical categories like adverbs. Traces of code-switching with an English frame and Haitian Creole lexical categories suggest that code-switching is abstractly BIDIRECTIONAL. A quantitative methodology that codes the language-indexation of the token in addition to the surrounding lexical items was used for all mixed (e.g. xYx/yXy, xYy/yXx, yYx/xXy) and unmixed (xXx/yYy) adverbs. Discourse position, especially the left-periphery, is found to be a significant factor in adverb code-switching. Sociolinguistic and psycholinguistic analyses which acknowledge the 'low' status of one language and the 'high' status of the other explain better the frequency of mixed English adverbs in a Haitian Creole frame and the rarity of mixed Haitian Creole adverbs in an English frame than a minimalist approach, such as MacSwan's (1999 and subsequent work), which uses phi-feature valuation and entails asymmetry without bidirectionality. While I provide confirmation for Myers-Scotton's (1993) Matrix Language Frame approach, I emphasize that trace bidirectional data need to be accounted for by a theory that is grounded in the sociolinguistic and psycholinguistic realities.

Keywords: adverbs in Haitian Creole–English code-switching, asymmetry and bidirectionality, Matrix Language Frame compared with minimalism, lexical and functional categories in bilingual syntax

1. Introduction

This study of adverb code-switching aims to provide new insights into the nature of adverbs as a syntactic category, the processes of language contact, and the theory of grammar in general. Adverbs and adverbial phrases are examined in mixed and unmixed Haitian Creole–English second-generation grammar by means of the naturalistic Miami corpora from the years 2004 (9 participants; 34,835 words) and 2005 (12 participants; 54,330 words). Naturalistic interviews were exclusively collected with second-generation bilinguals in order to focus on this group and to avoid skewing results by blending generations. The quantification and analysis of both mixed AND unmixed Haitian Creole AND English adverbs in these corpora is important because it helps advance the understanding of this unstudied language pair and code-switching generally by capturing and counting all adverbs uttered. Examples of mixed adverbs from the Miami corpus can be found in (1), where the mixed English adverb *ANYWAY* is surrounded by Haitian Creole, and in example (2), where the mixed Haitian Creole adverb *konnya* is surrounded by English:[1]

(1) yo pa t ap asepte li ANYWAY
6P NEG PST ASP V 3P
paske li pa timoun ki
C 3P NEG N REL
"they wouldn't have accepted it anyway
because she isn't a child who" (009, 2005)

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[1] The official "IPN" Haitian Creole spelling has been employed throughout this article. The following abbreviations are used in example glosses: 1P = first person singular; 2P = second person singular; 3P = third person singular; 4P = first person plural; 6P = third person plural; 1POSS = first person possessive; ADJ = adjective; ADV = adverb; ASP = present progressive aspectual marker; AUX = auxiliary; C = complementizer; CONJ = conjunction; COOR = coordinator; D = determiner; DM = discourse marker; EXP = expletive; N = noun, NEG = negation; NUM = number; P = preposition; PL = plural; PST = past tense marker; REL = relative pronoun; V = verb; WH = interrogative. The anonymous participant cited from the corpus is listed by her or his number and year; for example, "(001, 2004)" indicates "speaker 1" from the 2004 corpus. This article focuses upon

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(2) BUT konnya IT'S vakans
ADV N
"but now its vacation" (004, 2004)

The following two subsections present the sociolinguistic and psycholinguistic situation of Haitian-Americans in Miami. Next, current research on monolingual and bilingual approaches to the syntax of adverbs is examined. Exemplification of mixed English and Haitian Creole adverbs by means of the quantitative methodology is followed by the aggregate quantitative results which compare mixed and unmixed adverbs in Haitian Creole and English. The syntax and discourse positions of adverbs are illustrated and quantified; the left-periphery and right-adjunction are shown to be especially accessible positions. Common mixed English adverbs which are partial homonyms such as *just* – *jis*/*jous* or *back* – *bak* are examined separately since they are most likely borrowings. Lastly, verb and adverb syntactic interactions in monolingual Haitian Creole and English are compared with anomolous examples from code-switching.

In the first place, the analysis of adverbs here provides evidence regarding the theoretical issue of BIDIRECTIONALITY in a context generally characterized by ASYMMETRY. In the second place, light is shed upon the split between lexical and functional categories. Two related questions are explored: (i) if adverbs are a category that includes lexical and functional elements, as Ernst (2002) argues, then, in a Matrix Language Frame approach, the code-switching of English adverbs in Haitian Creole should be restricted to lexical adverbs and blocked among functional ones; and (ii) if adverbs are Theta-role receiving 'content' elements, as Eckardt (1998) argues, then they should be expected in an Matrix Language Frame approach to code-switching. In the third place, examined is the role that the coding of language-indexation has in explaining the continuum between code-switching and borrowing. Our hypothesis is that some English adverbs gradually become borrowings-in-progress as they increasingly occur in strings surrounded by Haitian Creole material and are decreasingly used as switch-points into a co-indexed English string. Our coding of the surrounding language-indexation provides a means to test this quantitatively. In the fourth place, I argue that sociolinguistic and psycholinguistic pressures impact the form taken by the two languages in code-switching.

Code-switching is BIDIRECTIONAL even if it appears to be ASYMMETRICAL (see Hebblethwaite, 2007, 2009b). The appearance of asymmetry in quantitative work is the result of sociolinguistic and psycholinguistic pressures which cause speakers and communities to select the 'low' language as the primary functional frame for code-switching and not the 'high' language. I reject the claim that morphological feature-valuation (MacSwan, 1999 and subsequent work) can be used for predicting the results of code-switching. Rather, along the lines of Myers-Scotton (1993, 2002) or Chan (2008), I argue that the lexical and functional properties of words and the sociolinguistic and psycholinguistic realities of the community provide a better framework for predicting outcomes in code-switching.[2]

1.1 The sociolinguistic situation of Haitian-Americans in South Florida

The state of Florida, according to the 2000 Census, has more than 182,224 Haitian-born residents, and when one takes into account the second generation, the state is home to no less than 300,000 persons of Haitian decent (Sohmer, 2005). According to the Modern Language Association, Haitian Creole is spoken by 1.78% of Florida's population, making it the third most widely spoken language in this state after English (74.54%) and Spanish (18.65%) (http://www.mla.org). Miami-Dade County has one of the largest Haitian communities in the U.S. with at least 95,669 documented persons (Sohmer, 2005, p. 3). Fort Lauderdale in Broward County, which is to the immediate north of Miami-Dade, is home to more than 62,324 Haitian-born residents. The size and density of the Haitian population in south Florida is one of the conditions underlying the robust use of code-switching.

The sociolinguistic situation in Miami weighs significantly on the way Haitian-Americans use Haitian Creole and English. Social and economic data show that Haitian Creole has a 'low' status and English a 'high' one in Miami. The sociolinguistic situation in Miami's Haitian community is one characterized by challenges and struggles that come from a legacy of prejudice. Until 1965, Jim Crow laws banned black Americans from cinemas and restaurants and sent them to pay taxes at a separate window at Miami-Dade's courthouse, among other indignities (Stepick, 1998, p. 38). With this background, the media of the 1970s and 1980s transmitted many hysterical

the Haitian Creole–English code-switching of the second generation in Miami, Florida. Haitian Creole–English code-switching in the second generation in Miami, Florida, is quite distinct from the Haitian Creole spoken in Haiti.

[2] For descriptive work on Haitian Creole, among others, the reader is referred to the following authors. For sociolinguistic analyses see Valdman (1988), Dejean (1993), Howe (1993), and Zéphir (1997). For grammatical analyses, see DeGraff (1993, 1997, 2007), Valdman (2007), and Harbour (2008). For work on language planning and language ideology see DeGraff (2003, 2005). For Haitian Creole historical linguistics see Hebblethwaite (2001). For writing on literacy and Haitian Creole games see Hebblethwaite (2009a). For research on Haitian Creole genesis see Lefebvre (1998). For phonetics see Johnson and Alphonse-Férère (1972) and Hilton (2000). For bilingual or trilingual facing page books which include Haitian Creole, see Hebblethwaite and Pierre (2005, 2009).

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reports about the arrival of destitute and unskilled Haitian boat people off the coast of Florida. On top of this, in 1982 the Centers for Disease Control issued erroneous warnings that Haitians were at-risk for tuberculosis and AIDS (Stepick, 1998, p. 35). As a result of these claims and perceptions, a siege-mentality emerged and Miami's more comfortably installed communities sometimes saw Haitians as a pariah. Consequently, members of the Haitian community had difficulty finding even minimum wage employment (Stepick, 1992, p. 56).

The quantitative results of Stepick, Stepick, Eugene, Teed & Labissiere's (2001, p. 241) questionnaires suggest that Haitian-Americans encounter more racism in public schools than other groups: Haitians experience it at 70.3%, other Antillean groups at 56.6%, and all other groups at 55.1%. The annual median salary in the Haitian-American community is the lowest of all groups in Miami at $27,287 (non-Hispanic Black follows with $28,617, Cuban with $33,427, Puerto Rican with $34,854, Nicaraguan with $35,059 and non-Hispanic White at the summit with $49,673; Sohmer, 2005, p. 6). Haitian-Americans also demonstrate more ambivalence toward Haitian Creole than other groups to their respective languages. Portes and Schauffler's (1994, p. 648) study in Miami shows that 27.50% of Cubans and 22.10% of Nicaraguans in public schools consider themselves weak in Spanish while 67.80% of Haitians consider themselves weak in Haitian Creole. At the same time, 32.50% of Cubans and 41.40% of Nicaraguans consider themselves strong in Spanish whereas only 11.80% of Haitians consider themselves strong in Haitian Creole. These numbers suggest that linguistic assimilation occurs at a rapid pace in all second-generation groups. However, while all groups express a preference for English, the Haitian second generation takes less interest in the parental language than any other group. To explain this finding, Stepick et al. (2001, p. 239) reveals that first-generation parents cope with a range of problems. Haitian parents lack high-school diplomas more than other ethnic groups (60.2% for men and 67.5% for women whereas the average for other ethnic groups is 36.0% for men and 29.6% for women). Haitian parents are more often unemployed; when employed, it is more often at minimum wage in the service sector and they are less commonly employed as managers, administrators, or clerks. 81.9% of Haitian parents earn less than $25,000 annually and consequently they lack the means to pay for their children's enrollment in university and they are unwilling to go into debt to pay for it. The lack of parental skills, economic immobility, and a negative reception in the U.S. contribute to the language stress in the Haitian-American second generation. These factors, among others, explain the 'cultural dissonance' and indifference to parental emblems like Haitian Creole and they also explain the asymmetry involving the preference of Haitian Creole as the frame for code-switching (see Hebblethwaite, 2006; Stepick et al., 2001, p. 231).

