Farasani Arabic intonational phonology: A preliminary model

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Abstract

This study proposes a preliminary analysis of the intonation system in Farasani Arabic, a dialect of Arabic spoken on the Farasan Islands in the Red Sea, in the southwest of Saudi Arabia. The analysis is built in the framework of the Autosegmental-Metrical (AM) model of intonational phonology. The findings show, among other things, that stress does not affect intonation; rather, stress affects f0 only in focused contexts, with an f0 peak realized on the stressed syllable of a focused word. Additionally, Farasani Arabic is found to have three prosodic units defined by intonation: an Accentual Phrase (AP), an Intermediate Phrase (ip) and an Intonational Phrase (IP). A typical AP in Farasani has a rising pattern marked by [L Ha] with a Low tone on its left edge (L) and a High tone on its right edge (Ha). Like the AP, the ip has a high tone associated with its right edge (H-); ips can delimit syntactic constituents such as relative clauses, adjuncts, and alternative questions. Finally, in Farasani, an IP is defined by a boundary tone realized on the final syllable of the IP, overriding the boundary tone of the lower prosodic units. The IP boundary tones can be [L%], [H%], [!H%] and [HLH%], depending on sentence types and pragmatic contexts.

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Chapter 1

Introduction

This purpose of this thesis is to propose a preliminary model of Farasani Arabic occurring in Farasani Arabic intonational phonology based on data involving f0, stress location, syntactic structure, and prosodic structure. Farasani Arabic is a dialect of Arabic spoken by about 20,000 people in Farasan Islands, which is located in the Red Sea to the southwest of Saudi Arabia (Muftah,2005). This intonational analysis employs the Autosegmental-Metrical (AM) model of intonational phonology (Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Pierrehumbert & Beckman 1988; Ladd 1996, 2008), and the data are annotated using the ToBI method of prosodic annotation (Silverman, et al. 1992; Beckman & Ayers Elam 1997, Beckman et al. 2005).

This study will argue that Farasani has three prosodic units marked by intonation: an accentual phrase (AP), an intermediate phrase (ip) and an intonational phrase (IP). I will also argue that in Farasani Arabic, stress does not affect intonational patterns. This is typologically rare , as languages with lexical stress typically link pitch accents to stressed syllables. There are only a few languages that have been observed to not have a link between stress and intonation: e.g., Kuot (Lindström & Remijsen 2005), Wolof (Rialland and Robert 2001), and Uyghur (Major & Mayer 2019).

The structure of this thesis is as follows: chapter 2 contains a brief review of the AM model of intonational phonology and the intonation of other Arabic dialects. Chapter 3 describes the data and the methods used for this study. Chapter 4 introduces the prosodic structure of Farasani by providing evidence for the three prosodic units : AP, ip, and IP. The first subsection

of Chapter4 shows evidence of an AP that does not a pitch accent by examining the relationship between stress and intonation in default sentences. The second subsection shows evidence of a pitch accent in an AP when a word is focused or a wh-word. The next two subsections show evidence of an ip and IP, respectively. Chapter 5 presents a summary and discussion of the findings and directions for future research.

Chapter 2

Background

2.1 The Autosegmental-Metrical (AM) model

The intonation model proposed in this thesis is based on the Autosegmental-Metrical (AM) model of intonational phonology, which provides a useful set of theoretical assumptions for analyzing the intonational systems of languages (Bruce 1977; Pierrehumbert 1980; Ladd 1983, 1996 ; Liberman and Pierrehumbert 1984; Beckman and Pierrehumbert 1986; Pierrehumbert and Beckman 1988; Pierrehumbert and Hirschberg 1990). The Autosegmental-Metrical (AM) model defines intonation as a sequence of distinctive tonal units (High and Low, and their combinations).

The (AM) model recognizes two distinct types of tonal events: (i) prominence-marking tones, or pitch accents, associated with a prominent syllable or mora, and (ii) edge-marking or boundary tones associated with the edges of prosodic constituents. Pitch accents are marked with an asterisk (e.g., H*), and must fall on a stressed syllable (though not all stressed syllables carry a pitch accent).

In a language with lexical stress such as English, prominence is marked by pitch accents. Accents such as H* are composed of a single tone, but pitch accents can also be a combination of two tones, indicated using the plus sign (e.g. L+H*). In bitonal pitch accents, the tone marked by an asterisk aligns with the stressed syllable. For example, in an L+H* tone, the f0 peak will align with the stressed syllable, while the low tone will typically align with the preceding syllable. Boundary tones are marked with a symbol that indicates which prosodic

unit they are associated with. For example, AP boundary tones are marked with 'a' (e.g. Ha), ip boundary tones are marked with a minus sign (e.g. a H tone marking the end ip is H-), and IP boundary tones are marked using a percent sign (e.g. H%, L%).

In addition, the AM model of intonational phonology assumes prosodic units modeled under Metrical Phonology. In Metrical Phonology, segmental information is organized into groups of relative prominence in a hierarchical manner. Segments are organized into syllables, syllables into metrical feet, and feet into phonological words; words are then organized into larger prosodic units such as Accentual Phrases (APs), intermediate phrases (ips), and intonational phrases (IPs). The prosodic units studied in the AM model are usually these higher units (prosodic words, APs, ips, etc.) because these units are often defined by intonation. Not all languages have tonal events that define all of these prosodic units.

Because intonational prominence is relative, it can only be defined in relation to other prosodic units. For example, within an ip, there can be multiple pitch accents, but the pitch accent which heads an ip (called the nuclear pitch accent) will be more prominent relative to other pitch accents. In English, for example, the last pitch accent in an ip is the nuclear pitch accent and is perceived as the most prominent relative to prenuclear pitch accents.

Of the prosodic units introduced so far, APs are of particular interest to the current study. Crosslinguistically, APs can be longer than one content word. Typically, an AP is defined tonally by the boundary tones marking its left edge, right edge, or both. AP languages differ from each other in how they deal with stress. For example, according to Jun, (2005), French has post-lexical stress as well as an AP-like phrasal or boundary tones. In contrast, APs in Japanese can a have a lexical pitch accent specific to its component word(s), in addition to a phrasal tone. On the other hand, Korean is an edge-prominence language and does not have any lexically specified head (stress, pitch accent, tone), nor any postlexically marked stress. Instead, prominence at the word and phrasal level in Korean is only marked by the edge of an AP and an ip. The language only has phrasal/boundary tones, and no pitch accent.

Another generalization of intonational analysis in the AM model is that tones have two functions, i.e., marking prominence or prosodic grouping. Prosodic tones mark lexical heads (i.e stressed syllables) and the edges of prosodic units. That is, if a language has stress, the

stressed syllable is expected to be marked by a pitch accent. Few languages have been claimed to be exceptions to this generalization; they include Wolof (Rialland and Robert 2001), Kuot (Lindstro m Remijsen 2005), and Uyghur (Major Mayer 2019). In these languages, stressed syllables are not observed to align with intonational events: instead, the intonational contours are determined only relative to phrasal boundaries. This study provides a partial exception to this generalization by showing that in default (non-focused) contexts, stress doesn't affect intonation in Farasani. Stressed syllables do carry a pitch accent when a word is narrowly focused or a wh-word.

2.2 Arabic stress and intonation

Arabic has generally been analyzed as a stress language, where stress is predictable from syllable weight and the location of stress in a word (Wasten 2011). Multiple dialects of Arabic, including Ammani Jordanian, Palestininan, and Lebanese, have been shown to have the same stress rules (van de Vijver 1996; Chahal 1999; Wasten 2011). Farasani stress is also determined by the same rules as other dialects of Arabic (Abbas, 2018). These Arabic dialects distinguishes between three levels of syllable weight: light, heavy and superheavy. Both vowel length and codas contribute to weight. Superheavy syllables are either closed with a long vowel (CV:C) or have a complex coda and a short vowel (CVCC); heavy syllables can have a long vowel (CV:) or a short vowel and simple coda (CVC); light syllables are always CV. First, stress falls on the final syllable if it is superheavy (CV:C/CVCC); for example, consider [sa.rágt] 'I stole' and [al.jó:m] 'today'. However, most words do not end in a superheavy syllable. If the final syllable is not superheavy, the location of stress is determined by the weight of the penultimate syllable: if the penultimate syllable is heavy (CVV or CVC), it bears the stress; such as, [la.má:.na] 'Lamana (name)'. Otherwise, stress goes on the antepenultimate syllable; such as, [rá.ga.du] 'They slept', [an.ká.sa.ran]'it was broken' and [kál.la.ma]'he talks'. When a word is two syllables long and both syllables are light, such as, [mú.na] 'Mona(name)' the stress is initial. That is, if the final syllable is not superheavy and the penult is not heavy, stress goes to antepenult (if there is antepenultimate syllable) or initial.

