Paper for the Symposium
Language Contact and the Dynamics of Language: Theory and Implications
10-13 May 2007
Leipzig

Substrate phonology, superstrate phonology and adstrate phonology in creole languages.

Norval Smith
University of Amsterdam

The phonological effects themselves resulting from creolization can be attributed solely to language contact phonology, rather than any kind of simplification processes. Many creole languages possess very complex(portions of) phonology. When we know enough about the languages involved in the formation of a particular creole - which we usually don't - it turns out that all aspects can be explained solely from the mixture of linguistic inputs involved (pace the relevant sociolinguistic factors). The conclusion is then that creole phonology differs in no way from the phonology of other types of contact language. I will illustrate this with data from Surinam and Jamaica.

Introduction, stratal terminology

The study of the phonologies of creole languages is in most cases not very advanced, either in synchronic or diachronic terms. I have attempted in a number of recent papers (e.g. Smith to appear) to show that "creole phonology" is merely contact phonology, as far as the phonological effects themselves are concerned. The languages in contact can be divided into two types – superstrate and substrate languages:

(1) Languages in contact
Superstrate language: A language spoken by a "dominant" social group.
Substrate language: A language spoken by a "dominated" social group.

These terms have a long history in historical linguistics. For instance, various features of Romance languages were attributed to the influence of the Celtic languages spoken in the territories of the present France, Spain and Northern Italy before Latin was adopted there.

Clearly, these terms also have a close relation to the terms utilized by Ferguson (e.g. 1964) for describing situations of diglossia. H ("high") and L ("low"), which can refer both to varieties of a single language and different languages. The replacement of one language by another, as in the example of the replacement of Celtic (Gaulish) by Latin, can take hundreds of years to achieve, and in the course of this process there would indeed have been a state of diglossia in which the H language (Latin) would have replaced the L language (Gaulish) in an ever-increasing number of domains of use, until it died out completely. During this process there would have been various types of influence on both Latin and Gaulish due to the contact between them. One clear illustration of this is the body of lexical items in French of Gaulish origin.

Later in history parts of Northern France came under the control of the Salic Franks – the reason France is called France. The Salic Franks had a policy of equality between themselves and the native Gallo-Roman population. In such cases we cannot speak of H and L languages, rather of two H languages co-existing. In this case, (Salic) Frankish did not replace Gallo-Roman Latin, but was itself replaced by it. Similarly to Gaulish, however, Frankish left traces in French in the form of numerous lexical items. For language contact phenomena in such a situation of social equality the term *adstrate* has been employed.

In the context of creole languages, the terms *substrate* and *superstrate* have been used in connection with the original languages of the slaves (African in the Caribbean) and the languages

of the (European) colonial powers respectively. In connection with the present situation of (claimed) linguistic continua in a number of Caribbean territories where English-lexifier creoles are spoken, another set of terms is in use. These are *basilect*, or creole language that is least influenced by the local Standard English, *mesolect*, or creole that shows a significant amount of influence from Standard English, and finally, *acrolect*, referring to the local Standard English. Both the basilect and mesolect can be referred to as forms of creole language[1]. The mesolect would then show more adstratal influence from the colonial language.

So, the initial situation in which the colonial language was the H language, and African languages the L languages, has usually been replaced by a situation in which the colonial language has remained the H language, but English-lexifier creoles have become the L languages, with a possible distinction between M (middle) languages, the mesolects, and L languages, the basilects.

New stratal definitions

For the purposes of the discussion of the contact phenomena giving rise to the creation of creole languages ("Younger Languages"), and other contact effects associated with creole languages, I would like to redefine or alter the precise meanings of these terms.

I would like to reserve the terms substrate and superstrate languages for reference to the languages involved in the process of creolization itself. So the dominant language during creolization would be the superstrate language, while dominated languages that left a mark on the resultant creole language would be the substrate languages. African languages which were too little present to influence things do not need to be called substrate languages.

Once creolization is complete, in other words, once we have a language system that can be called complete, we have a different ball-game. Now what we have are ordinary language contact language situations. Note that the H/dominant language does not require to be the same language as the lexifier language of the creole. Surinam is a case in point. The combination of superstrate English and substrate Fon and Kikongo gave us the English-lexifier creole language, Sranan, which came to stand as the L language in opposition to Dutch as the H language. The Dutch spoken in Surinam has undergone a certain amount of influence from Sranan, while Sranan has undergone influence form Dutch. Despite the disparity in power relations between these two languages I would like to refer to both kinds of relations as adstratal. I will however only be discussing influence from the dominant language on the dominated language.

