INTONATIONAL PHONOLOGY OF JAMAICAN CREOLE:An Autosegmental Metrical Analysis

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ABSTRACT

There has not been much research on the intonational phonology of Jamaican Creole (JC), and early descriptions (cf. Lawton, 1963; Cassidy and LePage, 1967; Wells, 1973), give only global characterizations or schematic representations of the intonation. In this paper I present a preliminary overview of some of the postlexical prosodic features of JC. The analysis follows the Autosegmental Metrical (AM) model of intonational phonology (Pierrehumbert,1980; Ladd 1996). I provide analyses of several clause types produced under different intonational contours and with different pragmatic effects.

The AM description of JC also brings a unique set of challenges since the language, unlike many languages described in the AM framework, is a contact variety. These contact languages show an array of patterns both within and across varieties and include some languages that have been described as being "mixed" systems reflecting their hybrid ancestry (cf. Saramaccan – lexical tone and accent contrasts in differentiated strata, Good 2006) or (cf. Papiamentu-lexical tone and stress by syntactic category, Remijsen and Van Hueven 2005; Rivera-Castillo 2006), alongside those that have been described as stress-accent systems.

Keywords: Creole, stress, pitch accent, Jamaican Creole

1.INTRODUCTION

Based on a phonological analysis of JC stress, I present a preliminary analysis of the JC intonation in the AM framework, focusing on issues having to do with prominence. At the lexical level prominence is realized by stress so that prominent syllables have no lexically specified F_0. At the postlexical level, prominence is realized cumlinatively, marking the head of a trochaic foot. These postlexical pitch accents appear to be of two types, monotonal accents (e.g. H*), and bitonal accents (e.g. H+L*) associated with syllables with primary stress. There are also boundary tones (H%, L%) marking higher level prosodic constituents that are associated with the edges of phrases both utterance finally and utterance internally. The language also employs different types of pitch range manipulations for discourse pragmatic effect (section 3.3). The analysis of compounds and reduplicated words shows that these words have a single pitch accent H+L* on the right member only. Like regular monomorphemic words they receive a single pitch accent . In contrast, intensive reduplications have two pitch accents, one on each part of the word.

The data I describe here are recordings from my own fieldwork with native speakers. These are speakers of a conservative variety of JC from a small rural community in North-Western Clarendon. They range in age from 29-80+ at the time of the recordings. The interviews were conducted in JC and combined an elaborated interview-style elicitation and a picture-task.

The paper is organized as follows. Section 2 is an overview of stress in the language; section 3 presents the intonational phonology discussing the distribution of boundary tones and pitch accents. There is also a description of intonation of different phrase types. Section 4 discusses the proposed prosodic structure and section 5 is the discussion and summary.

2.JC STRESS

Stress in JC is phonologically contrastive. This supports previous analyses of JC stress, (Wells 1973, Alderete 1993, Gooden 2003). In nuclear position,

syllables bearing main stress have a fall in F_0 onto that syllable and unstressed vowels may be deleted. The data on stress are primarily from the Dictionary of Jamaican English (DJE) (Cassidy and LePage 1967) and reflects stress patterns on monomorphemic content words from all lexical categories, compounds and reduplicated words. The DJE was the main source for primary stress assignment in the words, supplemented by native speaker intuitions on syllable prominence.

JC has a weight-sensitive stress system with coda consonants, long vowels and diphthongs contributing to syllable weight (cf. Alderete 1993, Gooden 2003, Gooden, in press). The preferred foot type in JC stress assignment is a trochee. Primary stress generally falls on the leftmost or only heavy syllable in a word and secondary stress falls two syllables away from the main stress as shown in (1).

(1)	pa.ˈlaav	‘to lie about idly’
	ˈpai.zn̩	‘poison’
	ˈgaa.lɪn	‘egret’
	gɪ.ˈlaan.tin	‘to fool around’
	ˈniiz.bɛ.rɪ	‘type of fruit’
	ˈkaŋ.kan.ˌtar	‘type of top’
	ˌba.da.ˈrie.ʃan	‘a source of annoyance’
	ˌpo.ko.ˈmie.nja	‘type of revivalist cult’

As the examples in (2) show, when there are no heavy syllables, the penultimate syllable gets primary stress and word final light syllables are not stressed.