In terms of intonation, Chahal & Hellmuth (2014) investigated the similarities and differ-

ences in intonation of two Arabic dialects: Lebanese Arabic (LA) and Egyptian Arabic (EA). One of their findings was that in both LA and EA, pitch accents are associated with stressed syllables. Although stressed syllables are associated with rising pitch accents in both dialects, they slightly differ in the inventory of pitch accents: LA has the pitch accents H*, L+H*, L*, L*+H, !H*, H+!H* and H*+L while EA has pitch accents L+H* and L+!H*. The contrast in pitch accent inventories mentioned above shows that two dialects can have very distinct tonal inventories despite similar rising patterns on the surface. In addition, both dialects have a level of phrasing above the word (IP); they share similar boundary tones, such as a falling tone (L-L%) for declarative statements, and a rising tone (H-H%), which is used to indicate incompleteness and polar questions. Additionally, while every content word must have a pitch accent in EA, not all content words have a pitch accent in LA. The diversity of intonational parameters is apparent from the review of these two languages, and they also form a basic picture of the intonational possibilities in Arabic dialects. In addition, (El Zarka,2013)also investigated the intonational model of Egyptian Arabic and she proposed that Egyptian Arabic has an Accentual Phrase, as well as a pitch accent.

Alzaidi (2018) researched the intonation of the Saudi dialect of Hygazi Arabic, which is spoken in the west of Saudi Arabia. Alzaidi (2018) observed L+H* to be the most common pitch accent produced by Higazi speakers. L+H* was always realized on the stressed syllable of a word. The second most common pitch accent in Higazi Arabic is H*; this pitch accent is also found in Lebanese Arabic but is not realized in Egyptian (Hellmuth, 2006). He also argued that the low boundary tone L% comes with all declarative sentences in Higazi.

Another study of Saudi Arabic intonation is of Riyadh Arabic, by Algamdi (2006). The intonational pattern found in Riyadh Arabic is H%...H*L-... L%: the pitch accent H* appears on the stressed syllable in each lexical word, the phrase accent L- marks the right edge of every phrase, and IPs begin with a %H boundary tone at the left edge of every phrase and end with a fall (i.e., a L% boundary tone at the right edge). Again, in Riyadh Arabic, H* pitch accents are aligned with stressed syllables.

The common intonational features of these Arabic varieties is that all of them have pitch accents and the pitch accents are linked to stressed syllables; they are used to mark prominence.

Also, I found that, among Arabic dialects, Egyptian Arabic is the only dialect that have a prosodic unit of an Accentual Phrase. However, I will show that Farasani Arabic is similar to Egyptian Arabic (El Zarka 2013) but not like other varieties of Arabic, each content word in Farasani Arabic is mostly marked by an AP boundary tone.

Chapter 3

Methods

The data for this study was collected from 7 Farasani speakers: three female speakers in their 20s (including myself) and two in their 30s, and two male speakers in their 20s. Speakers were recorded in a quiet room in Farasan Island, using a smartphone recorder (mp4). One participant (the reasercher) used the Praat program to record the data using a laptop (sampling rate: 16000 Hz). Throughout this study, the speakers are labeled as follows: female speaker of age 28 (F1), female speakers of age 38 (F2), female speaker of age 29 (F3), female speaker of age 25 (F4), male speaker of age 26 (M1) and male speaker of age 20 (M2). The same labels will be used for all pitch track figures in this study.

Speakers were asked to read stimuli presented as a list in printed sheets of A4 paper (three pages long). The stimuli included 74 sentences varying in syntactic structure, length of the word, the word order, and focus (see Appendix for a full list of stimulus sentences). Speakers were asked to download and print the stimuli and record themselves in a quiet room individually. The researcher was electronically presented online on the phone with every speaker to guide each participant through the recording; they were asked to produce the sentences by reading the script as natural as possible. When they were done, they sent the audio files to the researcher by email.

F0 tracks of speech files were transcribed and analyzed using Praat. I manually checked the waveform/spectrograms, identified the location of stress and syllable/word boundaries, and used this information to transcribe the tonal categories.

All sentences have SVO word order. Words were selected to include numerous sonorants

and voiced sounds, with the intention of creating a clear f0 contour (Himmelmann & Ladd, 2008). Declarative sentences included subjects, verb, and objects which varied in the number of syllables in each word. Stress locations was also varied between word-initial, medial, and final. A full list of target sentences is provided in the Appendix.

The intonation patterns were discussed using the following structure:

(1) a. Declarative sentences includes subjects, verbs, and objects which varied in the number of syllables (1-4 syllables) and the location of stress (initial, medial, final) in each word. For example,

mú.na ná:.d-an lé:.la
Mona called-3sg.f-PER Laila
'Mona called Laila.'

lam.já:.na dá:.ka.ran al-kí:m.ja
Lamiana studied-3sg.f.PER-him the-Chemistry
'Lamiana studied Chemistry.'

lé:.la ʕal.la.mán-nu al-gó:l wál.la la
Laila taught-3sg.f.PER-him the-story or not
'Laila taught him the story or not?'

b. Subject Relative clauses and object relative clauses examples:

mú.na li ná:.d-an lé:.la ná:.m-an
Mona who called-3sgf-PER. Laila slept-3sg.m.PER
'Mona who called Laila slept.'

mú.na ná:.d-an lam.já:.na li ná:.m-an
Mona. called-3sgf-PER Lamiana who slept-3sg.f.PER
'Mona called Lamiana who slept.'

To collect data for focused contexts, I asked the participants questions focusing on either the subject, verb, or object. Those focus sentences include focused words with different stress locations. The examples below show how subject, object, and verb focus were elicited.

c. Focus sentences:.Example of focus in subject: neutral: Mona explained the story.

mú.na gá:.l-an al-gó:l
Mona explained-3sg.PER the-story
'Mona Explained the story.'

Focus on subject: A: Who explained the story?

mɪ:n li gá:.l-an al-gó:l?
Who explained-3sg.PER the-story

'WHO explained the story?.'

B: MONA explained the story.

mú.na gá:.l-an al-gó:l
Mona explained-3sg.PER the-story

'MONA explained the story.'

focus on verb: A: Who EXPLAINED the story?

mɪ:n li gá:.l-an al-gó:l?
Who explained-3sg.PER the-story
'WHO explained the story?.'

B: Mona EXPLAINED the story. mú.na gá:.l-an al-gó:l

Mona explained-3sg.PER the-story

'MONA explained the story.'

focus on object: A: Who explained THE STORY?

mɪ:n li gá:.l-an al-gó:l?
Who explained-3sg.PER the-story
'Who explained THE STORY?.'

B: Mona explained THE STORY.

d. Sentence with prepositional phrases and adverbs :

mú.na lá.gan fu.ló:s fi al-mó:l
Mona found money in the-mall
'Mona found money inside the mall.'

mú.na lá.gan fu.ló:s al-jó:m
Mona found money today

'Mona found money inside today.'

Chapter 4

The prosodic structure of Farasani

This section will introduce the prosodic structure of Farasani by going over the phrase levels in the language and some of their basic properties. Farasani has the following three prosodic phrases: the accentual phrase (AP), the intermediate phrase (ip) and the intonational phrase (IP). APs are marked on their right edge by a high tone, which is annotated as Ha, and marked on the left by a low tone, annotated as L. The next higher prosodic unit is the intermediate phrase (ip), which also marked by a high tone on its right edge, annotated as H-. One of the differences between the ips and APs is that ip boundary H- is higher than the preceding AP high tone (Ha). The third prosodic unit is the intonational phrase (IP) which is marked by a boundary tone surfacing in the sentence-final syllable. So far, four boundary tones have been observed in Farasani: L%, H%, !H% and HLH%.