(2) <u>Stratal definitions for creole languages</u>

(3)

Substrate influence:	Influence from the language of the initial "lower" social group involved in creolization.
Superstrate influence:	Influence from the language of the initial "higher" social group involved in creolization.
Adstrate influence:	Influence from the languages of non-creolizing social groups in contact.

In subsequent sections I will attempt to identify clear examples of all three types of influence. I will draw these examples from the creole languages of Surinam and Jamaica.

[1] Clearly the term *acrolectal creole*, which is sometimes used, is nonsensical.

Substrate influence in Surinam – some phenomena

In order to examine a case of substrate influence, let us look first at the developments of non-final English vocalic nuclei in Sranan, the coastal plantation creole language of Surinam. I give here the most relevant form of Standard English in comparison, the Early Modern English (henceforth EME) of the mid-17th century, based on the exhaustive researches of Dobson (1957).

Table 1 - Non-final vocalic nuclei

English spelling	Sranan	Early Modern English	Current English
sleep	sribi	sliːp	sliːp
sick	siki	sɪk	sɪk
afraid	frede	əfreːd	əfreid
dead	dede	dɛd	dɛd
walk	waka	wɔːk	wɔːk
hot	ati	hɔt	hɔt, hɑt
hat	ati	hat	hæt
house	oso	həus > haus	haus
fight	feti	fəit > fait	fait

What can we observe from this table of vocalic equivalences, which is typical for the English vocabulary in Sranan? Three things. Firstly, no final consonants appear to be tolerated. *Final* syllables require to be *open*. Notice that this does not apply to non-final syllables.

Table 2 – Closed non-final syllables

English spelling	Sranan	Early Modern English	Current English
change	tʃentʃi	tʃeːndʒ	tʃeindʒ
remember	memre	rɪmɛmbər	rɪmɛmbə
hark (ask)	arki, artʃi	hɑrk	hɑːk
six	siksi	sɪks	sɪks

We can account for this phonotactic restriction with the help of a version of the NoCoda constraint, *NoWordCoda*. In other words, a version of NoCoda applies, but only at the word level.

We can express the differences between the two languages with the following comparative tableau.

Tableau 1 – NoWordCoda in English and Sranan

Constraint Language	**High**	Low
English	Faith	NoWordCoda
Sranan	NoWordCoda	Faith

NoWordCoda is ranked higher than the relevant Faithfulness constraint, here Dep(IO), while the reverse ranking applies in English. Let us look first at an English tableau:

Tableau 2 - Dep(IO) and NoWordCoda in English

hat	Dep(IO)	NoWordCoda
☺ hat		*
hati	*!	

And now at Sranan:

Tableau 3 - NoWordCoda and Dep(IO) in Sranan

hat	NoWordCoda	Dep(IO)
hat	*!	
☺ hati		*

Where the meaning is obvious, I will represent this in a more compact fashion, just mentioning the relationship of the relevant Markedness constraint to the Faithfulness constraint(s):

Tableau 4 - NoWordCoda in English and Sranan again

Constraint Language	NoWordCoda	
English		Low
Sranan	**High**	

The second difference between Sranan and Standard English is that the Sranan vowels illustrated here are all *monomoraic*. I will avoid the complex problem of trying to describe the difference between tense and lax vowels in English by assuming that the difference is one between dimoraic and monomoraic vowels. This is probably the way the speakers of the main African substrate languages perceived them anyway, so that this approach is fairly unproblematic.

[2] Earlier Sranan had /hati/ in this word. Initial /h/ was dropped later in Sranan.

I will assume that vowel length is a marked phenomenon in the languages of the world. Numerous languages, such as Mandarin Chinese, lack a length contrast in their vowel system. I will translate this into the constraint NODIMORAICNUCLEUS, which is then applicable to Chinese, Kabardian, and other languages, but not to Standard English nor to Jamaican. Let us look again at tableaux for the two languages:

First English:

Tableau 5 – NODIMORAICNUCLEUS in English

leave	MAX-μ(NUC)	NODIMORAICNUCLEUS
☺ liiv		*
liv	*!	

And then Sranan:

Tableau 6 – NODIMORAICNUCLEUS in Sranan

leave	NODIMORAICNUCLEUS	MAX-μ(NUC)
liibi	*!	
☺ libi		*

Once again, we can summarize these two as:

Tableau 7 - NODIMORAICNUCLEUS in English and Sranan

Constraint Language	NODIMORAICNUCLEUS	
English		Low
Sranan	**High**	

Let us now turn to a consideration of English diphthongs. We saw from the above table that English diphthongs followed by coda consonants are reduced or coalesced to single vowels.