1.2 Psycholinguistic support for asymmetrically established languages

Psycholinguistic research supports the view that many bilinguals have asymmetrically established languages. Meuter (2005, pp. 353–355) shows through calculating "switch cost from the L2 to the dominant L1" that NON-BALANCED BILINGUALS have asymmetrically established languages. Among her participants, switching from the L2 to the stronger L1 required 143 milliseconds while switching from the L1 to the weaker L2 required 85 milliseconds, which she calls "an asymmetrical language switch cost". This is due to the greater attention demands made by processing the weaker L2. Brain imaging studies suggest that more brain regions are activated for the L2; additionally, lower proficiency bilinguals require the activation of more brain regions in the processing of two languages (see Dehaene et al., 1997; Perani et al., 1996). Balanced bilinguals were able to decrease the L1/L2 proficiency disparity with practice. Meuter (2005, p. 365) finds that "when speaking the L2, perhaps more so in an L2 setting, there is a continual need to suppress the dominant language". Of course, the issue of which language is the L1 and which is the L2 is murky in the second generation due to the range of acquisition and affective scenarios (e.g. Does the child speak Haitian Creole AND English at home? Do one or both parents speak one or both languages? Do siblings speak English, Haitian Creole or both? Does the bilingual go to an English or Haitian Creole daycare setting? Do the L1 and L2 shift based on social allegiances and peer and sibling influence? etc.). While there are complex differences in families, it is clear that the PARENTAL language and the SOCIETAL language are not known or treated in the same ways. Most of the participants in my study display non-balanced knowledge of their two languages and they code-switch asymmetrically.

Grosjean (1997) pointed out that there are many circumstances in which the bilingual must speak in only one language because the interlocutor only speaks one language. Practice, upbringing, schools, and the necessities of interacting in the 'high' status language DICTATE the impermeability of English in the U.S. Very differently, second-generation Haitian Creole speakers within the Miami Haitian community can employ either language; if the speaker selects Haitian Creole, it is usually characterized by code-switching. In production terms, when a Haitian Creole frame is selected, the activation and selectional processes access Haitian Creole AND English lexical elements. When an English frame is selected, however, only the English lexicon is accessed while the

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Haitian Creole lexicon is closed off due to sociolinguistic and psycholinguistic pressures.

2. Monolingual approaches to adverbs

Monolingual approaches to adverbs provide hypotheses and insights that can be extended to adverbs in bilingual production. Adverbs are a diverse and complex group of elements which modify several syntactic categories such as adjectives in (3), auxiliary verbs in (4), verbs in (5), adverbs in (6), clauses in (7), and prepositions in (8):

(3) You are **extremely** kind.

(4) They **certainly** have arrived.

(5) We run **fast**.

(6) In fact we run **very** fast.

(7) **Suddenly** she found herself in the same situation.

(8) He walks **right** into the door.

(see Ernst, 2002; Radford, 1997)

Derived from adjectives (*slow* > *slowly*) or nouns (*love* > *lovely*), adverbs may receive a pronounced or a non-pronounced adverbial affix (e.g. *broadly* vs. *too*; Manninen, 2000). As a reviewer noted, the suffix *-ly* can also turn a noun into an adjective, e.g. compare *She looked lovely* with *She is a lovely lady*. This fact might provide a clue about the lexical traits of the suffix *-ly* since adjectives are a lexical category. Adverbials, which are elements that function like adverbs, may also include entire PPs, exemplified in (9) (Ernst, 2002, p. 1).

(9) He typed **in a hurry**.

Adverbs are adjuncts because they form an expanded category of the same type as the one they merge with and because they modify verbs (Radford, 1997, p. 371). Adverbial adjuncts give supplementary information about a predicate whereas nominal arguments give information required by a predicate (Ernst, 2002, p. 7).

Recent generative work has argued that adverbs are "overt manifestations of functional distinctions similar to particles, overt morphology and auxiliaries" (Alexiadou, 2004, pp. 677–678). Pollock (1989) uses French and English verb placement to suggest that adverbs occupy Specifiers in an expanded functional IP; French verbs move leftward past adverb-occupied Specifiers to a higher functional head. Cinque (2004, pp. 684–685 and his footnote 4) argues that adverbs are a functional category because their emergence in first language acquisition is connected to the functional heads they correspond to. Evidence of their functional status is also found in the Sino-Tibetan languages Boro and Garo, and in the Uto-Aztecan language Chemehuevi, where adverbs are mostly bound morphemes, like other functional elements. Additionally, Cinque (2004, p. 685) notes that there is a class of adverbs which has morphological expression through a suffix in every language.

Radford (1997, p. 45) takes the semantic properties of adverbs to be an indication that they are lexical. Cinque (1999, pp. 77–107) also identifies an extensive list of adverb semantic classes (also see Huang, 1975, p. 13).[3] Cinque (1999, 2004) argues that adverbs denote functional projections but as a whole he treats them as the intersection of functional and lexical characteristics. Ernst (2002, p. 9) considers adverbs to have lexical (10a–c) and functional (10d) members:

(10) a. predicational

speaker-oriented: *frankly*, *maybe*, *luckily*, *obviously*

subject-oriented: *deliberately*, *stupidly*

exocomparative: *similarly*

event-internal: *tightly*, *partially*

b. domain: *mathematically*, *chemically*

c. participant: *on the wall*, *with a bowl*, *for his aunt*

d. functional

time-related: *now*, *for a minute*, *still*

quantificational: *frequently*, *again*, *precisely*

focusing: *even*, *just*, *only*

negative: *not*

clausal relations: purpose, causal, concessive, conditional, etc.

Functional adjuncts under (10d) are a heterogeneous group, set apart from the others by their non-gradability (e.g. *she speaks* ***very***/***too***/***extremely*** *quickly* versus **she speaks* ***very***/***too***/***extremely*** *now*) and their quantificational meaning (*she* ***twice*** *knocked on the door*, example from Cinque, 1999, p. 26) (Ernst, 2002, p. 9, 120). Given these predictions, in an approach like the Matrix Language Frame, where functional elements are supplied by the Matrix Language and content elements by the Embedded Language, one would expect code-switching

[3] Some of the adverb semantic classes identified by Cinque (1999) include "evaluative", "evidential", "epistemic", "time", "irrealis", "alethic" (e.g. '(not) necessarily, possibly'), "subject-oriented", "habitual", "repetitive", "celerative" (e.g. 'quickly, rapidly'), "anterior", "terminative", "continuative", "retrospective and proximative", "durative", "progressive", "prospective", "completive", etc. Classes found in Huang include STATE-OF-MIND (*carefully*, *willingly*); MANNER ADVERBS (*with a limp*, *broadly*); EVALUATIVE ADVERBS (*wisely*, *clumsily*); ADVERBS OF RESULT (*legibly*, *correctly*); DURATIVE (*for ten minutes*); LOCATIVE (*here*).

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to be restricted to the lexical class of adverbs and blocked among the functional class of adverbs, a matter I turn to ahead.

Samuelsdorff (1998, pp. 275–277) argues that there are functional adverbs, such as *very*, and lexical ones, such as *cautiously*. In some languages the equivalent of *very* can be expressed by means of a grammatical suffix, such as *-issimo* in Italian:

(11) *benissimo*
"very well" (Samuelsdorff, 1998, p. 275, ex. (14))

Adjective-modifying degree 'adadverbs' like *very* and *absolutely* have "grading properties" as a class since they express the "extent of a quality or state" (Samuelsdorff, 1998, p. 275). Samuelsdorff (1998, p. 275) argues that it is not necessary for an extra entry to exist in the lexicon for a manner adverb like *cautiously* if "expression rules" can add *-ly* to the adjective. Adverbs which are derived from adjectives should not be placed in separate entries in the mental lexicon since they are generated by derivational morphemes. The stem is lexical and the affix is functional, suggesting that adverbs are composite.

Eckardt's (1998) work on adverbs has implications for code-switching. Eckardt (1998, p. 10) explores the idea that verbs have both nominal AND adverbial thematic or "event" arguments. In the case of adverbs, the event argument "stands for the action going on, the thing that happens" (Eckardt, 1998, p. 10). The sentence *Tom kissed Sylvia tenderly* could be represented as KISS (TOM, SYLVIA, **e**) & TENDER (TOM, **e**), where there is a two-place relation between the individual and the event (Eckardt, 1998, p. 10). The event parameter creates "an intermediate level of intentionality restricted to the verb, but not affected by nominal arguments" (Eckardt, 1998, p. 12). Adverbs are "functors that map binary relations between individuals and events" (Eckardt, 1998, p. 12). Verbs and their adverbial events have a THEMATIC relation, for example, SPATIAL (*inside*), TEMPORAL (*yesterday*), BENEFICIENT (*for Susan*), INSTRUMENTAL (*with a knife*), VOLITIONAL (*shyly*/*carefully*/*reluctantly*), and so forth (Eckardt, 1998, p. 34).[4]

To illustrate how adverbs are thematic event arguments for verbs, Eckardt (1998, p. 38) explores semantic differences that arise when adverbs are added to sentences. The event *cooking* in (13) ceases to compete with the other hypothetical causes faced by (12) in the explanation of the neighbor's calling the police.

