Abstract

Syrian speakers of Arabic are distinguished from speakers of other Arabic dialects by using “singing intonation” in their utterances. This paper examines the intonational patterns occurring in Syrian Arabic using the autosegmental-metrical (AM) approach to intonation. The dialect used in this study is the one spoken in Damascus (Damascene). The analysis is based on two experiments wherein the second experiment utterances were investigated in three word orders of Syrian Arabic (VSO), (SVO), and (VOS). Declarative sentences showed an initial rise (due to stress on the first syllable) and a falling contour towards the end. Stress position and word order were found to change pitch accent type and alignment. Phrase-final drawl was found to be exaggerated in questions leading to vowel lengthening.

Index Terms: intonation, syrian arabic, prosody, arabic intonation

1. Introduction

The intonation of standard Arabic and its colloquial varieties has been the subject of some phonetic and phonological studies. Works on Arabic dialects within the AM framework showed a range of analysis ([1], [2] and [3] on Caïreene Arabic, [4] on Emirati Arabic, [5] on Lebanese Arabic, [6] on Jordanian Arabic, [7] on San’a’i Arabic (Yemeni), and [8] on Hijazi Arabic). For a good summary and overview of the literature, see [9].

Previous studies on Syrian Arabic (henceforth SyrA) are limited to preliminary attempts such as [10] using the British school tradition of intonational description and [11], which is a brief comparison with Caïreene Arabic in terms of statements and questions. No previous study on SyrA investigating the tonal inventory or the prosodic structure has been carried out. The present paper aims at describing the intonational patterns in SyrA using the autosegmental-metrical (AM) approach to intonation, which was first developed by Pierrehumbert [12] and has been applied to a variety of languages [13] and [14], among many others. In this study, we present the intonational patterns of SyrA along with the tonal inventory and the prosodic phrasing based on the controlled data set. The intonational patterns are also investigated in three word orders representing different stress positions of the target items.

Within the AM framework of intonational phonology, tones are either associated with metrically prominent syllables (pitch accents) or with edges of prosodic domains (boundary tones). There is a strong relationship between pitch accents and stressed syllables, i.e., both of them contribute to the relative prominence pattern of an utterance. Stressed syllables form the potential landing site for pitch accents, reflecting the relationship between word-level stress and phrase-level prominence. Arabic has a relatively complex intonation as English and Dutch. These languages are called stress-accent languages. Thus, SyrA is a stress-accent language in which tone is only used post-lexically. Stressed syllables which are more prominent than their unaccented counterparts receive an intonational tone - a pitch accent.

Arabic has generally been analyzed as a quantity-sensitive stress language where stress is predictable from syllable weight and the syllable's position in a word [15]. Many dialects of Arabic including Jordanian [6], Lebanese [5], and Palestinian [15], have been shown to have the same stress rules. Thus stress assignment in SyrA also follows the same rules as other dialects of Arabic:

Stress the penultimate syllable if it is heavy (1a) or in disyllables (1b). Otherwise, stress the antepenult (2). Finally, stress the ultimate syllable only if it is superheavy (3) [16].

(1) a. ma daˈres ‘schools’ b. kəˈtab ‘wrote.3SG.M’
(2) maˈktabe ‘library’
(3) mafˈtuːh ‘key’

2. Material

The data for the experiments were recorded by six native speakers of SyrA (4 males & 2 females). Twenty-two utterances were used in the first experiment, including declaratives, questions, continuation, alternatives, surprise, imperative, and four types of focus. The second experiment consists of 27 sentences comprising three word orders in SyrA (VSO, SVO & VOS). The sentences consist of three word categories (verb, subject & object), each of them is represented in three different stress positions (penult, antepenult & ultima). Sentences were uttered as answers of broad (VSO) and narrow focus (SVO with subject focus) and (VOS with object focus).

The corpus was segmentally labelled (using Praat 6.1.38 [17]) and transliterated based on IPA phonetic symbols. The ToBI-style transcription of the data was also carried out. To avoid micro-prosodic consonantal effects, the pitch contour curves were smoothed in some utterances (10 to 30 %) using Vocal Toolkit plugin on praat.