Table 3 – Diphthongs before coda consonant

English spelling	Sranan	Early Modern English	Current English
house	oso	həus > haus	haus
fight	feti	fəit > fait	fait

Does this also apply when diphthongs are final? The answer is no. In this respect English diphthongs differ from English monophthongs, which are always short in Sranan. Cf *si* 'see', *go* 'go'.

Table 4 – Diphthongs in word-final position

English spelling	Sranan	Early Modern English	Current English
eye	ai	əi > **ai**	ai
cry	krei	**krəi** > krai	krai
cow	kau	kəu > **kau**	kau
now	nou	**nəu** > nau	nau

A differential treatment of diphthongs according to position is of course not unheard of. Recall the Latin alternations of the type:

(3) Latin diphthongal alternations

pl**au**do	ex-pl**oo**do
c**ae**do	ex-c**ii**do
p**oe**na	im-p**uu**nitas

These alternations are explained in terms of position of the main stress in Pre-Classical Latin which, unlike Classical Latin, is assumed to have initial stress. In this case, however, the monophthong here is still bimoraic.

On the other hand, in Sranan, both reflexes of the English diphthongs are stressed. One solution is indeed related to stress but in a different fashion. It is important to realize that by and large the stressed vowel in English also determines the stressed vowel in Sranan. The alternation between monophthongal and diphthongal representations of the EME diphthongs could then be accounted for in terms of *dimoraic* trochaic feet.

Table 5 – Stress and diphthongs

Sranan	Early Modern English
óso	hə́us > háus
féti	fə́it > fáit
kréi	**krə́i** > krái
káu	kə́u > **káu**

The coda-final cases in EME receive an anaptyctic/supportive vowel, and so become disyllabic. The coda-less cases remain the diphthongs they are in English, while the examples that receive a supportive vowel have their stressed diphthongs reduced from two morae to one. We wll refer to this as the result of *FOOTDIMORAICITY*.

This is obviously in partial contradiction with the above NODIMORAICNUCLEUS constraint we adopted for the Sranan equivalents of English monophthongal vowels, which are always short, under any circumstances in Sranan.

I will illustrate this case with tableaux for the two conditions. First the coda case. Here I will add a faithfulness constraint, UNIFORMITY, which is violated by the coalesced diphthongal vowels of the preferred output.

Tableau 8 – Diphthong before coda consonant

fight	FOOTDIMORAICITY	NODIMORAICNUCLEUS	UNIFORMITY
(faiti)	*!	*	
(fai)ti		*!	
☺ (feti)			*
(feeti)	*!		*
(fee)ti		*!	*

N.B. UNIFORMITY: Do not coalesce input segments

Tableau 9 – Word-final diphthong

eye	FOOTDIMORAICITY	NODIMORAICNUCLEUS	UNIFORMITY
☺ (ai)		*	
(e)	*!		*
(ee)		*	*!

I will now examine the roles of the two major substrate languages in Surinam, Fon and Kikongo. First Fon.

Fon as a substrate language in Surinam

That Fon is a substrate language in regard to the creole languages of Surinam is quite clear. Aboh (2006) has demonstrated that specificity features in Sranan and Saramaccan follow the patterns which pertain in the Gbe languages (including Fon); there are numerous lexical items from Fon in the Surinam creoles, in particular in Saramaccan, but also to a lesser extent in Sranan; vowel epenthesis in liquid clusters (also formerly present in Sranan) has been related (Smith 2003) to a similar process in the Gbe languages; and non-iconic reduplication is used in both to form adjectives, to name but four cases (Adamson & Smith 2003).

Let us turn now to a consideration of Fon vocalic structures. Most morphemes in Fon have short vowels. And none have codas. Examples of such morphemes would be the following:

(4) Typical Fon morphemes

dɛ̀ ‘saliva’ dɛ̃́ ‘sweat’

Most morphemes are either monosyllabic, like the above two, or, and this applies to some classes of nouns, have a vowel-prefix. Although this is a remnant of the Niger-Congo noun-class system, it does not display the usual differences of prefix for singulars and plurals. There are only 2 to 4

or 5 classes in different Gbe languages. Examples of such prefixed nouns include the following two:

(5) Fon nouns with "class" prefixes

à-ɖí 'soap' à-ɖì 'truth'

The initial vowels can still be assigned a separate morphemic status, in that they can be omitted under certain grammatical circumstances.

Rare morphemes have a long vowel. These are truly exceptional, and the vowel is always final.

