Intonational Phonology of Cuban Spanish: A preliminary model

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Abstract

The present study proposes a preliminary model of intonational phonology for Cuban Spanish in the framework of Autosegmental-Metrical phonology. Data from controlled and semi-spontaneous speech were used to establish the boundary tones and pitch accents which are contrastive in this variety of Spanish. It was found that Cuban Spanish shares various tonal categories with both the Pan Spanish ToBI (Tones and Break Indices) [1] and other Caribbean Island Spanish dialects (Puerto Rican [2] and Dominican [3]), but differ from these dialects in how those pitch accents and boundary tones are used to convey meaning. Cuban Spanish shares its primary prenuclear pitch accents and nuclear contours for imperative statement and narrow focus with the Pan Sp_ToBI, but shares the nuclear contours for broad focus, vocative, and wh-questions with Puerto Rican Spanish. Similar to the other Caribbean Island Spanish varieties, the Cuban Spanish boundary tone inventory consists of a subset of the attested boundary tones found in the Pan Sp_ToBI, and all three Caribbean varieties share low boundary tones in non-wh questions, a marker of Caribbean Spanish speech.

Index Terms: Intonation, Cuban-Spanish, Sp-ToBI

1. Introduction

This study study proposes a preliminary model of intonational phonology of Cuban Spanish within the framework of the Autosegmental-Metrical (AM) model, and the conventions of Cuban Spanish ToBI (Tones and Break Indices), adopting the labeling conventions of the current Pan Spanish Tones and Break Indices (Pan Sp-ToBI). The first description and proposal for Pan Sp_ToBI was developed in [4] and later revised and expanded in [1] to include additional phrase accents and boundary tones. Although the aforementioned studies have developed a transcription system that accounts for distinctive intonational features of the Spanish language in general, not all dialects and varieties of Spanish use these features in the same way. Therefore, more recently, descriptions of Spanish intonation and the transcription systems from ten different varieties have been developed (described in volumes such as [5]), including Puerto Rican and Dominican Spanish, two of the three Caribbean Island Spanish varieties. However, as established by [2] and [3], the intonation of the Caribbean dialects also differs in various ways, despite their geographic proximity. The investigation of the intonational phonology of Cuban Spanish, a Caribbean island dialect that is currently undocumented within the AM framework, will allow for additional comparisons amongst the Caribbean dialects and other varieties of Spanish in general.

2. Methodology

The strained political relations that Cuba has with other countries have made linguistic data on this dialect difficult to obtain. However, the large Cuban community in South Florida provides a unique linguistic context in which data collection is possible. This study presents both controlled speech from a reading task and semi-spontaneous speech from a Discourse Completion Task (DCT) modeled from [5] to allow for comparison. The speech of eight speakers (four Cuban-born, four Miami-born) was consulted for the present analysis. All consultants were either born in or currently live in South Florida and were a median age of 42.3 years old. The data were collected on an LS-11 portable recording device at a 16-bit rate at 44.1 kHz and analyzed in *Praat*, version 5.3.60 [6].

3. Intonational Phonology of Cuban Spanish

This section will present the prosodic structure of Cuban Spanish, defined by intonation (section 3.1), and the tonal inventory, with boundary tones and pitch accents in sections 3.2 and 3.3, respectively.

3.1 Prosodic Structure of Spanish

Like other varieties of Spanish, Cuban Spanish has a lexical stress system with stress usually occurring on the penultimate syllable of content words. Above the word level, there is evidence for Intermediate Phrases (ip) and Intonation Phrases (IP), although no evidence for tonal stacking at the end of an Intonation Phrases has been found [1]. An IP is defined by a boundary tone at its right edge, with lengthening of the IP-final syllable, and an optional pause after the IP. An ip is defined by a phrase accent at its right edge, with slight lengthening of the ip-final syllable, and a pitch reset starting on the word after the ip. An ip has at least one pitch accent which is realized on the stressed syllable of most content words. As in English, the last pitch accent in an ip is the most prominent, called a nuclear pitch accent.

3.2 Boundary tones

Similar to the boundary tone inventories established in the Pan Sp_ToBI, Cuban Spanish also contains both monotonal (H (High), M (Mid), L (Low) and bitonal (LH (rising), HL (falling)) boundary tones. Similar to the other Caribbean Island varieties [2, 3], Cuban Spanish contains only a subset of the monotonal and bitonal boundary tones established in the Pan Sp_ToBI and does not contain tritonal boundary tones.