(12) Pat was cooking spaghetti, which caused the neighbor to call the police.
(adapted from Eckardt, 1998, p. 65, ex. (17))

(13) Pat was cooking spaghetti *late at night*, which caused the neighbor to call the police.
(adapted from Eckardt, 1998, p. 65, ex. (18))

Eckardt (1998, p. 67) shows that the set of relevant alternative worlds is restricted by the presence of the adverb. Adverbs predicate over events and provide a thematic focus (Eckardt, 1998, p. 43). Eckardt's (1998) idea that adverbs are Theta-role receiving event arguments subcategorized in verbs provides Matrix Language Frame advocates with an explanation for the frequency of adverbial code switching and borrowing since the Matrix Language Frame model predicts code-switching among elements which are either Theta Role-Assigning or Theta Role-Receiving (Myers-Scotton, 1993, pp. 6–7).

Manninen (2000, p. 153) argues that Finnish adverbs are lexical because they are a subclass of adjectives and nouns, not a separate category. Finnish adverbs are noun or adjective stems with an attached "adverb case" morpheme (e.g. *-ly*, *-ment*, etc.). In situations where the stem and affix are indistinguishable, Manninen (2000, p. 153) posits an abstract morpheme. Adjectives and adverbs share pre-modifiers like *quite*, *almost*, *surprisingly*, *physiologically* (ibid., p. 136). Along the lines of Larson (1988), nouns or adjectives become adverbs by means of a Case Phrase (KP) or a PP (Manninen, 2000, pp. 146–148). Attracted by features, the adjective or noun raise to Spec KP or Spec PP and Spec–head agree with K°/P°, which is either pronounced or covert.

Following Eckardt's (1998) arguments, I expect adverb code-switching in a Matrix Language Frame approach since they are Theta-role receiving 'content' elements. A final argument for the lexical status of adverbs comes from the fact that they are not a closed class such as determiners but rather a fairly large and expandable one (e.g. there are 1,525 adverbs counted in the CD-ROM version of *Le Petit Robert*, p.c. Julie Auger). The next section turns to work that focuses on adverbs in code-switching.

2.1 Adverbs in bilingual grammar

With a few exceptions, very little work has been done on adverbs in bilingual grammar. Treffers-Daller (1994, p. 175) finds 388 mixed French adverbs in her Brussels Dutch–French corpus, noting that they are among the most common mixed categories. With 3,988 French single-word switches in Treffers-Daller (1994, p. 99), syntactic categories are ranked by frequency: (i) nouns at 58.4% (2,329/3,988); (ii) interjections at 12.4% (496/3,988); (iii) adverbs at 9.7% (388/3,988); (iv) adjectives at 9.0% (362/3,988); (v) verbs at 8.9% (353/3,988); (vi) conjunctions at 0.8% (33/3,988); (vii) prepositions at 0.1% (4/3,988); (viii) pronouns at 0.02% (1/3,988); (ix) and other elements including numerals, *wh*-words, quantifiers and particles at 0.5% (21/3,988).

[4] See Cinque (1999, pp. 77–107) and Huang (1975, p. 15) for more discussion on adverbial semantic or thematic classes.

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Treffers-Daller's (1994) work attends to both Dutch–French code-switching and French–Dutch code-switching. As I have done, she identifies all mixed and unmixed structures. She identifies 8,500 unmixed Brussels Dutch adverbs and 0 mixed Dutch adverbs. Oppositely, she identifies 1,788 unmixed French adverbs and 388 mixed French adverbs (Treffers-Daller, 1994, pp. 103–104). She also finds 45 (full constituent) French PP tokens in Dutch (ibid., p. 208). Treffers-Daller's (1994, pp. 99–104, 205) work shows that linguistic influence in Dutch–French is asymmetrical: across all syntactic categories, 3,988 single-word French switches occur in Dutch clauses whereas only 117 Dutch single-word switches occur in French clauses. Social structure is identified as the source of this asymmetrical influence since "French has been the upper language and Brussels Dutch the lower language for generations of Brusselers" (Treffers-Daller, 1994, p. 106).

Originally, Myers-Scotton (1993, p. 129) classified adverbs as "system" or functional morphemes (as opposed to content-morphemes). She argued that adverbs are system morphemes that "pick out individuals across variables" (Myers-Scotton, 1993, p. 129). No singly occurring Embedded Language (EL) adverbs (i.e., mixed English) are found in her Swahili–English corpus whereas 20 "Embedded Language Islands", which are strings that include more than one word, occur with adverbs as their leftmost element, for example *m-na-jua VERY WELL* "you know very well" or *ni-ko VERY SURPRISED* "I am very surprised" (e.g. the $xY_{adv}y$ structure in my coding) (Myers-Scotton, 1993, p. 129). However, Myers-Scotton (2002, p. 70) changes her position, now arguing that adverbs form a category that includes both the system members (such as degree adverbs *very*, *too*) and content members. Yoon (1992, p. 438) does not discuss the adverbial tokens he collects from his Korean–English corpus, but, he counts 41 mixed English adverbials, which amount to 7% of all his switched elements. De Rooij's (1996) treatment of adverbs in Shaba Swahili–French is limited to a single page and three examples of mixed French adverbs.

MacSwan's (1999) minimalist-inspired approach appeals to morphological mechanisms, especially [+] and [−] feature valuation, as putatively the most parsimonious method to account for both monolingual and code-switching modes of speech. Locating grammatical requirements in lexical items, he argues that "conflicts in the lexical requirements of words" explain the grammar of the code-switching clause (MacSwan, 1999, p. 151). Unfortunately, MacSwan (1999) offers only one paragraph on adverbs in code-switching. The lacuna is attributable to his emphasis on grammaticality judgments when a large corpus is needed to uncover a full range of mixed structures. In his modest corpus of 20 minutes he does find a handful of Spanish adverbs in Nahuatl: *ya* "already", *muy* "very", *de nuevo* "again", and *más o menos* "more or less" (MacSwan, 1999, p. 142). Regarding the scant literature on adverbs in code-switching, MacSwan (1999, p. 142) speculates that as adjuncts they "do not interact with other elements in any obvious way". He does not state anything else; however, one might surmise, given his focus on *phi*-feature agreement, that he is referring to the absence of morphosyntactic agreement associated with adverbs or that there is no constraint on which language an adverb can occur in.

While MacSwan (1999, etc.) does not analyze mixed adverbs, it is important to attempt to reconstruct how a minimalist approach might be applied to Haitian Creole–English adverb code-switching. MacSwan's theory predicts that there are no particular constraints on adverbs because they do not have features to check. Once we are in the domain of an element that has no particular grammatical constraints on it, one would think that MacSwan is free to appeal, as I do, to the asymmetry of the sociolinguistic and psycholinguistic situation as the reason for one language being selected as the functional frame (in both my corpora and his, the 'low' language). However, MacSwan (1999, p. 39) explicitly says that "there is little hope that a set of explanatory principles can reliably be developed which predict when and how people will say what" and "while social motivations for code-switching can be catalogued and described in interesting ways, theoretical constructs of general or universal use may be quite beyond our reach". Given his dismissal of sociolinguistic factors, what poses problems for his approach is the actual identification and valuation of adverb features in code-switching. In Haitian Creole and English, for example, adverbs do not contrast morphosyntactically in any obvious way. Evidence of bidirectional switching found in the naturalistic data is problematic for a feature valuation approach which predicts switching in only one direction; conversely, if adverb features are congruent, the question then becomes why the results are overwhelmingly asymmetrical? The next section turns to recent theoretical discussions about code-switching and it explores the implications they have for adverbs in bilingual production.

2.2 The Null Theory (Chan, 2008) and the 4-M Model (Myers-Scotton, 2002)

Chan's (2003, 2008) theory on the role of lexical and functional categories and his implementation of the "the Null Theory" have interesting implications for adverbs in bilingual production. While Chan's (2008) work draws from early proponents of the Null Theory (Mahootian, 1993; MacSwan, 1999, 2000), his position also marks a clear break from them. The proponents of the Null Theory have claimed that it is more economical to rely only on those constraints and principles already accepted for

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monolingual grammar and they have criticized theories which appeal to constraints and principles specific to code-switching (i.e., Myers-Scotton, 1993, 2002). Chan (2003, 2008, p. 778) argues that the dichotomy between lexical and functional categories provides the best insight into the grammar of code-switching. Functional categories, he argues, inherently determine the position of their complements, whether in monolingual or bilingual clauses.

Chan (2008, p. 779) advances that directionality parameters account for word order in code-switching better than constraints and principles specific to code-switching proposed by proponents of the Matrix Language Frame model such as the Morpheme Order Principle, the System Morpheme Principle, and the 4-M Model, among others (see Myers-Scotton, 1993, 2002). The distinction between lexical categories (N and V) and functional categories (D, I and C) provides the simplest basis for accounting for word order in code-switching (Chan, 2008). Rejecting the claims of MacSwan (1999), Mahootian (1993) and Nishimura (1997), who argue that the *phi*-feature conflict between lexical and functional heads determines word order and grammaticality in code-switching, Chan (2008, p. 780) takes the position that it is the functional category, and NOT the lexical one, which determines word order and grammaticality. The parameter value, for example Verb–Object/Object–Verb or Determiner–Noun/Noun–Determiner, is not linked to SPECIFIC verbs or nouns and it is hence NOT a part of their lexical subcategorial properties or lemma (Chan, 2008, p. 787). The bilingual who, say, speaks both V–O_X and O–V_Y languages will then set the parameter value PRIOR to lexicalizing the verb from either language X or language Y. This view explains cases where a V from language X with V–O occurs in O–V_X word order or a V from language Y with O–V occurs in V_Y–O word order (see Chan, 2008, p. 787).