(2)	ˈma.ka	‘thorn’
	su.ˈma.dɪ	‘somebody’

This generalization is consistent for bisyllabic, trisyllabic and quadrasyllabic words. A small percentage of the data have alternate stress patterns (see Gooden 2003 for a detailed analysis).

The stress pattern in compounds depends on the stress pattern of the input words. Primary stress on the first input member of the compound is realized as secondary stress in the compound word. The rightmost member of all the compounds bears main stress. For example, ˈbɛlɪ ‘belly' + ˈgad ‘god’ ˌbɛlɪˈgad ‘glutton’. The stress pattern in distributive reduplication is similar to the pattern in compound words in that they too bear a single primary stress, e.g. ˌjɛloˈjɛlo ‘scattered yellow’. Intensive reduplications have a different stress pattern from compounds and distributives, in that they are able to bear two main stresses, e.g. ˈjɛloˈjɛlo ‘very yellow’.

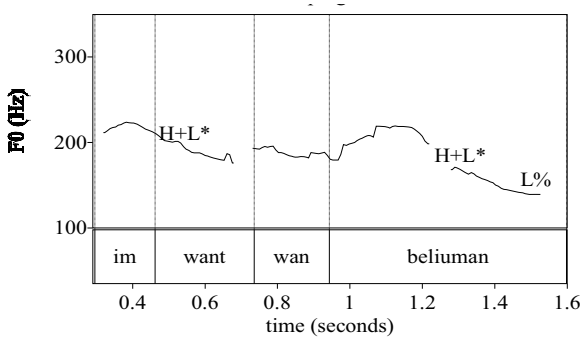
3.INTONATIONAL PHONOLOGY

I discuss two types of tones, boundary tones, which associate with the edges of phrases and pitch accents, which associate with metrically prominent syllables. I also discuss pitch accents on intensive reduplications as these have an accent on the left member in addition to the H+L* accent on the right member. These words stand in contrast to regular lexical items and compound words which receive only one pitch accent. Each tone type is presented in tandem with a description of the type of phrase in which it occurs.

3.1.Boundary Tones

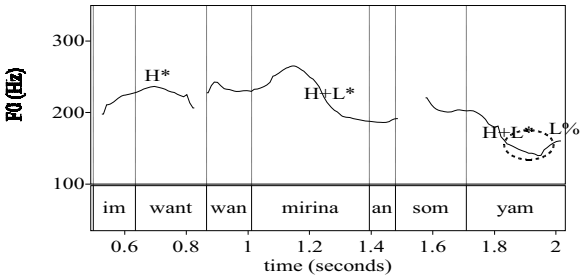
Broad focus statements. Broad focus statements in JC typically have a rise or high early in the phrase, an optional rise/high in the middle and a fall at or near the end of the phrase, where it is marked by a L% boundary tone.

Figure 1: sentence showing the L% boundary tone in the sentence *He (the doctor) wants a pregnant woman (for examination)*(29 yr old female speaker).



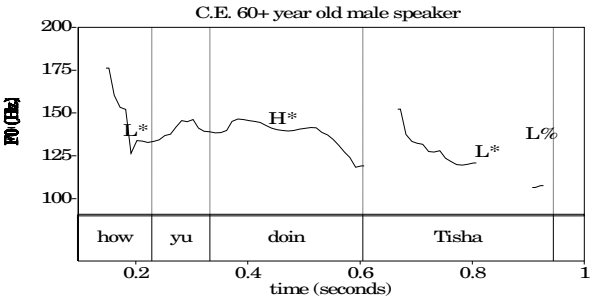
The final contour in some statements show a slight upturn of the F_0 as shown in figure 2. There is no evidence as yet that this is qualitatively difference from a plain low so I have labelled these as L% as well.