3.2.1 Monotonal boundary tones

Three monotonal boundary tones were found to mark the right edge of both ip and IP: L, M and H. The low boundary tone marking the end of IP (L%) is found primarily in declarative statements, imperatives, exclamatives, wh-questions, and requests (for Cuban-born speakers only). The L% can be realized either as a falling or low plateau tone, depending on the nuclear pitch accent. A low boundary tone marking an ip (L-) is also used in this dialect, usually to connect sections of a longer utterance, such as a declarative with a tag phrase or utterances with relative clauses, suggesting a syntactic dependency that is sensitive to these phrase edges.

High boundary tones marking the end of an IP (H%) were used in various types of questions, such as yes-no questions, echo questions, requests, tag questions, and less frequently, for a subset of wh-questions. Similar to the L% boundary tone, H% can be realized either with a rising F0 (from the nuclear pitch accent) or as a high plateau continued from a high nuclear pitch accent. High ip boundary tones (H-) were used by speakers in listing contexts as well as to signal continuation in prolonged speech.

Mid boundary tones marking the end of IP (M%) were less frequent than L% or H%, and were seen in vocatives, polite questions, and more emphatic exclamative statements. M% boundary tones in this dialect are typically realized with a slightly falling F0 from a high nuclear pitch accent, or less commonly, a slightly rising F0 from a low nuclear pitch accent. Mid ip boundary tones (M-) were also used to signal continuation in prolonged speech, but was typically seen in faster, more disfluent speech as opposed to H-, which signaled continuation in more careful speech.

Figure 1 shows L%, M%, and H% boundary tones, respectively. The figures in this paper contain the following text grid tiers, from top to bottom: (1) orthography, (2) stressed syllable of content words, (3) tones, (4) breaks, and (5) English gloss.

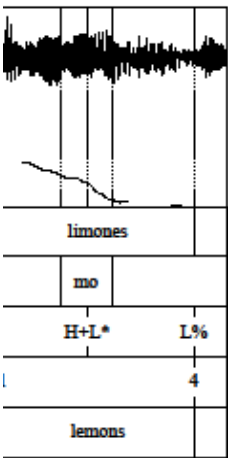


Figure 1a. L% boundary tone.

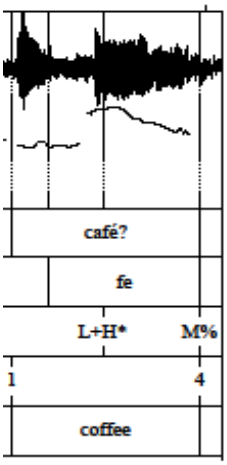


Figure 1b. M% boundary tone

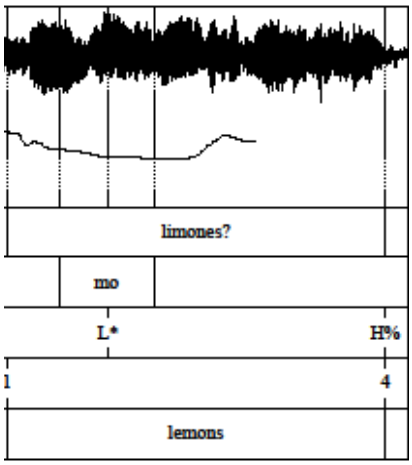
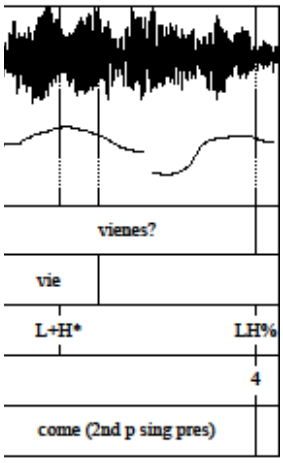


Figure 1c. H% boundary tone

3.2.2 Bitonal boundary tones

Two bitonal boundary tones were found in this dialect, LH and HL. These occurred less frequently than their monotonal counterparts. LH% IP-boundary tones were found in disjunctive wh-questions, sarcastic/rhetorical contexts, and non-wh exclamative statements. LH is realized with a falling (or sustained) F0 after the nuclear pitch accent and followed with a rising F0 in the same syllable that may or may not be as high as a previous H tone in the same ip.

