SUPRASEGMENTAL PHENOMENA IN JAMAICAN CREOLE

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

David L. Lawton

1963

THESIS

This is to certify that the

thesis entitled

SUPRASEGMENTAL PHENOMENA IN JAMAICAN CREOLE

presented by

David Lloyd Lawton

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in English

William W. Heist
Major professor

Date May 9, 1963

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SUPRASEGMENTAL PHENOMENA IN JAMAICAN CREOLE

By

David L. Lawton

AN ABSTRACT OF A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of English

1963

ABSTRACT

SUPRASEGMENTAL PHENOMENA IN JAMAICAN CREOLE

By David L. Lawton

In Jamaican Creole, unlike 'standard' dialects of English, tone is lexical in a few minimal pairs. Tone levels are significant rather than tonal contours within the tonemic system. The domain of tone is the syllable, not the phrase. The tonemes are high-falling, high-level, and low-level. Each utterance, whether it be a single lexical item or a series of lexical items in linear sequence, is characterized by one of two contours not primarily a part of the tonemic system. These tone contours are stylistic variants and are characterized in the one instance by a fall from the utterance-final toneme, and in the other by a rise from the utterance-final toneme. The style contour (intoneme) basic to Jamaican Creole is a rising one. It always occurs before final pause.

Attitude of speaker is indicated by total key shifts of entire utterances or parts of utterances within the same context. This type of intonation cannot be analyzed at present because there is no methodology for identifying discrete elements in which total key shifts occur; i.e. we cannot state the exclusive key distribution for a particular 'attitude'.

The terminal contour for both questions and simple statements is the same; but items ('words') ending with a low-level toneme have a high-level toneme substitution in questions. Items with basic high-level and high-falling tonemes keep the same pattern. The result is that questions without question words can be identified only by contrast. Speakers of standard dialects of English are often much confused by the apparent failure of speakers of Jamaican Creole to discriminate between 'question' and 'statement'.

Stress is not phonemic in Jamaican Creole; it does not keep apart minimal items. There is emphatic stress, however, which is part of the metalinguistic system. Speakers oriented toward a stress system often confuse tone with stress.

The implications of this study are that Jamaican Creole, as a 'dialect' of English can only be fitted into an overall pattern if we are willing to include a dialect that has tone registers with some intonation overlap, and if we include a stylistic tone contour as a part of an intonation system. We must also be willing to include within our overall pattern for English a dialect in which stress is nonphonemic. Thus our analysis may point the way to an emphasis on functional elements (suprasegmentals) of language that have not been fully explored, and whose systematic presentation might offer an implicit approach to the study of all creolized languages as separate languages rather than as dialects of a 'matrix' language.

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ACKNOWLEDGMENTS AND INTRODUCTION

In attaining any goal, it is seldom that an individual succeeds unaided. The development and completion of this work is something I have contemplated for many years, but the spark was lit in a class on English sounds conducted by Professor William Heist in the summer of 1956.

A United States citizen, I had lived for ten years in Jamaica from my eighth to my eighteenth year, returning to the States in 1943. I visited Jamaica again in 1946 and in 1948 to assess the possibilities for research in Jamaican Creole, but it was not until the spring of 1959 that I was able to arouse sufficient interest in my proposed research so that I could hope for some financial assistance.

In the spring of 1959, I attended a conference on creole linguistics at the University College of the West Indies at Jamaica. The conference was sponsored by the Rockefeller Foundation and attended by well-known scholars in creolized languages, among whom were F.G. Cassidy of the University of Wisconsin; Robert A. Hall, Jr., of Cornell University; Albert Marckwardt of the University of Michigan; Douglas Taylor of Dominica; John Berry of the School of Oriental and African Studies, University of London; E. Bagby Atwood of the University of Texas; Jan Voorhoeve of the Bureau of Linguistic Research in Surinam (University of Amsterdam); and R.B. LePage of the University College of the West Indies, chairman of the conference.

In the summer of 1959 (subsequent to the conference) I returned to Jamaica to carry out my field work with the help of a grant from the Woodrow Wilson Foundation made possible through the recommendation of Professor R. B. Nye. During my three months in Jamaica, the University

College allowed me full use of its facilities, which included an excellent library and a Telefunken tape recorder. I travelled throughout the whole island to check for significant tonal variation from area to area before beginning my work with informants.

My informants were Mr. Arthur Wild, Mr. Brooks, and Mr. Gentles, all of Irish Town in the St. Andrew hills; Mr. Harris of Moore Town, and Mr. Lee of August Town, St. Andrew. Mr. Wild was an old man of about seventy-five, and had worked for several previous scholars, including Professor DeCamp, as an informant. He was bilingual in Creole and Standard English, and rather sophisticated linguistically for an informant though unable to read and write. Mr. Brooks and Mr. Gentles were about thirty years old, semiliterate, and had had infrequent contact with speakers of noncreolized dialects of English. They were semibilingual in Jamaican Creole and Standard English. Mr. Lee was my principal informant. He was about thirty years old, semiliterate, and had had the least contact of the five men with noncreolized dialects of English. Unlike the others, he had never before been an informant. All my informants were laborers.

During the research itself and since its termination, besides Professors William Heist and Robert Geist, who have carefully read my work and made many timely suggestions, I have had encouragement and assistance from several people. The generous and thoughtful criticisms of Professor John Street, under whom I did my work in descriptive linguistics, saved me from many pitfalls. Professor R.B. LePage of the University College of the West Indies kindly extended to me the facilities of the University College. Others who have been generous with advice and encouragement are Professor F.G. Cassidy of the

University of Wisconsin, whom I met in Jamaica while he was completing Jamaica Talk and putting together his Dictionary of Jamaicanisms; Professor David DeCamp of the University of Texas; Professor John Berry of the School for African and Oriental Studies at the University of London; Mr. Charles Elliott of the University of Michigan, a structural linguist and a close friend; and Professor Kenneth L. Pike of the University of Michigan. Father A.M. Jones of the University of London made a tonometer analysis of representative magnetic recordings from my speech samples and generously supplied me with the results.

LIST OF SYMBOLS; RELATED MATTERS

1. [ ] = phonetic brackets for cited data

/ / = phonemic slant lines used for all '-emic' items

CV = any consonant, any vowel, respectively. The sequence may be reversed or expanded; as for example, CCVC, CVCV, VVC, VCVC, etc.

* = hypothetical linguistic form

´ = high-falling toneme

- = high-level toneme

` = low-level toneme

↑ = terminal contour (intoneme)

> = becomes

~ = similar to

≈ = equal to

↘ = falling tone glide

↗ = rising tone glide

= terminal pause

2. Contrastive units of pitch are TONEMES.

Tonemes may occur on a syllabic vowel or on a syllabic consonant and are inherent in the lexical form of the word and its syllable or syllables.

2.1 When the pitch of a syllable neither rises nor falls during production within the limits of perception, the tone is said to be a LEVEL TONEME.

2.2 Any language that has pitch (tone) contrasts between level tonemes has a REGISTER SYSTEM.

2.3 Tonal features of an accentual system that indicate 'attitude of speaker' without changing lexical meanings are INTONEMES. The tonal members of an intoneme are allointonemes. Allointonemes are to a toneme what an allophone is to a phoneme.

2.4 If in two languages A and B, A has a fully tonal system and B a fully intonal system, A is said to be a TONE language, and B an INTONATION language. If language C shares some significant features of A and some significant features of B, it is said to have OVERLAP.

3.0 'When in any syntactic or morphological construction, one member can be removed and have substituted for it a different item, the undisturbed portion of the construction is the substitution frame and the exchanged portion ... the substitution item'. (Kenneth L. Pike, Tone Languages, 50.).

4.0 Since this is a scientific linguistic study, its stylistic format generally follows the injunctions laid down in the LSA Style Sheet, Language, (July-September 1962), 38:3, part 2, 3-7, except where the regulations of the University specify otherwise.

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0. The use of the term creole raises questions about its application to a language or dialect[1] and the essential linguistic features that differentiate creoles from pidgins and artificial languages.

By definition, 'a pidgin is nobody's native language',[2] and as such is differentiated from an artificial language by being created 'under the pressure of practical circumstances in a bilingual situation [rather than] by a scholar sitting quietly in his study'.[3] A creolized language, on the other hand, is a language formed from a pidgin; i.e. speakers of different 'first languages have taken a pidgin as their common language and have raised children for whom it is native'.[4] Such is the case with Jamaican Creole, which derives from English in contact with West African languages, of which Twi seems to provide the largest number of non-English words. Jamaican Creole is spoken in Jamaica, the third largest of the islands in the Greater Antilles, by the majority[5] of the almost two million inhabitants, many of whom are semibilingual[6] in Jamaican Creole and Standard English, and descended from language communities in which Twi, Mende, Mandinka, Ewe, Igbo, Efik, Yoruba, Kongo, and possibly Swahili were spoken.[7]

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[1] Both language and dialect are defined as a 'collection of more or less similar idiolects'; a 'dialect is just the same thing with this difference: when both terms are used in a single discussion, the degree of similarity of the idiolects in a single dialect is presumed to be greater than that of all the idiolects in the language'. See C.F. Hockett, A Course in Modern Linguistics (New York: Macmillan Co., 1958), 322.

[2] Hockett, 423.

[3] Hockett, 422.

[4] Hockett, 423.