Figure 2:F_0 contour showing non contrastive final upturn in the sentence *He wants an undershirt and* some yams. (29 yr old female speaker)



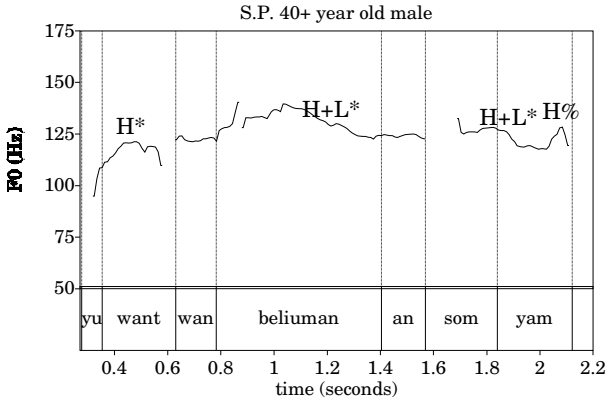
The L% boundary tone also occurs at the right edge of Wh-questions as shown in figure 3, in the sentence *How are you doing Tisha?*

Figure 3: F_0 contour showing L% boundary tone in wh-question.



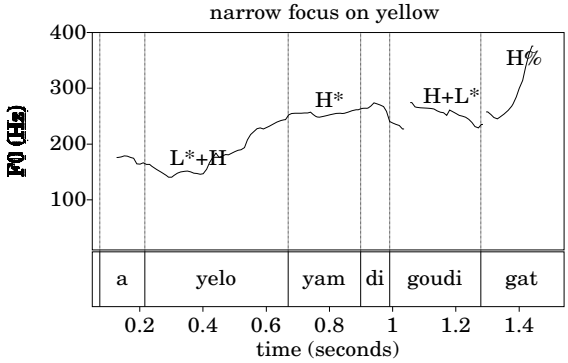
Polarity yes-no questions. These typically have a high terminal rise in F_0 at the end of the phrase, a H% boundary tone. This shown in the broad focus question in figure 4 and the narrow focus question in figure 5.

Figure 4:F_0 contour showing H% boundary tone in yes-no question.



Focus constructions. The H% also occurs in clefted/ focus yes-no questions as in figure 5, in which the constituent *yellow* is in focus and is marked syntactically by the focus particle *a* (cf. Durrleman 2005)[1].

Figure 5:F_0 contour showing H% in the clefted sentence, *A yelo yam di goudi gat?* Is it yellow (not another colour) yams the gourd has in it? (29 yr old female speaker).

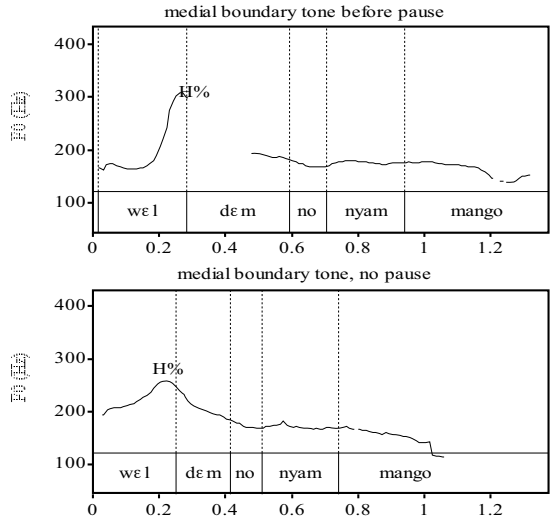


Notice that the speaker's pitch range is raised after the focused element and is maintained to the end of the phrase, when it is raised again for the terminal H% boundary tone.

[1] Compare the sentence *A di goudi gat yelo yam* 'It's the gourd (not something else) that has yellow yams in it'.