The falling bitonal boundary tone (HL) is seen at the end of an IP (HL%) in exhortative imperatives (both in statement and question form). This boundary tone is not seen at ip boundaries in the data collected. HL% is realized with a rising or sustained F0 after the nuclear pitch accent which falls within the same syllable. Figure 2 shows examples of both bitonal boundary tones at the end of IP, following L+H* nuclear pitch accents. Figure 2a shows a LH% boundary tone occurring on a word with penultimate stress and 2b shows a HL% realized on the only, thus stressed, syllable of the final word (*qué*). Here, in order to accommodate two H targets (H of L+H* pitch accent and H of HL% boundary tone), the syllable is substantially lengthened in Fig.2b.



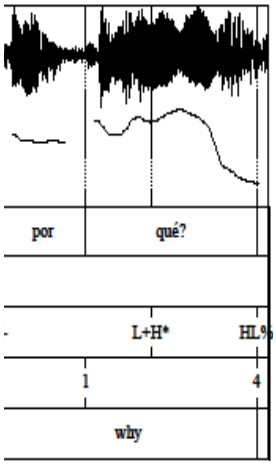


Figure 2. LH% boundary tone (2a, left) and HL% boundary tone (2b, right).

3.3 Pitch accents

This section will introduce the tonal inventory of pre-nuclear pitch accents (sec.3.3.1) and nuclear pitch accents (sec.3.3.2). Section 3.3.3 will discuss how narrow focus and stress clash affect the realization of pitch accents in Cuban Spanish.

3.3.1 Pre-nuclear pitch accents

As in Pan Spanish, three rising, bitonal nuclear pitch accents were seen in the data collected: one in which the stressed syllable is aligned with the pitch trough before rising (L*+H); one in which the stressed syllable is aligned with the peak of the pitch accent after a low F0 on the preceding syllable (L+H*); and lastly, a pitch accent in which rising to a delayed peak (realized on the next syllable) is seen in the stressed syllable (L+<H*) after a low F0 on the preceding syllable. The most frequent prenuclear pitch accent differed by task types, suggesting an effect for speech formality or style. In the

controlled task, L+<H* accounted for 53% of all pre-nuclear pitch accents and was the most common pitch accent before ip boundaries, occurring 78% of time. However, this pitch accent was found more often in semi-spontaneous speech: L*+H occurred in over 90% of the semi-spontaneous data but only 30% of the controlled data. L+<H* pre-nuclear pitch accents are mainly used in emphatic semi-spontaneous speech, further supporting the different styles associated with these pitch accents. The least common pre-nuclear pitch accent was L+H*, which only occurred in 17% of the data. Although uncommon, L+H* was the pitch accent used in over 90% of words with final stress in both tasks.

3.3.2 Nuclear configurations

Only two possible nuclear pitch accents were found in declaratives: H+L* and L+H*. H+L* was the most common nuclear pitch accent in declarative utterances, as L+H* was typically used only by Cuban-born speakers. An example is shown in Figure 3.

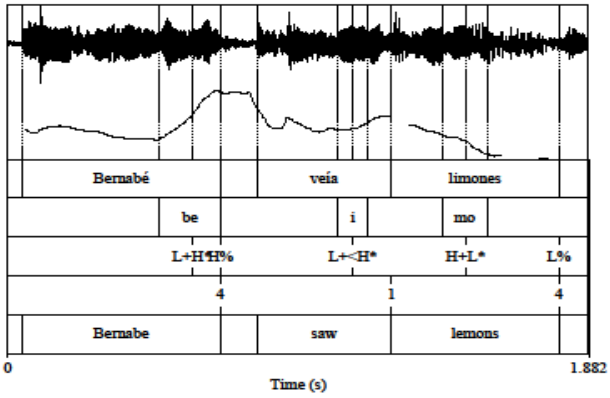


Figure 3. Declarative statement with H+L* L% nuclear configuration.

Unlike H+L*, which was the most common nuclear pitch accent only for declaratives (66% of analyzed cases) in Cuban Spanish, L+H* was the most common nuclear pitch accent and was used in various types of utterances. Besides a possible nuclear pitch accent for declaratives, L+H* was also used as the most common nuclear pitch accent for exclamatives (81%), imperatives, vocatives (79%), yes/no questions and requests (70%), and echo questions (76%). Although these discourse categories share the same nuclear pitch accent, they differ from each other by boundary tone or pitch scale. L+H* L% nuclear configurations are used for exclamatives (81%), commands (51%), and as an option for yes/no questions, mostly by Cuban-born speakers (45%)**;** L+H* H% is used in the tag phrase of tag questions and as the more common variant for yes/no questions, used by both speaker groups (55%), echo questions (62%), and a variant of wh-questions used more frequently by Cuban-American speakers (45%); finally, L+H* M% is the preferred nuclear configuration for vocatives (80%) and is used as an option for polite yes/no questions and requests, mostly by Cuban-born speakers (10%). Questions, especially polite questions, tend to involve upstepped high tones, creating a larger pitch range than a similar (L+)H* in non-questions. This is shown in Figure 4.