[5] R.B. LePage and David DeCamp, Jamaican Creole: Creole Language Studies (London: Macmillan Co., ~~Ltd. 1960), I.117-8.~~

Jamaican Creole is distinguished from Standard Jamaican English, the dialect spoken by educated Jamaicans in the community, by three specific linguistic features: morphology, syntax and suprasegmental phenomena. Of the syntax, F.G. Cassidy writes that

> the most striking differences between the folk speech [Jamaican Creole] of Jamaica and the educated speech are not in the sounds, still less in the vocabulary—they are in the grammar, the functional patterns into which the words fall. It is also in this respect that the most fundamental influence from African backgrounds is to be seen, and that is why Jamaican folk speech is not a dialect in the same sense that the rural speech of Devonshire or Lancashire . . . are dialects of English. Those who would hold that Jamaican folk speech is not to be considered a type of English at all, but a new and different language,will find their strongest arguments here.[8]

---

[6] The degree of mutual intelligibility between speakers of Jamaican Creole who speak it from birth but understand Standard English (Jamaican Standard), and those who have heard Jamaican Creole from birth but speak Standard English has never been statistically established. It seems more accurate to use 'semibilingual' than 'bilingual' in accordance with Hockett's criteria in A Course in Modern Linguistics, 327. Hockett writes that 'Each speaks his own personal variety of his own language, but has learned by experience to understand the speech patterns of the others.'

[7] R.B. LePage, 'General Outlines of Creole English Dialects in the British Caribbean', Orbis: Bulletin International de Documentation de Linguistique, 6:2, 1957, 380.

[8] F.G. Cassidy, Jamaica Talk, (London: Macmillan Co., Ltd., 1961), 49.

The suprasegmentals reveal an accentual system[9] in which tone is functionally different from that of Standard English.[10] No structural analysis of Jamaican Creole suprasegmentals is extant.

This study is an analysis of the suprasegmentals of Jamaican Creole with special emphasis on tone and its role. So far, the published work on Jamaican Creole has dealt only cursorily with suprasegmental phenomena and not with their use in a structural frame.[11] Opinions on the difficulty of making a tonal analysis vary. One scholar suggests that the special services of an Africanist are needed;[12] another feels that the study of tonal phenomena is so difficult that 'angels might well fear to tread'.[13] Bibliographies are hardly helpful since relevant scholarship contains nothing of any consequence on the suprasegmentals, and dates only from 1957.[14]

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[9] 'Accentual system' refers either to that of a stress language exemplified by English and Spanish or to that of a tone language exemplified by Cantonese and Twi, in which 'most syllables in context carry one or another of a small set of contrasting tonal contours, and even monosyllabic utterances show some of the contrasts'. See Hockett, 100.

[10] Cassidy, 26-33.

[11] LePage and DeCamp, 137-9.

[12] LePage, 384.

[13] Cassidy, 30.

[14] R.B. LePage's 'General Outlines of Creole English Dialects in the British Caribbean' is the first scholarly publication to offer a scientific sketch of Jamaican Creole phonology and grammar based on English methodology; it contains nothing on the suprasegmentals and is therefore not directly helpful to my analysis.

Of two studies recently published, Jamaican Creole by R.B. LePage and David DeCamp deals largely with the ethnic makeup of Jamaica and the historical linguistic milieu. A short section of the work lists the segmentals, gives some tonal phonetic data, and barely touches the grammar. F.G. Cassidy's Jamaica Talk, the other study, is directed largely at a lay audience. The first four chapters discuss historical matters, pronunciation and grammar. The rest of the book treats vocabulary items, their etymology and relevance to Jamaican life. Professor Cassidy gives many phonological details, although naturally enough, does not present them in the format of a structural grammar.

A detailed description of the phonology has been in preparation for some time, but none of it has yet been published.[15] Soon to be published is an etymological dictionary of Jamaican Creole and a sketch of Jamaican grammar.[16] At the LSA conference in December 1961,

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[15] LePage mentions a detailed study of Jamaican Creole phonology by V.L. McLoskey in his 'General Outlines . . .' The study still has not been published so far as I know. It is not readily available to anyone, nor do I know whether it is intended as a thesis or as a separate scholarly publication.

[16] Information in a letter to me from Professor F.G. Cassidy in which he says the dictionary will be published by the Cambridge University Press (England), but not before 1963-64. The sketch of Jamaican grammar will probably be published in Orbis by Mrs. Beryl Bailey as soon as it is finished.

Professor DeCamp in a paper entitled Diasystem vs. Overall Pattern: the Jamaican Syllabic Nuclei[17] presented the syllabic nuclei according to a dialect theory postulating three dialects of Jamaican English and offering intrastructural rules for going from one dialect to another. A complete review of work done on Jamaican Creole up to 1959, together with work in progress, is given by F.G. Cassidy in American Speech.[18]

1.0 The problems of tonal analysis in Jamaican Creole are similar to those in any linguistic analysis in which the main concern is suprasegmental phenomena. Of utmost importance are the selection of an adequate corpus,[19] the method of gathering and collating, and the determination of the structural elements of the dialect from the data.

The adequacy of a corpus does not rest on vast, random sampling, but on a selective sampling based on the analysis of specific linguistic phenomena--which, in this instance, is primarily tone. As H.A. Gleason aptly puts it,

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[17] In a letter dated February 23, 1962, Professor DeCamp tells me his plans for publication of the paper are uncertain. See Appendix (16.0) for extracts from the letter and the diagram of his proposed treatment of syllabic nuclei.

[18] XXXIV(October 1959), 163-71.

[19] 'The stock of recorded utterances constitutes the corpus of data, and the analysis which is made of it is a compact description of the distribution of elements within it'. See Zellig Harris, Structural Linguistics, (4th ed.; Chicago: University of Chicago Press, 1960), 12.

> A sufficiently large corpus of randomly gathered material would seem to meet this need [an adequate corpus]. But there are difficulties. Some grammatical features are quite infrequent. An unplanned corpus may have to be extremely large to include adequate representation of these. Others are very common; even a moderate amount may exemplify these far beyond what is required to establish or confirm an analysis. Vast amounts of unneeded data can only complicate recording, filing, searching, and all the other processes involved in analysis . . . A linguist, therefore, strives to obtain a corpus that will be representative in the minimum total bulk.[20]

The adequacy of the informants, like that of the corpus, lies not so much in quantity as in selection. The criterion for selection is not how many informants the linguist can find, but the representativeness of their speech. If the validity of the corpus depended chiefly on the number of informants, the analysis of important linguistic phenomena in several languages would be invalid.[21]

The linguist, then, must determine whether or not the informant is a native speaker. He must be able to elicit responses either by speaking the informant's language or by having an informant who can speak his.[22] Obviously, when the linguist is confronted by a language he

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[20] An Introduction to Descriptive Linguistics,(rev.; New York: Holt, Rinehart and Winston, 1961), 196.

[21] The analysis of 'southern drawl' in American speech was made largely from the corpus provided by one representative speaker. See Kenneth L. Pike, The Intonation of American English (7th printing; Ann Arbor: University of Michigan Press, 1958), 105; so was the analysis of Swahili by Zellig Harris. See Harris, 97. See also I. Richardson, The Role of Tone in the Structure of Sukúmu (London: School of Oriental and African Studies, 1959), ii.

[22] 'Phonemic analysis is carried out under varying conditions. The most favorable ones are when the analyst can work through direct face-to-face contact with a speaker of the language or informant--especially if the analyst and informant both control some language, in addition to the informant's native language that the analyst wants to study'. Hockett, 102.

does not know, he must use his ingenuity in eliciting data until he has mastered the rudiments of the language he is trying to analyze. In general, "any person past his first years of learning to talk, speaks the language of his community as a 'native' if he has not been away from the community for long periods".[23]

2.0 For ten years I lived in Jamaica, where I attended primary and secondary school. During this period I gained an intimate knowledge of Jamaican Creole, and participated fully in the social and linguistic life of the community. This experience aided me greatly in the selection of informants for this study. Often people who have lived for years in Jamaica will maintain that they neither understand nor speak Jamaican Creole, and even native-born middle class Jamaicans will deny emphatically that they can speak it. All such assertions should be accepted with reservations, since in Jamaica knowledge of Creole tends to be equated with low social status. (It is quite true that some people cannot speak Creole well, but they certainly understand it well enough to communicate with servants and workmen.) If an individual claims, however, that he is not a native speaker of Jamaican Creole, his claim may be valid, since it is not necessary to be a native speaker to be able to speak and understand a second language or dialect. Thus, in Jamaica the selection of informants requires not only an adequate command of Creole, but an understanding of the implications Jamaican Creole has for the residents of the Island as an indicator of social level. My early experiences equipped me to handle both aspects of the problem.

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[23] Harris, 13-4.

2.1 One of the major difficulties of suprasegmental analysis in Jamaican Creole has been the working out of a methodology for determining distinctive tones. Free conversation itself can serve only as a check on minor phonetic features, since it does not provide a rigidly controlled context. Such a context demands brevity and repetition of similar utterances to avoid stylistic variations of speech that may be confused with significant features. Unfortunately, few scholarly works contain an explicit methodology.

Kenneth L. Pike's Tone Languages contains the most detailed and clearly outlined procedures for the analysis of tone languages. His work, of course, derives largely from analyses of Mexican Indian languages which have proved to be tonal. Zellig Harris's Structural Linguistics does not pretend to give detailed procedures for field work, nor provide a detailed plan for obtaining data, but serves 'as a reminder in the course of the original research, and as a form for checking or presenting the results . . .'[24] Although Harris's systematic methodology applies equally well to segmental and to suprasegmental phenomena, his statements are oriented toward scholars familiar with mathematical logic rather than to the Bloomfieldian linguistic tradition implicit in Trager and Smith's Outline of Structure. Harris writes that it is 'more convenient to consider the elements as purely logical symbols, upon which various operations of mathematical logic can be performed'.[25] For specific work with suprasegmental phenomena in Jamaican Creole, neither the detailed and generally explicit procedures of Pike nor the

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[24] Harris, 2.