3. Prosodic structure and phrasing

The AM model organizes prosodic events hierarchically in two levels: The prosodic words (PWd), which are organized into larger prosodic units such as Accentual Phrases (AP) and Intermediate Phrases (ip), and the second level which groups APs and ip into Intonational Phrases (IP).
3.1. Evidence for the Accentual Phrase (AP)

Crosslinguistically, accentual phrases are defined by boundary tones marking their edges (right edge, left edge, or both). The Accentual Phrase has been applied to languages having postlexical stress, such as French [18], and other languages which do not have lexical stress, like Korean [18], where prominence does not refer to word-level stress but is rather linked to phrase-level prosody. In previous works, APs have been suggested for languages that have pitch accents, like Arabic. El Zarka [19] suggests that pitch accents in Egyptian Arabic may be analyzed as Accentual Phrases (AP), where every content word receives a pitch accent in Egyptian Arabic [20]. On the other hand, Abbas [21] suggests three levels of phrasing in Farasani Arabic: the Accentual Phrase (AP), the Intermediate Phrase (ip), and the Intonational Phrase (IP). The AP in Farasani Arabic is marked by a high tone (H) on its right edge, and a low tone (L) on the left. In this study, we assume three levels of phrasing in SyrA, Accentual Phrases (AP), Intermediate Phrases (ip) and Intonational Phrases (IP). Boundary identification was, firstly, perceptually done (i.e., by listening to the utterances and deciding whether there is a perceptually identifiable break), and secondly, depending on some phonetic features such as f0 reset, lengthening (a word to the left of a phrase boundary), and insertion of a pause and a high or low phrase tone.

The AP in SyrA is marked on its right edge by a high tone H realized on the stressed syllable and marked by a low tone La on its right edge. This suggests that the location of the stressed syllable is associated with the rising tonal pattern of the AP. The AP in SyrA contains one or more content words, and the IP can have more than one AP. The majority of APs in SyrA are realized as [H* La] pattern in broad-focus contexts except when the AP is an IP-final where it is usually realized as [H* La] pattern with a downstepped pitch accent. Note that all utterances used in the data are read-sentences, and spontaneous speech utterances might have a different analysis.

Consider examples (4) and (5) below in broad focus conditions represented in figures 1 and 2, respectively. Example (4) is the default VSO word order in Arabic with Verb – Subject – Object syntactic structure, and (5) with a Subject – Verb – Object syntactic structure (SVO), which is a very commonly used word order in SyrA.

(4) rasal mazen ile:la
Corresponded.3SG.M Ahmad Laila
‘Mazen corresponded Laila’
Phrasing: [\{r asal\} AP \{ma zen\} AP \{ile la\} AP] IP
H* La H* La H* La L%  

(5) mazen rasal ile:la
Mazen Corresponded.3SG.M Laila
‘Mazen corresponded Laila’
Phrasing: [\{ma zen\} AP \{rasal\} AP \{la\} AP] IP
H* La H* La !H* La L%

As shown in figures 1 and 2, both the sentences are uttered in one intonation phrase with three APs. The pitch rises over the stressed syllable extending sometimes to the next syllable and falls ending with a low boundary tone La. The high tone on the first syllable of the first AP is followed by a local pitch reset demarcating a boundary tone La between the first word and the second word. The first two APs have [H* La] patterns, while the IP-final AP has a [H* La] pattern. This shows that the AP in SyrA is different from Farasani Arabic [21]. Stressed syllables in Farasani Arabic are not apparent in non-focused sentences; rather, stressed syllables carry a pitch accent only when a word is narrowly focused or a Wh-word.

3.2. Evidence for the Intermediate Phrase (ip)

Consider example (6) with a Subject – Verb – Direct Object – Indirect Object syntactic structure represented in figure 3. The syntactic structure SVO (the subject, the verb and the direct object) forms one intermediate phrase. The ip in SyrA is marked on its right edge by a boundary tone H- . The ip is characterized by a rising contour, with a high tone H- aligned to its right edge. The ip boundary tone H- is distinct from the AP-initial tone H; the ip boundary tone H- has a higher pitch and boosted pitch range than the AP initial tone H. The sentence in figure 3 is uttered in one intonation phrase with a sequence of closing accents. The peak on the last syllable of the word [\ldel\] ‘doll’ is higher than the preceding H* peak, breaking the declination slope among H* peaks. This higher peak is an ip boundary tone H- marking the direct object of the sentence. The vowel in the second unstressed syllable [be] of the word [\ldel\] is lengthened, but the duration lengthening is not enough to correspond to an intonational phrase boundary. This obviates the analysis of the second syllable as involving IP boundary tone. In addition to this, there is a pause between the direct object [\ldel\] and the indirect object [la-\sa:del] “to Adel.” Thus the best analysis here is an ip phrase accent H-.  