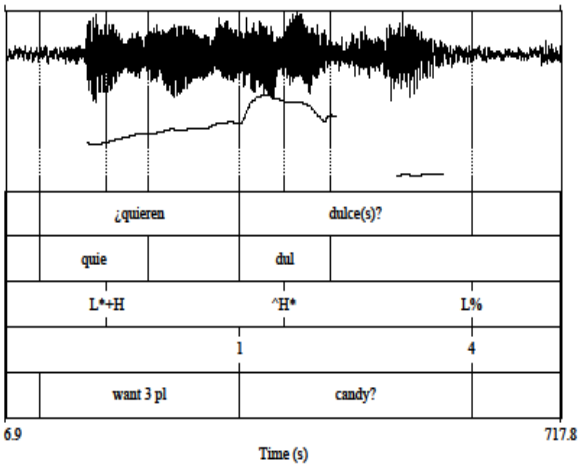


Figure 4: Yes/No Question with upstepped (^) (L+) H* L% nuclear contour

Monotonal nuclear pitch accents are less common in Cuban Spanish and are typically variants of rising pitch accents that are undershot due to stress location and position (e.g. L+H* H% may be realized as L* H% when stress is final). Figure 5 shows a tag question in which a monosyllabic tag phrase is realized as L* H% instead of L+H* H%.

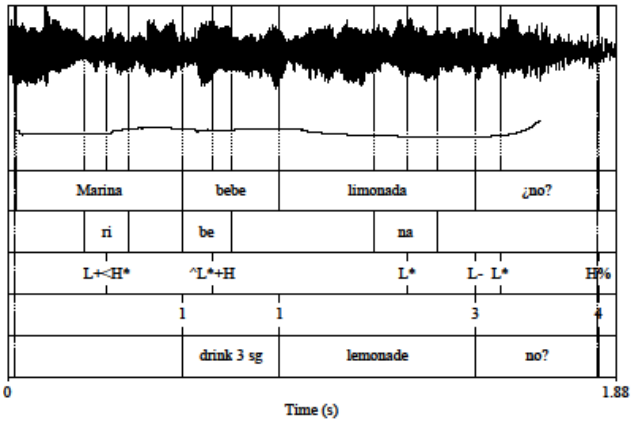


Figure 5.Tag question with L(+H*) L% tag phrase

3.3.3 Stress clash and focus

Data from both the controlled and semi-spontaneous tasks revealed that when two stressed syllables are adjacent and cause a stress clash, part of a pitch accent (in the case of a bitonal pitch accent) or an entire pitch accent may not be realized. In the case of adjacent rising prenuclear pitch accents, the most common stress clash is the result of a word with penultimate or final stress followed by a word whose first syllable is stressed. These clashes are resolved in one of two ways: either a phrase break is inserted between the two words and the pitch is reset on the second word (typical in slower, more formal speech) or, when the two are in the same ip, a portion of the second (bitonal) pitch accent is not realized (more common in faster, less formal speech). An example of this latter resolution is shown in Figure 5.

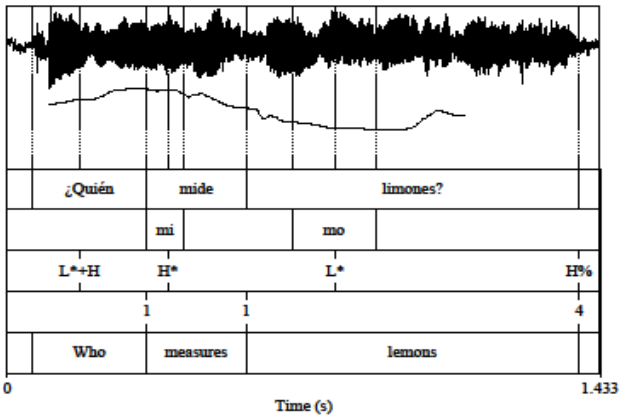


Figure 5. Stress clash between *quién* and *mid*e

When the L*+H nuclear pitch accent on a penultimate syllable is followed by a H% boundary tone, it was not clear whether the H part of the pitch accent is realized or not because both the H trailing tone and the H boundary tone occur on the IP-final syllable. In this case, only L* is labeled on the stressed syllable.