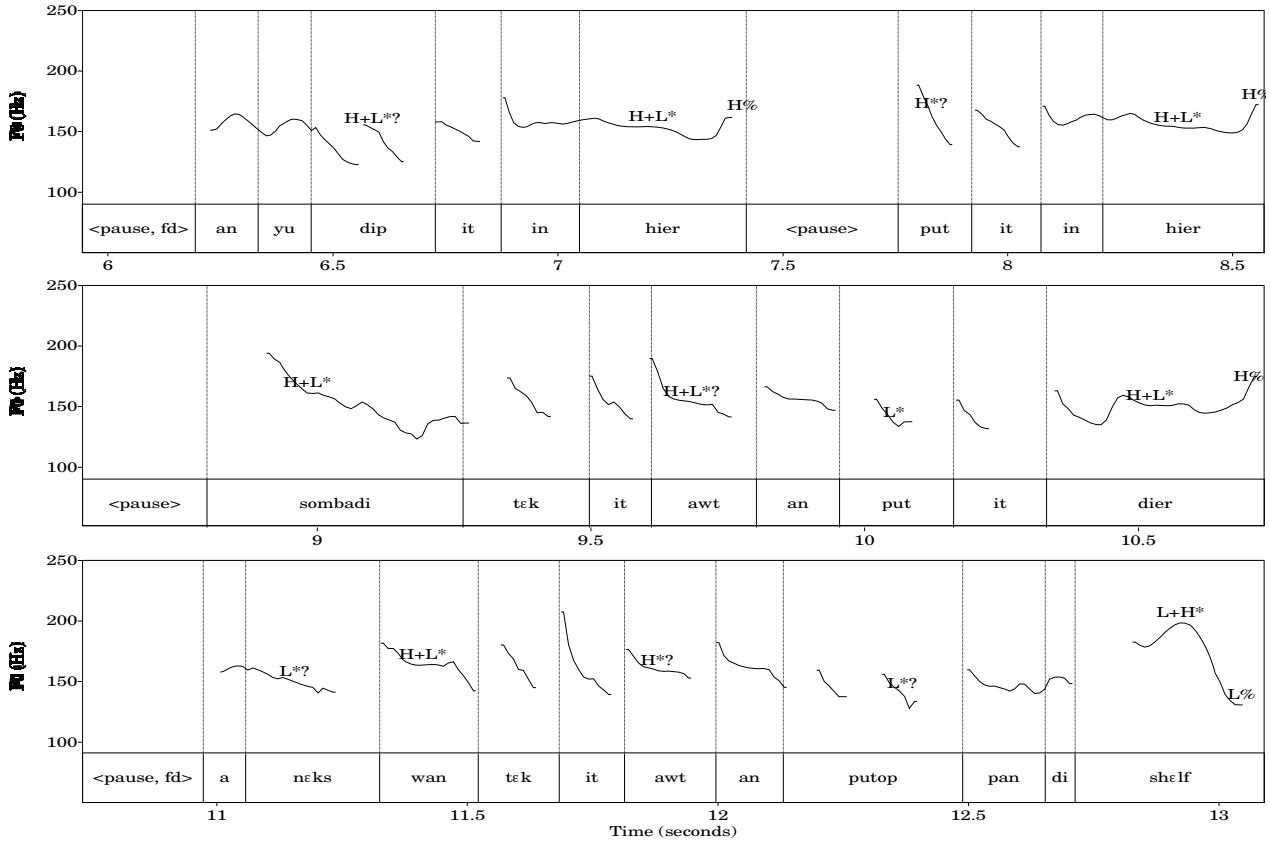
IP internal boundary tones. Boundary tones may also occur IP internally to mark phrase edges as seen in figure 6. The example shows softened declaratives in which the speaker produces an optional pause to mark the phrase break.

Figure 6: F_0 contours of the statement *Wel dem no nyam mango* 'Well, they don't eat mangoes' showing medial H% boundary tones. (29 yr old female speaker).



The H% also occurs in longer utterances to mark continuation rises as is seen in figure 7 at the junctures at *here (2x), there*, in the sentence "*...and you dip it in here, put it in here, somebody takes it out and puts it in there, another one takes it out and puts it on the shelf."* Notice that when the speaker has finished listing the components of the preparation process, the phrase is marked by a final L% boundary tone.

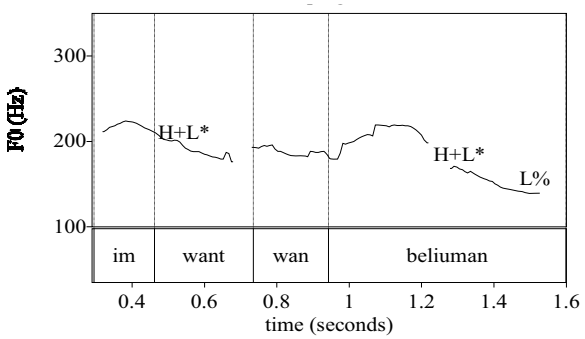
Figure 7: Excerpt from interview with 80+ year old female (A.S.) describing processing of bananas for shipping/export. There are three continuation rises marked by H% boundary tones.