(6) ma:zen ram-a l-la\del\ la-\sa:del
Mazen threw.3SG.M the-doll to-Adel
‘Mazen threw the doll to Adel.’
Phrasing: [\{ma:zen\} AP \{ram-a\} AP \{la\} AP] IP
H* La H* La H* H* La L%
4. Declaratives

A declarative tune in SyrA is described with a falling contour. The pitch rises initially on the first accented syllable and then falls towards the phrase edge involving pitch accents on every content word and a boundary tone La in every AP. Some statements showed an initial rise in the contour due to stress on the first syllable (except when preceded by the definite article “the”. In fact, clitics are never accented in SyrA and have been claimed to be cliticized to the following content word [22] as illustrated in example (6). The maximum pitch does not form a peak but stretches over the whole stressed syllable extending sometimes to the next syllable resulting in plateau tunes or hat patterns. In the controlled data set, figures 1 and 2 with neutral focus showed high pitch accents H* in every AP, and a boundary tone L%. In longer utterances, H peaks showed a downturn pattern within an utterance.

5. Questions

Wh-questions in SyrA exhibited a rise to the nuclear pitch accent followed by a pattern of downdrift. The nuclear pitch accent almost always occurred on the Wh-question word, which always occurs in the initial position in SyrA. The AP in Wh-questions is marked by a complex tone L+H* followed by a low boundary tone La. The AP boundary tone La was observed to control a stretch of syllables before the tails. Tails showed either a mid-rise resulting in H-L% boundary tone combination (figure 4) or a final fall with H-L% boundary tone combination (figure 5). The utterances in figures 4 and 5 show a rise in the pitch contour on the Wh-word [we-n] “where” and [ʔemta] “when,” respectively, stretching to the first stressed syllable of the following word. The pitch contour is also characterized by a mid-rise on the last unstressed syllable of the phrase-final content word. The reason for this final mid-rise in SyrA Wh-question tunes is due to the phrase-final drawl which is often exaggerated. However, this is a preliminary model and more research should be carried out in the future on the pragmatic functions of Wh-questions in SyrA which may result in different analysis.

Yes/no questions utterances showed different pitch contours from Wh-questions. YNQs are characterized by an initial low tone on the first syllable of the nuclear accented word followed by a rise in pitch movement realized as an upstep to a higher level tone. The AP in YNQs is also marked by a complex tone L+H* or L*+H on its left edge followed by a high boundary tone Ha. The nuclear pitch accent occurred on the first word (the finite verb) rather than the last content word. The pitch rise starts on the second syllable of the nuclear accented word. The shape of the nuclear pitch accent and alignment of starred tone differs according to stress position on the word. If the first syllable is stressed, the nuclear pitch accent has L*+H pattern, whereas the nuclear pitch accent has L+H* pattern if the stress falls on the second syllable. Similar to Wh-questions, the utterance-final high rise in YNQs is accompanied by a pre-pausal drawl. This is found to be a typical feature of questions in Damascene dialect [11], [23], [24] and [25], which makes it different from most other dialects of Arabic, and which is referred to by Kulk et al. [11] as a “singing intonation.” Yes/no questions in SyrA have no morphological markings or syntactical means to differentiate them from statements. Since they have the same morphosyntactic form, questions are distinguished from statements by intonation only.
Figure 6: YNQ with a nuclear pitch accent on [ˈnaːmet] “slept” in the utterance [ˈnaːmet ˈleːla?] “Did Laila sleep?”

Figure 7: YNQ with a nuclear pitch accent on [ˈrad ˈdeʃ ˈval muːˈbajl] “answered” in the utterance [ˈrad ˈdeʃ ˈval muːˈbajl?] “Did you answer the mobile?”