4.1 Evidence for the Accentual Phrase (AP)

Default Farasani utterances generally involve sequences of rising pitch, as in Figure 1(a). Since Farasani has a word-level stress, a possible pitch analysis is that Farasani has L+H* or L*+H pitch accents. However, as I will show, this turns out not to be the case.

First, consider Figures 1(a-c); these figures show a waveform and its corresponding spectrogram and pitch track. Four tiers are labeled (words, tones, English gloss of each word, sentence meaning). The syllable boundaries are marked with a period (e.g., [le:].la). The same format will be used for all pitch track figures throughout the paper.

In Figure 1(a), the word [ʒá:.ma.lan] 'flattered' has initial stress; it has a low tone on the first syllable and a high tone on the last syllable. In this example, the low tone could be analyzed as a L*+H pitch accent. However, in Figure 1(b), the first word [lam.já:.na] 'Lamiana (name)', which is stress-medial, maintains the same intonational pattern, with a low tone on the first syllable and a high tone on the last syllable. In other words, the low tone does not align with the stressed syllable. Similarly, the four-syllable verb [ʕal.la.mán.nu] 'taught him' in Figure 1(c), where stress is penultimate, has the same rising pattern with a low tone on the first syllable and a high tone at the last syllable. Thus, these examples show that the stressed syllable does not participate in determining the tonal pattern of a word. All words have the same raising pattern regardless the location of the stress.

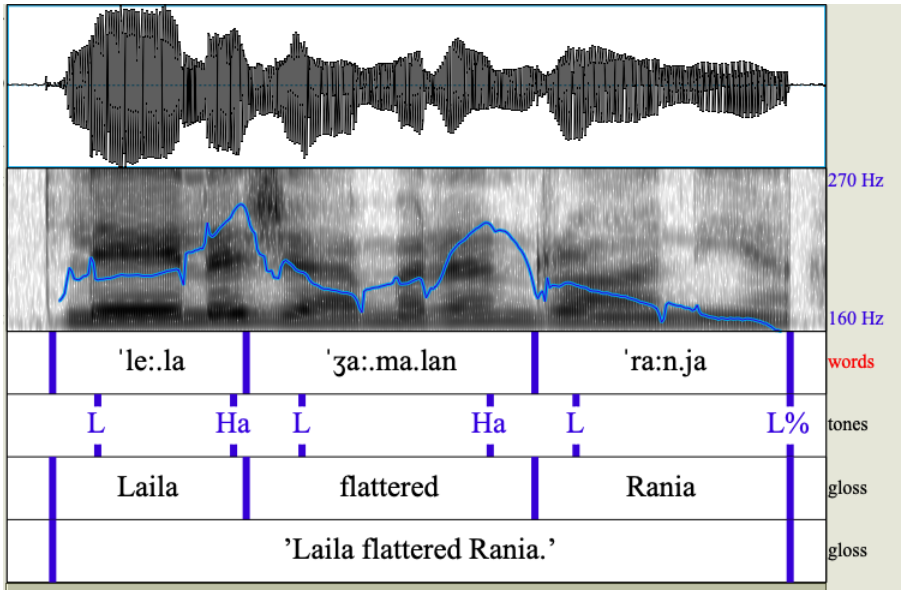

Figure 1a: An example f0 track of the declarative sentence 'Laila flattered Rania'. Each word shows a rising tone pattern except for the sentence-final word

.(F1).

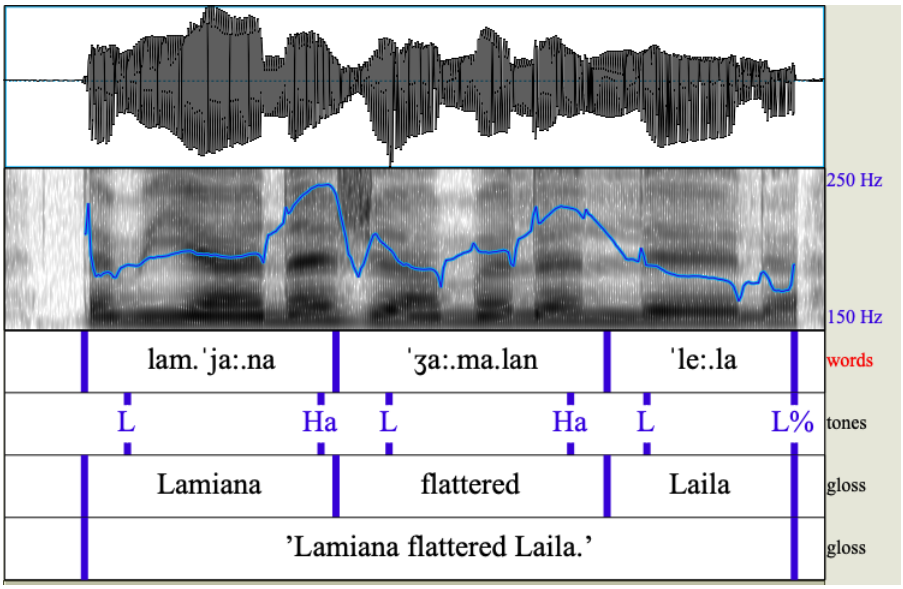

Figure 1b: An example f0 track of the sentence 'Lamiana flattered Laila.',where the first two words show a rising tone even though the location of stress is different in these two words.(F1).

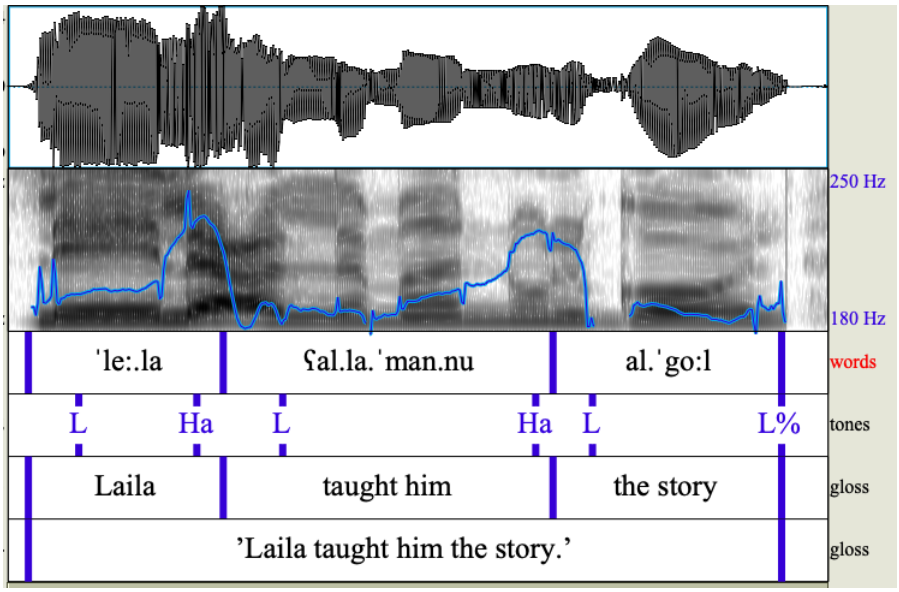

Figure 1c: An example f0 track of the sentence 'Laila taught him the story.', where the first two words show a rising tone even though the location of stress is different in these two words.(F1)

In addition, in the three-syllable word [ʒá:.ma.lan] 'flattered' in figure 1(a), where the stress is initial, the H tone still appears two syllables away from the initial stressed syllable, and occurs at the end of a word. This shows that the rising tone pattern results from a boundary H tone marking the right edge of a word.

However, the data show that the rising tonal pattern can contain more than one word. In Figure 2(a), the prepositional phrase, which contains two words, has a rising pitch continuing

throughout the phrase. The H tone appears on the right edge of the prepositional phrase [wá.ra al.mó:l] 'behind the mall', while the L tone is on the left edge of the phrase. Similarly, in Figure 2(b), the entire possessive phrase occurs as one rising domain. The high tone in the possessive phrase [bínt ʒi:.rá:n.na] 'our neighbors' daughter' marks the right edge of this phonological unit, which corresponds in this case to the possessive phrase, and the low tone marks the left edge of the possessive phrase.