3.2.Pitch Accents

Falling accent. One salient difference between JC and its lexifier language, English, is that stressed syllables in plain broad focus declaratives are realized with a low F_0, analysed here as a falling pitch accent, H+L*. This is the most prevalent pitch accent in JC and occurs in lexical words, compounds and reduplicated words. Figure 8 shows this for the verb *want* and the compound *ˌbɛlɪˈuman* 'pregnant woman'.

Figure 8: F_0 contour showing H+L* pitch accents on compound word, ˌbɛlɪˈuman 'pregnant woman' in final position in the sentence *He (doctor) wants a pregnant woman (for examination).*



The H+L* notation indicates that there is a fall from a F_0 peak occurs within/before the stressed syllable and the low is aligned with the stressed syllable.

Rising accents. There are two rising pitch accents, L*+H and L+H*. The L*+H pitch accent occurs on a left clefted focused constituent as shown in figure 5. The notation indicates that the L* is aligned with the stressed syllable and the H occurs in a later syllable. The resulting shape is a 'scooped' rise. As shown, the F_0 remains low throughout the stressed syllable and is followed by an F_0 rise that peaks at the end of post-stressed syllable.

The L+H* accent may be viewed as an emphatic accent as it occurs on a word with emphasis as in figure 7, where it is final in the IP. In this example, the word *shelf* is empasized as the (only) place where the processed bananas go. In this case, its the H* that is aligned with the stressed syllable.

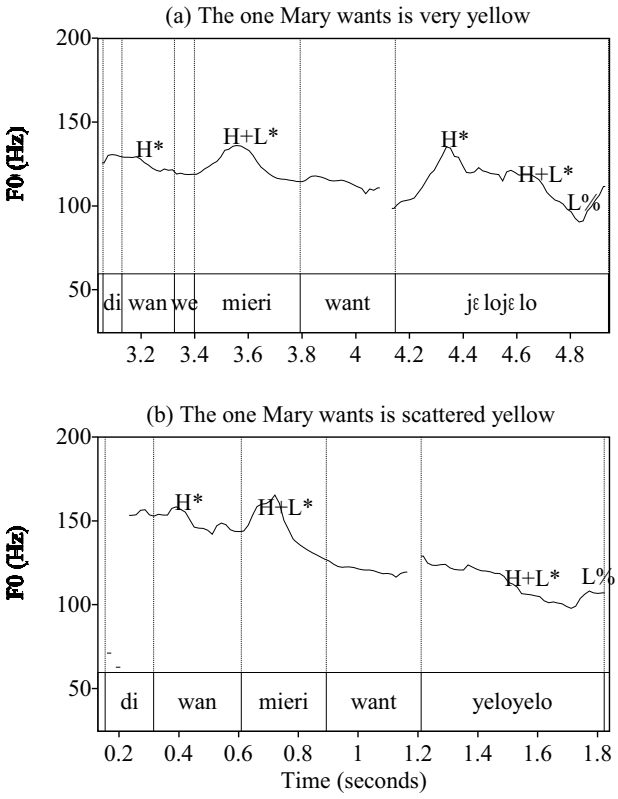
High accent. A H* pitch accent, occurs as a prenuclear accent in intensive reduplications (see figure 9), on a post focal constituent (see figure 5) as well as other words (see figures 3, 7, 9). In this type of pitch accent, an F_0 peak is aligned with the stressed syllable, and no initial rise or significant following fall is observed.

Low accent. A L* pitch accent in also observed on prominent syllables. Examples are shown in figure 3 on the words *how* and the stressed second syllable of *Tisha.*

3.2.1.Pitch Accent in Intensive reduplication

Like distributive reduplications, intensives are morphophonologically and semantically related to their bases, a requisite property of reduplication processes. As noted above though, while distributives receive a single nuclear H+L* pitch accent on the rightmost member, intensives receive two, a H* pitch accent on the leftmost member in addition to the H+L* on the right member. This is shown in figure 9.