(6) Fon words with long vowels

dàá 'father' à-tɔ̀ɔ̀n 'five' [ɔ̃ɔ̃]

In Fon, dimorphemic long vowels and diphthongs may be created by combining lexical stems with suffixes or post-clitics consisting of a single vowel:

(7) Derived long vowels and diphthongs in Fon

kɛ̀ + è >	kɛɛ	'open it'
tò + è >	toe	'arrange it'

Although morphemes are generally monosyllabic in Fon (there are some disyllabic morphemes), due to the frequent use of compounds, nouns are often polysyllabic. Due to the extreme rarity of long vowels in monomorphemic structures, very few non-final long vowels occur either, taking the prefixed cases into account. And since suffixes and postclitics are word-final, most long vowels and diphthongs resulting from morpheme-concatenation will be surface word-final.

A comparison of these Fon patterns with what we have seen in Sranan so far, reveals that there is a great deal of agreement in the patterns observed. The exception concerns the rare long vowels, found particularly in final position. A preliminary comparison of Sranan and Fon morphological structures reveals that the most useful comparison is between the shapes of Sranan *morphemes* and Fon *words*. There is a difference in morphological structure, then, but the phonology is very similar.

Fon and Kikongo

In the 17th century the dominant element in slave population of Surinam was Fon (or closely related languages). But we must also ask the question how the other half of the 17th century slave population in Surinam that was not of Fon origin (but Kikongo-speakers from Central Africa) would have interpreted Fon phonological structures. We must assume at least some knowledge of each others languages on the part of both major groups of slaves. In particular, some familiarity with the surface sound-structures, as these differed in quite a drastic fashion. For instance the usual patterns for nouns differ considerably, and the speakers of the two main language (blocks) could not but be aware of this:

(8) Prototypical shapes of nouns in Fon and Kikongo

Fon:	(V)-CV(~)	(~) = vowels can be nasal
Kikongo:	CV/N-CV(V)(N)CV	

The exceptional and minority patterns in Fon would tend to escape the notice of non-Fon speakers. Major differences exist as between final and non-final syllables in the two languages – I only consider *non-compound* words here:

(9) Some aspects of Fon nd Kikongo words

Fon-final	Fon-non-final	Kikongo-final	Kikongo-non-final
± nasalization	no nasalization	no nasal coda	± nasal cluster
± long vowel[4]	short vowel	short vowel	± long vowel

We can already see from these phonological aspects, that to a large extent, Fon and Kikongo aspects are in complementary distribution. The final possibilities of Fon are equivalent in some sense to the non-final possibilities of Kikongo, and vice versa.

Nasality patterns in the Surinam substrate languages

In support of this statement of prevalent patterns I mention items that have shifted their nasality backwards or forwards in the word.

For example, consider the word 'elephant', which occurs in all three creole languages in Surinam. This is a Bantu word, Kikongo *nzawu*. In Ndyuka, where #nz- is allowed, we find *nzaw*. In the other two languages this is a forbidden structure – in Sranan we find *asaw*[5]. The interesting case is Saramaccan, here, which attempts to preserve the nasality, by shifting it to the right. The automatic result is a nasalized diphthong – *zãũ.* So the preservation of nasality has resulted in a change from a Kikongo-like structure to a Fon-like structure.

We also have examples of rare *disyllabic* Fon nouns like *degɔ̃* 'shrimp', which possibly because it is disyllabic, moves the nasality to the left. The result is Saramaccan *adingɔ,* a Kikongo-like structure, with a nasal cluster instead of a final nasalized vowel. For a Sranan example, compare the Fon form *adʒidʒã* 'hedgehog'. The Sranan form is *dʒindʒa-maká* where *maká* means 'thorn', and the whole word means 'porcupine'. A Fon compound with two nasalized vowels in succession is *xɔ̃tɔ̃* 'friend'. In Saramaccan this word appears in the form *hɔntɔ* 'have a good relation with'. Here we have a nasal cluster in intervocalic position – reminiscent of Kikongo (although Kikongo only has voiced nasal clusters non-initially). Because this word has moved into the category of "Kikongo" words, it may not have final nasalization, which is a Fon feature. This is dropped. Possibly we should view such influences as joint

[4] Including final suffixes and post-clitics.
[5] There are parallels for the reinterpretation of #nC- as #aC-.

substrate features. There appears to be a strict demarcation line between the Kikongo-type nasalization and Fon-type nasalization here.

One constraint whose effect we can recognize prominently here is NOWORDCODA. This is rather a Kikongo trait. Fon exhibits a high ranking of the more general NOCODA as I have mentioned above. Another important constraint is MAX[NASAL]. The high ranking of NOWORDCODA and MAX[NASAL], in that order, will prevent the occurrence of an explicit nasal segment in word-final position, but preserve a nasal feature. In Fon final vowels may be nasalized, but no explicit nasal consonant may occur, so this approaches what is needed. The same applies to Saramaccan. In Kikongo both final nasals and final vowel nasalization are however forbidden.