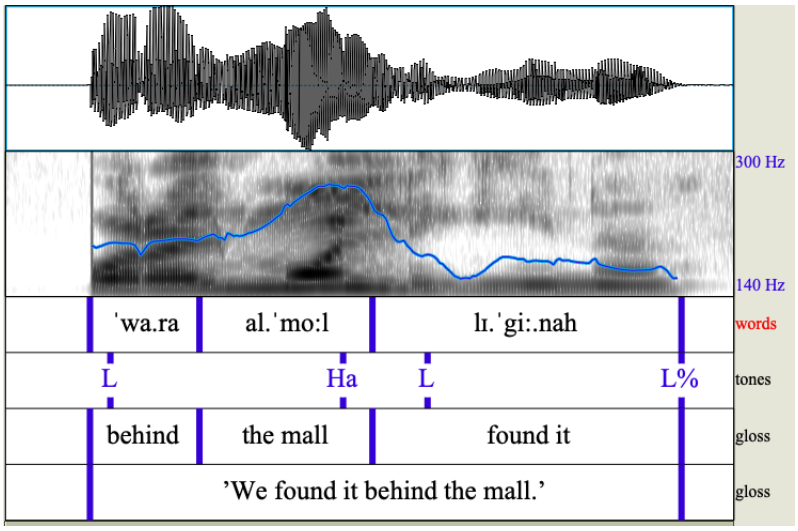

Figure 2a: An example f0 track of the sentence 'We found it behind the mall.' showing the prepositional phrase 'behind the mall' forms one AP [L Ha]; this shows that the domain of rising tone is bigger than a word.(F2)

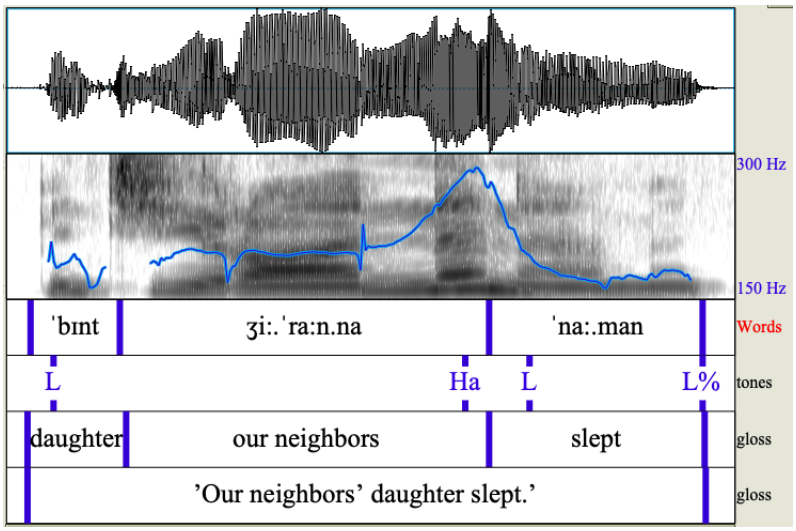

Figure 2b: An example f0 track of the sentence 'Our neighbor's daughter slept.' showing the possessive phrase 'Our neighbor's daughter' forms one AP [L Ha] ;this shows that the domain of rising tone is bigger than a word (F3)

Overall, Figures 2(a) and 2(b) show that the phonological unit observed here can contain

more than one word. This prosodic unit, which has a rising pitch and can be bigger than a word, can be characterized in the AM framework as an AP. High tones are reliably positioned on the last syllable of each phrase, which marks the edge of an AP; these are annotated as [Ha]. The left edge of these APs has low tones, annotated as [L]. In addition, in all examples, the high tone that marks the end of an AP is realized at the final syllable regardless the stress locations of each words. This shows that in default sentences, the location of the stressed syllable does not participate in deciding the rising tonal pattern of a word.

In all the figures shown above, the AP-final Ha tone is not realized when the syllable is also an IP-final syllable. Instead, IP-final syllables in declaratives are realized as a low tone. This suggests that the AP-final boundary tone is overridden by an IP-final L% boundary tone, which marks declaratives in Farasani. Tonal overriding is observed cross-linguistically but is not universal across languages; as discussed by Jun (2005), some languages, such as English, can have both intermediate phrase accent and the IP-final boundary tone (%) occurring together.

Note that as we see in this section, two words can be combined into a single AP. The specific contexts where this happens (and whether it is obligatory) are not clear yet, and this remains a topic for future research. However, it seems that this multi-word APs typically are align with syntactic constituents involving one content word and one function word, as in the prepositional phrase and two content words ,as in the possessive phrase. For example, as we see in this section, the prepositional phrase [wá.ra al.mó:l] 'behind the mall' forms one AP. Similarly, the possessive phrase [bínt ʒi:.rá:n.na] 'our neighbors' daughter' forms one AP.

To sum up, this section shows that declarative sentences in Farasani produced in neutral focus have an AP, and stress locations don't associate with intonation. That is, the AP tones are purely phrasal tones and do not include a pitch accent. The next section will show that a stressed syllable in Farasani does carry a pitch accent in an AP when the word is prominent.

4.2 Evidence for pitch accent as a prominence marker

In the previous section (Sec.4.1), we showed that Farasani has an Accentual Phrase defined by a boundary tone on its both edges and does not include a pitch accent even though an AP includes a stressed syllable. This section will show that a stressed syllable does carry a pitch accent when a word is a wh-word or narrowly focused.

4.2.1 Subject focus

When the subject is narrowly focused, it shows a rising-falling tonal pattern; notably, in these cases, the stressed syllable is aligned with the f0 peak, suggesting that the f0 peak is a H* pitch accent, marking prominence of the word. In Figure 3(a), where the word [lam.já:.na] 'Lamiana (name) is narrowly focused, the first syllable has a low tone, the peak is on the second syllable (stressed) and the word ends with a L tone. In contrast, the same word in a non-focused context in Figure 3(b) has the typical rising [L Ha] pattern. In Figure 4(a), the two-syllable focused word [lé:.la] 'Laila (name)' has initial stress; in this case, the first syllable has a rising tone, suggesting that H* is realized on the word-initial syllable. Figure 4(c) contains the three syllable word /ʕɪ.l:.má:n/ 'Elaiman(name)', where the peak is on the last syllable (stressed). The initial syllable of this word has an L tone while the final syllable has a falling tone, H followed by a L tone. These three examples confirm that f0 peak is aligned with the stressed syllable, rather than with the AP boundary, and should therefore be called a pitch accent.

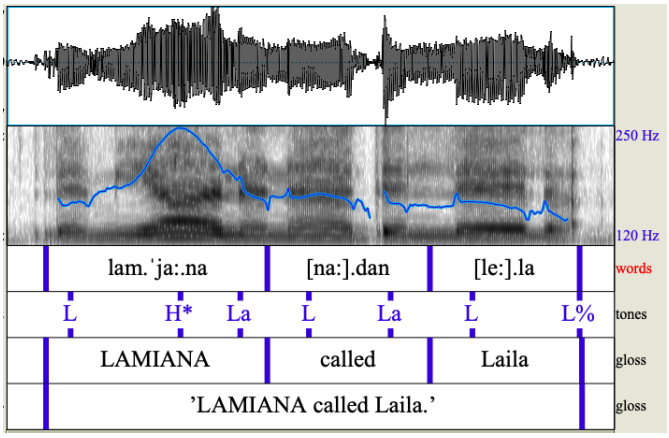

Figure 3a: An example f0 track of the sentence 'LAMIANA called Laila.' showing the subject focus word 'LAMIANA' with rising-falling tonal pattern, which has a word-medial stress labeled as [L H* La].(F3)