Figure 9: F_0 contours showing intensive reduplications with H* and H+L* pitch accents (speaker H.F. 35+ year old male).



3.3.Pitch Range Manipulations

Pitch range expansion. In addition to the local tone specifications, JC may mark polarity (yes-no) questions by shifting the entire scale upward over the last (or only) IP in an utterance. This is seen in the figure 10 where the polarity question (a) is produced in an overall higher pitch range than in the corresponding statement in (b).

Figure 10: F_0 contours showing pitch range expansion in yes-no question (a) *Do you want a pregnant woman and some yams?*. The comparable statement appears in (b) *(He) wants a pregnant woman and some yams*

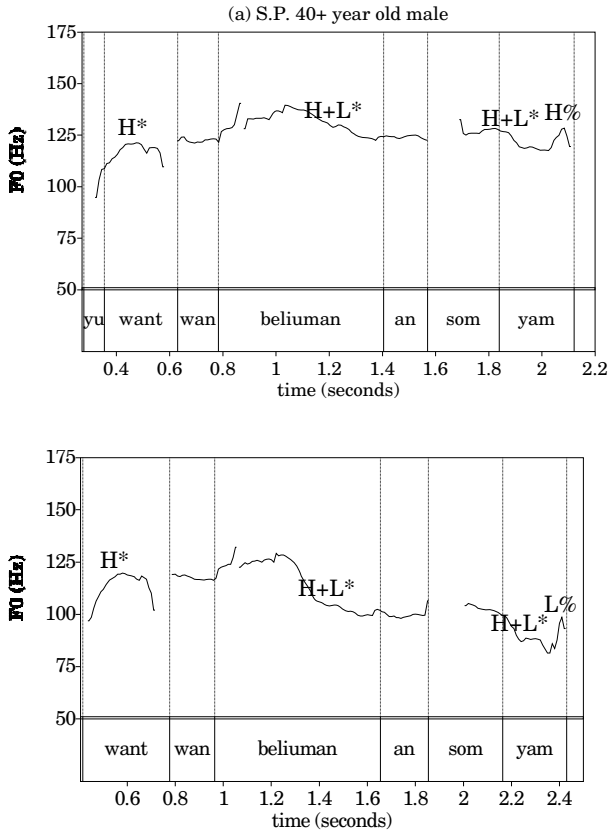
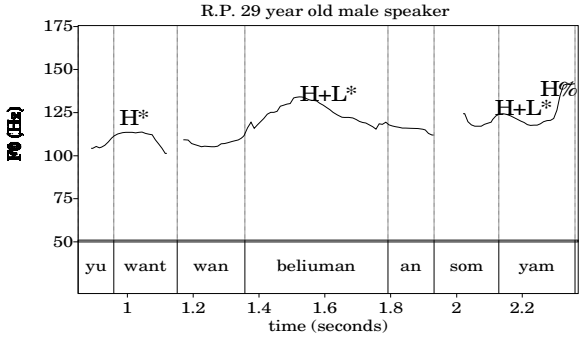


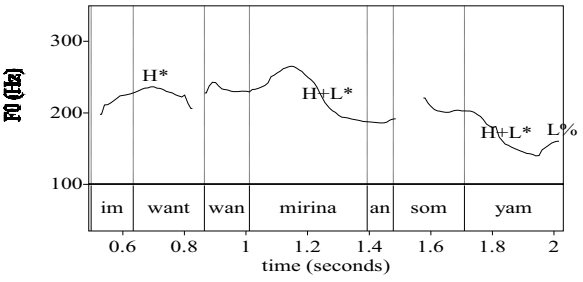
Figure 11, shows a similar strategy used by another speaker. In both cases, this results in L tones being higher than H tones earlier in the utterance. In both cases, the overall pitch range is raised for the whole utterance and raised again even higher for the terminal rise of the question intonation. Both types of utterances were elicited in the same pragmatic condition, "Ask the doctor if he wants some X and some yams."