These two languages contrast in what they allow in non-final position however. Fon allows nasalized vowels in non-final morphemes, but not non-finally in morphemes. This means that vowel-nasalization occurs proportionately less in non-final position than in final position. In Kikongo pre-consonantal nasals occur. These assimilate to the following consonant in the permitted biconsonantal clusters. These pre-consonantal nasals are non-syllabic, but belong to the same syllable as the following consonant. So Ndibu (Kikongo dialect) *mbúlu* 'hairless part on side of forehead' (Daeleman 1972) is syllabified *mbú.lu*. Ntandu[6] (Kikongo dialect) *mbuungi* 'mildew' is syllabified *mbuu.ngi*.

According to Rountree (1972) Saramaccan displays the same patterns with nasal clusters *mb, nd, ndʒ, ng,* initially or word-internally, but not with other nasal clusters, which also only occur internally. Kikongo also has syllabic (prefixial) nasals initially, but these are not relevant for the period (the 17th century) that concerns us, since at that time these syllabic nasals were represented by the prefixes *mu-* and *mi-*. In other words they did not yet exist.

In Sranan the syllable division proceeds as in Engish (or Dutch), and there are no nasal clusters initially. Another difference from Saramaccan is that word-finally we have variation in the case of nasal rhymes between a vowel followed by [ŋ], a nasalized vowel [˜], and a nasalized vowel followed by a velar nasal, [˜ŋ].

The difference between the realizaton of final nasality in Saramaccan and Sranan does not appear to be very significant. I will assume the relevance of a constraint similar to the NASCODACOND proposed by Bakovic (2001). This is a condition against place in nasal codas, resulting in place assimilation word-internally (in association with AGREE[PLACE]), and compelling a debuccalized nasal "glide" in final position. We can't use this as is, because the nasals concerned are not always coda nasals, but may be the first elements in onset clusters. The nasality in word-final position is probably not really a coda either. The common factor in the assimilatory relationship that non-final nasals have with their suppliers of place, and the nasal feature that is either assigned to final vowels, or appears (in Sranan) as final nasal glide is one of dependency[7]. I will retool Bakovic's constraint as NASDEPCOND, which then restricts the occurrence of Place in the relevant nasals. Max[Nasal] has the job of relating input nasality to its output.

Summing up on all four languages and comparing them with English we can identify the following aspects of dependent nasal behaviour:

[6] (Ki-)Ntandu is the Kikongo dialect that displays the greatest lexical resemblance to the Surinam creoles, especially Saramaccan.

[7] In terms of Dependency Phonology segmental representations.

(10) Nasality compared in five languages

	Nasal Word Coda	(Dep.) final syllable nasality	(Dep.) pre-nuclear nasality
Fon	**no**	**nasal vowel**	nasal vowel (compound)
Kikongo	**no**	no	**pre-C nasal**
Saramaccan	**no**	**nasal vowel**	**pre-C nasal**
Sranan	**no**/yes	**nasal vowel**/glide	**pre-C nasal**
English	possible	coda	**pre-C nasal** coda

What will speakers of Fon and Kikongo do when letting their own phonologies loose on English words? There are two types of relationship, illustrated by the three conditions given. One type is when both major substrate languages agree on particular phonotactic aspect. Another case is when one language does not possess a given English type but the other does. In the first case given here we have agreement, and in the other two cases a lack of balance in the agreement with English.

I do not intend to discuss theories of creolization in detail here, but I do want to make clear that I in no way believe that creolization involves imperfect L2-learning. What I do believe is that the members of the nascent slave ethnic group were motivated on various grounds to form there own (new) language (cf. Jourdan 2006), and that they used elements from both superstrate and substrate languages in this process.

(11) The resolution of aspects of nasal phonotactics

a. Nasal Word Coda: Fon and Kikongo *agree* in disallowing this.
Resolution: No nasal word coda

b. Nasality in final syllable: Kikongo *none, so no evidence*
Fon nasal vowel
Resolution: nasal vowel (assuming MAX[NASAL])

c. Pre-nuclear nasality: Kikongo pre-C nasal
Fon simple word *none* (compound word poss.)
. *Resolution*: pre-C nasal (assuming MAX[NASAL])

The most probable outcome in a case of the first type is that the African substrates enforce their common phonotactics on English. In the other cases the initial applications of their native phonotactics will produce differential results as far as matching English models is concerned. We can then assume that the language that most closely resembles English in the relevant respect will enforce its pattern. This can be assumed to happen during the early period in which Lefebvre (xxxx) hypothesizes a process of dialect-levelling among creole variants. When we examine the resultant creoles here, I note that whichever pattern is shared (or shared to a degree) by two out of the three languages: English, Fon and Kikongo ultimately wins the day.