In addition to his arguments on VO/OV, Chan (2008, p. 792) provides examples which show that functional categories from EITHER language determine word order in code-switching (and thus he, like myself, predicts bidirectionality). Nouns and noun complements (e.g. the genitive) and functional heads and their complements (D–NP, C–IP and P–DP) show that the language of the functional projection (D, C or P) determines the surface position of its lexical complement (NP, IP or DP) regardless of the language of the complement (see Chan, 2008, p. 800). Chan (2008, p. 803) argues that since functional categories are closed classes, it is economical to have "the head–complement order specified in the lexical entries of functional categories". Chan (2008) does not address adverbs; however, as members of a category that is open class and shares a thematic relation with verbs, within Chan's theory adverbs should be expected in code-switching. Chan (2008) predicts bidirectionality but he does not explain WHY it occurs simultaneously with asymmetry.

Although the proponents of the Null Theory commonly claim that their proposals are more parsimonious than the Matrix Language Frame approach, it is not obvious how Chan (2008) represents such a shift since he also claims, albeit with different TERMINOLOGY, that there is a basic difference between CONTENT (lexical) and SYSTEM (functional) elements. Likewise, Chan (2008) argues that a bilingual clause entails the selection of functional/system morphemes (and their subcategorial properties) from ONE ("Matrix") language while the lexical/content morphemes from either ("Matrix" or "Embedded") language may be accessed. In my view, the terms "functional morpheme/system morpheme/Matrix Language" and "lexical morpheme/content morpheme/Embedded Language" are basically synonymous.

The 4-M Model developped by Myers-Scotton (2002) and Jake and Myers-Scotton (2009) classifies morphemes into four types. In this model, one morpheme type is a content morpheme and the three others are different types of system morphemes, the "Early system morphemes", "Bridge late system morphemes", and "Outsider late system morphemes" (Myers-Scotton 2002, p. 73). Bridge late system morphemes and Outsider late system morphemes are retrieved at the level of the formulator and generally come from the Matrix Language. The Bridge late and Outsider late system morphemes primarily build grammatical structure and they are not primarily semantically meaningful. Content and Early system morphemes are conceptually-activated and semantically meaningful (2009, p. 11). Content and Early system morphemes typically involve Embedded Language elements and they are the ones most available for code-switching. The morphemes which are conceptually-activated and meaningful are called forth by the intentions of speakers (rather than being "structurally-assigned"). The most important split in the 4-M Model is therefore between conceptually-activated morphemes (content and Early system morphemes) and structurally-assigned morphemes (Bridge and Late system morphemes).

Jake and Myers-Scotton (2009) employ the 4-M Model to explain why some syntactic categories, especially prepositions, do not behave uniformly in code-switching. While some EL prepositions are found in code-switching, others are not, and the authors argue that this is because the category of prepositions includes members from the different morpheme types. Noticing the complexity of prepositions, Chan (2008, p. 802) says that "one may conjecture that the traditional distinction between functional and lexical categories is not fine enough … there might be two distinctions cross-cutting various categories, namely, closed class/open class words and conceptual/featural (or Theta-assigning/non-Theta

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assigning) words". While Chan (2008) rejects the 4-M Model which was introduced to account for fine distinctions, he suggests that the split between functional and lexical categories may not be adequately explanatory. Chan's (2008) generalizations are interesting but they do not fully explain why some Embedded Language prepositions are code-switches and why others are not; this is where the 4-M Model may provide insights. More quantitative work is needed on different types of prepositions or adverbs, for example, to see if they display different quantitative behavior in naturalistic data.

The code-switching in the Miami Haitian Creole–English corpus does not provide evidence that the category of adverbs is composed of various morpheme types. The data in my corpora suggest that adverbs form a lexical category (though this does not mean that the trend holds cross-linguistically). English adverbs identified as functional by Myers-Scotton (1993, 2002) such as the degree adverb *very* can also be found in a Haitian Creole frame. This does not fully negate her idea that degree adverbs are different than other adverbs; however, it does suggest that whatever the differences are, they did not block their appearance in Miami Haitian Creole–English. The next section examines the quantitative methodology used to quantify the adverbs in my corpus.

3. The quantitative methodology exemplified with adverbs

I coded the transcribed corpora using a system which codes the language-indexation of the target token in addition to the tokens to the immediate left and right. This approach has gradually evolved from the work of Myers-Scotton (1993, etc.), Treffers-Daller (1994), and especially Klintborg (1996) and De Rooij (2000). To obtain results that are complete, I coded the entire corpus including both mixed Haitian Creole and mixed English tokens (in both the 2004 and 2005 corpora), and unmixed Haitian Creole and unmixed English tokens (in only the 2004 corpus). (It is essential therefore to separate the results of the totally coded 2004 corpus from the partially coded 2005 corpus.) Schematically, if English (Eng) is represented by the letter Y and Haitian Creole (HC) is represented by the letter X, this bidirectional coding method produces six mixed types and two unmixed types (the lower-case letters x and y indicate the language indexation of the word that precedes or follows the upper-case target token Y or X):

Mixed English:	*HC–**Eng**–HC*	(xYx) = Type (i)
	*HC–**Eng**–Eng*	(xYy) = Type (ii)
	*Eng–**Eng**–HC*	(yYx) = Type (iii)
Unmixed English:	*Eng–**Eng**–Eng*	(yYy)
Mixed Haitian Creole:	*Eng–**HC**–Eng*	(yXy) = Type (i)
	*Eng–**HC**–HC*	(yXx) = Type (ii)
	*HC–**HC**–Eng*	(xXy) = Type (iii)
Unmixed Haitian Creole:	*HC–**HC**–HC*	(xXx)

To illustrate this method, examples of all mixed adverb types are provided below.

Mixed English Adverbs[5]

Type (i) [xYx]: MAYBE

(14) . . . m ka di MAYBE paske m konnen . . .
1P AUX V C 1P V
"I can say maybe because I know" (009, 2004)

Type (ii) [xYy]: ANYWAY

(15) i pa on fòm fransè **ANYWAY**,
3P NEG D N N
WE CALL IT A BROKEN FRENCH
"it isn't a form of French anyway, we call it a broken French" (007, 2004)

Type (iii) [yYx]: MAYBE

(16) . . . m te fè SUPERIOR SOLOIST,
1P PST V
UH, **MAYBE** m kwè de tan.
1P V NUM N
"a performance I did superior soloist, uh, maybe I believe two times" (010, 2005)

[5] The following examples of mixed English adverbs provide a supplement to those given above. The first example shows *HC-Engadv-HC* Type (i) [xYx] structure:

(a) YAH, EVEN pi piti tifi yo ki gen MAYBE katran . . .
ADJ ADJ N D.PL REL V NUM.N
"Yah, even the youngest little girl who is maybe four years old" (001, 2004)

The *HC–Engadv–Eng* Type (ii) structure is given in (b):

(b) . . . LIKE, on ti MAYBE TEN PERCENT AFRICAN-
D ADJ
AMERICAN.
"like, a small maybe ten percent African-American." (010, 2005)

Lastly, the *Eng–Engadv–HC* Type (iii) structure is exemplified in (c):

(c) BECAUSE EVEN SOMETIME m konn fache
1P AUX V
"because even sometimes I get angry" (001, 2004)

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Table 1. *Mixed English Adverbs in Haitian Creole (HC) token types.*

Mixed English adverbs in HC token types	2004 corpus: tokens	2004 corpus: %	2004 corpus: % of all mixed & unmixed compared	2005 corpus: tokens	2005 corpus: %
HC–Engadv–HC	54	38.0%		63	50.8%
HC–Engadv–Eng	48	33.8%		48	38.7%
Eng–Engadv–HC	40	28.1%		13	10.4%
Totals	142	100%	**12% (142/1,176)**	124	100%

Mixed Haitian Creole Adverbs[6]
Type (i) [yXy]: *konnya* "now"

(17) . . . BUT **konnya** IT'S vakans . . .
ADV N
"but now its vacation" (004, 2004)

Type (ii) [yXx]: *trè* "very"

(18) OH **VERY**, **trè** trè trè bèl bagay, yo
ADV ADJ N 6P
pli AMERICANIZED . . .
ADV
"Oh very, very very very nice things, they are more Americanized" (003, 2004)

Type (iii) [xXy]: *twò* "too"

(19) . . . pa fè y **twò** LOUD . . .
NEG V 3P ADV
"don't do it too loud" (001, 2004)

A supplementary coding system is used in cases where the surrounding elements are not representative of the language of the clause as a whole. The supplementary coding system takes into account the language of the clause I^{o} in order to determine whether the token is mixed$_1$ (not the same language as I$^{\circ}$) or mixed$_2$ (the same language as I$^{\circ}$). Following a number of authors, I assume that I$^{\circ}$ determines the base or Matrix Language of the clause (see Klavans, 1985; Prince & Pintzuk, 2000 [1983]). The mixed English tokens in (14)–(16) and the mixed Haitian Creole tokens in (17)–(19) can be divided into these two types.

(20) Mixed$_1$ is a mixed type that is **not** in the same language as I$^{\circ}$.

(21) Mixed$_2$ is a mixed type that is in the same language as I$^{\circ}$.

On the basis of these definitions, mixed English adverbs *MAYBE* in (14)–(16) are mixed$_1$ tokens since Haitian Creole supplies the I^{o} (*ka*, *pa* and *te*, respectively). The mixed Haitian Creole adverb *konnya* "now" in (17) is mixed$_1$ because the I^{o} of the clause is the English copula. In (18), however, *trè* "very", is mixed$_2$ since Haitian Creole's null copula is the clause's I$^{\circ}$. Lastly, *twò* in (19) is also mixed$_2$ since it shares the same Haitian Creole language-indexation as the I^{o} of the clause, the negation marker *pa*. Clearly the clause is Haitian Creole and the English adjective *loud* has been inserted. The issue of differentiating mixed$_1$ versus mixed$_2$ will be an important consideration further ahead. The next section presents the quantitative results and discusses the findings.

