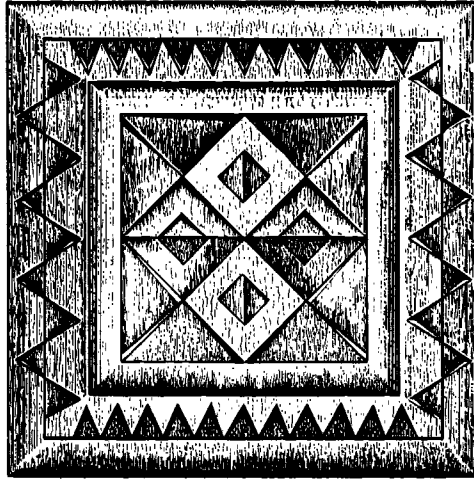


LANGUAGES
OF THE
GUIANAS



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LANGUAGES OF THE GUIANAS

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PREFACE

Team research is well established in science. A coordinated effort is often the best way to do the job where there is much ground to be covered, since nowhere in the world are there ever enough trained people to cover it.

In the Summer Institute of Linguistics we have worked out a pattern for field investigation of little known languages that makes use of the team concept. Usually two people are given the primary responsibility for field work in a language. They learn to speak it by living in a community where it is the main language spoken. They interact with members of the society that speaks that language in everyday life and function as mediators of information from the outside. Along with using the language they are trained to organize information on its phonology, grammar, and semantics for linguistic analysis.

The work of the field investigators is, however, supplemented by that of linguistic consultants who periodically go over the conclusions arrived at in the field with the people who made them. They criticize the work that has been done and help the field worker lay out lines of investigation to follow from that point. They also give assistance in the mundane matters of organization of field notes and presentation of conclusions. Sometimes a consultant works at a field location with the investigators for a period of time. In recent years, since there is usually only one senior consultant available for about every ten field projects of the Institute, it has become common for several investigators and their informants to meet for two to three months in a place that is removed from the ordinary interruptions of life in the bush. In such a field seminar or workshop it is possible to accomplish much.

Most of the papers in this volume came out of such a joint effort. The field work of the Summer Institute of Linguistics in Surinam got under way in the latter part of 1968, under an agreement between the Institute and the Government of Surinam. In February and March of 1969, about the time people had their feet thoroughly wet in their field work, the director of the Institute in Surinam, Joel D. Warkentin, arranged for the editor to conduct a workshop. George and Mary Huttar, Edward and Joyce Peasgood, Naomi Glock, and Catherine Rountree, all members of the Summer Institute of Linguistics, took part. Frances Tracy of the Unevangelized Fields Mission, who had begun the study of Wapishana in Guyana at about the same time

as the Surinam group began their work, was able to participate as well. Hubert and Joanne Traugh of the Pilgrim Holiness Mission in Guyana, working on Guyanese Carib, participated for the first few weeks. Morgan Jones, Ivan Schoen, and others of the Surinam Interior Fellowship of the West Indies Mission, who have made studies of the Cariban languages of the interior of Surinam, were present for a week. The papers by Jones and by Schoen's colleague Jackson were already near final form before the workshop began and were simply gone over for details during the brief time available (which even included some editorial checking by radio after Jones had to return to the Tapanahonij). All the other papers, though based mainly on observations and hypotheses made in the field before the workshop, took their present form during the workshop and include material that was elicited from informants during that period.

Special recognition for excellent handling of the logistic details of having so many people working intensively in one place goes to John and Shirley Larson of the Summer Institute of Linguistics, who took care of everything from visas to baby sitting and thereby made it possible for the participants to devote full time to the seminar. I am also indebted to George Huttar for sharing the consultation with me.

There are four layers of languages in the Guianas. First are the Cariban and Arawakan languages of the aboriginal peoples of the area, represented here by Carib, Trio, Wayana, and Wapishana. Second are the creole languages that came into prominence during that sad epoch when people from various parts of West Africa were forcibly uprooted and brought to the new world as slaves. These were the languages around which the societies of escaped slaves in the interior, represented here by Djuka and Saramaccan, crystallized; others like Sranan and the patois of French Guiana became the informal means of communication in the city-oriented societies of the coast. Third are the languages brought from Asia by contract laborers a century ago after the slaves were emancipated: Javanese, Chinese, and dialects related to Hindi and Urdu. None of this group is represented in this volume, though the changes in each since their transplanting certainly merit special study. Finally there are the languages of commerce and government, of education and wider communication: Dutch, French, English, and to a lesser extent Portuguese, Spanish, and Lebanese Arabic.