Adstrate in Jamaica

In this section I will attempt to establish aspects of the Proto-Jamaican Creole vowel system by comparing present-day Jamaican Creole with Krio and the Eastern Maroon Creole of Jamaica.

Krio

Krio is an English-lexifier creole spoken mainly but not solely in Sierra Leone. It has however many points of resemblance to English-lexifier creoles spoken in the Caribbean, including shared aspects of a pitch accent system (Devonish 2002). The origin of Krio – how it got to where it is now spoken – is controversial. I will not go deeply into this question here, only briefly mention the two main contending theories. Both involve Nova Scotia, surprisingly enough. Round about 1800 two groups were transported from there to West Africa, one consisting of former slaves who had escaped from the American Southern States during the War of Independence, the other of a group of Western Maroons from Trelawny, Jamaica, who had been causing the British authorities trouble.

At about the same time, the United States moved some freed slaves to Liberia, where they still speak a form of Black English. This is also the case with remnant stay-behind groups in Nova Scotia. It is clear that Krio is not a form of Black English, as it resembles neither Liberian English nor Nova Scotian Black English, and we can most simply explain its many resemblances to Caribbean creole languages by assuming that it is to an important degree derived from a Western Maroon Creole language formerly spoken in Jamaica.

Let us now turn to an examination of the treatment of the English long vowel contrast in Krio.

Table 6 - The English vowel length contrasts in Krio

English spelling	Krio	Early Modern English	Current English
weed	wid	wiːd	wiːd
stick	tik	stɪk	stɪk
face	fes	feːs	feis
bed	bed	bɛd	bɛd
call	kɔl	kɔːl	kɔːl
walk	[waka]	wɔːk	wɔːk
hog	ɔg	hɔg	hɔg, hɑg
knock	[naki]	nɔk	nɔk, nɑk
black	[blaka]	blak	blæk

N.B. The three forms in square brackets illustrate irregular developments, and are shown here for the sake of completeness.

We see here that the English long/short contrast is once again not expressed, short vowels being used consistently.

Tableau 10 - MAX-μ(NUC) and NODIMORAICNUCLEUS in English and Krio

Relative Ranking Language	**High**	Low
English	MAX-μ(NUC)	NODIMORAICNUCLEUS
Krio	NODIMORAICNUCLEUS	MAX-μ(NUC)

or

Constraint Language	NODIMORAICNUCLEUS	
English		Low
Krio	**High**	

If we now turn to the Krio developments of English diphthongs, we get the following picture.

Table 7 - The English diphthongs in Krio

English spelling	Krio	Early Modern English	Current English
climb	klem	kləim > klaim	klaim
time	tɛm	təim > taim	taim
fight	fɛt	fəit > fait	fait
night	nɛt	nəit > nait	nait
white	wet	wəit > wait	wait
boil	bwɛl	bwail, bɔil, etc.	bɔil

We observe the same coalescence of diphthongs as in Sranan. However, because it is not clear whether this coalescence has the same motivation as in the Surinam creoles, I will employ the constraint NODIPHTHONG for the sake of convenience.

Tableau 11 - UNIFORMITY and NODIPHTHONG in English and Krio

Constraint Language	NODIPHTHONG	
English		Low
Krio	**High**	

Krio only has vowel anaptyxis in a few exceptional forms (see Table 5). Krio therefore has the same ranking of DEP(IO) and NOCODA as English does. In Krio there are many words with coda consonants.

Tableau 12 - DEP(IO) and NOCODA in English and Krio

Relative Ranking Language	**High**	Low
English	DEP(IO)	NOCODA
Krio	DEP(IO)	NOCODA

So in this respect Krio and English syllable structure match up.

Another Case from Jamaica – Maroon Spirit Language /Eastern Maroon Creole (EMC)

MSL, or Maroon Spirit Language – refers to a "language" whose use is at present very limited. It is only used to address the spirits of those ancestors of the Eastern Maroons of Jamaica who were born in Jamaica. Ancestors born in Africa are addressed in a vestigial African ritual language called Kramanti.

In fact this language is the former daily language of this Maroon group, which only ceased to be used as such at the beginning of the 20th century (Harris 1994). For this reason I will refer to it as Eastern Maroon Creole (EMC). There are two groups of Maroons in Jamaica – the Western Maroons in Jamaica at present only speak Jamaican Creole. We have provided brief argumentation above for the thesis that Krio descends from a Western Maroon Creole (of Jamaica).

Of great interest is what the EMC treatment of EME vowels is. This I lay out in the following table.