3.1 Results and discussion on adverbs

In Tables 1–4, I give the aggregate quantitative results for all mixed and unmixed adverbs from the Miami Haitian Creole–English corpora. Due to the relatively

[6] Here additional examples from the fifteen Haitian Creole adverb tokens are provided; many are the adverb *kounyeya* "now", and its variants. Example (a) illustrates the *Eng–HC–Eng* Type (i):

(a) . . . THEY BEEN HERE LIKE IN THE US FOR LIKE konnya
ADV
LIKE A YEAR BUT I STILL HAVE TO TRY pale . . .
"they been here like in the US for like now like a year but I still have to try talk" (001, 2004)

Example (b) illustrates the other *HC-HC-Eng* Type (iii) identified in the corpora.

(b) BUT m wè konnya I . . . I RECENTLY DISCOVER . . .
1P V ADV
"but I see now I . . . I recently discovered romance novels" (004, 2004)

Note that even though *konnya* in example (b) is at the end of the code-switched phrase, *m wè konnya* "I see now". Due to the fact that the right-edge of *konnya* abuts an English phrase, it is coded as mixed because there is a change in language. Of course, it is not so much the adverb that is code-switched; rather it is the following clause or clause segment that is code-switched. The right edge of the adverb in (b) illustrates an interclausal code-switch (mixed$_2$). Interclausal code-switches are common among mixed Haitian Creole$_X$ elements in yXx or xXy structures. (Other researchers do not discuss code-switched adverbs perhaps because the ones they have in their corpora are all part of larger structures and are analyzed as such.) These mixed$_2$ tokens further reveal how very limited the directionality of Haitian Creole code-switching in English is.

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Table 2. *Unmixed English Adverbs (only 2004 corpus).*

Unmixed English adverbs	Tokens	% of all mixed & unmixed compared
Eng–Engadv–Eng	234	**19.8% (234/1,176)**

Table 3. *Mixed Haitian Creole (HC) Adverbs in English Token Types.*

Mixed HC adverbs in English token types	2004 corpus: tokens	2004 corpus: %	2004 corpus: % of all mixed & unmixed compared	2005 corpus: tokens
Eng–HCadv–Eng	6	40.0%		0
Eng–HCadv–HC	7	46.6%		1
HC–HCadv–Eng	2	13.3%		0
Totals	15	100%	**1.27% (15/1,176)**	1

Table 4. *Unmixed Haitian Creole Adverbs (only 2004 corpus).*

Unmixed HC adverbs	Tokens	% of all mixed & unmixed compared
HC–HCadv–HC	785	**66.7% (785/1,176)**

small number of mixed adverbs, I focus on the AGGREGATE results. Given that individual adverbs occur in only a few tokens or at most under 20 tokens, the aggregate analysis is the best way to obtain a meaningful generalization about the surrounding language-indexation. Notice that the number 1,176 represents the total number of mixed and unmixed adverb tokens identified in the 2004 corpus.[7] Recall that there are three mixed token types and two directions: therefore, where Y = English and X = Haitian Creole, I find, $xY_{adv}x$, $xY_{adv}y$, and $yY_{adv}x$ token types alongside $yX_{adv}y$, $yX_{adv}x$, and $xX_{adv}y$.[8]

In the next sections I interpret the above results and examine what they suggest about the grammar of mixed and unmixed adverbs. Comparing all adverb tokens from the 2004 corpus, unmixed Haitian Creole adverbs account for 66.7% (795/1,176) of all tokens and unmixed English adverbs account for 19.8% (234/1,176). Hence, unmixed adverb structures are preferred in Haitian Creole–English for a combined 86.5%. Mixed English adverbs in Haitian Creole account for 12% (142/1,176), a striking percentage

[7] Recall that I only count mixed tokens in the 2005 corpus (and not unmixed ones), making it necessary to keep those results completely separate from the aggregate 2004 results. I also wanted to keep results separate in order to examine if the aggregate results would be similar or different and thus establish the reliability of my corpora.

[8] Recall that the adverbs *just* and *bak*, which are analyzed as unmixed borrowings, are not included in the totals of mixed adverbs.

Table 5. *Mixed English group 1 adverbs (few English, many HC).*

Mixed English adverb	Tokens	Unmixed HC equivalent	Tokens
also	1	*tou*	66
always	1	*toujou*	197
even	4	*menm*	257
more	4	*plis*, *pi*	233
now	3	*kounye a*	105
only	2	*sèl*, *sèlman*	102
very	1	*trè*	28

compared to mixed Haitian Creole adverbs which are the least numerous at 1.27% (15/1,176). The commonness of mixed Haitian Creole adverbs and the rarity, but not invisibility, of mixed English ones is accounted for with the notions of asymmetry and bidirectionality. Sociolinguistic and psycholinguistic realities ensure asymmetry in Haitian Creole–English. At the same time, traces of code-switching in the opposite direction, that is English–Haitian Creole, suggest that bidirectionality exists theoretically and abstractly but is suppressed in linguistic performance for the reasons given.

In the mixed adverb results, the *HC–Engadv–HC* token Type (i) predominates in the 2004 corpus at 38% and in the 2005 corpus at 50.8%. The fact that so many English adverbs are completely surrounded by Haitian Creole suggests that their inclusion is unproblematic. To assess the borrowing versus code-switching status of mixed English adverbs in Haitian Creole, occurrences of Haitian Creole near-equivalents have also been counted.

Four groups of mixed English adverbs can be identified. Group 1 English adverbs in Table 5 occur infrequently while the Haitian Creole equivalents are common. Group 1 English adverbs are most likely code-switches. In group 2, the number of English tokens is still small whereas the Haitian Creole equivalent is more limited than the Haitian Creole adverbs in group 1. These mixed English adverbs are possibly borrowings-in-progress; however, the number of overall tokens is too low for any certainty (see Table 6). In group 3, the mixed English adverb is more common than the Haitian Creole equivalent. Group 3 adverbs are most likely borrowings-in-progress or borrowings (see Table 7). Finally, group 4 includes mixed English adverbs that scarcely occur and whose Haitian Creole equivalent is rare or non-existent. Results are given in Table 8.

Given the predictions of the Matrix Language Frame where functional elements are supplied by the Matrix Language and content elements by the Embedded Language, one would expect code-switching to be restricted to the so-called lexical class of adverbs and blocked among the so-called functional class of adverbs.

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Table 6. *Mixed English group 2 adverbs (few English, few HC).*

Mixed English adverb	Tokens	Unmixed HC equivalent	Tokens
anywhere	1	*nenpòt kote*	2
even though	4	*menm si*	6
everytime	1	*chak fwa*	7
kind of	3	*on ti jan*	6
normally	1	*nòmalman*	4
late	1	*ta*	5

Table 7. *Mixed English group 3 adverbs (more English, less HC).*

Mixed English adverb	Tokens	Unmixed HC equivalent	Tokens
anyway	5	*antouka*	1
especially	7	*espesyalman*	1
maybe	18	*petèt*	5
of course	3	*natirèlman*	0
probably	5	*pwobableman*	0
neither	3	*ni*	0

Table 8. *Mixed English group 4 adverbs (few English, few HC).*

Mixed English adverb	Tokens	Unmixed HC equivalent	Tokens
at least	1	*omwen*	0
definitely	1	*definitivman*	0
each month	1	*chak mwa*	1
mainly	1	*prensipalman*	0
most of the time	1	*plis fwa*	1
quiet	1	*trankilman*	0
unless	1	*sof*	0

However, this pattern was not found; for example, among time-related adverbs, identified as functional by Ernst (2002), *now* was attested in the speech of two speakers in three tokens, *for right now* (similar to his *for a minute*) occurred in one token, and *still* was attested among four speakers and in nine tokens. Among quantificational adverbs, *exactly* (similar to Ernst's *precisely*) occurred in one token. Among focusing adverbs, *even* was found in two speakers and four tokens; *just*, although excluded due to convergence with the Haitian Creole cognate *jis*, occurred abundantly; and *only* occurred in one token. Among negative adverbs, *not yet* was found in two speakers and two tokens. Various adverbs which are classified as functional by Ernst (2002) appeared, counter to expectations, in my code-switching corpus. Therefore, based on my corpus, I take the position that adverbs behave like a lexical category and not one that includes lexical and functional members.

3.2 Mixed adverbs in Miami Haitian Creole–English

Table 9 provides a list of all the mixed English adverbs and adverb phrases found in the Miami Haitian Creole corpora. The list indicates the distribution and frequency of each element in order to provide a basis for evaluating the items as borrowings, code-switches or some mixture of both. In addition, the occurrences of the nearest Haitian Creole equivalent are counted as a means of assessing the code-switching versus borrowing status of the mixed English adverb.

This complete listing shows that the majority of mixed adverbs in the corpus occur only once, suggesting that they are most likely code-switches. Adverbs with higher rates of occurrence like *sometime*(*s*) and *still* are possibly borrowings-in-progress, a topic taken up in the next section.

3.3 Frequent mixed English adverbs in Haitian Creole

In Table 10, I provide the most frequent mixed English adverbs. The total number of tokens for any given adverb rarely rises above 10. Adverbs with several tokens show the range of surrounding language-indexation token types.

The surrounding language-indexation results given in Table 10 provide a few insights into mixed adverbs and the continuum that links code-switching, borrowing-in-progress and integrated borrowing (also see Treffers-Daller, 2005, p. 500). The mixed English adverbs (*e*)*specially*, *maybe*, *still* and *then* are perhaps borrowings-in-progress given that these tokens are most often surrounded by Haitian Creole (i.e. the high proportion of the *HC–Eng–HC* types). I call these items 'borrowings-in-progress' rather than 'borrowings' because they all include tokens with adjacent English (e.g. *HC–Eng–Eng* or *Eng–Eng–HC*). English adverbs like *anyway*, *even*, *more* and *probably*, which are often adjacent to other English elements, are more weighted toward code-switching (rather than borrowing) given that they share language-indexation on at least one side in MOST of the token types (e.g. *HC–Eng–Eng* or *Eng–Eng–HC*). Thus the English adverbs with adjacent English show that these adverbs are in between fully integrated borrowings and code-switches. The next section examines the role that discourse position has in code-switching.