[25] Harris, 18.

'mathematical logic' of Harris offers more than an outline. Each language presents its own problems, and requires its own answers.

2.2 Quite apart from the problem of designing an adequate methodology is the attitude of some scholars toward suprasegmental analysis. If the analysis of suprasegmental phenomena generally has been complicated by a lack of precedent, it has also been complicated by certain prevailing attitudes toward such analyses:

> The great majority of present-day linguists fall into one or more of a number of overlapping types: those who are convinced that tone cannot be analyzed, those who are personally scared of tone and tone languages, generally, those who are convinced that tone is merely an unnecessary marginal feature in those languages where it occurs, those who have no idea how to proceed with tone analysis, those who take a simplistic view of the whole matter.[26]

Gleason goes on to point out that 'even experienced linguists commonly know no more of the range of possibilities in tone systems than the over-simple distinction between register and contour languages . . . It is worth pondering that very little has been published on any phase of field techniques in linguistics'. Of pertinence to Jamaican Creole is his statement that 'tone and intonation often become seriously intermeshed . . . But no other two phonological systems are as difficult to disentangle as are tone and intonation in some languages'.

2.3 I have assumed that suprasegmental features can be analyzed following Pike's general methodology in his Tone Languages. Syntactic substitution frames are used extensively for test items of the same form class varying in phonetic shape. The purpose of substitution frames is to provide a constant against which to test the relative pitch level of morphological forms. Not only are substitution frames valuable for discovering significant tones, whether tonemic or intonemic, but also for controlling significantly the changes of key which frequently occur in free discourse.[27] The checking of contrastive tones is also made simpler.

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[26] H.A. Gleason, review of The Role of Tone in the Structure of Sukúmu, by I. Richardson, Language (April-June, 1961), 37:2, 302.

We can make a final check on the accuracy of frame analysis by finding pairs of words which differ in relative pitch and meaning, although sometimes these pairs may not be as definitive as frames in identifying tonal contrasts. When members of the same form class are drawn from the substitution list and grouped according to relative height of pitch as low, mid, high, falling and rising, we can use the working procedure in which a few dozen representative forms are examined from each group. Identifying the relative height of tones depends on finding a frame that has a stable high-level toneme or a low-level toneme. We assume that a frame of approximately ten syllables will have one or more high syllables. Much of the methodology is implicit in the analysis dealing with the identification of significant tones.

---

[27] "The general key or octave, or general 'pitch of the voice' may change and force a change of all the syllables and tonemes in the phrase. At one time the informant may speak in a high voice and at another time in a low voice . . . The attempt to fix a certain auditory note for establishing a comparison of absolute height with other tonemes won't work. The change in key may make the conclusions false by the investigator's postulating too many tonal contrasts". Pike, 27.

3.0 The segmental phonemes of Jamaican Creole are taken from DeCamp's list; /v/ and /h/ are omitted.[28]

/p/	/t/	/č/	/k/
/b/	/d/	/ǰ/	/g/
/f/	/s/	/š/	
	/z/		
/m/	/n/		/ŋ/
	/l/		
	/r/		
/w,j/			

The patterned arrangement of consonant phonemes follows Hockett.[29] The vowel phonemes,[30] as I have analyzed them, are

/i/		/u/
/e/		/o/
	/a/	

Diphthongs: /i̯e/, /u̯o/
/ai̯/, /ou̯/

---

[28] Appendix, 19.0.

[29] Hockett, 60.

[30] Appendix, 23.0.

4.0 Frame-word sequences for identifying tonemes fall into the following syntactic patterns:

.1 Word sequence, test item, word sequence

.2 Word sequence, test item

.3 Test item, word sequence

.4 Test item in isolation

An example of items from the substitution list is given in each syntactic frame, and is fully representative of the phonetic shape of all items of its form class. The items used are listed to the right of each frame for easy identification. Tones are represented phonetically by placement above or below the normal linear level of the items. Falling tones are illustrated by a repetition of the vowel or syllabic consonant wherein the falling tone occurs. The frame is given with tonemes marked.

4.1 Examples of test items are /bula, mata, sintiŋ, ruoti, at, at, pitieta, kasada, dalambat, talawa, kotaku/.

[^{dibu}laafimi]	/dībūlààfīmì/ 'The bula is for me'
[^{dima}ataafimi]	/dīmátààfīmì/ 'The mortar is for me'
[^{disin}tiŋafimi]	/dīsīntìŋàfīmì/ 'The thing is for me'
[^{diruo}otiafimi]	/dīruótìàfīmì/ 'The ruoti is for me'
[^{diat}afimi]	/dīātàfīmì/ 'The hat is for me'
[^{dia}atafimi]	/dīátàfīmì/ 'The heart is for me'
[^{dipitie}etaafimi]	/dīpītiétààfīmì/ 'The potato is for me'
[^{dikasa}adaafimi]	/dīkāsádààfīmì/ 'The casava is for me'
[^{didalamba}atafimi]	/dīdālāmbátàfīmì/ 'The dalambat is for me'
[^{ditala}waafimi]	/dītālāwààfīmì/ 'The strong [one] is for me'
[^{diko}ta^{ku}afimi]	/dīkōtàkūàfīmì/ 'The basket is for me'

4.2 Test items are the same as in 4.1.

[afimidi^{bu}la]	/àfìmìdìbūlà/	'The bula is for me'
[afimidi^{ma}ata]	/àfìmìdìmátà/	'The mortar is for me'
[afimidi^{sin}tiŋ]	/àfìmìdìsīntìŋ/	'The thing is for me'
[afimidi^{ruo}oti]	/àfìmìdìruótì/	'The ruoti is for me'
[afimidi^{at}]	/àfìmìdìāt/	'The hat is for me'
[afimidi^{a}at]	/àfìmìdìát/	'The heart is for me'
[afimidi^{pitie}eta]	/àfìmìdìpītiétà/	'The potato is for me'
[afimidi^{kasa}ada]	/àfìmìdìkāsádà/	'The casava is for me'
[afimidi^{dalamba}at]	/àfìmìdìdālāmbát/	'The dalambat is for me'
[afimidi^{tala}wa]	/àfìmìdìtālāwà/	'The strong [one] is for me'
[afimidi^{ko}ta^{ku}]	/àfìmìdìkōtàkū/	'The basket is for me'

4.3 Test items are the same as in 4.1.

[^{bu}ladounde]	/būlàdoùndè/	'The bula is down there'
[^{ma}atadounde]	/mátàdoùndè/	'The mortar is down there'
[^{sin}tiŋdounde]	/sīntìŋdoùndè/	'Something is down there'
[^{ruo}otidounde]	/ruótìdoùndè/	'The ruoti is down there'
[^{at}dounde]	/ātdoùndè/	'The hat is down there'
[^{a}atdounde]	/átdoùndè/	'The heart is down there'
[^{pitie}tadounde]	/pītiétàdoùndè/	'The potato is down there'
[^{kasa}adadounde]	/kāsádàdoùndè/	'The casava is down there'
[^{dalamba}atdounde]	/dālāmbátdoùndè/	'The dalambat is down there'
[^{tala}wadounde]	/tālāwàdoùndè/	'The strong [one] is down there'
[^{ko}ta^{ku}dounde]	/kōtàkūdoùndè/	'The basket is down there'

4.4 0 Frames

[at]	/āt/	'hat, hurt'
[^{a}at]	/át/	'heart'
[bit]	/bīt/	'bit'
[^{bi}it]	/bít/	'beat, beet'
[sut]	/sūt/	'soot'
[^{su}ut]	/sút/	'suit'
[^{bu}ot]	/buót/	'boat'
[^{li}et]	/liét/	'late'
[^{mo}ut]	/moút/	'mouth'
[^{ma}il]	/maíl/	'mile'

5.0 All phonetically long vowels carry high-falling tone in all contexts. Short vowels carry a tone as high as the first element of the tone on [^{a}at] but there is no tone glide. The tone on short vowels as in [^{at}] is high-level. Hence we can analyze short vowels as significantly high,[31] so that all monosyllabic free morphemes with short vowels may be assigned a high toneme as in /āt/, and all free morphemes with phonetically long vowels a high-falling toneme as in /át/. Complex nuclei also carry high-falling tones as in /buót/ and sometimes a low-level toneme, depending on the phonetic environment (4.3).

Two- and three-syllable free morphemes carry no significantly different toneme pattern in isolation than they do in frames. The frame items themselves remain relatively stable. Substitution items placed in the frames either go tonally higher than adjacent frame items, remain the same height, or drop slightly lower in tone before final pause. Phonetic variation within frames is from two-thirds of a semitone to three semitones, maximum variation. Commonly, variation is about two-thirds of a semitone within short, sentence-type utterances. Wherever a phonetically long vowel occurs, the tone spread is greater and becomes [¯↘] rather than [¯]. Tone glides, however, are phonetic since there are no occurrences of such glides in contrast. The best treatment within a framework of significant tonal contrasts is to regard glides as nontonemic within a level system. The consistent occurrence of high-falling tone with long vowels enables us to describe vowel quantity when we are given the tonemic domain[32] of the syllable in question.

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[31] Pike, 63.

6.0 Looking at the following items, we can now observe the facts supporting the statement in 5.0 about the function of tone with phonetically long vowels. Alternate solutions are presented in the Appendix.