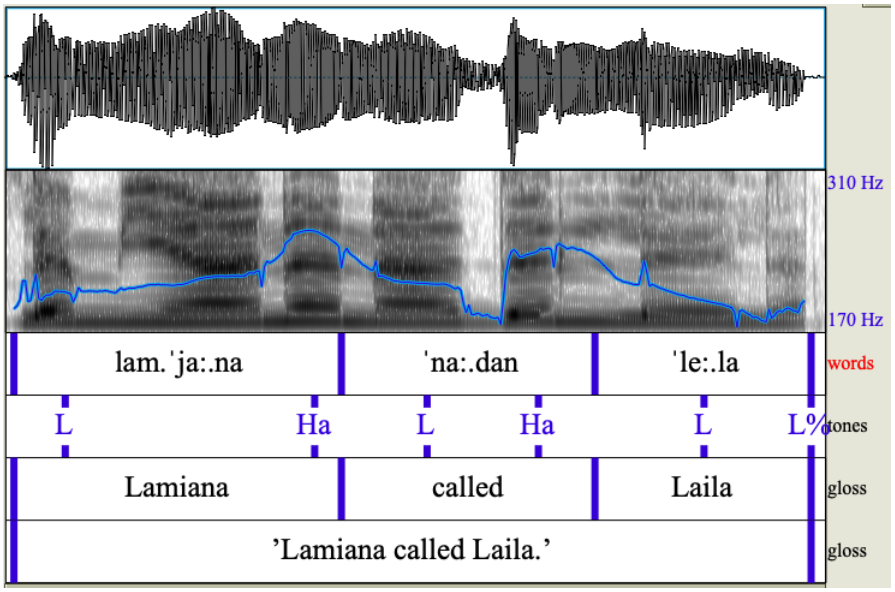

Figure 3b: An example f0 track of the default sentence 'Lamiana called Laila.', showing the non-focus subject 'Lamjana' and each word forms one AP with [L Ha] pattern. (F1)

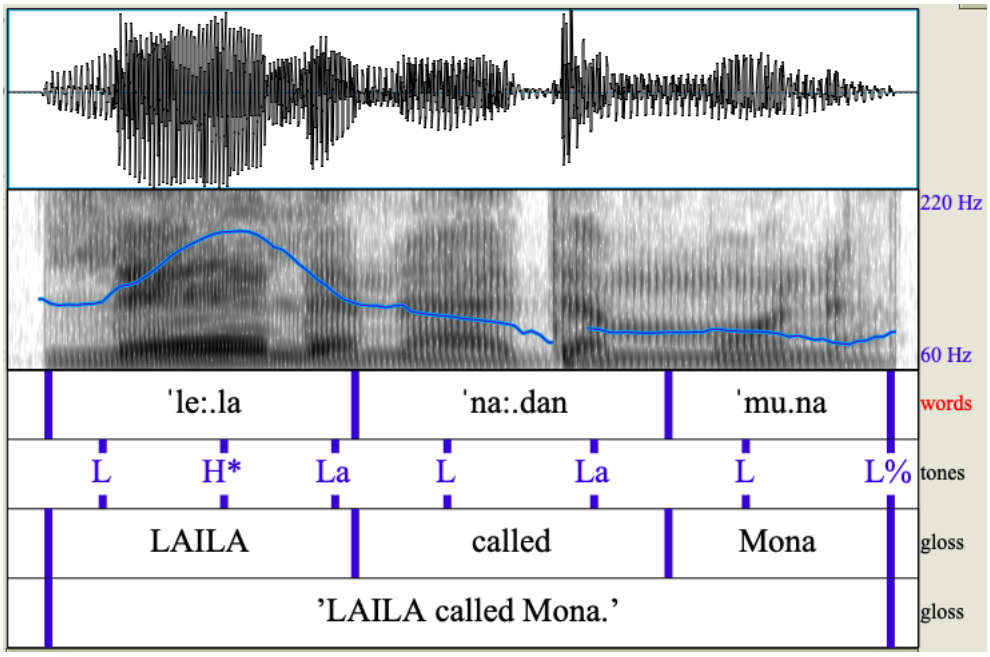

Figure 4a: An example f0 track of the sentence 'LAILA called Mona' showing the two syllables subject focus word 'LAILA', which has a word-initial stress, with rising-falling tonal pattern, labeled as [L H* La]. (M1)

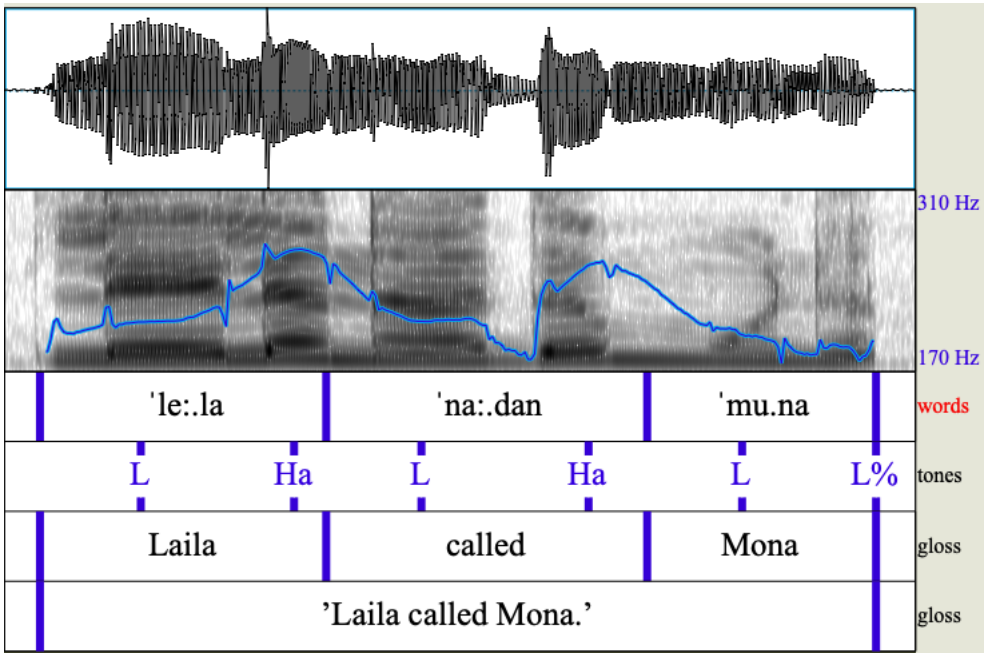

Figure 4b: An example f0 track of the default sentence 'Laila called Mona.' (F1)

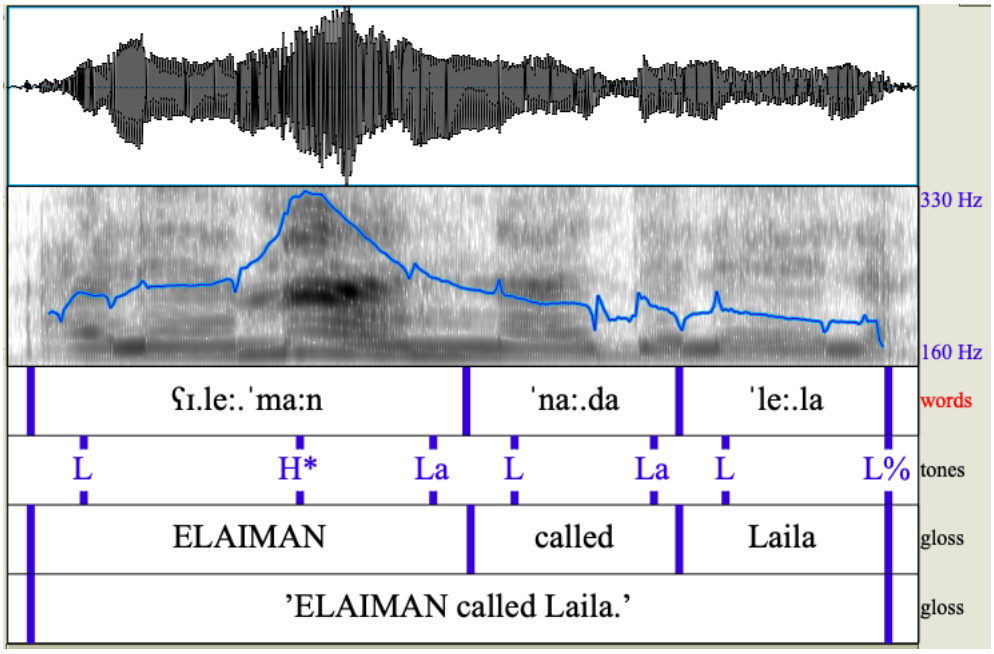

Figure 4c: An example f0 track of the sentence 'ElAIMAN called Laila' showing the three-syllable subject focus word 'ELAIMAN' ,which has a word-final stress ,with rising-falling tonal pattern, labeled as [L H* La].(M2)

