Vocalic change in the Belizean English/Creole continuum and markedness theory*

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The present paper investigates some types of phonological variation involving vowels and diphthongs in the English/Creole continuum spoken in Belize, Central America, and relates those variations to universal processes, with specific reference to the markedness theory (Trubetzkoy 1949; Greenberg 1966; Chomsky and Halle 1968). All languages include marked and unmarked categories. Marked features are generally acquired late by children (see Jakobson 1968), and are likely to be lost first in language disorders like aphasia, as well as in diachronic change. In contact situations which produce pidgins, the emerging variety is expected to retain a higher frequency of unmarked features, or to change marked into unmarked categories. When a pidgin has attained the status of creole, the resulting variety is still widely stigmatized, even by its own speakers, and thus remains unimpeded by any kind of formal standardization (i.e. no normative grammar of creole has ever been written; there is little or no literature written in creole, etc.). Creoles therefore constitute an ideal testing ground for universals of linguistic change.

Belizean Creole is particularly interesting in this respect, due to the complex sociolinguistic situation which obtains in Belize, a small country located east of Guatemala, south of Mexico, and directly west of Jamaica, and thus subject to both Latin American and Caribbean influences. However the latter is predominant, and the population is largely creole-speaking an English based creole, but interacting with a variety of other ethnic groups who use different native languages-Mestizos (Spanish/Maya) speak Spanish, Amerindians speak Maya or Kektchi, Black Caribs (descendants of Arawak-Carib Indians and Africans) speak Carib, an Afro-Indian Creole. In this multilingual society, the creole functions as a lingua franca. As is usually the case with contact vernaculars, there is no sharp separation between English and Creole, but the situation is best described as a continuum of forms which range between two poles: at the upper prestigious end of the continuum, there is a West Indian Standard-a rather undefined combination of British and American standard features-and at the lower end of the continuum, there is "Broad Creole"-mostly spoken in rural areas. Somewhere in the middle, there is "City Creole", spoken in Belize City, which is heavily influenced by Black American English. City Creole is currently undergoing decreolization, as it is subject to a process of informal standardization in the direction of some form of standard English.

My observations will be restricted to non-consonantal segments (vowels and diphthongs) in different varieties of Belizean Creole, while focusing on fully-creolized lects as spoken in rural areas.

In order to illustrate the continuum, I incorporated in my data utterances elicited from native as well as non-native speakers of Creole. Non-native speakers of Creole include Black Caribs (mostly living in the South), and Mestizoes (living in the North and West). It is now no longer controversial to observe that there is no homogeneous speech community. A creole situation involves an especially high degree of variability, which can be observed in intra-group as well as in inter-group communication. The salient features recurring in all varieties and especially in the broader varieties are those which provide particular insight into universal unmarked processes.

Tables I and II illustrate the major differences between standard English vowels and diphthongs and their broad Creole counterparts. Both variants coexist in some Belizean speakers who switch from one system to the other, as required by the contextual situation. Tables III and IV focus on the one-to-one correspondence between English segments and their Creole reflexes. As a convention, the arrows point to the creole variant. It can be seen at first glance that

Table I
Standard English

i		u
I	ə	ʊ
e	r	o
ɛ	ʌ	
ae	a	ɔ

/ay aw ɔy/

Table II
Belizean Creole ("broad")

i		u
(e)		(o)
ɛ		
	a	ɔ

/ay/

Table III

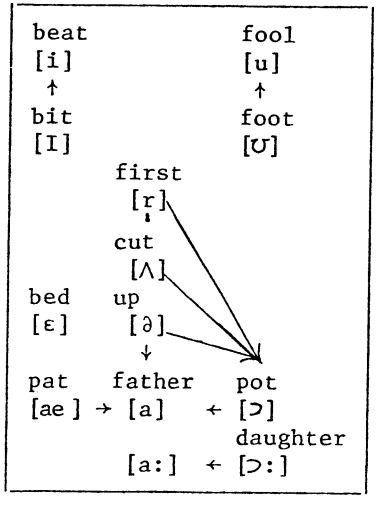
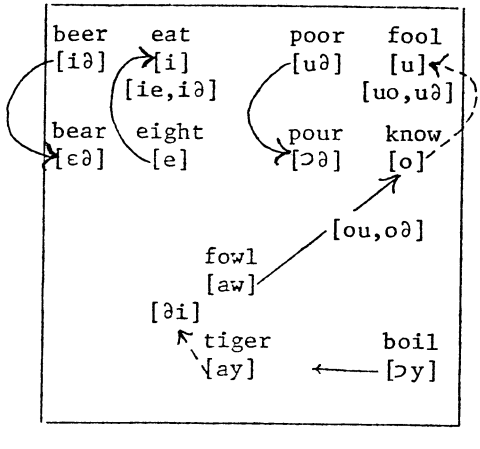