$[^{\text{ma}}\text{ata}]$ > /mátà/ 'mortar'
$[^{\text{ma}}\text{ta}]$ > /mātà/ 'matter'
$[^{\text{tu}}\text{utu}]$ > /tútù/ 'feces'
$[^{\text{tu}}\text{tu}]$ > /tūtù/ 'privates'
$[^{\text{bi}}\text{ita}]$ > /bítà/ 'beater'
$[^{\text{bi}}\text{ta}]$ > /bītà / 'bitter'

The two-syllable free morphemes given above fully represent the distribution of suprasegmental features with phonetically long and short vowels. In each example, the initial syllable carries inherent, audible stress (loudness), and the final syllable, no stress. Stress is fully predictable on initial syllables of all two-syllable free morphemes. High-falling tone occurs with every long vowel whereas high-level occurs with short vowels. Since high-falling tone occurs with phonetically long vowels and complex nuclei, we can treat all long vowels as purely phonetic. This treatment provides a more convenient linguistic statement, since we can thus reduce the number of

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[32] The 'domain' is simply the environment in which something occurs. When we refer to tonemic domain in relation to 'syllable', we mean tone environment. When we refer to syllabic domain in relation to 'tone', we mean syllabic environment.

vowel phonemes to five.[33] Complex vocalic nuclei cannot be similarly reduced, of course, since we cannot predict the vowel glide from the vowel nucleus. Stress has no relevance as a minimal differential feature to keep otherwise identical items apart. Instead, we have high-falling and high-level tones in contrast--/´/ and /¯/, respectively. The assignment of phonetically long vowels to /´/ gives a more complete, consistent, and simpler structural interpretation of the data than has been given by LePage and DeCamp.[34]

The evidence for a low toneme rests on the distribution of tone within the frames I have used, and on the significant differences of tone between otherwise similar items. It is certainly reasonable to expect that where tone is contrastive, some tone will be significantly high, others significantly low.[35] The representative frame of a whole set of frames /di___afimi/ gives /--afimi/ consistently lower in tone than the other members of the syntactic frame, and since substitution items, if they are low toned, do not go perceptibly lower, a low toneme can be assigned to each syllable of the sequence /--afimi/ > /àfìmì/.

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[33] 'If we are confronted with two or more ways of identifying allophones as phonemes, both or all of which equally well meet other criteria, we should choose that alternative which yields the most symmetrical portrayal of the system'. Hockett, 109.

[34] Appendix, 21.0 ff.

[35] Pike, 63.

Other evidence for a low toneme is

[$^{\text{mi}}{}_{\text{e}}\text{ribro}_{\text{un}}$]	/miérībroún/	'Mary Brown'
[$^{\text{mi}}\text{eri}^{\text{bro}}\text{un}$]	/miérìbroún/	'Mary is brown'
[kyaŋgo]	/kyàŋgò/	'can go'
[$^{\text{kya}}\text{aŋgo}$]	/kyáŋgò/	'can't go'
[${}_{\text{ʔi}}{}^{\text{ʔi}}$]	/ìī/	'yes'
[${}^{\text{ʔi}}{}_{\text{ʔi}}$]	/īì/	'no'

Even though we have been fortunate enough to find two minimal pairs and one subminimal pair, such items are not strictly necessary for setting up significant features--in this instance, tonemes. Criteria such as frames, for example, would prove adequate. Conceivably, we may not be able to find minimal pairs in a language; it may even be theoretically possible for a given language to have no truly minimal pairs. Gleason writes that it is 'conceivable that extensive search might fail to uncover any minimal pairs for two closely similar sounds. In some languages, minimal pairs are much more difficult to find than is the case in English, so much so that the analyst cannot afford to depend upon them. They are by no means necessary, but merely the most definitive evidence when they can be found. Other methods can, however, provide a quite reliable analysis'.[37]

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[37] Gleason, An Introduction to Descriptive Linguistics, 25.

In Jamaican Creole tonemes are clearly tied in with the syllable nucleus, in most instances the peak vowel, though it is not uncommon to have syllabic consonants as in /s̄mādì/ 'somebody', in which /s/ is syllabic. With phonetically long vowels we have non-phonemic contour overlap.[38] No distinctive status need be given noncontrastive tone glides since they are a constant and predictable feature of a single component.[39] In Jamaican Creole, then, there are three tonemic levels /´/, /¯/ and /`/.

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[38] 'Any language whose tonemes are all to be interpreted in terms of an interrelated system of levels is basically a register-tone type. If, however, glides develop which, though composed of juxtaposed level tonemes, have some characteristic of timing or placement that seems different from the timing or placement of the separate level tonemes, a contour overlap may be postulated for classification'. Pike, 12.

[39] This component is high tone. Another way of stating the same thing is to say that if in every occurrence of A,B,C we have Ay, By, Cy, we may simply set up components A,B,C, since *y* is predictable in the environments given. See Harris, 52ff.

Basic tonemic domains appear in the following statement.

7.0	Tonemic Domain	Syllable	Item	
	/´/	/bát/	/bát/	'bath'
		/fí-/	/fífì/	'whistle'
		/má-/	/mátà/	'mortar'
		/tú-/	/tútù/	'feces'
		/cuó-/	/cuócò/	'chayote'
		/gán/	/gán/	'went'
		/-naíz/	/rēkānaíz/	'recognize'
	/¯/	/mā-/	/māsù/	'lift up'
		/bāt/	/bāt/	'bat'
		/bū-/	/būlà/	'cake'
		/pī-/	/pītiétà/	'potato'
		/kō-/ /-kū/	/kōtàkū/	'basket'
		/tā-/ /-lā-/	/tālāwà/	'strong one'
		/rē-/ /-kā-/	/rēkānaíz/	'recognize'
	/`/	/-là/	/būlà/	'cake'
		/-tà-/	/kōtàkū/	'basket'
		/-sù/	/māsù/	'lift up'

8.0 Since our main concern is not the writing of a complete grammar, but an analysis and systemization of those suprasegmental phenomena that lend themselves to analysis, two important statements should emerge from the total data: a statement of basic patterning and a statement of function.

A linguistic form may be given as 'basic' if its distinctive features allow 'predictablilty in description'.[40] From this statement it would seem that stable linguistic forms in isolation or in context would facilitate a descriptive summary of the tonemic patterning in Jamaican Creole; i.e. we can say, given *a* and *b* as significant entities, if wherever *a* occurs, *y* occurs also, but not *b*, then *a* can be described in terms of *y*, or *y* in terms of *a*. Our choice depends on the greater or lesser complexity of the descriptive statement. We can say very little about the patterning of *b*, for example, unless we can state its distribution. 'Patterning' for tones in some languages can be relevant either to the features of grammatical relations defined, or to class markers; for example, modifier-head sequences having high and low tones--*CV́CV́(modifier)+ *CV̀(head), or nouns with one tone pattern, adjectives with another, and so on.

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[40] 'The criterion for deciding which should be taken as the 'basic' or 'inherent' toneme or tonemic pattern is PREDICTABILITY IN DESCRIPTION. Convenience of description usually dictates the choice of *that tonemic pattern as basic which will most easily allow for the statement of rules predicting how the tonemes will be perturbed elsewhere.* Pike, 75.

In Jamaican Creole tonemes are coterminous with syllables.[41] We refer to these syllables as having certain tonemic domains. Harris points out the linguistic convenience of not setting up 'absolute divisions, e.g. word and phrase, and then [saying] that various relations cross these divisions . . . Instead, the domain of each element, or each relation among elements, is indicated when the element in question is set up'.[42] Tonemic patterning in Jamaican Creole is complicated by stylistic variation[43] which is bound up with tonal features describable as intonation overlap before final pause. There is no toneme change within the system of levels, but a change in the direction of the terminal tone glide which is simply a stylistic variation.

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[41] Pike refers to tonemic syllabic patterning analogous to what happens in Jamaican Creole in a general way: 'A number of European languages have been described as utilizing pitch in the differentiation of meaning of various lexical items, but with the placement of the pitch limited to certain types of syllables [as in Swedish and Norwegian] or to specific places in the word. One must watch for the possibility of significant pitch contrasts which are limited, for example, to stressed syllables, or to long vowels . . . [Some languages] have some characteristics which may eventually lead to the postulation of a new type of tone language or to a slight modification of the present definition of tone languages'. Pike, 14-5.

[42] Harris, 15.

[43] Hockett suggests setting up 'style morphemes' for handling instances of variant forms of the same lexeme, constructions, and sentence types, but does not feel that this solution is entirely convincing. Hockett, 278-9.

9.0 Terminal tone glides are in stylistic alternation for any minimal free form, or any sequence of minimal free forms. We can have [^{ma}ata↗] and [^{ma}ata↘] for the same lexical item. Descriptively, it is simpler to state these forms as the result of operational external sandhi (stylistic variants). They differ in the direction of the final tone contour glide. There is no change in tonemic level. We represent both variants by the examples /brátà↑/ and /mátà↑/ in which /↑/ stands for the style intoneme,[44] in free variation with the distribution [↗] or [↘] before final pause.

The selection of /↑/ is arbitrary and based on the greater frequency of occurrence of the rising terminal contour for 'statement' lexemes.