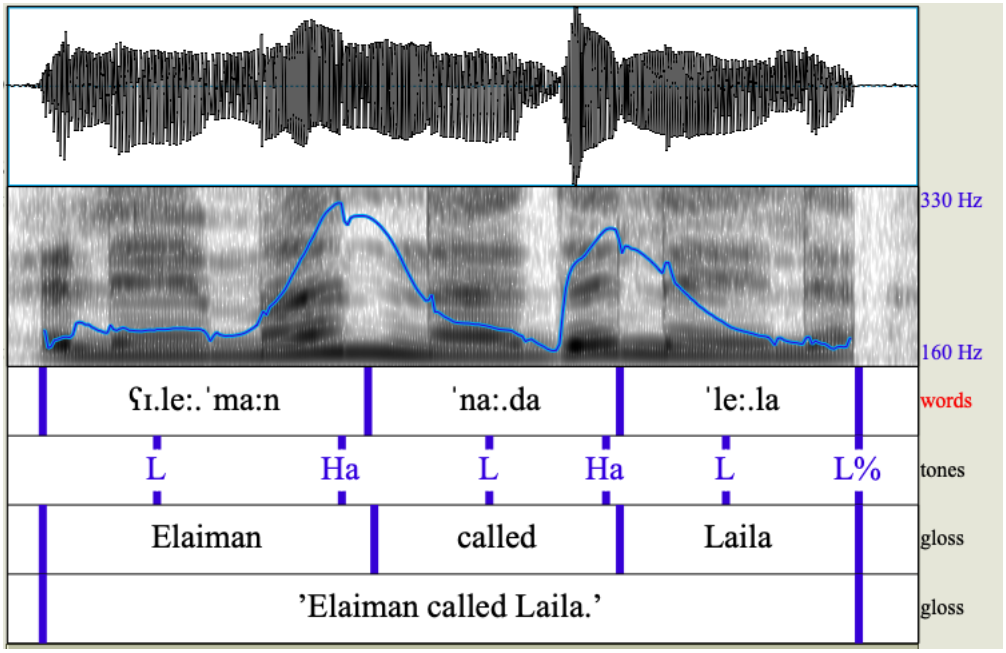

Figure 4d: An example f0 track of the default sentence 'Elaiman called Laila.', showing the non-focus subject 'Elaiman' , and each word forms one AP with [L Ha] pattern. (F1)

In addition, pitch before and after the focused word remain level and low; both the left and right edges of the focused word have a boundary [L] tone. In the subject focus example in Figure 4(c) [ʕí.leː.máːn náː.da léː.la] 'Elaiman called Laila', pitch falls quickly after the H*, and hits a low F0 target at the right edge of the word [ʕɪ.leː.máːn] 'Elaiman'. This suggests that there is a boundary La tone there. If not, we might expect the pitch to fall more gradually after the H* and show linear interpolation to the sentence-final IP boundary L% tone. Also, as seen in the same example in the focus word, the Ha boundary tone in the default AP changes to La on the focused AP. That is, no H tone is allowed other than the H* on the focused word. Thus, APs containing focus words are marked with a [L H* La] tonal pattern.

Note that the post-focus words [náː.da]'called' and [léː.la] 'Laila' in Figure 4(a); begin with a L tone, marking the left edge, and the left edge is marked by la; more research is needed to confirm the current tonal labeling of the pre-focus words. To summarize, when the subject is narrowly focused: the focused AP has an [H*] and the AP-final boundary tone is [La] which is different from the APs in the default sentences. Note that in some other languages such as English, post-focus words are deaccented. In Georgian, post-focused material is often dephrased and deaccented, but when not dephrased and deaccented, the post-focus words are produced in compressed pitch range (Vicenik & Jun 2005). For Farasani, acoustic data are needed to

judge whether the post focus words are dephrased or not; this is a topic to investigate in future research.

4.2.2 Verb focus

Similar to subject focus, when the verb word is narrowly focused, the word forms one AP showing a rising-falling tonal pattern, labeled as L H* La. In the verb focus example [lé:.la ʒá:.ma.lan rá:n.ja] 'Laila flattered Rania' in Figure 5(a), the pitch remains level and low before the focused verb, and only starts rising towards the H* peak on the stressed syllable of the verb. Pitch also falls towards a low f0 target at the right edge of the verb, instead of interpolating with the sentence-final boundary tone, showing that there is an La tone.

In Figure 5(a), the focus verb [ʒá:.ma.lan]'flattered', which has a word-initial stress, shows that both L and H* are realized on the word-initial syllable because it is both the stressed syllable and the AP-initial syllable; the last syllable gets La. Also, in the same sentence, the Ha boundary tones of pre-focused word are replaced by a La boundary tone; [lé:.la] 'Laila(name)' does not have a rise in pitch, and instead ends in an La boundary tone. The post focus word [rá:n.ja] 'Rania (name)' is marked by L in its left edge, and the right edge is marked by an IP-final boundary L%, which overrides the post focus word-final and ip-final boundary tone. More research is needed to confirm the current tonal labeling of the pre-focus and the post-focus words.

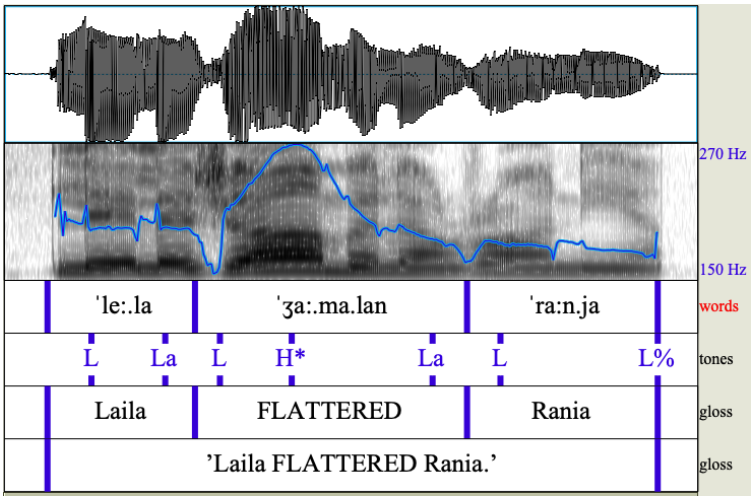

Figure 5a: An example f0 track of the sentence 'Laila FLATTERED Rania.' showing the three-syllable verb focus'FLATTERED' with rising-falling tonal pattern, labeled as [L H* La]. (F1)

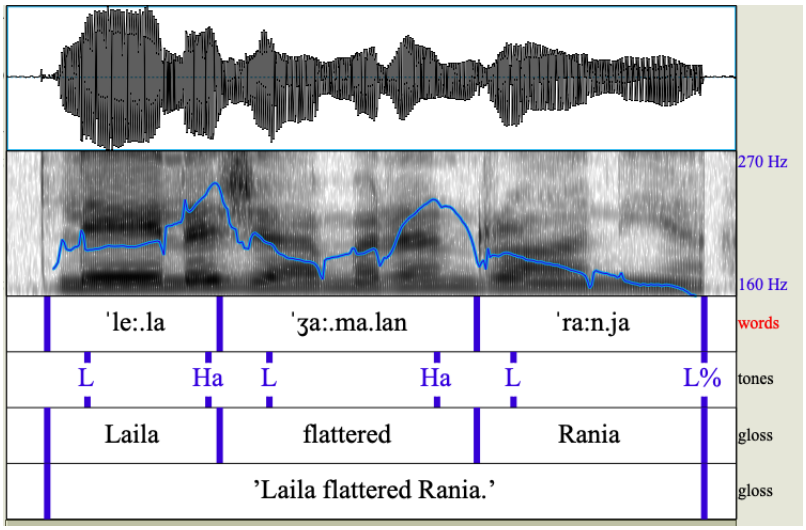

Figure 5b: An example f0 track of the default sentence 'Laila flattered Rania.', showing the non-focus verb 'flattered', and each word forms one AP with [L Ha] pattern. (F1)

In Figure 6(a), the two-syllable focused verb [gá:.lan] 'explained' has initial stress. In this example, both [L] and [H*] are realized on the word-initial syllable. It gets [L] because it is the initial syllable, and [H*] because it is the stressed syllable. The last syllable gets [La]; therefore, this focused AP is also marked with the [L H* La] tonal pattern. For comparison, in Figure 6(b), the same word [gá:.lan] 'explained' in the default sentence forms one AP with [L Ha] pattern as the other APs in Farasani default sentences.