The basic tonal pattern of sentences found in the neutral focus context changed in several ways when speakers were asked to focus lexical items. The most typical focus realization included an overall expanded pitch range, an L+H* pitch accent on the focused item in nearly 100% of cases, and an IP boundary before or after the focused word (depending on the location of the focused items). When longer words with penultimate stress were focused, such as *limonada*, 'lemonade', two kinds of secondary stress effects were found: either primary stress was shifted to the first syllable instead of being realized on the penult, or both the initial and penultimate syllables were both realized with L+H* pitch accents. This latter pattern is shown in Figure 6.

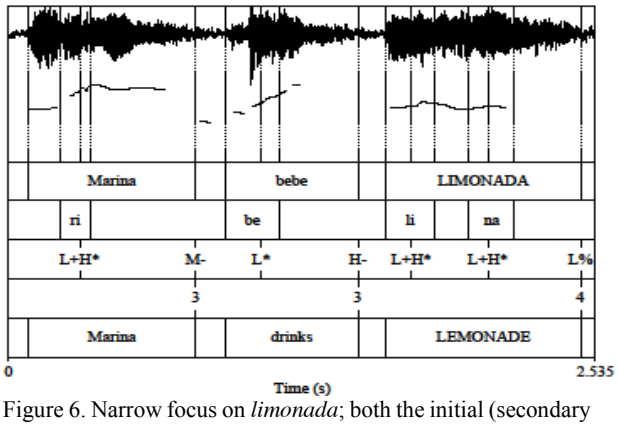


Figure 6. Narrow focus on *limonada*; both the initial (secondary stress) and penultimate syllable (primary stress) are prominent.

4. Discussion

The data analyzed revealed several within-dialect and cross-dialectal patterns with respect to intonation. Within the Cuban Spanish speakers, Cuban-born speakers produced more nuclear configurations per discourse category than Cuban-American speakers, whose realizations represented a subset of the Cuban-born speakers. These differences could have various sources; as the Cuban-American speakers are heritage speakers of Spanish who are also native speakers of American English, their contact with English could have an influence on their Spanish. Additionally, as South Florida has a diverse Hispanic community apart from the Cuban majority, dialect leveling (as seen with Puerto Rican Spanish in New York [7]) with other varieties of Spanish may have also influenced the non-Cuban-born Spanish speakers toward certain prosodic realizations. Data from other dialects of Spanish present in South Florida as well as English data from these participants is needed in order to investigate the source of this variation.

When the intonation data from the Cuban Spanish speakers is compared with that of the Pan Sp_ToBI and other Caribbean Spanish dialects, few similarities emerge. Cuban Spanish shares its prenuclear pitch accent and the tonal configurations for exclamatives and narrow focus with the Pan Sp_ToBI, but shares the tonal contours of categories such as broad focus, vocatives, and polite questions with Puerto Rican Spanish. The boundary tone inventory found in Cuban Spanish resembles the other Caribbean Island varieties more than the Pan Sp_ToBI; the Caribbean Island dialects (including Cuban) contain only a subset of the monotonal and bitonal boundary tones specified in the Pan Sp_ToBI and do not contain any tritonal boundary tones.

The use of L% in questions found in Cuban Spanish was not reported for Pan Spanish, but occurs in the other two Caribbean Island Spanish dialects [2, 3]. That is, all three Caribbean island varieties share L% boundary tones for non-wh questions, which is a marker of Caribbean Spanish dialects. Among the Caribbean dialects mentioned, however, Cuban Spanish was closer to Puerto Rican Spanish than to Dominican Spanish by employing M% boundary tones in vocatives, HL% for exhortative imperatives, and H% boundary tones in tag questions and some requests (mostly by Cuban-American speakers), but Cuban and Puerto Rican varieties still differ in the usage of their tonal inventory across discourse categories. As previously mentioned, the relative political isolation of Cuba as well as the dominance of the Cuban dialect in South Florida may be a source of this divergence with respect to the other dialects of geographical proximity.

5. Conclusion

The current study presents a preliminary model of intonational phonology of Cuban Spanish in the AM framework based on the intonation data from eight Cuban Spanish speakers living in South Florida. Using the conventions of the Pan Sp_ToBI, the tonal inventory of this dialect was proposed as well as the tonal contours that define various discourse categories and sentence types. The proposed tonal inventory was then compared with that of Pan Sp-ToBI and other varieties of Caribeean Spanish. Further analysis will consider additional discourse categories present in the semi-spontaneous data of the speakers as well as sources for within dialect variation.

6. Acknowledgments

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7. References

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