10.0 The two main tonemic patterns in Jamaican Creole are /´ `/, /mátà/ and /¯ `/, /būlà/. The patterns are determined by frequency of occurence of two-syllable free morphemes, and may be referred to as 'pattern 1' (/´ `/) and 'pattern 2' (/¯ `/). Three-syllable free morphemes, by no means abundant in Creole, fall into three patterns exemplified by /bānánà, pītiétà, kōtàkū, tālāwà/. Exceedingly interesting, however, is what happens when we have free morphemes in construction. High-falling tone remains high-falling, but low-level tone is perturbed to high-level when its domain is the second syllable of a compound. At first, it would seem plausible to postulate a definite and consistent pattern for compounds and modifier-head constructions, but the facts do not bear out such a solution. For example, /gūwè/'go away' has the same pattern as /būlà/ 'cake', but both forms are different by class and function. Initial syllables, syllables with phonetically long vowels, and final syllables of a sequence seem to keep their basic tones; syllables with complex nuclei tend to do the same. Syllables in positions other than those stated have perturbed tones. Examples of perturbed tones are

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[44] 'Intonations [and hence, intonemes] are distributed over phrases, rather than being completed on single syllables--though a single syllable may also constitute an entire phrase, and thus have an intonation applied to it . . . Intonations frequently carry shades of meaning . . . Intonations are extrinsic . . . parts of utterances'. Pike, 15.

/sībl̀/	but	/sībl̄swít/	'kind of orange'
/būlà/	"	/būlākiék/	'cake' (iterative form)
/guâbà/	"	/guâbābòd/	'guava bud'
/pásǹ/	"	/pásn̄bróun/	'type of banana'
/gūwè/	"	/gūwēmàn/	'Go away, man'
/mākà/	"	/mākābākfìš/	'type of fish'

Examples of nonperturbed tones are

/ás/	and	/ásplántǹ/	'type of plaintain'
/pīŋwìŋ/	"	/pīŋwìŋmākà/	'type of thorn'
/ǰākás/	"	/ǰākásāmpà/	'saddle-basket for a jackass'
/kyán/	"	/kyánplánt/	'can't plant'

11.0 Attempts at accurate statements about the function of tone in Jamaican Creole based solely on data from free discourse[45] are extremely difficult to make at the present time, and simply result in phonetic statements, and the postulating of far more levels than the system can feasibly accommodate on a significant level.[46] Speakers of Jamaican Creole often shift freely from one key to another in free discourse without any warning.[47] An example of a possible key shift is illustrated below. To the left of the page are numbers representing 'key' levels, '1' being the highest, with the other numbers in descending order. Significant tone contrasts are marked with the toneme symbols we have been using throughout the paper.

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[45] DeCamp states, after pointing out that 'intonation' has not been analyzed in Jamaican Creole that 'calm conversation, including moderate exclamations, may be analyzed into five relative pitch levels . . . When extremely animated, a speaker may also use two or three higher levels. All levels are much more widely spaced than in American English.' Jamaican Creole, 138. See Appendix for discussion.

[46] 'The attempt to fix a certain auditory note for establishing a comparison of absolute height with other tonemes won't work. The change in key may make the conclusions false by the investigator's postulating too many tone contrasts.' Pike, 27.

[47] 'The general key, or octave, or general 'pitch' of the voice may change and force a change of all the syllables and tonemes in the phrase. At one time the informant may speak in a high voice, and at another time in a low voice.' Pike, 27.

12.0 Key Shift in Free Discourse

'You call that sugar and water.'

Example of 'normal' statement

1.

2. /yūkáldātšūgāāwá
tà↑/

Example of fall to lower key, followed by rise to higher key

1. /yūkál
tà↑/

2. dāt āāwá

3. šūg

Example of abrupt shift of key

1. šūgāāwá
tà↑/

2. /yūkáldāt

Key shifts such as those in the preceding diagram result when the speaker becomes 'emotional', showing anger, joy, or a high degree of excitement. The height of the voice is affected, but there is no significant change in the normal tonemic arrangement.[48] In the first example, the utterance is normal and unemotional. The second example begins on a relatively high key, slides lower, then rises. The third example, using the same utterance, begins on a lower key, but rises abruptly before termination. We cannot, however, attribute any specific emotional 'meaning' to the second in comparison with the third. We cannot analyze this type of intonation resulting from key shifts because we cannot set up accurate controls, nor can we make valid distributional statements.

13.0 A type of intonation which we can analyze is that used to distinguish certain types of questions from simple statements, one speaking style from another. Questions with question words such as /āwēīmāgò ↑/ 'Where is he going?', have the same terminal contour pattern as simple statements: /Īmdoúndè↑/ 'He is down there'. Questions without question words share the same terminal contour / ↑ /, but have / ` / in the final syllable raised to / ¯ / or / ´ /, thus: /Īmdoúndē↑/. But when / ` / is raised to / ¯ / or / ´ /, it is always before final pause. When / ´ / precedes / ` /, / ´ / becomes / ` / in question form. Some examples are

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[48] Pike, 22-5.

/naínaìt↑/	'ninth night'
/naìnaít↑/	'ninth night?'
/dēmdēdè↑/	'They are there'
/dēmdēdē↑/	'Are they there?'

Put another way, we can say that for a question without question word, we have a tone contour rising from / ´ /, and from / ¯ /. For a statement, not only is it possible to have a contour rising from / ` / as the overwhelming majority of statements do, but also a contour falling from a low toneme; for example, [^{bu}la$_{\searrow}$]. The lexemes [^{bu}la$^{\nearrow}$] and [^{bu}la$_{\searrow}$] have the same meaning and are stylistic variants by final contour. These stylistic variants cause a good deal of trouble and, for the speaker of Standard English, result in utter confusion since he associates a rising tonal contour before final pause with 'question intonation'; in Jamaican Creole there may be no question involved at all. Final / ¯ ↑ / and / ´ ↑ / 'question' are unambiguously differentiated from / ` ↑ / 'statement' by tonal contrast, but that / ` ↑ / becomes / ¯ ↑ / when 'statement' becomes 'question', is a difference likely to be unperceived by a stress-oriented listener.

14.0 Although Hockett sees no sure solution for the problem of stylistic variants,[49] there seems to be a real need for one in Jamaican Creole to handle all the data. There are two courses open to us: to treat stylistic variants of tone as belonging to the same dialect,[50]

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[49] Hockett, 279.

[50] 'If linguistic change results in groups of persons between which communication is disturbed, these groups speak dialects of the language'. Bloomfield (ed.). Sol Saporta, 32.

or to treat them as 'shared features' ; that is, given two languages X and Y with Xz and Yz occurring, we can set up z as belonging sometimes to X and sometimes to Y. We could state the relation of z to both X and Y by providing intrastructural rules. For Jamaican Creole this approach seems feasible but outside the scope of this study, since the whole grammar of the dialect would have to be analyzed together with any other related dialect, or dialect in 'contact'. Weinreich refers to what we symbolize as z as 'interference phenomena',[51] which are particularly important in areas where bilingualism or semi-bilingualism is common. Certainly, Jamaica is a rich field for examining languages in contact, with especial emphasis on lexemes whose distribution is the same but whose tonal domains differ. Hitherto, of course, emphasis has been generally placed on segmental features with reference to vocabulary items.[52]

In this study we suggest a shift of emphasis away from the lexico-statistical approach to investigation of the systematic features of suprasegmental phenomena within one creolized language--Jamaican Creole. Our hope is, of course, that similar studies can be made for all creol-

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[51] '. . . Two or more languages will be said to be in CONTACT if they are used alternately by the same persons. The language-using individuals are thus the locus of the contact . . . Instances of deviation from the norms of either language will occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact, will be referred to as INTERFERENCE phenomena'. Uriel Weinreich, Languages in Contact (New York: Linguistic Circle of New York, 1954), 1.

[52] Weinreich.

ized languages. For Jamaican Creole, however, we have a suprasegmental system of three tonemes and one intoneme, no inherent phonemic stress, and a complicated interlocking of stylistic variants. Emotional categories--pain, anger, joy--correspond to complete key shifts for which there is as yet no apparatus for placing them within a systematic framework.

15.0 Assuming Jamaican Creole to be a dialect[53] of English[54] poses several related problems: the nature of an 'overall pattern' for English if we accept the hypothesis of 'overall pattern'; the criterion of mutual intelligibility for related 'dialects' of a single language; and the linguistic apparatus by which we fit related 'dialects' into a single language.

Generally, the idea of an 'overall pattern' for English has been oriented toward lexical and segmental problems of relation, distinctiveness, and patterning.[55] Very little attention seems to have been

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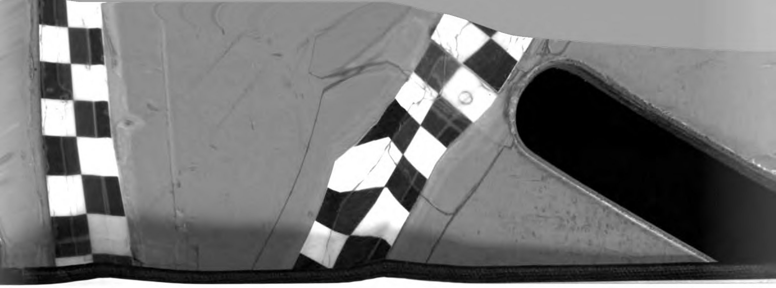
[53] Caught in the difficulty of differentiating 'dialect' from 'language', Weinreich writes: "It is immaterial whether . . . two systems are 'languages', 'dialects of the same language', or 'varieties of the same dialect'. The greater the difference between the systems, i.e. the more numerous the mutually exclusive forms and patterns in each, the greater is the learning problem and the potential area of interference".

[54] 'As for the English part of the vocabulary, it is overwhelmingly the largest: of the more than four thousand Jamaicanisms that this book [Jamaica Talk] records, the non-English element, including mixed compounds, is less than ten per cent; a good ninety per cent are of English origin, though often altered in form'. Cassidy, 397.