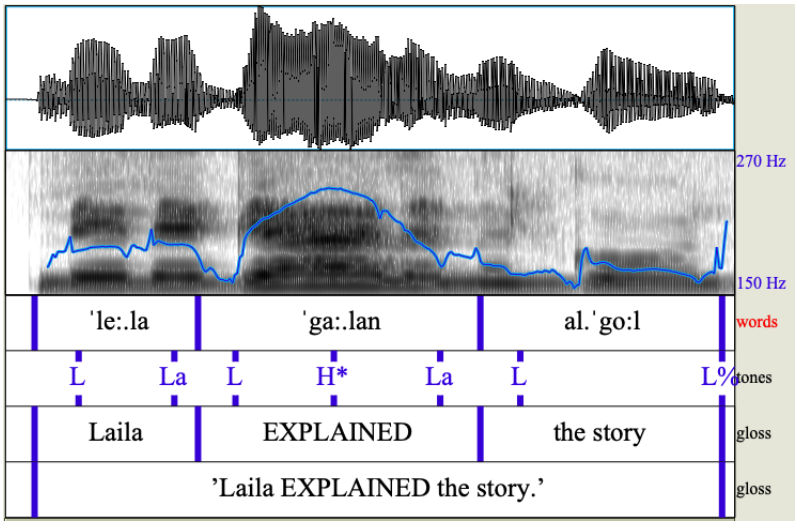

Figure 6a: An example f0 track of the sentence, 'Laila EXPLAINED the story.', where the verb with initial stress 'Explained' is narrowly focused with rising-falling tonal[L H* La].(F4)

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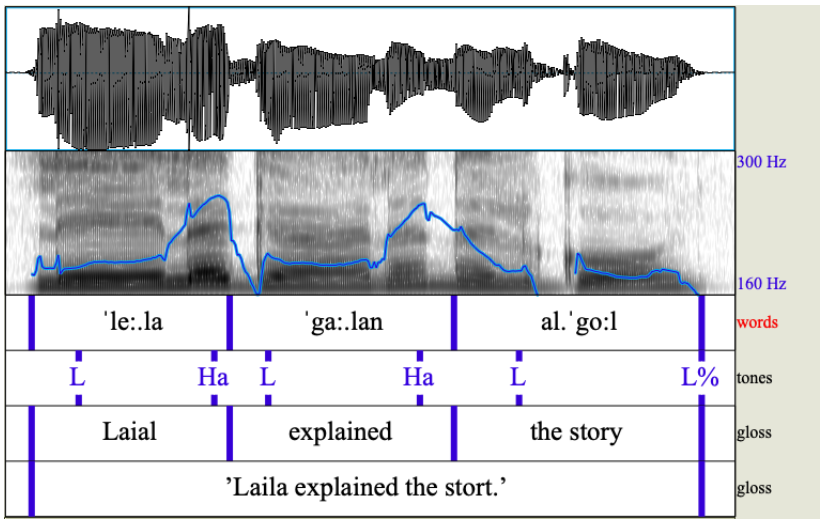

Figure 6b: An example f0 track of the default sentence 'Laila explained the story.', showing the non-focus verb 'explained 'and each word forms one AP with [L Ha] pattern. (F1)

Figure 7(a) contains a narrowly focused four syllable verb, [ʕal.la.mán.nu] 'taught him', where stress is on the penultimate syllable. Once again, we see a [L H* La] pattern, with the H* f0 peak realized on the penultimate syllable. In Figure 7(b), in the default sentence, the same verb [ʕal.la.mán.nu] 'taught him' has the rising pattern [L Ha]. In summary, as was the case with subjects, the AP's f0 peak aligns with the stressed syllable only in focused contexts.

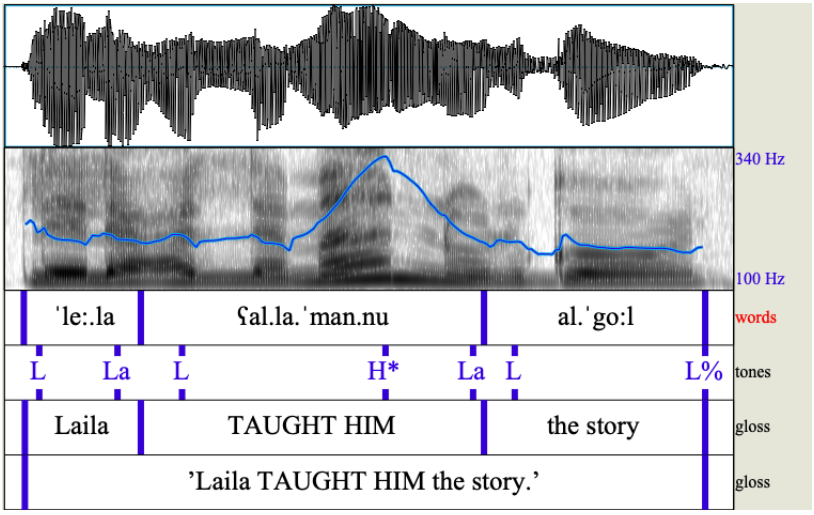

Figure 7a: An example f0 track of the sentence 'Laila TAUGHT HIM story.' showing the two syllables verb focus word 'Taught him' with rising-falling tonal pattern, labeled as [L H* La]

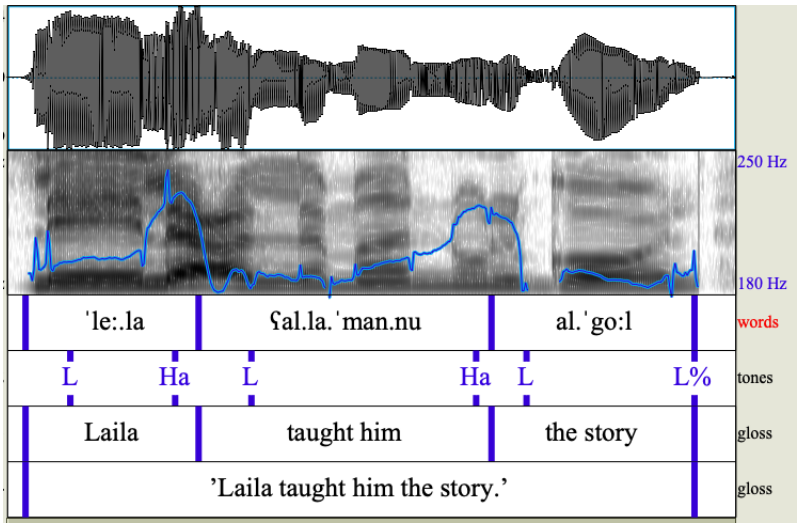

Figure 7b: An example f0 track of the default sentence 'Laila taught him the story.', showing the non-focus verb 'taught him' and each word forms one AP with [L Ha] pattern. (F1)

Ultimately, the intonational pattern found for subject-focused sentences is consistent with what was found for verb-focused sentences.

4.2.3 Object Focus

Similar to verb and subject focus, when the object word is narrowly focused, the word forms one AP showing a rising-falling tonal pattern, labeled as [L H* La]. In Figure 8(a), the object focus example [lé:.la ná:.dan ʕɪ.leː.máːn] 'Laila called Elaiman', the pitch remains level and low before the focused object, and only starts rising towards the H* peak on the stressed syllable of the focused object word. This focused word [ʕɪ.leː.máːn] 'Elaiman' forms one AP and it shows a rising-falling tonal pattern. However, the end of this word is also marked by an IP-final boundary, which overrides the AP-final boundary tones. In addition, as in the same example in Figure 8(a), each of pre-focus words [lé:.la] 'Laila' and [ná:.da]'called' begins with a [L] tone, marking the left edge and a Low tone mark the right edge of each word. More research is needed to confirm the current tonal labeling of the pre-focused words.