This collection is a step toward understanding that linguistic complexity. Further studies are already under way to complete the documentation of the languages on which work has just begun. The Summer Institute of Linguistics also plans to allocate teams of field workers to languages that are not yet being studied, thereby broadening the coverage.

Two of the papers in this volume cover the same area as work done on Saramaccan by Voorhoeve and on Carib by Hoff. Rather than being duplications, however, they build on the earlier studies in a significant way.

First, they give an independent corroboration of most of what the earlier authors said. Second, they call attention to parts of the earlier studies that really needed further work: the relationships among vocoids in the high to mid range, and certain restrictions on segment sequences, in Saramaccan, and the whole question of underlying versus surface phonological form in Carib. In this sense they constitute a healthy critique of the work that has gone before, confirming most of it. Other papers, like the Huttars' evidence on tone in Djuka and Glock's work on semantic relationships in Saramaccan, break new ground.

As a result of the workshop the team of field investigators have also developed a perspective on the pace of their work and on where they need to concentrate their efforts at different phases of it. This should increase the efficiency of their time in the field. Inasmuch as all of them have in mind applied linguistic projects, the teamwork approach they have worked out will help them toward those goals as well.

Joseph E. Grimes
Paramaribo, 30 March 1969

NOTES ON DJUKA PHONOLOGY

George L. and Mary L. Huttar

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0. **Introduction.** The segmental phoneme system of Djuka¹ is described in sections 1. (consonants) and 2. (vowels) of this paper. The structure of syllables (3.) and of feet (4.) is also described, along with the relationships among suprasegmental phenomena. Djuka morphophonemics is discussed only for a narrowly defined set of cases of vowel elision and a limited number of instances of tone sandhi. This description amounts to a statement of the constraints on output phonetic form that a full scale generative grammar must satisfy.

1. **Consonants.** The fifteen consonantal phonemes of Djuka are classified into voiceless unaspirated stops /p, t, k/, voiced stops /b, d, g/, voiceless fricatives /f, s/, nasals /m, n, N/,² voiced lateral /l/, and semivowels /w, y, h/.

Labial stops are /p/ and /b/: paápá 'father', písíí 'pleasure', swáNpú 'swamp', bási 'boss', bigí 'big', aNbáá 'hammer'.³ Coronal stops are /t/ and /d/: tápú 'stop', tíí 'tooth', sáNtí 'sand', dátí 'that', díí 'this', gaáNdá 'grandfather'. Dorsal stops are /k/ and /g/: kátí 'cat', kísí 'catch', gaáNdá 'grandfather', bigí 'big', golíNgó 'Adam's apple'. Dorsal stops are articulated farther forward before front vowels than before central and back vowels: kátí [kati] 'cat', kísí [kisi] 'catch'; gó [go] 'go', gí [gi] 'give'.

Fricatives are labial /f/ and coronal /s/: néfí 'knife', fátú 'fat', mófó 'mouth'; léíí 'lazy', sáfú 'soft', soó 'three-toed sloth (Bradypus tridactylus)'.

Nasals are labial /m/, coronal /n/, and general /N/. /m/ and /n/ contrast syllable initially: mítí 'meet', mányáN 'mango', mófó 'mouth'; kíní 'knee', náíí 'wet', nótó 'nut'. /N/ has allophones [m, n, ŋ]. [m] occurs before labials, [n] occurs before coronals, and [ŋ] occurs foot finally and before dorsals. Except where /N/ constitutes an entire syllable, the occurrence of the phonetic nasal consonant alternates freely with nasalization of the preceding vowel and with the occurrence of the nasal combined with nasalization of the preceding vowel: aNbáá [amba: ~ äba: ~ ämba:] 'hammer',

gaáNdá [ga:nda ~ gā:da ~ gā:nda] 'grandfather', sáNtí [santi ~ sáti ~ sánti] 'sand', waN [waŋ ~ wā ~ wāŋ] 'one'. When /N/ occurs after pause before a consonant, its allophone is homorganic with the consonant that follows, and is syllabic: Npiyé [mpiyɛ] 'small toucan', Ndyuká [ndyuka] 'Djuka', Nkólá [ŋkola] 'snail'.⁴ Its pitch is always low, and therefore not contrastive.