This analysis shows that question tunes in SyrA are different from other dialects of Arabic such as Lebanese [5] or Farasani [21]. The pitch contour occurring on Wh-questions in Lebanese is similar to that observed on yes/no questions, which exhibits an overall rising pitch starting from the nuclear accent on the Wh-word and rising further at the edge of the intonational phrase. In Farasani Arabic, Wh-questions have the same tonal representation as focus contexts exhibiting a rising-falling tonal pattern on the Wh-word, while L tones mark all preceding and following words of the Wh-word, which can occur initially and medially in the sentence.

6. Tonal inventory

Preliminary analysis of the corpus suggests six nuclear pitch accent types for the tonal inventory of SyrA: H*, L+H*, L*, L*+H, !H*, H+H* and H+L*. Four types of phrase accents are posited for SyrA, (La and Ha) marking the right edges of accentual phrases (AP), and (H- and !H-) marking the right edges of intonational phrases (ip), with three boundary tones (L%, H% and !H%) marking edges intonational phrases (IP).

- **H**: a single-tone pitch accent which is the unmarked pitch accent through the utterances. It is realized high on the stressed syllable, sometimes stretching to the next syllable.

- **L+H**: realized as a bi-tonal counterpart of H* and found in different tunes, especially in question tunes as the nuclear pitch accent on Wh-word (figure 4), and in continuation tunes.

- **L***: the majority of yes/no questions contours are marked with L* or L*+H illustrating a plateau before a high rise at the IP boundaries.

- **L*+H**: the bi-tonal counterpart of L* which is also found in yes/no question tunes as in figure 6. It consists of a low tone prominence followed by a sharp rise. The first part (L*) is aligned with the onset and nucleus of the accented syllable whereas the H rise is aligned with the coda.

- **!H**: a downstepped high pitch accent preceded by a high accent. It is realized lower in the pitch contour than expected due to the phonetic effect of declination. !H* is usually realized in IP-final accentual phrases (figures 1 & 2).

- **H+L**: this pitch accent was observed in SyrA declarative tunes with limited distribution occurring on heavy or superheavy stressed syllables. This pitch accent type is rare in other Arabic dialects.

7. Intonation and word order

VSO utterances with neutral focus involved pitch accents on every content word. SVO word order utterances, with subject focus, were produced with a nuclear pitch accent on the subject. In contrast, the pitch accents of the verb and the object were deaccented, involving La tone controlling a stretch of syllables followed by an L% boundary. The pitch accent was realized as H* (on penultimate and antepenultimate stressed syllable) and L+H* (on ultimate stressed syllable).

VOS order utterances with object focus were produced with a nuclear pitch accent on the object, pre-nuclear pitch accent on the verb and the subject deaccented. The nuclear pitch accent was realized as H-H* in 80% of the utterances, whereas the pre-nuclear accent was realized as H*.

In SVO and VOS orders, the nuclear pitch accent of the focused item was aligned properly with the stressed syllables. The f0 peak reached within the accented syllable sometimes extends to the next syllable due to the expanded pitch range.

It has also been observed that in neutral-focus conditions, pitch accents with superheavy CVVC syllables (ultimate stress) were realized as L-H* (non-IP-final) and L* (IP-finally) with an expanded pitch range.

8. Conclusions

The intonational patterns and tonal inventory of SyrA have been investigated in this study within the AM framework based on a controlled data set. SyrA questions are characterized by utterance-final high rise accompanied by a pre-pausal drawl. The study has also shown that word order and stress position affect the pitch accent shape and alignment. When a particular constituent in an utterance is narrow-focused, the narrow-focused item bears a nuclear accent and receives an expanded f0 range, while the post-focus item is realized in a compressed pitch range suggesting deaccenting of the post-focal items. Thus SyrA is considered as right-headed language. These findings in SyrA are similar to what has been reported for other dialects of Arabic such as Lebanese [5] and Jordanian [6]. Egyptian Arabic [20], on the other hand, was found to be different where non-final nuclear accents are followed by post-nuclear accents since every content word will receive a pitch accent in Egyptian Arabic.
9. References