Table 8 - The English vowel length contrasts in Eastern Maroon Creole

English spelling	Eastern Maroon Creole	Early Modern English	Current English
weed	widi	wiːd	wiːd
stick	tiki	stɪk	stɪk
face	fesi	feːs	feis
dead	dede	dɛd	dɛd
walk	waka	wɔːk	wɔːk
knock	naki	nɔk	nɔk, nɑk
black	blaka	blak	blæk

Now we observe a totally different result from Jamaican Creole. The length contrasts of English are *not* preserved. The lexical forms are once again based on English but the realization is not.

It turns out that by simply switching around the order of the same pair of Markedness and Faithfulness constrants utilized above, we get the rights results for vowel length, i.e. no contrastive vowel length. Here Eastern Maroon Creole agrees with Krio.

Tableau 13 - MAX-μ(NUC) and NODIMORAICNUCLEUS in English and Eastern Maroon Creole

Constraint Language	NODIMORAICNUCLEUS	
English		Low
Eastern Maroon Creole	**High**	

Let us now turn to a consideration of EMC diphthongs. These are illustrated in the following table.

Table 9 - The English diphthongs in Eastern Maroon Creole

English spelling	Eastern Maroon Creole	Early Modern English	Current English
climb	krem	kləim > klaim	klaim
time	tem	təim > taim	taim
fight	fete	fəit > fait	fait
night	net	nəit > nait	nait
white	wete	wəit > wait	wait

Once again, we see that the result is quite different from that in Jamaican Creole. The two vowel qualities in the diphthong are merged or coalesced. In other words we require a different ranking of the relevant Markedness and Faithfulness constraints, similar to what we have seen in Krio (and of course, in Sranan).

Tableau 14 - UNIFORMITY and NODIPHTHONG in English and Eastern Maroon Creole

Relative Ranking Language	**High**	Low
English	UNIFORMITY	NODIPHTHONG
Eastern Maroon Creole	NODIPHTHONG	UNIFORMITY

Note that this ranking, like the previous one, does not mirror the English constraint ranking either.

Anaptyctic Vowels in Eastern Maroon Creole

In general, in Eastern maroon Creole, if a word ends in a consonant that is not a nasal, then an anaptyctic or supportive vowel is added to the English stem. We have seen examples like those in (12):

(12) Anaptyctic vowels in Eastern Maroon Creole

"white" wete
"stick" tiki

Once again we need to use the constraint NoCoda. In English the output is constrained so as not to forbid codas, by ranking NoCoda low, and the Faithfulness constraint forbidding anaptyctic vowels high.

Tableau 15 - Dep(IO) and NoCoda in English and Eastern Maroon Creole

Constraint Language	NoCoda	
English		Low
Eastern Maroon Creole	**High**	

So, for a third time Eastern Maroon Creole phonology differs from English phonology. English allows coda consononants, EMC doesn't. I will ignore the exception for nasal codas here.

Note that Krio, as a descendant of Jamaican Western Maroon Creole, was as much removed from the influence of Standard English as Eastern Maroon Creole was. Both groups were subject to treaties made in 1739, and Krio only became subject to significant influence from Standard English much later on.

Jamaican Creole

I will now turn to a third example of a Jamaican creole language, in order to establish the conditions to illustrate sub/superstrate phonological effects. Consider the vowel system of Jamaican Creole (a.k.. Patwa). This vowel system is similar to that of Standard English in a number of ways. It has a length contrast, generally parallelling the long/short or tense/lax contrast of English. It also has diphthongs, once again generally parallelling the situation in English. In the following table I illustrate some of the eqivalences:

Table 10 - The English vowel length contrasts in Jamaican Creole

English spelling	Jamaican phonemic	Early Modern English	Current English
sleep	sliip	sliːp	sliːp
sick	sik	sɪk	sɪk
afraid	fried [~ friad]	freːd	freid
dead	ded	dɛd	dɛd
walk	waak	wɔːk	wɔːk
hot	hat	hɔt	hɔt, hɑt
hat	hat	hat	hæt
smoke	smuok [~ smuak]	smoːk	smouk
bud	bod	bʌd	bʌd

I ignore here the particular diphthongal nature of some Jamaican Creole reflexes of EME long vowels.

We can express this in terms of the following constraint ranking, which corresponds to the historical input and output pair EME and Jamaican Creole. In addition to the Markedness constraint NODIMORAICNUCLEUS, I will assume the presence of a Faithfulness constraint whose function is to preserve vocalic length contrasts. This I will term MAX-μ(NUC).

Tableau 16 - MAX-μ(NUC) and NODIMORAICNUCLEUS in English and Jamaican Creole

Relative Ranking Language	**High**	Low
English	MAX-μ(NUC)	NODIMORAICNUCLEUS
Jamaican Creole	MAX-μ(NUC)	NODIMORAICNUCLEUS

Let us now turn to the English diphthongs, and look at what has become of them in Jamaican Creole.