A different allophone of /N/ occurs in the speech of some informants. [m] occurs foot initially before a morpheme boundary in free variation with [n] before coronals and with [ŋ] before dorsals: N-sísá [msisa ~ nsisa] 'my sister', N-gaáNdá [mgaanDa ~ ŋgaanDa] 'my grandfather'.⁵

The lateral is coronal /l/: lébí 'red', láNgá 'long', lóbi 'love'.

Voiced semivowels are labial /w/ and coronal /y/. They occur as syllable onsets. They also follow consonants that are not semivowels within syllable onsets, where they have the phonetic form of labialization and palatalization of the preceding consonant. The distinction between labial, coronal, and dorsal is neutralized before semivowels if a morpheme boundary does not immediately follow the semivowel. /k, g, m/ occur before /w/ only; /t, d, n/ occur before /y/ only:⁶ kwokwó 'type of fish soup', gwáná 'iguana (Iguana iguana)', mwá 'yawn'; tyóbó 'dirty', djakítí 'coat', nyáN 'eat'. In the speech of some informants, [kw] and the dorsolabial double stop [kp] are in free variation as realizations of /kw/, and [gw] and [gb] as realizations of /gw/: kwokwó [kwokwo ~ kpokpo] 'type of fish soup', gwana [gwana ~ gbana] 'iguana'.

Before vowels without a morpheme boundary intervening, /w/ and /y/ also occur after /s/: swítí 'sweet', syéN 'be ashamed'. [sy, ʂ, ʂy] are in free variation as realizations of /sy/: syéN [syɛŋ ~ ʂɛŋ ~ ʂyɛŋ] 'be ashamed'.

/w/ occurs after /t, d, f/ before morpheme boundaries followed by vowels: kukútwáná 'left hand' from kukútú - áná 'left - arm'; údwáná 'branch' from údú - áná 'tree - arm'; fwáíN 'four-eyed opossum (Metachirus nudicaudatus)' from fó - áíN 'four - eye'.

/y/ occurs after /k, m, l/ before morpheme boundaries followed by vowels: tíkyáná 'forearm' from tíkí - áná 'stick - arm'; mye wáká 'I'm walking' from mí - e - wáká 'I - continuative aspect - walk'; bólyeN 'boil it' from bólí - eN 'boil - it'.

Examples of /w/ and /y/ in syllable initial position are wátáá 'water', úwíí 'leaf, hair'; yésí 'ear', fáyá 'fire'.

The voiceless semivowel is general /h/. It is realized as a voiceless vocoid which has the quality of the following vowel: híí 'heap', hé 'paca (Culicunus paca)', hálí 'haul', tohotóhó 'cough'. Foot initial /h/ varies freely with its absence in some stems: hálí álí 'haul', but not in others: híí but not *íí 'heap'.

2. **Vowels.** The five vowel phonemes are high front /i/, mid front /e/, low central /a/, high back /u/, and mid back /o/.

/i/ has allophones [i] and [ɪ]. Only [ɪ] occurs as syllable nucleus before /N/: *siŋgi* [sɪŋgi] 'sing'. Only [i] occurs word finally: *tóli* [toli] 'story', and in postnuclear position: *koí* 'cage'. [i] and [ɪ] vary freely in other environments: *paíkiki* [paikiki ~ paikɪki] 'parakeet', *tíkí* [tiki ~ tɪki] 'stick'.

/e/ has allophones [e] and [ɛ]. Only [ɛ] occurs before /N/: *dyeNbú* [dyɛmbu] 'small vampire bat'. [e] and [ɛ] vary freely in other environments, except that the sequence [e...ɛ] never occurs within a foot: *dédé* [dede ~ dedɛ ~ dede] 'die'.

/a/ has allophones [a] (front) and [ɑ] (back) which are in free variation in all positions: *kátí* [kati ~ kati] 'cat'; *ána* [ana ~ ana ~ ana ~ ana] 'hand'.