[55] Hockett, 334-7.



paid to the function of suprasegmental phenomena within dialects of English except in a cursory way.[56] Hockett even suggests the possibility that French and Italian may be fitted into essentially the same set;[57] i.e. that they may be related to the same overall pattern synchronically. But if we fit Jamaican Creole into an overall pattern of English, we must either attempt to discount tonemic and intonemic overlapping, or we must explain how tonemes can be functional in one dialect of English but not in others. And what happens to segmental grammar where utterances have no segmental structure of predication as in /miérìbroún/'Mary is brown', and other utterances where alternate constructions of the same morphemic elements have the same semantic distribution: /āfīmīdītìn/ : /dītīnāfīmì/ 'The thing belongs to me'? To try to fit Jamaican Creole into an overall English pattern might prove to be more complicated than the pattern itself, and merely obscure the relation of 'dialect' to 'common core'.[58] If we should succeed, however, in fitting Jamaican Creole into this 'overall pattern', granted its desirability, we might then conceivably have no grounds for rejecting such purely tonal creolized dialects as Saramaccan, "the language of a people descended from escaped slaves . . . living along the upper reaches of the Surinam River, in the interior of Surinam. The language is related to the 'Negro English' of the coast

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[56] See Pike, The Intonation of American English (7th printing. Ann Arbor: University of Michigan Press, 1958), 106.

[57] Hockett, 336.

[58] Hockett, 334.

(Sranan) and to the other Bush-Negro languages, Aucaan and Matawari".[59]

We should also have to discard the criterion of mutual intelligibility, since Jamaican Creole, at any rate, is only partly intelligible to speakers of a 'standard' English dialect--who find the process something like identifying a few French words here and there in a large context. The interference with mutual intelligibility seems to result from tonemic and intonemic overlap plus difference in syntax, rather than from difference in lexicon.[60]

The linguistic apparatus for fitting Jamaican Creole into the 'common core' would have to be a series of clearly stated intrastructural or rewrite rules for relating Jamaican Creole to the overall pattern. Possibly, the necessary transformation rules can be worked out, and may provide an interesting problem which a computer system can attempt to solve. It does appear, nevertheless, that much would be lost in an attempt to relate Jamaican Creole to an 'overall pattern'. Sameness would be emphasized where total structures are only tenuously similar and essential differences would be obscured.

The type of analysis attempted in this paper and the particular emphasis on suprasegmental phenomena suggest that Jamaican Creole and other creolized languages may better be classified, not as a part of

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[59] J. Voorhoeve, 'An Orthography for Saramaccan', Word, XV(December, 1959), No.3, 436.

[60] John Lotz writes: 'In Scandinavia . . . Danish, Norwegian, and Swedish, though mutually intelligible, are regarded as different languages because of their political status--whereas Lappish, which includes a number of nonmutually intelligible language communities, is usually counted as one language'. Frontiers of Knowledge, as reprinted in Psycholinguistics, 2.

some central language-- English, French, or Spanish--with which they share, or may share, only certain significant features, but as separate systems of communication, suprasegmentally unique. It is in the function and pattern of tone (and stress where applicable), that creolized languages differ most--Jamaican Creole in the overlapping of tonal levels (tonemes) with tonal, final contours (intonemes). Considering related languages from the systematic structuring of their suprasegmentals might tell us a good deal more about why languages with similar lexicons fail to be mutually intelligible, and why lexicon is not necessarily a reliable and certain index for determining that languages are related.

APPENDIX

16.0 David DeCamp's paper, 'Diasystem vs. Overall Pattern: The Jamaican Syllabic Nuclei', read at the December 28, 1961, LSA meeting is particularly interesting from the viewpoint of the theoretical presentation of the segmentals of Jamaican English, although it neglects to point out what bearing the suprasegmentals might have on vowel distribution and the total vowel inventory. My use of the term 'creole' assumes a narrower and more rigid distinction than he makes. The gist of his thesis is that

> There are some sets of dialects of English which cannot be incorporated into any overall pattern yet proposed. I reject these alternatives: 1. declare dialect M to be 'non-English'; 2. declare all Jamaican to be non-English; 3. expand the overall pattern to twelve vowels, or fourteen, or twenty-six, or whatever it takes to cover all varieties; and 4. scrap the overall pattern in favor of something like Weinreich's diasystems. I reject these and suggest retaining the old three-times-three as a sort of 'kernel', with transformation-like conversion rules to account for the varieties like dialects M and L. These rules are tricky and involve level-mixing, but at least some of the logic involved has been worked out by Chomsky in the Third Texas Conference and in his Logical Structures of Linguistic Theory. Dialect M is the result of Dialect H plus conversion rule number one (applied after the allophonic rules, so that it applies to a mixed string containing both phonemes and allophones). Dialect L is the result of H plus all of the conversion rules.[61]

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[61] Excerpt from a letter to me from David DeCamp at the University of Texas, February 23, 1962.

DIASYSTEM VS. OVERALL PATTERN:

The Jamaican Syllabic Nuclei

David DeCamp The University of Texas December 28,1961

17.0

Dialect H: /i/ /u/ bit book /e/ /ə/ bet bud /æ/ /ɔ/ pat pot	/ih/ /uh/ /iy/ beer tour beat /eh/ /əh/ /oh/ /ey/ bear bird tore bait /ah/ /ɔh/ lard lord	/ay/ /ɔy/ bite boil	/uw/ boot /ow/ toe /aw/ bout
Dialect M: /i/ /u/ bit book /e/ /ə/ bet bud /æ/ /ɔ/ pat pot	/ih/ /uh/ /iy/ beer tour beat /e^h/[62] /o^h/ bay toe /eh/ /əh/ /oh/ bear bird tore /ah/ /ɔh/ lard lord	/ay/ /ɔy/ bite boil	/uw/ boot /aw/ bout
Dialect L: /i/ /u/ bit book /e/ /o/ bet bird bud /a/ pot pat	/ih/ /uh/ /iy/ beer tour beat bay toe bear tore /ah/ lard lord	/ay/ bite boil	/uw/ boot /aw/ bout

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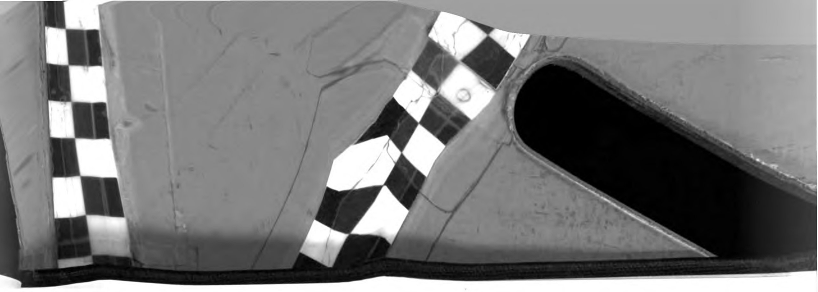
[62] ^ = raised



17.1 PHONEMIC DIASYSTEMS:

$$D_1 : \text{H,M,L} \;//\; \text{i} \approx \text{u} \approx \frac{\text{HL /e/}}{{}_{\text{M}}\text{/eˆ∼e/}} \approx \frac{\text{L /a/}}{{}_{\text{H,M}}\text{/æ ∼ a ∼ ɔ ∼ ə/}} \approx \frac{\text{H,L/o/}}{{}_{\text{M}}\text{/oˆ ∼ o/}} \;//$$

$$D_2 : \text{H,M,L} \;//\; \text{e} \approx \text{o} \approx \frac{\text{H,L /i/}}{{}_{\text{M}}\text{/i eˆ/}} \approx \frac{\text{L /a/}}{{}_{\text{H,M}}\text{/æ ∼ a ∼ ɔ ∼ ə/}} \approx \frac{\text{H,L /u/}}{\text{M /u ∼ oˆ/}} \;//$$

17.2 INTRASTRUCTURAL ALLOPHONIC RULES:

$/e/ + /y/ \longrightarrow /e/ + /y/$ Generalized:[63]

$/e/ + /h/ \longrightarrow /e/\overset{y}{h} + /h/^{e}$ $/P/ + /P^{1}/$ $/P/p^{1} + /P^{1}/p$

$/o/ + /w/ \longrightarrow /o/w + /w/^{e}$

$/o/ + /h/ \longrightarrow /o/\overset{w}{h} + /h/\overset{o}{o}$

17.3 1. $\begin{bmatrix}/y/e\\ /w/o\end{bmatrix} \longrightarrow \begin{matrix}/h/_{y}\\ /h/_{w}\end{matrix}$

2. $\begin{bmatrix}/e/\\ /o/\end{bmatrix} + /h/ \longrightarrow \begin{matrix}/i/\\ /u/\end{matrix} + /h/$

3. $\left.\begin{matrix}/\text{æ}/\\ /\text{ɔ}/\end{matrix}\right\} \longrightarrow /a/$

4. $/\text{ə}h/ \longrightarrow /\text{ə}/$

5. $/\text{ə}/ \longrightarrow \left\{\begin{matrix}/a/ \text{ in instressed [sic] syllables}\\ /o/ \text{ in stressed syllables}\end{matrix}\right.$

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[63] The symbols under 'Generalized' seem to be a rule statement for the phonemic intrastructural 'transformations' under 17.2.