Table 11 - The English diphthongs in Jamaican Creole

English spelling	Jamaican phonemic	Early Modern English	Current English
climb	klaim	kləim > klaim	klaim
house	hous	həus > haus	haus
boil	bwail	bwəil > bwail	
		bʊil > bəil > bail	
		bɔil	bɔil

N.B. The Jamaican and Standard English forms of "boil" are derived from different variants.

Once again, we are faced with the same general result. Jamaican Creole has diphthongs (in most cases) where Standard English has them. Diphthongs are a minority flavour in the languages of the world, and the Markedness constraint NODIPHTHONG has been proposed to account for this. A corresponding Faithfulness constraint, UNIFORMITY, has been proposed to counteract this markedness (or non-markedness) effect.

And again, if we rank the Faithfulness constraint above the Markedness constraint, we get the correct results for both English and Jamaican Creole.

Tableau 17 - UNIFORMITY and NODIPHTHONG in English and Jamaican Creole

Relative Ranking Language	**High**	Low
English	UNIFORMITY	NODIPHTHONG
Jamaican Creole	UNIFORMITY	NODIPHTHONG

N.B. UNIFORMITY: Do not coalesce input segments

We observe that Jamaican Creole does not differ significantly from English. Usually the question is asked why and how creoles and their respective lexifier languages (the languages that supply the major part of their lexicons) differ. The question should also arise in our minds why

they do *not* differ in certain aspects. We have just seen two aspects, not necessarily related, in which English and Jamaican Creole do not differ. This question is then potentially as interesting as questions regarding their numerous differences.

I ascribe the greater influence of English on Jamaican Creole to *adstratal* influence. The common features of the two Jamaican Maroon varieties, Krio and Eastern Maroon Creole, I assume to be representative of all early Jamaican Creole. This would imply that the greater resemblances of Jamaican Creole to English are the result of changes that took place because of the greater and longer exposure to the English (and subsequently British) colonial power, and the English language, as compared to the maroon varieties.

Conclusion

In the context of creole languages there is a significant difference in substratal and superstratal influence, and adstratal influences. The first two types are intimately involved in the formation of the creole language – creolization, while adstratal influence does not differ from any other kind of contact language influence.

It does not seem necessary to distinguish the kind of linguistic contact met with in creole situations from linguistic contact in general.

References

Aboh, E.O.,
2006 Remarks on the role of the syntax-semantics interface in language transfer. In: C. Lefebvre, L.White and C. Jourdan (eds.), *L2 Acquisition and Creole Genesis: Dialogues*. Amsterdam: John Benjamins Publishing Company.

Adamson, L. & N.S.H. Smith
2003 Productive Derivational Predicate Reduplication in Sranan (with L. Adamson). In S. Kouwenberg (ed.), London: Battlebridge Press, 2003.

Bakovic, E.
2001 Nasal place neutralization in Spanish. *University of Pennsylvania working papers in linguistics* 7.

Daeleman, J.
1972 Kongo elements in Saramacca Tongo. *Journal of African Languages* 11, 1-46.

Devonish, H.
2002 On the Sierra Leone-Caribbean connection: hot on the trail of the 'toneshifted' items in Anglo-West African varieties. In: H. Devonish, *Talking Rhythm Stressing Tone*. Arawak Publications, Kingston, Jamaica, pp. 165-180.

Dobson, E.J.
1957 *English pronunciation, 1500-1700*. Oxford: Oxford University Press.

Jourdain, C.
To appear. The cultural in PC genesis. In *The handbook of pidgin and creole languages.* J. Singler and S. Kouwenberg (eds.). Oxford: Blackwell.

Lefebvre, C. 2001. Relexification in creole genesis and its effects on the development of the creole. In *Creolization and Contact,* N. Smith and T. Veenstra (eds.). Amsterdam: John Benjamins Publishing Company, pp. 9-42.

Rountree, S.C.
1972 The phonological structure of stems in Saramaccan. In: J.E. Grimes (ed.), *Languages of the Guianas*. Norman: Summer Institute of Linguistics of the University of Oklahoma, pp. 22-27.

Smith, N.S.H.
2003 New evidence from the Past: To epenthesize or not to epenthesize: That is the question. In: I. Plag (ed.), *Phonology and Morphology of Creole Languages*. (= Linguistische Arbeiten, Vol. 478). Tuebingen: Niemeyer.

Smith, N.S.H.
to appear Contact Phonology in Creole Languages. In: E. Elfner & M. Walkow (eds.), *Proceedings of NELS* 37.