/u/ has the single allophone [u]: *buúlú* [buulu] 'blood', *búN* [buŋ] 'good'. /o/ has allophones [o] and [ɔ]. Only [o] occurs before /N/: *djóNbó* [dyombo] 'jump'. [o] and [ɔ] vary freely in other environments: *bó* [bo ~ bo] 'bow', *tóbó* [tobo ~ tobo ~ tobo ~ tobo] 'big pot'. Thus the distribution of the allophones of the back vowels is not analogous to that of the allophones of the front vowels.

The vowels contrast word initially: *ípí* 'many', *édé* 'head', *ána* 'hand', *úúú* 'tree, wood', *ósú* 'house'. They also contrast syllable finally: *tíkí* 'stick', *téké* 'take', *tákí* 'talk', *tú* 'two', *tóli* 'story'.

Phonetic vowel length is phonologically distinctive, and is discussed in 4: *wí* 'we', *ibíí* 'every'; *té* 'when', *téé* 'tail'; *báká* 'back', *bákáá* 'white man'; *fó* 'four', *fóó* 'bird'; *tú* 'two', *túú* 'true'.

In an unstressed syllable before a stressed syllable that begins with a nasal or with a voiceless stop, /sV/ and /s/ alternate freely. In the latter case the phonetic duration of the realization of /s/ varies freely: *sítalí* ~ *stáli* [s:tali, s:'tali] 'star', *sinéki* ~ *snéki* [s:neki, s:'neki] 'snake'.

The sequence /sV^lC/, where C is /p, t, k, m, n/, arises from the borrowing of words which have the sequence /^lsC/ in the source language: English *star* > *sítalí*, English *snake* > *sinéki*. The epenthetic vowel occurring after the /s/ in the Djuka word is always /i/ or /u/. Its quality is determined by the other vowels in the word. If the following vowel is /u/, the epenthetic vowel is /u/: *sukuúfú* 'screw' (Dutch *schroef*). If the preceding and following vowels are both /o/, the epenthetic vowel is /u/: *bósúkópúmaN* 'messenger' (Dutch *boodschap*). Otherwise, the epenthetic vowel is /i/: *sikóó* 'school' (Dutch *school*), *sikiífi* 'write' (Dutch *schrijven*), and the examples in the preceding paragraph.

The tone on these epenthetic vowels is always low in their underlying forms, and therefore not contrastive.

3. Syllables. The syllable types are represented in the following two formulas:

1. (C) (Y) V1 (V1) (V2) (N)
2. S.

C is any consonant except /N/, Y is /w, y/; restrictions on CY sequences are given in 2. V1 is any vowel; V2 is either a front or a back vowel. The contrast between high and mid vowels is neutralized in V2 position. The high back /u/ and the mid back /o/ are in free variation, although /u/ is more frequent. The high front /i/ occurs to the exclusion of the mid front /e/. Syllables containing all three postnuclear elements have not been found. The following examples illustrate syllable types represented in formula 1.: CV1 *gá* 'arrow', CYV1 *mwá* 'yawn', CV1V1 *soó* 'three-toed sloth', CYV1V1 *tyáatyí* 'type of wild cat', CV1V2 *fáú* 'be unconscious', CYV1V2 *tyái* 'carry', CV1N *máN* 'man', CYV1N *dyeNbu* 'small vampire bat', CV1V1N *beéNki* 'shine', CYV1V1N *nyuuNdú* 'otter', CYV1V2N *fwáiN* 'four-eyed opossum', V1 *akísí* 'ax', YV1 *wátáá* 'water', YV1V1 *awáá* 'fruit of palm (*Astrocaryum segregatum*)', V1V2 *aukánísí* 'Aukan (Djuka)', YV1V2 *wai* 'wave', V1N *súéN* 'swim', YV1N *waN* 'one', V1V2N *áiN* 'eye', YV1V2N *awaiNgó* 'type of turtle', CV1V1V2 *daai* 'spin'.

The syllable type CYV contrasts with the disyllabic sequences /Cu.V, Ci.V/, where . indicates syllable boundary: *swáNpú* 'swamp', *súá* 'sour'; *dyéli* 'yellow', *díá* 'deer', and with the disyllabic sequences /Cu.wV, Ci.yV/, as in *súwá* 'sour' and *díjá* 'deer'. The phonemic sequences /Cu.wV/ and /Ci.jV/, however, alternate freely with /Cu.V/ and /Ci.V/, as shown in the examples just given.