3.4 English adverb syntax in Haitian Creole–English code-switching and the role of discourse position

Adverbs modify a variety of syntactic categories and occur in different syntactic domains. There are at least

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Table 9. *List of all mixed English adverbs found in Haitian Creole (HC) clauses.*

Mixed English adverb	Number of users	Total tokens	HC equivalents
actually	1	1	15 (*vreman*)
ago, e.g. (*two*) *years ago*	2	2	NA (e.g. *gen*)
also	1	1	66 (*tou*)
always	1	1	197 (*toujou*)
anything	1	1	2 (*nenpòt bagay*)
anyway	3	5	1 (*antouka*)
anywhere	1	1	2 (*nenpòt kote*)
as a group	1	1	0 (*kòm yon gwoup*)
at least	1	1	0 (*omwen*(*s*))
at the same time	1	1	7 (*an menm tan*)
automatically	2	2	0 (*otomatikman*)
basically	2	2	0 (*efektivman*)
definitely	1	1	0 (*sètènman*)
each year	1	1	5 (*chak ane*)
each month	1	1	1 (*chak mwa*)
early	1	1	0 (*bonè*)
either	2	2	9 (*swa*); 0 (*kit*)
especially	6	7	1 (*espesyalman*)
even	2	4	257 (*menm*)
even though/even do	2	4	6 (*menm si*)
everyday	1	4	19 (*chak jou*)
everytime	1	1	7 (*chak fwa*)
exactly	1	1	3 (*egzakteman*)
far	1	1	8 (*lwen*)
final	1	1	2 (*anfen*)
finally	2	2	0 (*finalman*)
first	2	2	1 (*premye*)
first of all	1	1	2 (*premyeman*)
for right now	1	1	0 (*pou kounye a*)
hard	1	1	16 (*difisil*)
here n' there	1	1	0 (*pasi pala*)
honestly	1	1	0 (*onètman*)
hundred percent of the time	1	1	None
in my opinion	1	1	1 (*opinyon pa m*) 0 (*dapre m*)
kind of/kinda	2	3	6 (*on ti jan*)
last time	1	1	3 (*dènye fwa*)
late	1	1	5 (*ta*)
last year	2	2	3 (*ane pase*)
later	1	1	3 (*pi ta*)
loud	1	1	1 (*fò*)
mainly	1	1	0 (*prensipalman*)
maybe	8	18	5 (*petèt*)
more	3	4	82 (*plis*); 151 (*pi*)
mostly	2	2	12 (*pi fò*)
most of the time	1	1	1 (*plis fwa*)
neither	3	2	0 (*ni*)
normally	1	1	4 (*nòmalman*)
now	2	3	105 (*kounye a; kounyeya*)
now that	1	1	None
not yet	2	2	32 (*poko*)
often	1	1	7 (*souvan*)
of course	3	3	0 (*byen si; natirèlman*)
once	1	1	14 (*on fwa*)
only	1	1	35 (*sèlman*); 67 (*sèl*)
not only	1	1	0 (*nonsèlman*)
over an' over . . .	1	1	0 (*fwa apre fwa*)
as well	1	1	24 (*menm jan*)
piece by piece	1	1	1 (*mòso mòso*)
probably/probly	5	5	0 (*pwobableman*)
pretty much	1	1	0 (*apeprè*)
quiet	1	1	0 (*trankilman*)
Wednesdays	1	1	0 (*mèkredi yo*)
wrong	1	1	0 (*fo*)
really	2	2	12 (*vreman*)
right	2	2	0 (*dirèk*)
sometimes/sometime	3	11	4 (*tanzantan*)
so much that	1	1	0 (*otan*)
specially	2	2	See *especially*
still	4	9	197 (*toujou*)
that much	3	1	52 (*tèlman*)
then	3	6	13 (*lè sa*)
though	1	1	None
together	2	2	0 (*ansanm*)
too	1	1	66 (*tou*)
too often	1	1	112 (*twò*(*p*))
too quiet	1	1	See *too often*
too loud	1	1	See *too often*
unfortunately	1	1	0 (*malerèzman*)
unless	1	1	0 (*sof*)
usually	2	3	4 (*nòmalman*)
very	1	1	28 (*trè*)

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Table 10. *The most frequent mixed English adverbs and token types.*

Adverb	*HC–Adv–HC*	*HC–Adv–Eng*	*Eng–Adv–Eng*	Total tokens	Number of speakers using the adverb
anyway	2	3	0	5	3
(*e*)*specially*	6	2	2	10	6
even	2	0	2	4	2
maybe	11	5	2	18	8
more	0	3	1	4	3
probably	2	0	4	6	5
sometime(*s*)	5	4	2	11	3
still	8	0	1	9	4
then	5	0	3	8	3
Total	41	17	17	75	–

four sentential domains in Miami Haitian Creole–English code-switching; (a) and (d) are peripheral and (b) and (c) occur in the midst of argument structure.

(a) Left-periphery-adverb in CP

(b) IP-adverb

(c) VP-adverb

(d) Right-adjoined (e.g. phrase-final) modifying IP, VP, or CP

Example (22) below illustrates type (a) left-periphery-adverbs that occur higher than the subject in Spec IP. The majority of mixed English adverbs occur in this discourse-prominent position – 54% (*n* 68/124) in the 2004 corpus and 52% (*n* 41/78) in the 2005 corpus.[9] As one reviewer suggested, this points to the accessibility of the left-periphery syntactic domain and its discourse-prominence.

(22) Yo te ede mwen; NOW m ap ede yo.
6P PST V 1P 1P ASP V 6P
"They helped me, now I'm helping them."
(001, 2005)

Example (23) shows the type (b) IP-adverb that occurs after the subject pronoun but before the finite verb *bezwen* "need". This position is less accessible since mixed English adverbs only target the position at 9.6% (*n* 12/124) in the 2004 corpus and 8.9% (*n* 7/78) in the 2005 corpus.

(23) . . . ou konnen ou FIRST bezwen wè pou
2P V 2P AUX V P
pe fè y . . .
AUX V 3P
"you know you first need to see in order to be able to do it" (001, 2005)

The example in (24) illustrates the type (c) mixed English VP-adverb in Haitian Creole–English. Once again mixed English adverbs targeting this position are few in number with only 9.6% (*n* 12/124) in the 2004 corpus and 10.2% (*n* 8/78) in the 2005 corpus.

(24) M pa REALLY konnen sa m vle fè.
1P NEG V WH 1P AUX V
"I really don't know what I want to do."
(001, 2004)

The final example, in (25), illustrates a type (d) right-adjoined, clause-final adverb. The verb *mache* "to walk", takes the adjunct PP *avèk ayisyen* "with Haitians". In final position, the adverb *unfortunately* modifies the clause from a hierarchically superior X-bar position (above IP or CP, as the case may be). Mixed English adverbs targeting this position are higher in number with 25% (*n* 32/124) in the 2004 corpus and 23% (*n* 18/78) in the 2005 corpus. The higher number of mixed tokens targeting this position suggests that it is also discourse-prominent like type (a).

(25) . . . yo p ap janm mache avèk ayisyen
6P NEG ASP ADV V P N
UNFORTUNATELY.
"they are never going to walk with Haitians unfortunately." (003, 2004)

Mixed English adverbs are most frequently used in discourse-prominent syntactic positions. Syntactic

[9] The total number of adverbs counted differs slightly from the numbers given in Table 1 because I excluded English adverbs in ambiguous utterances.

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positions which are peripheral to argument structure (i.e., subjects, objects and verbs) are the most accessible in adverb code-switching. The left-periphery is the most accessible of all, a matter I attend to in the next section.

3.5 Adverbs and left-peripheral elements

As shown above, mixed English adverbs target the left-periphery in the majority of tokens. Indeed, adverbs share affinities with other left-peripheral elements like discourse markers, conjunctions, complementizers, *wh*-words, and coordinators. All the categories which target extended CP can serve as left-periphery boundaries for code-switching or can be combined into a left-periphery chunk. Torres (2002) and Hebblethwaite (2007) show that the left-periphery serves as one of the most active syntactic domains for code-switching. In addition to [CP_X [CP_Y]] and [CP_Y [CP_X]], the structures [CP_X [IP_Y]] and [CP_Y [IP_X]] are very common.

Example (26) shows a long chunk of left-periphery elements, e.g. discourse markers *so* and *well*, the conjunction *but*, and the adverbial *then*.

(26) . . . ki jan yo santi yo SO, WELL, BUT THEN
WH 6P V 6P
lè m lè trant m pa konn . . .
WH 1P WH N 1P NEG V
"how they feel about themselves so, well, but then when I'm thirty I don't know . . . " (005, 2005)

Of course, as illustrated by the English adverb USUALLY in (27), sometimes mixed English adverbs target the left-periphery as lone elements:

(27) . . . men USUALLY lò ou pale LIKE serye . . .
CONJ WH 3P V ADV
"but usually when you speak like seriously" (003, 2004)

The temporal adverbial *wh*-word *when* is equivalent to Haitian Creole's *lè* and *kou*. This *HC–when–HC* sequence is the only mixed token of lone *when* in the corpora:

(28) . . . GOVERNMENT ameriken, kou . . . WHEN
ADJ WH
yo mete UNIFORM . . .
6P V
"American government, when . . . when they put on uniforms" (008, 2005)

In example (29), *when* marks an intersentential code-switch into English:

(29) . . . lè fini . . . avèk WHEN IT COMES TO TIME,
DM P
ayisyen pi mal . . .
N ADV ADJ
"so . . . and when it comes to time, Haitians are the worst" (003, 2004)

Coordinators like *and* and *ak* are also left-peripheral elements as they occupy extended Coordinator Phrases (along the lines of Rizzi, 1997). One frequently finds the adverb *then* occurring in the chunk, "and then", as illustrated in (30):

(30) . . . pou . . . ranje poblèm yo AN' THEN
P V N D.PL
yo di ou OKAY . . .
6P V 2P
"to fix the problems and then they tell you okay" (006, 2005)

The left-periphery serves as an ideal position for code-switching due to its discourse-prominence. Situated outside of the argument structure, the domain is seamlessly populated by mixed tokens. As a site which transitions to and from argument structures and establishes illocutionary force, the left-periphery proves to be the most accessible platform for code-switching.

