

An analysis of initial consonant clusters in Krio
within the theoretical framework of Beats-and-
Binding phonology

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Krio

Krio is an English-based creole language spoken in Sierra Leone

Language family:

English creoles

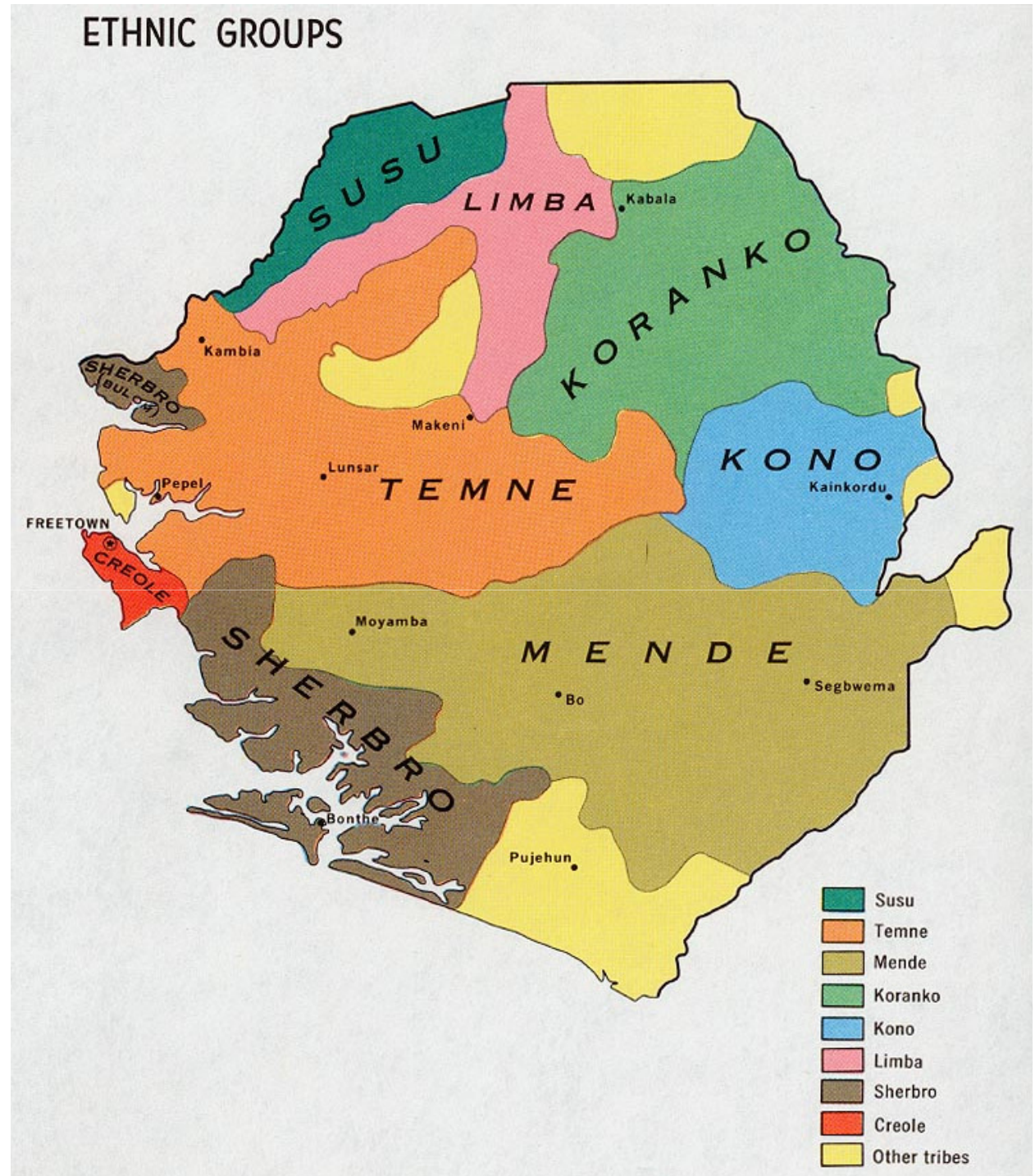
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Krio

Native speakers: 490,000
(ethnic Creoles)

L2 speakers:
6,250,000
(97% of population)

→ But no official status
official language: English



History of Krio

- *1787-1855*
Freed slaves from Nova Scotia and Jamaica were brought to Sierra Leone and founded Freetown
→ today they comprise the most influential ethnic group of *Sierra Leone Creoles /Krios* who are the native speakers of Krio
(~3% of population)
- The Creoles brought their English-based creole languages which mixed with other substrates to form Krio
- Other influential substrates: Yoruba and Igbo

Beats-and-Binding Phonology

Katarzyna Dziubalska-Kořaczyk (2002). *Beats-and-Binding phonology*.
Frankfurt am Main: Peter Lang.