Formula 1 above indicates that a phonetically long vowel is treated as a sequence of two like vowel phonemes. It also indicates that a phonetic diphthong is considered a sequence of two unlike vowel phonemes rather than a sequence of a vowel and a semivowel. Under this interpretation, the statement of tone distribution is straightforward: all vowels, and no other segments, bear tone.

In formula 2 above, S is /N, s/: *Nkólá* 'snail', *stáli* 'star'. This syllable type occurs only foot initially. The alternation of /sC/ and /sVC/ has already been described (end of 2.).

For describing the placement of stress in feet (4.), it is convenient to distinguish high and low syllables. High syllables contain at least one vowel with high tone; low syllables do not. For the same purpose, long and short

vowels are distinguished: long syllables contain more than one vowel; short syllables do not.

A long syllable containing two like vowels, as in *fóó* 'bird', has greater phonetic duration than a long syllable containing two unlike vowels, as in *bái* 'buy'. A syllable ending in /N/, as in *bóN* 'tree' and *fwáíN* 'four-eyed opossum', has greater phonetic duration than a syllable with the same number of vowels without /N/, as in *bó* 'bow' and *tjái* 'carry'.

The terms 'high' and 'low', it should be noted, are used in three distinct ways in this paper. For vowels, they refer to phonological features or phonetic characteristics related to the degree of constriction of the air passage between the tongue and the palate. High and low tones, however, are defined with reference to the pitch of the vowel phoneme which is the domain of each tone. Finally, high and low syllables are defined above in terms of the tones of the vowels in each syllable. In any potentially ambiguous context, the appropriate noun ('vowel', 'tone', 'syllable') is used to make the sense clear. The use of these terms is neutral with respect to the distinction between underlying and surface forms. For example, the underlying form of a particular stem may contain a low syllable that corresponds to a high syllable in a particular surface form of that stem.

4. Feet. It has already been mentioned (2.) that each Djuka vowel bears tone. This interpretation of the nonpredictable pitch phenomena is suggested instead of an interpretation in terms of pitch accents that operate over units of foot size. The relative merits of the two interpretations are therefore discussed here.⁷ By describing all the suprasegmental phenomena in relation to each other, we can then proceed to give a meaningful definition of the foot in terms of tempo and intensity.

We begin with the fact that pitch, intensity, and duration are all phonetic parameters by which Djuka utterances, including stems spoken in isolation, differ. Some utterances differ in duration, but not in pitch or intensity patterns: [*bái*] 'buy', [*daí*] 'spin'; [*bó*] 'tree', [*bó*] 'burn'. Since duration is not predictable on the basis of intensity, pitch, or segmental quality, nor on the basis of grammatical classification, we conclude that duration is in such cases contrastive. Phonetic duration functioning contrastively in the phonological system of Djuka is referred to in this paper as length.

Other utterances differ in pitch pattern, but not in duration or intensity patterns:⁸ [*búku*] 'book', [*búku*] 'fungus, mushroom'; [*ka'mi'sa* / *na'mo*] 'just "loincloth"', [*sa'baku* / *na'mo*] 'just "wading bird"', [*ta'biki* / *na'mo*] 'just "island"'.

The first two examples in the preceding paragraph indicate that pitch is predictable neither from segmental quality nor from grammatical classification. The last three examples can be accounted for in terms of either pitch accent

or tone. Under a pitch accent interpretation, there must be posited either (1) contrastive stress placement not predictable on the basis of length and pitch accent, (2) accent sandhi rules, or (3) three types of pitch accent: step up from the accented syllable, step up from the syllable after the accented syllable, and step up to the accented syllable.

On the other hand, given a system of two tones with tone sandhi rules, stress can be predicted as described below. This solution appears to be less complex than the pitch accent solution and has therefore been adopted in this paper.

The foot is a rhythm unit bounded by slight decreases in tempo and including one stressed syllable. Stressed syllables have greater intensity or greater duration, or both, than unstressed syllables of comparable segmental composition.

The placement of stress within a foot is predictable on the basis of the distribution of long and high syllables (defined at the end of 3.) in that foot. If a foot contains a long syllable (and no foot contains more than one long syllable), that syllable is stressed. Otherwise, the first high syllable of the foot is stressed. In feet with only short low syllables, the penultimate syllable is stressed. The only syllable in a monosyllabic foot is stressed by definition.