18.0 Although our primary concern is not with a complete listing of phonemes *and* their allophones, a brief discussion of phonetic variations among segmental data would not be amiss. It would not be amiss because there are phones in Jamaican Creole that do not occur in any variety of English which we can call 'standard'. LePage's statement that the consonant system is 'the same as that of RP'[64] obscures the phonetic facts important to the assignment of allophones to their phonemes. DeCamp's approach is to state a 'complete' phonemic list of items for one informant with the comment that "there is no single Jamaican English dialect. Jamaican idiolects range in a continuous spectrum from the speech of the English expatriates to the 'bush talk' of isolated villages".[65] I doubt whether DeCamp would still maintain this position for a structured description. Certainly, there is a good deal of phonetic variation among speakers of different dialects of the same language, but the variations are within the same dialect. Further, DeCamp lists only one allophone for each consonant phoneme:[66]

19.0 /p/ [p], /t/ [t], / č / [č], /k/ [k], /b/ [b],
/d/ [d], /ǰ/ [ǰ], /g/ [g], /f/ [f], /s/ [s],
/š/ [š], /h/ [h], /v/ [v], /z/ [z], /m/ [m],
/n/ [n], /ŋ/ [ŋ], /l/ [l], /r/ [ɹ], /w/ [w],
/j/ [j].

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[64] LePage, *Orbis*, 383.

[65] LePage and DeCamp, 135-7.

[66] LePage and DeCamp, 137.

My list (3.0) does not include /v/ or /h/. DeCamp's listing of /v/ results from his grouping all the dialects of Jamaican English together under the name of Jamaican Creole. Instead of /v/, my corpus has [ƀ] as in [^{lo}ƀa] 'lover'. A letter from DeCamp agrees with my finding not only [ƀ] but [ǥ], a bilabial and a velar fricative, respectively,[67] neither of which is mentioned in DeCamp or LePage. To /b/ I assign [ƀ] because there is no /v/ in Jamaican Creole. Both [b] and [ƀ] are phonetically similar and in free variation. Similarly, both [g] and [ǥ] are phonetically similar and in free variation.

As for /h/, we are faced with setting up a 'floating' phoneme or not setting it up at all for Jamaican Creole, since it may or may not be present before vowels and is often absent where we would expect to find it, as in [^{a}aba] 'harbor'. Its distribution cannot be accurately stated. It may or may not precede vowels and there are no minimal forms in which [h] is distinctive. To set up /h/ for Jamaican Creole, violates the linguistic facts.

Neither /ð/ nor /θ/ is part of the phoneme inventory of Jamaican Creole.[68] If we were to include /v/, which occurs in Standard Jamaican English, then we would logically have to include /ð/ and /θ/, which also are members of the phoneme inventory of Standard. We cannot whimsically include one phoneme and exclude two others by applying one set of criteria to /v/ and another to /ð/ and /θ/.[69]

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[67] DeCamp's letter

[68] Cassidy, 36; LePage and DeCamp, 137.

[69] Missing from Jamaican Creole, /ð/ and /θ/ are also missing from virtually 'all English-based pidgins'. Robert A. Hall, Jr., 'Pidgin Languages', Scientific American, 200:2. 124-34.

20.0 Jamaican Creole shows further variation from Standard English in consonant patterning. In cluster /ny/, /n/ has the allophone /ɲ/;[70] consonants are palatalized before front vowels.[71] Initial clusters /skr, sp, spr, st, str/ from Standard become /kr, p, pr, t, tr/ as in [^{kra}ani] 'scrawny', [^{pwail}] 'spoil', [^{prinǰ}] 'springe', [^{tik}] 'stick', [^{traŋ}ga] 'stronger'. Before nasals, /s/ is often syllabic as in [$^{\text{s̩ma}}$di] 'somebody', but is sometimes followed by a vowel as in [^{si}niek] 'snake'.[72] In alternation before pause are nasals and nasalized vowels. For example, [im] ~ [ĩ] 'he, him', [^{kyã}ã] ~ [^{kya}an] 'can't'.

21.0 The vowel phonemes present problems that previous studies do not seem to have resolved.[73] LePage lists the vowels and their allophones in the following order:[74]

/a/	short, open, central
/aa/	long, open, central
/ii/	corresponds to RP [i]
/i/	" " " [ɪ]
/uu/	" " " [u]
/u/	" " " [ʊ]
/e/	" " " [ɛ]

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[70] LePage and DeCamp, 137.

[71] LePage, 383.

[72] Cassidy, 402.

[73] DeCamp, 135-6; LePage, 382-3.

[74] LePage, 382-3.(LePage uses IPA transcription.).

Rising (stress) diphthongs: /ie/, fies/ 'face'
/uo/, /kuot/ 'coat'
Falling (stress) diphthongs: /ai/, /tail/ 'tile'
/ou/, /mout/ 'mouth'

DeCamp omits /aa/ from his list of vowel phonemes that are otherwise identical with LePage's, but writes that '/a/ regularly occurs both short and long'.[75] It is not clear whether 'short and long' indicate a phonemic distinction or merely a phonetic one.[76]

22.0 We have three clearly possible ways of interpreting the data relevant to a structural description of the 'long vowels' of Jamaican Creole. We can say that all instances of 'long vowels' may be represented as sequences of two short vowels--*aa*, *uu*, *ii*; that 'long vowels' may be accounted for by assigning phonemic status to length (duration)--*ah*, *uh*, *ih*; that 'long vowels' are conditioned by tone and have no phonemic value.

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[75] DeCamp, 136.

[76] B. Siertsema in 'Problems of Phonemic Interpretation, II: Long Vowels in a Tone Language', *Lingua* (1959), VIII, 42-64, discusses the problem of long vowels in Yoruba, and points out that 'long vowels occur', as a linguistic statement, must be carefully delimited before the term 'long vowel' can have any real significance. 'What is to be considered a long vowel in a tone language? Should it have one and the same level tone throughout or can it have a gliding tone? Should it be in one syllable or spread out over two syllables? If it can cover two syllables, should these two syllables be within one word or can we still speak of a long vowel' when its second part belongs to the next part of the text examined?'

If we argue for aa, uu, ii as sequences of short vowels, we would have to show, for example, that the second vowel of the first syllable of maata, buuti, fiifi, 'mortar, boot, whistle' is structurally necessary. Short vowel sequences would provide a good way to analyze the data provided the initial vowel of each pair occurred with one tone, and the following vowel with a variable one. Let us assume by way of supposition *[^{a}a, ^{u}u, ^{i}i] and *[a^{a}, u^{u}, i^{i}] occurring with lexically different morphemes. Obviously, we would have no choice but to set up aa, uu, ii as short vowel sequences to account for the contrasts between *[^{a}a] and *[a^{a}]; *[^{u}u] and *[u^{u}]; *[^{i}i] and *[i^{i}]. But Jamaican Creole, unlike Saramaccan (another creolized language of the Caribbean area), has no contrasts which would justify setting up 'long vowels' as a sequence of short vowels. 'Long vowels' do not occur across morphemic junctures, and the component of length always carries falling tone as in [^{ma}ata], [^{bu}uti], [^{fi}ifi]. To set up */aa, uu, ii/ as significant units would have no explicit or implicit structural value.

Our second option is to assign phonemic status to vowel length so that we have */mahta, buhti, fihfi/ in which h represents length (duration). That falling tone is a consistent feature of the second component of a 'long vowel' may appear to lend this thesis some support. Items such as [^{fies}ti] 'fresh', [^{bwa}il] 'boil' show tone perturbation on vocalic glides. The first example above carries a high-level tone, the second, a high-falling tone. Since tone is variable with monsyllabic vocoids of complex nuclei, we would have a length phoneme for 'long vowels' and would have to distinguish them from vocalic glides with tone perturbation. Our structural statement would

be extremely complex and would reveal neither an accurate nor an adequate picture of Jamaican Creole. The attempt to establish a length phoneme implicitly assumes tone to be phonetic or part of the intonational framework.

If tone were phonetic, we would expect forms such as *[mahta, buhti, fihfi] to represent adequately the significant linguistic features of Creole. An informant should respond favorably to vowel length as '-emic', and vowel length should include all the phonetic features necessary for identification of the cited forms. Unfortunately, vowel length with high-falling tone removed and stress substituted results in unintelligibility. The informants consistently failed to identify the form as Creole. Stress was then placed on the final syllable with the same result--unintelligibility. Speakers of a 'standard' dialect of English almost invariably substitute stress for pitch in Creole and are therefore not understood by native speakers. A length phoneme would certainly not be helpful to someone learning Creole, since length is not significant. If we persisted in setting up a length phoneme, we would be dangerously close to an implicit statement that Creole has neither significant tone nor significant pitch! That informants consistently failed to identify length (duration) as distinctive where tests were made suggests that tone must be considered significant, not vowel length. A length phoneme does not make possible a satisfactory structural statement, since it does not accommodate all the pertinent linguistic data relevant to vocalic nuclei.

If we are 'in accord with the criteria of completeness, consis-

tency, and simplicity'[77], we must postulate a reasonable structural interpretation for the analysis and synthesis of all meaningful data. We find that stress in Creole is no substitute for tone, and that 'long vowels' cannot be satisfactorily analyzed as vowel plus length without obscuring tone function. Our third possible structural interpretation of the phonetic data is to set up tone as '-emic' and vowel length as '-etic'. All 'long vowels' have high-falling tone as in [^{ma}ata, ^{bu}uti, ^{fi}ifi]; usually, high-falling tone occurs with complex nuclei, sometimes high-level, and sometimes low-level tone. By analyzing tone as '-emic' and 'long vowels' as '-etic', a satisfactory if not unique structural interpretation is given. A non-Creole speaker given a form such as /bwana/ and told to place high-falling tone on the vowel of the first syllable will reproduce the utterance clearly enough for it to be identified as Creole by a native speaker. The vowel also becomes phonetically long. The treatment of [aa, uu, ii] as allophones of /a,u,i/ conditioned by tone seems to offer the best structural description of the data for conciseness, simplicity and completeness. The following vowel distribution is shown with appropriate tonemic domains.