- syllable-less theory whose domain is the word
- This theory is concerned with so-called *beats* (mostly vowels) and *non-beats* (mostly consonants) which are connected through *bindings*.
- Allows to determine the preference of consonant clusters in different positions of the word by means of calculation their ***Net Auditory Distance***
- Claimed to be universal, applies to all languages
- The universal phonotactic preferences calculated on the basis of this model should predict the change of consonant clusters in language history (Dziubalska-Kořaczyk, 2002)

Research question

- Dressler and Dziubalska-Kořaczyk (2006, p. 71):
“the unmarked sequence of sounds consists of CV’s...Markedness starts with the introduction of any new consonantal phoneme into the sequence”
- knowing that creoles are more likely to retain unmarked than marked linguistic features of their superstrate and substrate languages (Uffman, 2003, p. 3), the following research question can be asked:

Is there a tendency for preferred consonant clusters from English-derived words in Krio to be retained more frequently than dispreferred clusters?

Methodological Approach

- Compilation of exhaustive account of initial consonant clusters in Krio in the basis of Fyle & Jones' (1980): *A Krio-English Dictionary*
- Calculation of Net Auditory Distance for all initial clusters in Krio ad English
→ comparison of English and English-based Krio clusters and their preferences

Phonemic inventory of Krio

Table 1: Krio consonants and their manner and place of articulation

4		3		2		1		0	
obstruent				sonorant					
stop		fricative		sonorant stop		approximant		V	
		affricate						semiV	
p b		f v		m		w		labial	1
t d		s z		n		l		coronal	2
		dʒ tʃ							
		ʃ ʒ (θ)							
k g		ɣ		ɲ ŋ		j		dorsal	3
								radical	4
		(h)						laryngeal (glottal)	5

- English /r/ is replaced by the voiced uvular fricative
- /h/ and /θ/ are very rare and occur in acrolectal varieties of hypercorrected forms only (Fyle & Jones, 1980)
- coarticulated stops / \widehat{gb} / and / \widehat{kp} /

Word-initial CC consonant clusters in English and Krio

- English word-initial double clusters according to Cruttenden (2008):

/pl, pr, pj, tr, tj, tw, kl, kr, kj, kw, bl, br, bj, dr, dj, dw, gl, gr, gj,
gw, mj, nj, lj, fl, fr, fj, vl, vr, vj, θr, θj, θw, sl, sr, sj, sw, sp, st, sk,
sm, sn, sf, sv, ʃl, ʃr, ʃw, ʃm, ʃn, hj/

Total number of CC clusters: 49

- Word-initial double clusters in Krio (taken from Fyle & Jones, 1980):

/pl, **pɸ**, pj, **pɸw**, **tɸ**, tj, tw, kl, **kɸ**, kj, kw, bl, **bɸ**, bj, bw, **dɸ**, dj, dw,
gl, **gɸ**, gj, gw, **mb**, mj, nj, lj, fl, **fɸ**, fj, **fw**, vl, vj, sl, sj, sw, sp, st,
sk, sm, sn, **ʃɸ**, **nt**, **ɲk**/

Total number of CC clusters: 43

- printed in **bold**: clusters not present in English
- /fw, mb, ɲk/ only occur in words originating from African substrate languages
- /nt/ only occurs in one word

English clusters lost or replaced in Krio

- Replaced clusters:
/pr, tr, kr, br, dr, gr, fr, ʃr/ are replaced by Cɛ in accordance with Krio's phonemic inventory
- English clusters not present in Krio:
/vr, θr, θj, θw, sr, sf, sv, ʃl, ʃw, ʃm, ʃn, hj/

→ most of the clusters are fairly infrequent in English
→ /h/ and /θ/ is a very marginal phonemes in Krio so these consonants do not form clusters in the language

Net Auditory Distance (NAD)