The distribution of high syllables in the underlying form of, say, a stem does not always correspond to that of the high syllables of a particular surface form of that stem. In these cases, if there is no long syllable in the stem, stress placement varies freely: the stress may occur on the syllable stressed in the underlying form, or on the first high syllable or all high syllables of the surface form (or on the penult in the case of a surface form with no high syllables); or each of these syllables may be spoken with comparable duration and intensity. If more than one syllable is stressed, the stem forms part of more than one foot: *tabíkí* in some environments > *tábíkí* [ta'biki ~ 'tabiki ~ tabi/'iki ~ tabiki].

By contrast with high short syllables, long syllables of underlying forms retain their stress in surface forms: *woókó* in some environments > *woóko* [l'wooko] but not *[woo'ko]. Under conditions still to be determined, however, their duration approximates that of short stressed syllables.

A foot may consist of one to four syllables. A monosyllabic foot may consist of either a short syllable, as in *fó* 'four', or of a long syllable, as in *fóó* 'bird'.

A disyllabic foot may consist of two short syllables, as in *báká* 'back', a short syllable followed by a long syllable, as in *bákáá* 'white man', or a long syllable followed by a short syllable, as in *baáká* 'black'.

A trisyllabic foot may consist of three short syllables, as in *tabíkí* 'island', or may have its second or third syllable long, as in *anaíNsí* 'spider', *papakái* 'parrot'.

All quadrisyllabic feet consist of four short syllables, as in monomorphemic *makisítá* 'mosquito' and polymorphemic *a - béliǵí* 'the mountain'.

Further research is needed before the set of rules for Djuka tone sandhi can be stated with completeness or certainty. The description which follows is tentative and is limited to simple noun and verb stems.⁹ There are no clear cases in the available data of tone contrast between monosyllabic stems with short syllables, and such forms are therefore not covered in this discussion. Stems beginning with /N/ appear to follow different tone sandhi rules than stems of the same number of syllables beginning with a vocalic syllable, and are also not discussed here.

An underlying sequence of two high tones becomes a high-mid sequence before final pause:¹⁰ two-vowel syllable, *fóó* > *fóǒ*// 'bird'; three-vowel syllable, *tóóú* > *tóóǔ*// 'marry'; two short syllables, *búkú* > *búkǔ*// 'book'; short syllable followed by long syllable, *ábáá* > *ábáá̄*// 'cross', *sùméé* > *sùméé̄*// 'smell'; long syllable followed by short syllable, *páátí* > *páátǐ*// 'priest', *wóókó* > *wóókǒ*// 'work'; three short syllables, *béliǵí* > *béliǵǐ*// 'mountain', *tábíkí* > *tábíkǐ*// 'island'; two short syllables followed by long syllable, *pápakái* > *pápaká̄*// 'parrot'; four short syllables, *makisítá* > *makisítá̄*// 'mosquito'.

An underlying sequence of two low tones becomes low-high before final pause: three-vowel syllable, *dáái* > *dááī*// 'spin'; two short syllables, *búkú* > *búkǔ*// 'type of mushroom'; three short syllables, *sábákú* > *sábákǔ*// 'wading bird'.

An underlying high-high sequence across syllable boundary optionally becomes mid-high if preceded but not followed by final pause. Two short syllables, *búkú* > //*búkǔ* ~ //*búkǔ* 'book'; short syllable followed by long syllable, *ábáá* > //*ábáá̄* ~ //*ábáá̄* 'cross'; three short syllables, *béliǵí* > //*béliǵǐ* ~ //*béliǵǐ* 'mountain'. In the same way, a high-high-high sequence with syllable boundary after the second high optionally becomes mid-mid-high in the same environment: *páátí* > //*páátǐ* ~ //*páátǐ* 'priest'.