Table IV



the Creole system is a five-vowel pattern, obviously much simpler than the eleven or twelve vowel pattern of the West Indian Standard. In Creole the low front vowel /æ/ and the back mid unrounded vowels /ə,ʌ/ are nonexistent. There are two high vowels, /i,u/ and one lax mid front vowel /ɛ/ (in vest [vɛs], bend [bɛn]). Tense /e/ and /o/ are raising to high vowels, and losing their phonemic status, although they phonetically occur. Tenseness is thus no longer distinctive for mid or high vowels and becomes redundant with height--especially in the broader varieties. In intermediate varieties tenseness is replaced by length. In all varieties, length is distinctive for the low unrounded vowel([lad] lad but [la:d] lard, lord). In addition, there is a back low rounded vowel, which functions as the reflex of mid back unrounded /ə,ʌ/.

The shift of high and mid vowels is quite interesting and deserves some discussion. As noted above, the tense dipthongized mid front vowels of bait and boat do not occur in the broadest Creole varieties,[1] but surface as variants of /i/ or /u/ and in intermediate lects may be realized as anything between a diphthong with centralized onset and high nucleus and a high monophthong--thus ranging from /e/ to /i/ as [ey~e~əi~iə~i] or from /o/ to /u/ as [ow~o~əu~uo~u]. The raising is, however, more frequent in the case of the front vowel. Homophonous or near-homophonous sets result due to the raising of the mid vowels, and the loss of the tense/lax distinctive feature.

[i-əi]	[u-əo-əu]
beat=bait=bit	full=fool=foal
wheel=whale=will	boat=boot
week=wake	shoe=show
eat=eight	new=know
freed=(a)fraid	

Tense underlying high vowels remain stable in both systems. They don't, however, before the liquid /r/. In this special case, the creole reflexes of standard English /ir/ and /ur/ sequences are respectively [ɛ~ɛə] and [ɔ~ɔə], since postvocalic /r/ is not phonetically realized in creoles, or if it is, it surfaces as a back coronal glide [ə] or [ɐ̯]. This particular shift leads to the following phonetic homonyms in Creole:

[ɛ~ɛə]	[ɔ~ɔə][2]
bear=beer=bare	pour=poor
airs=ears	shore=sure
fair=fear	
hair=hear=here	

A further lowering to [a] occurs occasionally as in airstrip [aštrip].

To account for the shift from one system to the other, which of course commonly occurs in a code-switching situation like the one under consideration, I propose an exchange rule where the values

of [+ high] and [- high] are partially interchanged. The simplest solution is to assume that at a certain stage in the formation of the creole system, a vowel shift rule is added to the grammar: high vowels are lowered before a retroflex liquid, and mid tense vowels are raised elsewhere:[3]

The phonemes /e/ and /o/ thus get lost through partial merger with /i/ and /u/. On the other hand/i/ and /u/ acquire lower allophones before a non-high retroflex liquid:

Creole Vowel Shift (CVS):

$$[\alpha \text{ high}] \rightarrow \begin{bmatrix} -\alpha \text{ high} \\ -\alpha \text{ tense} \end{bmatrix} / \text{——} [\alpha \text{ retroflex}]$$

This rule is part of the grammar of those speakers who haven't quite completed the raising process. Speakers of varieties closer to the upper end of the continuum would have a restricted version of CVS which will also be used by speakers of Broad Creole when switching to more prestigious varieties:

$$\text{CVSa:} \quad [+ \text{ high}] \rightarrow \begin{bmatrix} - \text{ high} \\ - \text{ tense} \end{bmatrix} / \text{——} [+ \text{ retroflex}]$$

I noted above that there is a discrepancy in the degree of raising achieved by front and back vowels. Back raising is clearly less operational than front raising. A wider range of [o → u] variants than of [e → i] variants is observed to occur even for a single speaker maintaining the same stylistic level. This suggests that the exchange process started earlier with front vowels and then spread to back vowels. Thus some speakers have a more restricted version of CVS:

$$\text{CVSb:} \quad \begin{bmatrix} - \text{ back} \\ - \text{ high} \end{bmatrix} \rightarrow \begin{bmatrix} + \text{ high} \\ + \text{ tense} \end{bmatrix} / \text{——} [- \text{ retroflex}]$$

An implicational pattern holds between CVSa and CVSb: if a speaker has CVSb he will necessarily have CVSa, but the reverse is not true. Both the progression of change and the frequency of synchronic variants are captured, ranking first the lowering before retroflex (CVSa), second the raising of mid front vowels elsewhere (CVSb), third the raising of back vowels which results in the collapsed and generalized CVS version.