- Subcomponent of Beats-and-Binding model
- “[NAD] specifies the universally required perceptual distances between segments within clusters” (Dziubalska-Kořaczyk & Zielińska, 2011, p. 54)

$$\mathbf{NAD = |MOA| + |POA| + |Lx|}$$

- Role and importance of voicing (Lx) unclear, hence, left out in further calculations (see Dziubalska-Kořaczyk, 2009)
- can be seen as an expansion to the *sonority hierarchy* (Selkirk, 1982: *The Syntax of words*) which ranks the markedness of clusters according to their manners of articulation.
- Addition of POA to the formula allows for finer distinctions of cluster’s preferredness and thus their stability or likelihood to be retained

Calculating the Net Auditory Distance

- NAD between two consonants :

$$\text{NAD CC} = |(\text{MOA1}-\text{MOA2})| + |(\text{POA1}-\text{POA2})|$$

- NAD between consonant and vowel:

$$\text{NAD CV} = |(\text{MOA1}-\text{MOA2})|$$

→ Negative numbers are treated like positive numbers

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		affricate						semiV		
p	b			f	v	m		w	labial	1
t	d			s	z	n	l		coronal	2
		dʒ	tʃ	ʃ	ʒ					
				(θ)						
k	g			ɸ		ɲ		j	dorsal	3
						ɰ			radical	4
					(h)				laryngeal (glottal)	5

Calculating preference of clusters

Word-initial CC cluster:

$$\text{NAD (C1, C2)} \geq \text{NAD (C2, V)}$$

Preferred initial CC-cluster:

“In word-initial double clusters, the [NAD] between the two consonants should be greater than or equal to the [NAD] between a vowel and a consonant neighbouring on it.”

(Dziubalska-Kořaczyk & Zielińska, 2011, p. 56)

Example for calculation of initial CC cluster /st/

$$\text{NAD } /st/ = |(3-4)| + |(2-2)| = 1$$

$$\text{NAD } /tV/ = |(4-0)| = 4$$

$1 < 4 \rightarrow$ cluster is dispreferred

[preferred: $\text{NAD } (C1, C2) \geq \text{NAD } (C2, V)$]

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Preferences of English clusters lost in Krio

cluster	Preferred
/vr/	x
/θr/	x
/θj/	x
/θw/	x
/sr/	x
/sf/	
/sv/	
/ʃl/	x
/ʃw/	x
/ʃm/	x
/ʃn/	
/hj/	x

Total: 12 clusters

→ 9 preferred

→ 3 dispreferred

Preferences of English clusters also occurring in Krio

cluster	Preferred
/pl/	x
/pj/	x
/tj/	x
/tw/	x
/kl/	x
/kj/	x
/kw/	x
/bl/	x
/bj/	x
/dj/	x
/dw/	x
/gl/	x

cluster	Preferred
/gjl/	x
/gw/	x
/mj/	x
/nj/	x
/lj/	x
/fl/	x
/fj/	x
/vl/	x
/vj/	x
/sl/	x
/sj/	x
/sw/	x

cluster	Preferred
/sp/	
/st/	
/sk/	
/sm/	x
/sn/	

Total: 29 clusters

→ 25 preferred

→ 4 dispreferred

Summary of Results

	English	Krio
Total number of initial CC clusters	49	43
Initial cluster of English origin (K)	-	40
Initial clusters of substratal origin (K)	-	3
Number of preferred CC clusters	42	36
Number of dispreferred CC clusters	7	7

- Vast majority of English clusters is preferred
- Some clusters are reduced in Krio, e.g. *stand up* becomes *tinap*, still the cluster /st/ exists in Krio
- Other clusters are replaced in accordance with Krio's phonemic inventory, e.g. all Cr that are replaced by Cɸ which are actually more often dispreferred (resulting in higher percentage of dispreferred clusters in Krio than English)
- Some dispreferred clusters are replaced by preferred ones, e.g. *spoil* becomes *pwɛl* where /sp/ is dispreferred and /pw/ preferred

Further Research

- Frequency of individual clusters: Are there any tendencies for the dispreferred clusters to be used less frequently than preferred ones? (Corpus work)
- Older data on Krio: Were there less clusters in the past? Or more?
- What about other (younger) creole languages? Creoles with other lexifiers (e. g. Dutch, French, Portuguese)?
- What about medial and final clusters?
- Sociolinguistic factors: Lower prestige of Krio in comparison to the official language which is English. Does this have an impact on Krio? (Hypercorrection, use of acrolect rather than basilect etc.)

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