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[77] Archibald A. Hill, Introduction to Linguistic Structures (Harcourt, Brace and Company, 1958) 52-3.

23.0	Phoneme	Allophone	Tonemic Domain
	/i/	[ii]	/´/ /fífì/ 'whistle'
		[i]	/`/, /¯/
	/u/	[uu]	/´/ /kûlì/ 'coolie'
		[u]	/`/, /¯/
	/a/	[aa]	/´/ /kwášì/ ' a good-for-nothing person'
		[a]	/`/, /¯/
	/e/	[ɛ]	/´/ does not occur
	/o/	[ʌ]	/´/ does not occur
	/ie/	[i̯e]	/´/, /`/, /¯/
	/uo/	[u̯o]	/´/, /`/, /¯/
	/ai/	[ai̯]	/´/, /`/, /¯/
	/ou/	[ou̯]	/´/, /`/, /¯/

24.0 It is worth our while to consider the mechanical tonometer analysis presented below because of the inferences we can draw. At the same time, we must keep in mind the limited function of a machine analysis.[78] Father A.M. Jones of the University of London has kindly provided me with a statement which I reproduce.

24.1 The reading scale on the tonometer is arranged thus:

a. The whole numbers represent pitches which are a semitone apart. The lower the figure, the lower the pitch. Thus '12 10' means that in this two-syllable word, the first syllable is two semitones (12-10) highdr than the second one: the word thus has this tone-form: ¯ -

b. The fractions are fractions of a semitone. Thus in sentence 1, 'naata' falls through 2¼ semitones.

c. Sliding tones are marked thus: 12¼↘10 means 'slide down from 12¼ to 10'.

The language on the whole appears to have a remarkably small overall range of pitch--much less than English, a feature Professor Berry and I have noticed also in Liberian Creole.

I presume that you want to know the pitch-behaviour of the key words (naata, bula, et.) in the various contexts of the different frames, and I have only taken the pitches of these key-words.

These key-words preserve the same pitches in all the contexts, with a few exceptions noted below. I have therefore given you

---

[78] 'One might think that the tonemes could be analyzed by instruments, inasmuch as precise frequencies can be determined from instrumental records. These measurements are a great help for describing the physical nature of the tonemes after they have been otherwise discovered, but do not contribute greatly to their analysis since (1) it is the relative pitch of tonemes which is significant, rather than their absolute pitch, and (2) tonemes change under various conditions so that the intervals do not remain fixed in such a way that they may be mechanically discovered; instruments merely record gross fluctuation rather than analyzing it in terms of deviations of units within a system'. Pike, Tone Languages, 21.

only the standard reading, taking just one sentence, and occasionally confirming it by noting another. But I worked on the tonometer through all the frames.

The exceptions are these:

a. di naata daun de.
Here, the first syllable of naata is lowered by nearly two semitones: but the parent form of naata, i.e. a falling pitch, is still preserved. On listening to the tape it sounds as if in the frame 'di (keyword) daun de', in every case the keyword loses its first high tone and that both syllables are spoken on a level tone, on the same pitch as 'di'. BUT THIS IS NOT SO. In every case the keyword contains a fall in pitch, though in 'naata' and in 'dopi' the fall is smaller than it is in the other frames for these words.

b. Dopi daun de.
The first syllable of 'dopi' starts 1/3 of a semitone lower than in the other frames for 'dopi'.

c. a fi mi di dopi.
Note that the pitch of 'dopi' is inverted.
I wonder if your speaker thought he was asking a question here? This is the only case in your list of such inversion, with a medium first syllable and a rise and a fall on the second one.

The tonometer Readings

a. NAATA

12¼ 10
mi waan naa - ta

10 2/3 10 2/3 10 10 10 2/3 10 2/3
di naa ta daun de

b. BULA

10 2/3 10
fi mi di bu - la

10 2/3 10
bu - la daun de

c. BUBU

{ 10 2/3 10
fi mi di bu - bu

{di bubu a fi mi
di bubu daun de BUBU has same reading as above

d. DOPI

{ 10 10 2/3 ~ 10 1/3
a fi mi di do - pi

{ 10 2/3 10
di do - pi a fi mi

{ 10 2/3 10
all di do - pi daiya

{10 1/3 ? 10 2/3 10 2/3
do - pi daun de

e. TAAWA etc. (The recording is especially poor for these words)

{12½ ~ 10 2/3
taa wa

{12½ ~ 10 2/3
maa sa

{13 ~ 10 2/3
waa ta

{ 12¼ ~ 10 . . . . (probably; as near as I can
di maa - ta a fi mi see)

{ 13 ~ 10
we yu get di maa - ta fram

{12½ ~ 10 2/3
laa - ta

24.2 The conclusions we can draw from the tonometer analysis largely support the auditory analysis which puts forth an argument for a structural classification of the phonetic tonal data into three tonemes. The facts seem to be in favor of a relatively small tone variation within any utterance; but any utterance may be arbitrarily raised or lowered in total key with astonishing frequency. The tonometer analysis tells us little about stylistic tone contours for a number of possible reasons: there might have been enough loss in the treble range of the taped material, especially at the end of utterances, to obscure slightly rising and falling contours of tone; the tonometer readings are rigorously applicable to substitution items rather than to final frame items; more importantly, the frames were designed to exclude stylistic contours which commonly occur in free discourse.

24.3 The exception to the tonal distribution mentioned in 24.1 (/dopi/), probably derives from the informant's mimicking the investigator's question intonation. The precise circumstances cannot be given. That /dopi/ represents the <u>only</u> instance of tone reversal in all the test frames would seem to support the hypothesis that the informant may have been responding to the investigator's question by mimicking him. There is also the possibility that although the frames were designed to exclude stylistic variation, a final rising stylistic contour intruded.

25.0 Inherent word stress is nonphonemic. Minimal free forms like /pītiétà, kōtàkū, tālāwà/ 'potato, basket, strong', and pairs like /mâtà/ : /mātà/ 'mortar','matter' have inherent phonetic stress in the domain /´/, / ¯ /, / ` / of three-syllable free forms, but initially on two-syllable free forms regardless of tone differences. In three-

syllable free forms, stress occurs medially when preceded by / ˉ / and in the domain / • / as in /pĪTIÉtà/; finally, preceded by / ˋ / and in the domain / ˉ / as in /kōtàKŪ/; initially, in the domain / ˉ / and followed by /ˉ / as in /TĀlāwà/. We can speak of one degree of phonetic stress in comparison with no stress, but no phonemic stress.

Separate from inherent phonetic stress is stylistic, emphatic stress which commonly occurs at the syntactic level. In sentence-type utterances, phonetically long vowels and complex nuclei commonly carry emphatic stress as in /ruózāpĪnōtáplɪ̀/ 'A rose apple is not a star apple'. Emphatic, stylistic stress here falls on the penult, but not on the penult in /āfĪmĪsàmátǹtáwàdèɪ/ 'The tawa belongs to Mr. Martin', where emphatic stress occurs on the third syllable from the end in the domain /ˊ/.

26.0 The short selection which follows is taken from free discourse and illustrates some stylistic features of story-telling apart from the distribution of tonemes and pause boundaries; for example, phrasal redundancy, and the repetition of 'you know', an attention-getting construction. The style intoneme coincides with short breath-group pauses; the double-cross with longer terminal breath-group pauses. Story-telling in Jamaican Creole can call for frequent pause breaks, or it can continue over several sentence-type utterances without any audible pause.

27.0 /mɪstāānánsìnoù ↑ ɪmwōzò ↑ ɪmwōzò ↑ waízmàn ↑ waízyūnuò ↑ #

sɪnsɪbì ↑ # wēmɪsēɪmsēnsibì ↑ ìàsēns ↑ # ɪmābàbɪguòt ↑ # guót ↑

čál↑ # kōmlaíkà ↑ koúkyáf ↑ ɪmānɪmwaìf ↑ # inālyád ↑ #

ɪmwántòplié ↑ dɪtrìkpōnìwaif ↑ šɪwīdɪguòt ↑ noú ↑ ɪmsè ↑

waif ↑ āfílsìk ↑ yūnoù ↑# āfílsìk ↑# āwágōādāktà ↑# ɪmgētúguâbà ↑#

bōfoútdɪtújà ↑# ɪmsèɪmābtútièk ↑ wēnmɪsètútièk ↑ títiék ↑#

dìtúguâbà ↑ bōfoútdɪtújà ↑#/

Mr. Anancy, now, he was a, he was a wise man. Wise, you know. Sensible. When I say sensible, he had sense. He had a baby goat. Goat child. Something like a cow-calf. He and his wife were in their yard. He wanted to play a trick on his wife. She was with the goat, now. He said, 'Wife, I feel sick, you know. I feel sick. I want to go to the doctor.' He got two guavas that pushed out his two jaws. He said he had toothache. When I say toothache, teethache. His two guavas pushed out his two jaws.

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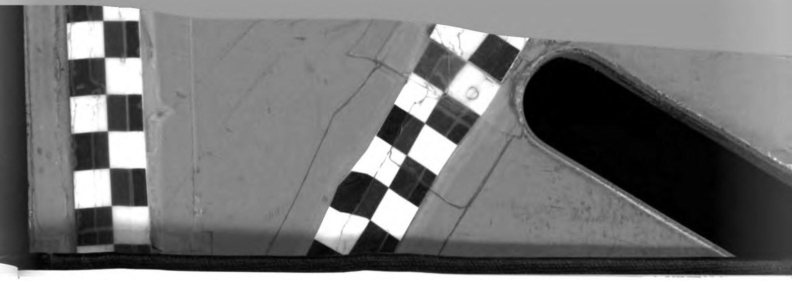

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