It is interesting to relate the raising discrepancy between front and back vowels to the process affecting the two low upgliding dipthongs /ay/ and /aw/. /aw/ has a regular creole reflex [o] with [ɔu~ɔo~u] variants, indicating the raising of the low nucleus and eventual monophthongization. Homophonous sets result once more, ranging between [o → u]:

know=now=no
fowl=foal
town=tone
loud=load

The raising of /aw/ to [o] is very regular in all creole varieties, contrary to the raising of /o/ to [u]. Interestingly /ay/ does not follow a symmetrical pattern. It clearly remains a diaphone, although often surfacing as a centralized diphthong [ə̈y]--which is perhaps the early indication of a similar rising trend. Indeed the diphthong /ay/ has increased its distribution, due to the very regular merger of /ɔy/ with /ay/. Thus boil=bile; coin=kind; point=pint; lighter=loiter etc. As could be expected after the previous discussion of preretroflex vowels, /ayr/ and /awr/ sequences undergo a special treatment. The standard phonetic triphthongs are clearly bisyllabic in Creole, while raising affects only /aw/:

flower [flowa]	tower [towa]
tired [taya(d)]	liar [laya]

Finally the non-low back lax vowels of standard English /ə,ɹ̩,ʌ/ do not occur in any Creole variety; their reflexes cluster around low back unrounded [a] if unstressed, and low back rounded [ɔ] under stress. Moreover the low front /æ/ of hat and the low back rounded /ɔ/ of dog merge with the [a] of father, yielding the following equivalences:

[a]	[ɔ]
cot = cat	cut, mud, hurt
hot = hat	first, bird, third
water, father, teacher	[fɔs] [bɔd] [tɔd]
[wata] [fada] [tiča]	
smart, daughter, law	
[sma:t] [da:ta] [la:]	

Consequently many of the contrasts occurring in standard English are neutralized in Creole, or in the process of neutralizing. Only short /ɛ/ remains stable:

The shifts of syllabic nuclei observed in a cross-section of Belizean Creole varieties are particularly revealing because they illustrate the continuity of change in the vowel system. The change is more advanced, of course, in the broader varieties. Belizean Creole has been getting closer to a five-vowel system (/i ɛ u ɔ a/) with intermediate varieties exhibiting seven (/i e ɛ u o ɔ a/) or even nine (/i I e ɛ u v o ɔ a/) vowel systems as opposed to the standard twelve-vowel pattern. Moreover, there is only one diphthong /ay/ in contrast to the three diphthongs of the standard variety /ay aw ɔy/. All vowels and diphthongs converge towards the triangular /i u a/ pattern, generally recognized (Jakobson 1941, Chomsky and Halle 1968, Liljencrants and Lindblom 1972) to be a totally unmarked system, that is, based on a maximal articulatory contrast. This is supported by acquisition studies (where /a/ then /i/, /u/ are the first phonemes acquired), and by typological studies which show

that any language includes at least /i u a/ in its vowel system.

According to Chomsky and Halle's marking conventions[4] (Chomsky and Halle 1968, 403-411), /a/ is the totally unmarked vowel since it combines the properties of [+ low, + back, - round]. The neutralization of /ae/ and /ɔ/ as /a/ is predicted by marking conventions (vi), (x), (xi) which assign a complexity of two each to /ae/ and /ɔ/. The merger of the diphthong /ɔy/ with /ay/ may be part of the same process, the former being marked with respect to the latter. Thus, all low vowels except /a/ are eliminated through this neutralization. I consider this to be the initial step leading to the evolution of a vowel system. Neutralization to /a/ is consistent in all varieties of Creole, to the extent that it would be totally unmotivated to postulate underlying /ae/ for cat or /ɔ/ for dog at any point on the Creole continuum.