3.6 English adverb borrowings or borrowings-in-progress in Miami Haitian Creole

There is a small group of common English adverbs in Miami Haitian Creole that is likely comprised of borrowings or borrowings-in-progress rather than code-switches. The elements discussed in this section (*just* and *bak*) are not included in the count of mixed English adverbs because they are possibly borrowings and because they overlap with Haitian Creole partial homonyms.

Just

The adverb *just* is very frequent in Miami Haitian Creole and other languages in contact with English, such as Ontarian French (Rehner & Mougeon, 1997). It is a cognate of the Haitian Creole adverb *jis*/*jous* "just" and French *juste*. Twenty-six tokens of the *HC–just–HC* sequence occur in the speech of several participants:

(31) . . . gen lòt ankò ki JUST pa CARE . . .
EXP N ADV REL NEG
"there are others still who just don't care" (009, 2004)

There are ten tokens of the *HC–just–Eng* sequence and eight tokens of *Eng–just–HC*. Each sequence is illustrated in (32) and (33), respectively. English *just* in (31) above is likely a borrowing-in-progress that is already closely

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related to *jis*/*jous*. At the same time, *just* is linked to code-switching, as can be seen in (32) and (33).

(32) . . . yo JUST FOUND mwen on travay
6P 1P D N
TEMPORARY
"they just found me a temporary job" (001, 2004)

(33) IT'S JUST nou renmen lang SO MUCH THAT
4P V N
nou kontinye li.
4P V 3P
"It's just we love the language so much that we continue it." (011, 2004)

There are several similarities between Ontarian French and Miami Haitian Creole with respect to this adverb. In both contact varieties *just* frequently undergoes consonant cluster simplification *st* > *s* (Rehner & Mougeon, 1997, p. 95). Rehner and Mougeon (1997, p. 102) speculate that the increase of *juste* in these French-weak Ontarian communities is "promoted by a process of English language convergence". Miami Haitian Creole is also subject to such convergence between Haitian Creole's *jis*/*jous*/*jus* and English's *just*/*jus*, which is why I keep such items apart from the count of code-switches.

Bak

The English adverb *back* has long been borrowed into the Haitian Creole spoken in Haiti. It is possible that *back* entered the language during the US occupation of Haiti (1915–1934) and it is found in all late 20th-century publications. Examples of common expressions include *fè bak* "go back"; *mennen bak* "to watch one's step, to watch over, to be careful" in *se lidè ki bon pou mennen bak peyi a* "this is the leader who is good for watching over the country"; and *pa bak* "backwards" in *mache pa bak* "to walk backwards". In *pa bak* notice that *bak* forms the adverb "backwards" with the help of the preposition *pa*. *Bak* produces combinations with Haitian Creole verbs that have no English equivalent, e.g. **make*/*do back*. As one reviewer noted, the fact that *bak* can be used to create structures and phrases that do not exist in English shows that it is not only borrowed in Haitian Creole but has started leading a life of its own.

Back is borrowed in other communities where there is intense contact with English. For example, *back* is borrowed as *baka* in Sranan (Blanker & Dubbeldam, 2005) and it is also attested in certain Acadian varieties, notably Chiac, a French–English contact language spoken in Moncton, New Brunswick (Perrot, 2005, p. 314; Tremblay, 2005, p. 263). *Bak* has even greater extension in Miami Haitian Creole–English due to intense contact with English *back*. In Miami Haitian Creole *back* closely resembles equivalent English phrasal verb constructions in common locutions, such as *pale back – speak back*, in (34):

(34) . . . m ka pale BACK nan kreyòl.
1P AUX V P Creole
"I can speak back in Creole."[10] (001, 2004)

Tokens of *bak* are counted as unmixed elements because *bak* is already established in the Haitian Creole spoken in Haiti and thus facilitates an increase in the use of *back* and complicates identifying *back* as a borrowing or code-switch.

3.7 Haitian Creole verb/adverb interactions and an anomaly in Haitian Creole–English

As shown in (37) and (38), Haitian Creole clause-internal elements like adverbs and negation cannot intervene between the verb and direct object:

(35) Bouki **deja** konnen Boukinèt.
Bouki already know Boukinèt
"Bouki already knows Boukinèt."
(36) Bouki **pa** konnen Boukinèt.
Bouki NEG know Boukinèt
"Bouki doesn't know Boukinèt."
(37) *Bouki konnen **deja** Boukinèt.
(38) *Bouki konnen **pa** Boukinèt.
(from DeGraff, 2005, p. 301, exx. (3)–(4))

Verbs typically remain *in-situ* in Haitian Creole, which means that they cannot raise past the adverb or negation, as the ungrammatical sentences in (37) and (38) show.

Although participant (001, 2004) is an outlier who is not representative of the sample, examples (39)–(40) show that in her idiolect, the Haitian Creole verb may occur higher than the English adverb. The adverb occurs between the verb and the direct object, in contrast to the canonical position (see DeGraff, 2005, 2007). Examples (39)–(40) show that this position is productive in this

[10] Additional examples of phrasal verb constructions with *back* in Miami Haitian Creole include the following:

(a) . . . AN' THEN lè yo vin BACK BECAUSE on bagay . . .
WH 6P V D N
"an' then when they come **back** because a thing"
(002, 2005)

(b) . . . yo al BACK pou on lòt moun . . .
6P V P D ADJ N
"they went **back** for another person" (011, 2004)

(c) . . . nou di li BACK an kreyòl AN' THAT WAS IT.
4P V 3P P N
"we say it **back** in Creole and that was it." (009, 2005)

(d) . . . m di l nan anglè a epi m retounen BACK
1P V 3P P N D COOR 1P V
nan kreyòl la.
P N D
"I say it in English and I return **back** into Creole." (011, 2004)

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speaker's code-switching and they suggest that the participant has activated parametric syntactic values that are not typically associated with the verbs and adverbs involved.

(39) . . . yè m konn gade SOMETIME
WH 1P AUX V
on MOVIE OR A SHOW . . .
D
"when I used to sometimes watch a movie or a show" (001, 2004)

(40) . . . m wè SOMETIME PARENT yo . . .
1P V D.PL
"I sometimes see the parents" (001, 2004)

Examples (39)–(40) violate Haitian Creole and English word-order rules because neither allows adverbs of this type to intervene between the verb and the direct object; rather both languages require them either BEFORE the verb or AFTER the direct object. Note, however, that in sentences like (a), *She **quickly** purchases the television*, and (b), *She purchases **quickly** the television*, sentence (b) is less degraded than the monolingual English equivalents of (39)–(40). Could participant (001, 2004) be tapping into a marginal syntactic position and extending its availability to other adverbs? Outliers like participant (001, 2004) might provide clues about available parametric settings in Universal Grammar and grammatical change in innovative individuals.

The *in-situ* analysis of unmixed Haitian Creole verbs does not consistently hold since participant (001, 2004) displays occasional short verb-movement to the head of the light verb past the adverb adjoined to Spec VP. Short verb-movement in Haitian Creole could be the result of English or Haitian Creole influences if single-place predicates such as (a) *She ran **quickly** into the shop*, (b) *She walked **slowly** down the street*, or (c) *Li devlope **rapid** nan lekòl la* "She developed quickly in the school", etc., serve as syntactic models for new parametric realizations in Haitian Creole–English in spite of restrictions on two-place predicates in the standard languages, e.g. **She walked slowly the dog* or **Li devlope rapid yon plan* "*She developed rapidly a plan". These anomalies may suggest that word order is more receptive to change than other aspects of the grammar.

3.8 Either *and* neither

Polarity adverbs like *either* and *neither* provide interesting clues about language contact. Polarity adverbs are bound by a negation operator higher in the IP functional domain. The adverbs *either* and *neither* are co-indexed with *pa* in (42), (44) and (45), and with *or* in (43). The mixed negation structure can be represented as in (41).

(41) [$_{IP}$ . . . {Haitian Creole}
M pa [$_{VP}$ [$_{V}$ HC *wè* . . .]] {English}(*N*)*EITHER*]
1P NEG V
"I don't see either."

In (42) the structure *pa* . . . *EITHER* forms a bilingual polarity structure. In the *EITHER* . . . *OR* polarity structure in (43), observe that the argument structure intervenes.

(42) M **pa** kwè nou gen sa nan kreyòl EITHER.
1P NEG V 4P V 3P P N
"I don't believe we have that in Creole either." (011, 2004)

(43) I di . . . EITHER ou fè
3P V 2P V
on SECOND LANGUAGE OR . . .
D
"He says . . . either you do a second language or" (010, 2005)

The English negative polarity adverb *neither* occurs in a double negation pattern in which Haitian Creole supplies the higher I° negation operator and English supplies the lower associate lexical adverb:

(44) m **pa** janm wè sa nan fanmi m NEITHER.
1P NEG ADV V 3P P N 1POSS
"I never see that in my family neither." (009, 2004)

(45) mwen te avèk de ayisyen BUT yo **pa** pale
1P PST P NUM N 6P NEG V
kreyòl NEITHER.
N
"I was with two Haitians but they didn't speak Creole either." (002, 2005)

These data suggest that the morphosyntactic requirements of Haitian Creole negative polarity structures are satisfied regardless of whether the lower associate lexical adverb belongs to the same language or to a different language. In the examples (42), (44) and (45), the Haitian Creole functional negation element, *pa*, c-commands the lower English lexical adverb, as shown structurally in (41) above, without regard to its language-indexation, suggesting that English adverbs are perfectly felicitous in structures where they directly depend on Haitian Creole functional heads. Example (43) illustrates the English *either* . . . *or* polarity structure, which involves no negation and is selected by the Haitian Creole predicates, *di* "say" and *fè* "do".