Figure 11: F_0 contour showing pitch range expansion in yes-no question . Do you *want a pregnant woman and some yams?*



Another pitch range manipulation appears to involve *downstep*. In figure 12 the H of the H+L* on *some yam* is 'downstepped' relative to the previous high on *mirina.* However, The precise nature of downstep in the language is still unknown. It remains to be resolved whether downstep occurs as the result of a given phonological regularity, like the presence of a preceding bitonal accent (cf. Beckman and Pierrehumbert 1986) or due to predictable differences in the phonetics (Arvaniti and Baltazani 2005). Furthermore, although multiple accents may occur in a given phrase, downstep is not obligatory. For example, there is no downstep in figure 7 since none of the information presented by the speaker is subordinated.

Figure 12:F_0 contour showing downstep in the sentence *He wants a man's undershirt and some yams.*



3.4.Summary

The tables below summarize the tone types discussed above. There are 2 boundary tones which occur at the right edges of phrases and 5 pitch accents associated with metrically prominent syllables.

Table 1: Inventory of boundary tones

Tone	*Context*
H%	yes-no questions, IP internal phrase breaks, continuation rises
L%	statements, WH-questions

Table 2: Inventory of pitch accents

monotonal	*bitonal*
H*	H+L* (!H+L*)
L*	L*+H
	L+H*

4.PROSODIC STRUCTURE

These data provide evidence for at least the following prosodic constituents above the level of the syllable for JC; foot, prosodic word, phonological phrase, intonational phrase.

The *foot* in JC as noted above is left-headed. Acoustic evidence for foot structure comes from the fact that pitch accents associate with the heads of feet.

The *prosodic word* is isomorphic with the morphosyntactic word and is the domain of word level stress assignment (see section 2.1). In all cases, there is one associated pitch accent. By this categorization, compound words and distributive reduplications which only receive one pitch accent are also treated as prosodic words. Similar reports have been made for other English-based creoles like Krio (Nylander 2003) and Guyanese (Devonish 2003). In these two varieties, as in JC, reduplication exhibits similar prosodic properties to compounding.

The *phonological phrase* is demarcated by a prenuclear H* pitch accent at the left edge and a nuclear H+L* pitch accent at the right edge. The phonological phrases (seen here) contain two phonological words and are immediately dominated by the intonational phrase.

The *intonational phrase* is the largest prosodic constituent defined intonationally, thus far. The IP may contain one or more nuclear pitch accented syllables (section 3.2) optional internal boundary tones and a boundary at the right edge (section 3.1). Preliminary observations suggests that there is lengthening of final vowels but this needs to be confirmed by further analysis.

5.DISCUSSION

This overview is certainly not a complete treatment of the intonational phonology of Jamaican Creole. However, it is hoped that it will provide an impetus for further research on not only JC intonation but other Creole languages as well (cf. proposals in Gooden 2005). The AM model in particular is well suited for cross-variety comparisons. It has been successfully adapted to a variety of languages including 'traditional' tone languages and pitch accent languages (Jun 2005), the system could also accommodate Creole varieties as well. AM models of these varieties could provide a way of assessing/quantifying the similarities and differences across the varieties in a way that might capture similarities/differences across the languages which might otherwise not be noticeable. For example, a comparison of Drayton's 2006 analysis Trinidadian English Creole and the current analysis of JC shows that the same HL is computed differently in the languages, although both are stress-accent languages and are historically related. Further, in both Creoles, stressed syllables are realized with a low F_0. More precisely, TEC has an intonationally marked AP bounded by the H tone at the left edge (Drayton 2006) while JC does not. The H of the JC HL sequence is part of the pitch accent. In other words, the two Creoles have different prosodic structures, i.e. phonotactic differences/differences in tune-text association (cf. Ladd 1996).

There are of courses several remaining questions, such as the following which will be addressed as the research is continued; Are there acoustic cues to phrasing such as lengthening of phrase final syllables?; How does downstep function in the language?;What other pitch range manipulations are there?; What happens to longer words produced with the emphatic accent?; What happens when other constituents such as NPs or VPs

are focused? How does this compare to other types left clefted constituents?; Is there displacement of falls and rises associated with bitonal accents?

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