Another basic--or early--step is the loss of midback unrounded vowels /ə,ɹ̩,ʌ/. Chomsky and Halle only assign a complexity value to /ʌ/ (three), but /ə,ɹ̩/ can be included in the same category since all three vowels are nonlow and have opposite values for "back" and "round" (conventions (vi), (x), (xi)). As indicated above, they neutralize in two ways: as /a/ if unstressed, and as /ɔ/ if stressed. The discrepancy is not unexpected, since the unmarked segment /a/ then occurs in the most neutral, unmarked unstressed positions. The shift of stressed /ɹ̩,ʌ/ indicates lesser markedness (from three to two) while preserving certain contrasts:

	English	Creole
cat	[kæt]	[kat]
cut	[kʌt]~[kət]	[kɔt]
dock	[dɔk]~[dak]	[dak]
duck	[dʌk]~[dək]	[dɔk]

The stability of /i/ and /u/, which are only slightly marked, is evidenced in all varieties. Furthermore the general Creole tendency of high lax vowels to merge with the tense ones confirms convention (xii) which states that the unmarked value of "tense" is [+ tense]. The only instance of phonetic loss of /i,u/ occurs before a retroflex or its reflex, a midback coronal glide. This can be interpreted as a natural assimilation to a nonhigh segment. Thus [ɛ] and [ɔ] function as conditioned reflexes of /i,u/. Furthermore, the raising--incipient but steadily progressing in the broad variety--observed to affect mid vowels indicates a tendency of the system to conform to the unmarked value of [+ high]. For intermediate varieties, the high component of the nucleus becomes predominant [iə] at the expense of the nonhigh element, until the latter is eventually eliminated. I noted above that this phenomenon is more widely operative in the case of the front vowel. Why this discrepancy? Looking at another asymmetric development might provide some insight into the problem: The upgliding diphthong /ay/ remains unchanged while /aw/ undergoes a very noticeable and widespread raising and monoph-

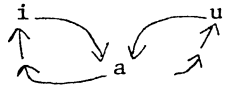
thongization to a back mid or high vowel. Those data suggest that the high front vowel may be less marked than a high back vowel although this may require a slight revision of Chomsky and Halle's marking conventions. I propose to expand convention (x) in the following way:[5]

$$\text{(Xa)} \quad [\text{u back}] \rightarrow \left\{ \begin{array}{ll} [+\text{ back}] \;/\; [\overline{+\text{ low}}] & \text{(a)} \\ [-\text{ back}] \;/\; [\overline{+\text{ high}}] & \text{(b)} \end{array} \right\}$$

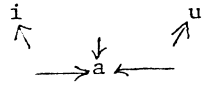
Expansion (b) states that the unmarked value of "back" is [- back] for a high vowel. Since the same conventions apply to vowels and to glides, /i/ and /y/ are now unmarked with respect to /u/ and /w/. However, midvowels remain marked as previously stated. The revised matrix would show an equally null complexity for /a,i/ a complexity of one for /u/, and of two for /e,o/.[6] This change in the computation system is also compatible with Chomsky and Halle's proposal to make the marking of "round" dependent on the marking of "high", and the marking of "high" and "low" dependent on the marking of "back". Under these conditions, the stability of /ay/ follows from its totally unmarked quality--assuming that the complexity value of a diphthong is computed as the sum of the marked features of its members. However, the obviously greater complexity of diphthongs than vowels should be somehow characterized--perhaps by adding an overall [2] for each diphthong. Thus /ay/ has a complexity of [0 + 0 + 2] = 2
/aw/ has a complexity of [0 + 1 + 2] = 3
/ɔy/ has a complexity of [2 + 0 + 2] = 4.
This notation has the advantage of capturing the greater markedness of /ɔy/ than /aw/, than /ay/, and explains the merger of /ɔy/ with /ay/ and the reduction of /aw/ to /o/. The new unmarked combination of the features of [+ high, - back] can also account for the greater frequency of raised nonback vowels.

The variation observed in Belizean, and the directionality of change assumed, are not applicable only to this specific case. There are many analogous changes in vowel systems of other languages which testify to their naturalness, and to the validity of the marking conventions, both à la Chomsky and Halle, and revised. Most Creoles exhibit a reduced vowel system of the type /i e u o a/. A word list of 570 items from eight English-based Creoles (Hancock 1969) provides plentiful evidence that all Creoles have lost the low front and mid back unrounded vowels, that most have raised and monophthongized /aw/ but not /ay/, that /i/ and /u/ but not /e/ and /o/ are stable. Similar tendencies are attested in a number of contemporary English dialects--for example the raising of (oh) observed by Labov (1972) in New York City, the raising of short /ae/ in middle Atlantic States (Bailey 1973), the unrounding of low back /ɔ/ common in all American English varieties, etc. The history of English, and in particular the Great Vowel Shift of Early Modern English, is well representative of the poles of attraction /i u a/ which determine changes in vowel systems. Compare the general patterns of the Great Vowel Shift and

the Creole Vowel Shift:



Great Vowel Shift



Creole Vowel Shift

The two shifts differ in the manner in which they respond to the polarization exerted by /i u a/, but not in the general directionality of the systems. Note that in Early Modern English tense vowels before /r/ also underwent the vowel shift, consistently for high vowels (desire, flower), occasionally for mid front vowels (near but pear) and rarely for mid back vowels (poor but door). The lowering influence of /r/ may be the clue to this discrepancy and is, as I have shown, clearly operative in Belizean Creole. And finally, there is the very regular monophthongization of /aw/ to [ɔ] which removed all previous /aw/ diphthongs as new ones were derived from /u/ through the Great Vowel Shift.

Rules which function to maximize the perceptual distance between segments are not restricted to English or English-based Creoles: upward shifts also applied in late Middle Chinese to produce the Standard Mandarin triangular pattern (Chen 1974). There is in Russian a three-vowel contrast /i,u,a/ in unstressed syllables, although there is a five-vowel contrast in stressed syllables. In Bulgarian and in some Greek dialects /o/ and /e/ merge respectively with /u/ and /i/ in unstressed syllables (Trubetzkoy 1949:85).

The foregoing examination of vocalic variations observed in Belizean Creole supports earlier claims made by the proponents of the markedness theory in phonology, namely a vowel system tends to evolve into a pattern which maximizes perceptual differences and eliminates unmarked segments. The lower end of the Belizean continuum displays a simplified vowel system while intermediate varieties preserve more contrasts. Other synchronic varieties of English as well as diachronic developments in many languages indicate similar movements in the direction of an unmarked system. But Creoles remain the ideal field to discover and test language universals.

Footnotes

1. Hellinger (1970) totally ignores this phenomenon. Le Page (1972) does not explicitly discuss it but his phonetic transcription [ie] for /e/; [uo] for /o/ reflect the raising process. Young (1973) mentions it in his phonological inventory of sounds.

2. The lowering of /ur/ in Creole is less obvious than the lowering of its front counterpart, simply due to a matter of distribution. There are very few /ur/ sequences in standard varieties: compare more, pour, floor, sore, shore, door [ɔr], but poor, moor, four, sure [ur]. For those few items, lowering to [ɔr] or [ɒə] is not uncommon in American as well (to a lesser extent) as in British varieties.

3. Note that early 20th Century texts indicate the lowering of /ir/ (for example transcriptions of hear me as 'yerre me'), but do not indicate the raising of tense vowels. There is scant evidence, due to the scarcity of creole texts. However I assume that the lowering of high vowels before /r/ preceded the raising of mid tense vowels. This is supported by the synchronic observation that raising is completed in only a few varieties, whereas lowering is so strongly established that it persists even when creole speakers switch to English.

4. Conventions (VI)-(XII) and the matrix showing complexity values are reproduced here for easier reference.

(VI) $$[u\ low] \rightarrow \left\{ \begin{array}{ll} [+low] / \left[\begin{array}{l} \overline{u\ back} \\ u\ round \end{array} \right] & (a) \\ [-low] & (b) \end{array} \right\}$$

(VII) $$[+low] \rightarrow [-high]$$

(VIII) $$[u\ high] \rightarrow [+high]$$

(IX) $$[+high] \rightarrow [-low]$$

(X) $$[u\ back] \rightarrow [+back] / \left[\overline{+\ low} \right]$$

(XI) $$[u\ round] \rightarrow \left\{ \begin{array}{ll} [\alpha round] / \left[\begin{array}{l} \overline{\alpha back} \\ -low \end{array} \right] & (a) \\ [-round] / \left[\overline{+low} \right] & (b) \end{array} \right\}$$

(XII) $$[u\ tense] \rightarrow [+tense]$$

	a	i	u	æ	ɔ	e	o	ü	i	e	ö	
low	u	u	u	m	m	u	u	u	u	m	u	u
high	u	u	u	u	u	m	m	u	u	u	m	m
back	u	-	+	m	u	-	+	-	+	m	-	+
round	u	u	u	u	m	u	u	m	m	m	m	m
complexity	0	1	1	2	2	2	2	2	2	3	3	3

5. Chomsky and Halle present a set of marking conventions for glides (XXXV-XXXIX). In this case, the conventions are the same for vowels and for glides.

6. Phonetically, there is actually a maximal difference between /a/ and /i/, whereas /u/ is relatively closer to /a/ (Ladefoged: A Course in Phonetics, 1975).

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