4. Conclusion on adverbs in Miami Haitian Creole–English code-switching

I have examined current discussions on adverbs and explored the theoretical challenges presented by mixed English and Haitian Creole adverbs using my quantitative corpus methodology. In his mono-linguistic approach to adverbs, Cinque (2004, p. 685) says that they are "intrinsically functional" and linked to specific functional

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projections, while he also says (Cinque 1999) that they fit into a range of semantic classes, suggesting lexical properties. Ernst (2002) argues that adverbs include both lexical and functional types while Eckardt (1998) and Manninen (2000) argue that most adverbs are lexical, and they develop theories that explore the links that adverbs have with predicates, thematic roles, and derivation.

The qualitative and quantitative evidence in Miami Haitian Creole–English code-switching suggests that adverbs behave like members of a lexical category. Indeed, adverbs need to be examined in many more language pairs in order to discover whether they display differences and functional traits in other corpora. If adverbs of different types display different quantitative behavior, a more refined model of morphemes will be needed along the lines of Myers-Scotton (2002) or Jake and Myers-Scotton (2009).

Ernst's (2002, p. 9) typology separates lexical adverbs from functional ones. However, as I noted earlier, almost all of the ones identified as functional are used as code-switches in Miami Haitian Creole–English. Myers-Scotton (2002, p. 70) has suggested that degree adverbs, *very* and *too*, are functional; however, these and others flagged as functional are also attested in my corpus. There are scarcely any adverbs which have been identified as functional that are truly blocked from occurring in Miami Haitian Creole–English code-switching. Some adverbs which have been called functional are even flourishing in my corpus, e.g. *still*. Of course, one must recall that the overall number of tokens is limited and the singleton tokens for *very* and *too* might in fact indicate inaccessibility; however, many of the adverbs identified as lexical also occur at equally low rates.

There are additional reasons to think that adverbs generally act like members of a lexical category. As we have seen, Mixed English adverbs constitute 12% of all adverbs in the Miami corpus. Mixed English verbs, for their part, constitute 4.5% of all verbs. Mixed English bare nominals constitute 6.3% and mixed DPs (i.e., HC D + Eng NP) are 4.8%, forming a total of 11.1% of all DP/NPs (see Hebblethwaite, 2007). Given that adverbs code-switch at a higher percentage than categories like nouns and verbs, which are widely regarded as lexical, it appears that any functional trait that they may have imposes no restrictions on their availability. The reviewers expressed surprise at this finding since nouns and verbs are typically thought of as the most code-switched categories. Indeed, while French nouns in Brussels Dutch constitute 58.4% (n = 2,329) of all code-switches in Treffers-Daller (1994, p. 99), adverbs are nevertheless the THIRD most commonly switched category with 9.7% (n = 388). In Yoon (1992, p. 438), adverbs amount to 7% of all switched categories. Therefore the findings for adverbs in other corpora are not entirely different from my own.

Beside Klintborg (1996) and De Rooij (2000), most work on code-switching lacks the systematic and bidirectional analysis of the surrounding language-indexation of mixed tokens. In the 2004 corpus 38% (54/142) and in the 2005 corpus 50.8% (63/124) of mixed English adverbs occurred as lone (xYx) elements, suggesting that English adverbs, as an aggregate class, insert easily into Haitian Creole and that some even become borrowings-in-progress (longitudinal work is needed to measure this). Moreover, English FOLLOWS (xYy) in 33.8% (48/142) [2004 corpus] and 38.7% (48/124) [2005 corpus] or PRECEDES (yYx) in 28.1% (40/142) [2004] and 10.4% (13/124) [2005] for a combined average of 56% (149/266), which suggests that adverbs are closely linked to language-switching or occur commonly in chunks with other language co-indexed elements, especially discourse markers. In terms of syntactic structure, my examination of adverbs shows that they most commonly target discourse-prominent positions in, first, the left-periphery and, second, a right-adjunction position whereas they are more rare in the IP- or VP-internal positions. This suggests the accessibility of the peripheries outside of argument structure.

Because of the data in the Miami corpora, the data from Brussels in Treffers-Daller (1994), and much recent work, we have discarded, as does Myers-Scotton (2002), the analysis in which adverbs are strictly system (= functional) morphemes ill-suited to code-switching (Myers-Scotton, 1993). Eckardt's (1998) thematic adverb subcategorial feature in verbs is just one of several lexical explanations that help account for the presence of mixed adverbs in code-switching corpora and make it possible to predict their occurrence in Myers-Scotton's (1993) Matrix Language Frame model. Future work should compare adverbs with derivational morphology (e.g. *quick**ly***) and those without it (e.g. *too*, *also*) across various pairs of languages to discover differences linked to adverbial suffixation.

In the 2004 corpus, only 15 mixed Haitian Creole adverb tokens are found in English sentences, amounting to 1.27% (15/1,176) of ALL 2004 adverb tokens, which is equivalent to 9.5% (15/157) of all mixed adverb tokens. This is evidence that mixed English adverbs, at 90.5%, are far preferred over mixed Haitian Creole ones. At the same time, the Haitian Creole adverbial constructions that WERE found in English utterances provide evidence of the potential for code switching in the opposite direction, what I call BIDIRECTIONALITY. The low number of such code-switches shows the limited access of mixed Haitian Creole adverbs in Miami's sociolinguistic and psycholinguistic context, where languages have a 'high' or a 'low' social status. The asymmetry between the sociolinguistic and the psycholinguistic ROLES of the languages in Miami accounts for the asymmetry in which it is common to find mixed English adverbs in

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Table 11. *'High' language status/'low' language status.*

'Low' status (the Matrix Language)	'High' status (the Embedded Language)	Country	Sources
Nahuatl	Spanish	Mexico	MacSwan (1999)
Spanish	English	United States	MacSwan (2005), Jake et al. (2005)
Haitian Creole	English	United States	Hebblethwaite (2006, 2007, 2009b)
Turkish	Dutch	Netherlands	Myers-Scotton (1993)
Alsatian	French	France	Myers-Scotton (1993)
Swahili	English	Tanzania	Myers-Scotton (1993)

a Haitian Creole frame but rare to find mixed Haitian Creole ones in an English frame. Reversed sociolinguistic conditions (in another world), would theoretically give Haitian Creole adverbial switching into an English frame the asymmetrical advantage. The result of asymmetry does not discount the potential for bidirectionality, it merely disguises it.

It is not a conflict of grammatical features that causes asymmetry, it is instead the prevailing sociolinguistic and psycholinguistic conditions where English has a 'high' status and Haitian Creole has a 'low' status. The 'low' social status of Miami Haitian Creole gives it a privileged role as the functional Matrix Language whereas the 'high' status of English places limits on its availability as a Matrix Language, on the one hand, while making it the ideal reservoir of lexical elements to supply Haitian Creole-framed code-switching, on the other. An approach like MacSwan's (1999), where language-indexation is unexamined, sociolinguistic and psycholinguistic conditions are inadmissible, and morphology (the strength of *phi*-features) is supposed to account for mixed grammar, the issues of bidirectionality, the lop-sidedness of the results (9.5% mixed Haitian Creole adverbs versus 90.5% mixed English adverbs), and the absence of a plain morphological basis for adverb behavior present serious problems.

The sociolinguistic and psycholinguistic situation is reflected in the quantitative findings which show a preference for code-switching with an Haitian Creole functional frame. The few cases of English–Haitian Creole code-switches provide evidence that code-switching is not absolutely banned in the other direction; it is only disfavored in that direction. MacSwan's (1999, etc.) minimalist approach is missing an explanation for bidirectional data which occur in the context of asymmetry. Table 11 shows that the 'high' or 'low' social status of the two languages predicts which one will asymmetrically serve as the Matrix Language.

Treffers-Daller (1994) and Hebblethwaite (2007, 2009b) argue that the asymmetry between Matrix Language and Embedded Language morphemes mirrors sociolinguistic and psycholinguistic pressures. English is not banned as a frame since traces of bidirectionality can be detected. These traces of bidirectionality support the idea that results with the opposite asymmetry are theoretically possible under opposite sociolinguistic and psycholinguistic conditions.

Mixed English adverbs in Haitian Creole show a range of borrowings (*just*, *back*), borrowings-in-progress (*especially*, *still*, *maybe*, *sometimes*, etc.), and code-switches (*unfortunately*). De Rooij (2000), Klintborg (1996) and Torres (2002) argue that borrowing and switching are not mutually exclusive processes. There is a continuum in which items enter a language as code-switches and may become borrowings-in-progress over time. Some English adverbs gradually become borrowings-in-progress as they increasingly occur in strings surrounded by Haitian Creole material and are decreasingly used as switch-points into a co-indexed English string. In some cases they may even replace Haitian Creole equivalents and become fully-fledged borrowings.

Although Cinque (1999, 2004), Ernst (2002), Myers-Scotton (2002), Treffers-Daller (1994) and Yoon (1992) suggest that adverbs include lexical and functional properties, the results here only provide evidence of their lexical status in Miami Haitian Creole–English. Supporting arguments for such a view were given from Eckardt (1998) and Manninen (2000). This paper is one of the first to focus exclusively on adverbs in code-switching by means of a quantitative methodology which codes both mixed and unmixed tokens bidirectionally and for their surrounding language-indexation. This method serves as an additional tool for assessing theoretical claims about the nature of the syntactic category of adverbs. Future work might employ cross-sectional data to analyze individual differences in adverb code-switching. Collecting naturalistic and experimental data from a larger sample of participants may also shed light on some of the issues raised here. Additionally, expanding recruitment to include the first and third generations, in addition to the

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second generation, will help us understand how different groups employ adverbs in code-switching (see Torres, 2002). Future work might also employ a variationist approach like the one used by Mougeon and Beniak (1991) in order to compare differences in Haitian Creole–English code-switching in Miami, Fort Lauderdale, New York or Boston, for example. While the Miami Haitian Creole–English corpora provide little evidence for the applicability of the 4-M Model to adverbs, an expansion of bilingual data might discover evidence that can be better accounted for by dividing adverbs into different morpheme types. Here I attempt to forge into new territory with a comprehensive quantitative methodology but it is clear that further work in other language pairs and by means of other methodologies is needed in order to gain a better cross-linguistic understanding of adverbs.

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