An underlying low-high sequence across syllable boundary becomes high-low preceding one or more low tones followed by final pause with no underlying high tones in an intervening foot (although a subsequent syllable in the same foot may be high):¹¹ two short syllables, *búbú* > *búbǔ* in *pyá búbǔ dé* 'where is the jaguar?' and in *téké wáN búbǔ gi mi* 'go catch me a jaguar'; three short syllables, *tábíkí* > *tábíkǐ* in *pyá tábíkǐ dé* 'where is the island?'. An underlying foot-initial low-low sequence across syllable boundaries

becomes high-low in the same environment: two short syllables, *bùkù* > *búkù* in *pyá bùkù dè* 'where is the mushroom?' and in *téké wàN bùkù gi mi* 'go get me a mushroom'; three short syllables, *sábàkù* > *sábákù* in *pyá sábàkù dè* 'where is the wading bird?' and in *téké wàN sábàkù gi mi* 'go catch me a wading bird'; two short syllables followed by long syllable, *pápàkái* > *pápákái* in *pyá pápàkái dè* 'where is the parrot?' and in *téké wàN pápàkái gi mi* 'go catch me a parrot'. An underlying high-high sequence across syllable boundaries becomes low-high in the same environment: two short syllables, *búkù* > *búkù* in *pyá bùkù dè* 'where is the book?' and in *téké wàN bùkù gi mi* 'go get me a book'; two short syllables followed by long syllable, *pápákái* > *pápákái* in *pyá pápákái dè* 'where is the parrot?' and in *téké wàN pápákái gi mi* 'go catch me a parrot'; four short syllables, *mákisítá* > *mákisítá* in *pyá mákisítá dè* 'where is the mosquito?'

An underlying low-high sequence within a syllable becomes low-low preceding an underlying low-high before final pause: one long syllable, *sòó námó* > *sòò námò* 'just "three-toed sloth"'; short syllable followed by long syllable, *áwáá námó* > *áwáá námò* 'just "palm fruit"'.¹²

The examples just given in the statement of some tone sandhi rules indicate that in no underlying form of a Djuka noun or verb stem is a high tone followed by a low. While this fact could be taken as evidence for a pitch accent system, the description in terms of tone is still preferable for two reasons: (1) The term 'pitch accent' usually refers to systems in which there is only one sort of suprasegmental prominence. In Djuka, however, prominence by intensity and duration does not always coincide with prominence by pitch. (2) It appears that the variations in pitch can be described with less complexity in terms of tones operating over vowels than in terms of accents operating over feet.

FOOTNOTES

¹Djuka is a creole language spoken by approximately 16,000 Bush Negroes living in eastern Surinam. Djuka (Djoeka, Diouka) is also referred to in the literature as Aukan. Its speakers are referred to as Djukas and as Aukaners, although either term is sometimes used for Bush Negroes in general, including speakers of Saramaccan. Most Djukas live along the Cottica River near the coast and the Tapanahonij River farther south, although some are found as far west as the lower Saramacca River, as well as in Paramaribo. Neumann (1967) reports them also living near the lower

⁴The underlying forms of stems beginning with /N/ have not yet been determined. Examples of these stems are therefore given in their isolation forms.

⁵- indicates morpheme boundary.

⁶*twálufu* < Dutch *twalf* is the only exception.

⁷Voorhoeve (1961.146) stated that Saramaccan was the only creole language known at that time in which tone was clearly distinctive. Sranan, closely related to Djuka, is referred to in his article as an accent language rather than a tone language.

⁸/ indicates foot boundary.

⁹A simple stem consists of one morpheme, and may correspond to one foot (*dágú* 'dog'), or two (*káá/bási* 'gourd (*Lagenaria siceraria*')). A compound stem consists of one morpheme plus either another morpheme or partial or complete reduplication. It may correspond to one foot (*fwáin* 'four-eyed opossum' < *fó* 'four' - *áiN* 'eye') or two (*tokotókó* 'mud').

¹⁰// indicates final pause. In the description of tone sandhi, it is useful to distinguish three surface tones, high (written with an acute accent), mid (macron), and low (grave accent), although there are only two underlying tones, high (acute accent) and low (here written with a grave accent, elsewhere not symbolized). A complete description of tone sandhi and its phonetic realizations would require a still larger set of pitch levels.

¹¹Pike (1966.141ff) alludes to high-low sequences changing to low-high in some languages of West Africa. Wang (1967.102) uses the term 'flip-flop' for a related phenomenon, in which underlying high becomes surface low and underlying low becomes surface high in the same environment. As both these writers point out, such changes have perplexing diachronic implications.

¹²The conditions under which underlying *námó* becomes surface *námò* have not yet been determined. The fact that this word is frequently stressed on the second syllable, however, indicates an underlying low-high sequence.

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