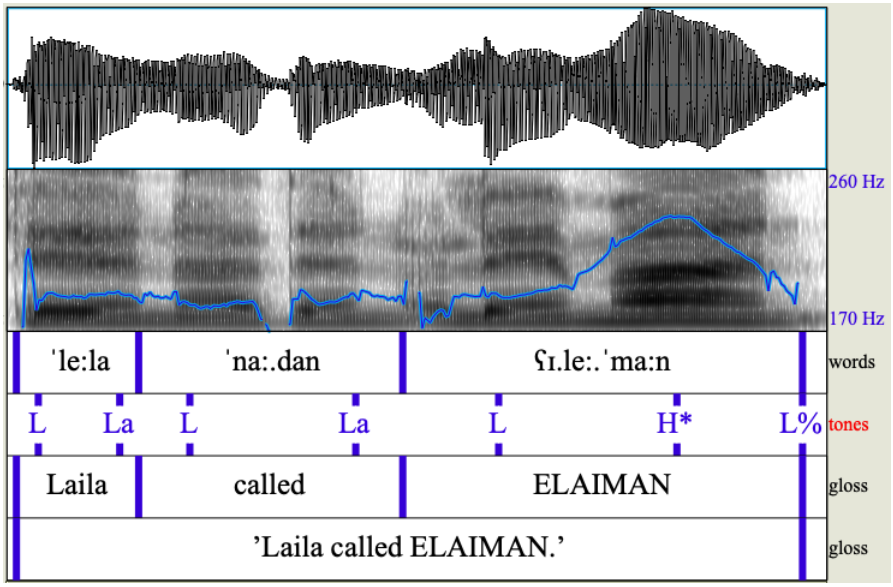

Figure 8a: An example f0 track of the sentence 'Laila called ELAIMAN.' showing the three syllables object focus word with final stress 'ELAIMAN' with rising-falling tonal pattern, labeled as [L H* La], (F1)

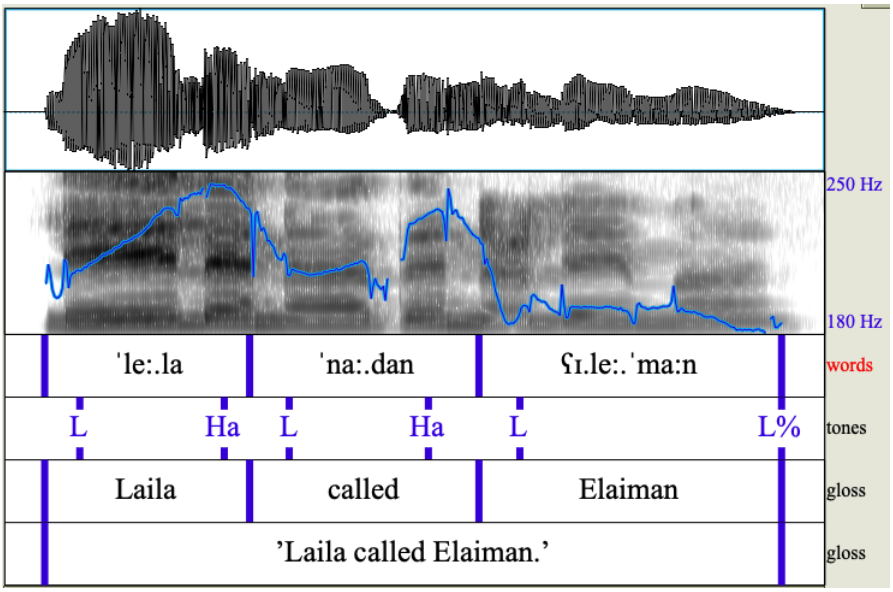

Figure 8b: An example f0 track of the default sentence 'Laila called Elaiman.', each word forms one AP with [L Ha] pattern. (F1)

Figure 9(a) shows a similar object-focus example, where the focused word is the three-syllable word [mar.já:.na] 'Mariana' with the medial stress. Once again, the first syllable carries L, the second syllable (stressed) is carrying [H*], and the final syllable shows a rising-falling tonal pattern.

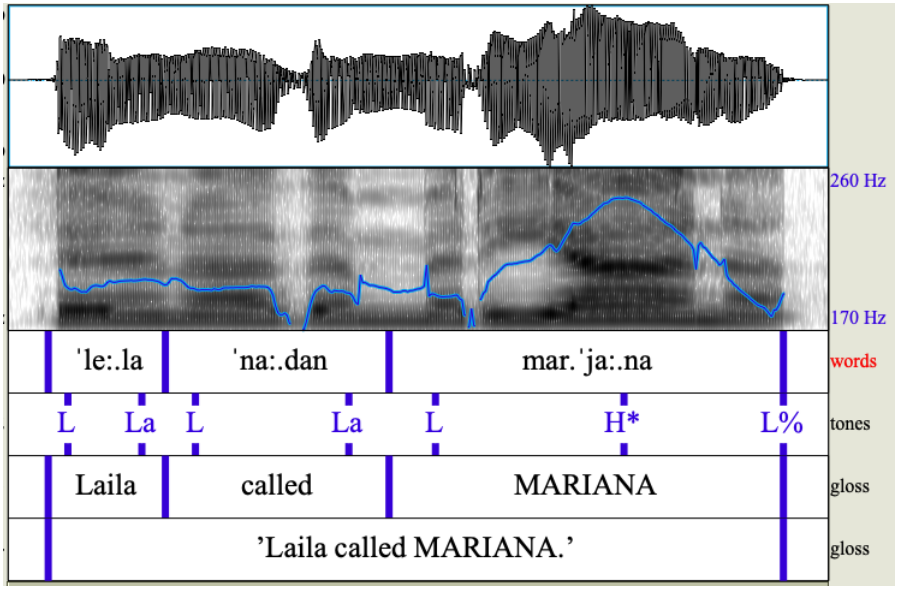

Figure 9a: An example f0 track of the sentence 'Laila called MARIANA.' showing the three syllables object focus with medial stress word 'Mariana', with rising-falling tonal pattern, labeled as [L H* La],(F1)

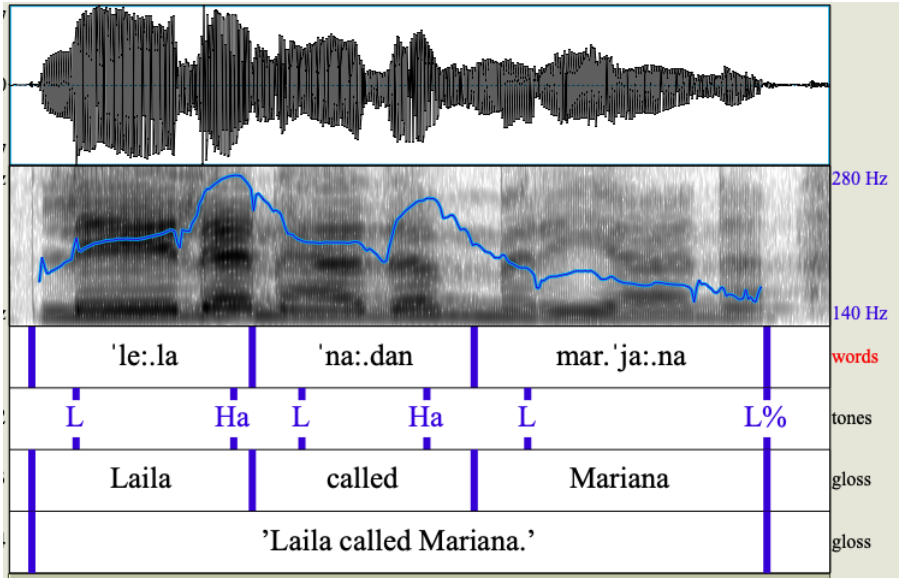

Figure 9b: An example f0 track of the default sentence 'Laila called Mariana.', each word forms one AP with [L Ha] pattern. (F1)

In Figure 10(a), when the two-syllable object focus word [lé:.la] 'Laila (name)' has initial stress, both L and H* are realized on the word-initial syllable, just like other focus words with initial syllables. Thus, these sentences show the same pattern for focused words as seen with previous focus sentences.

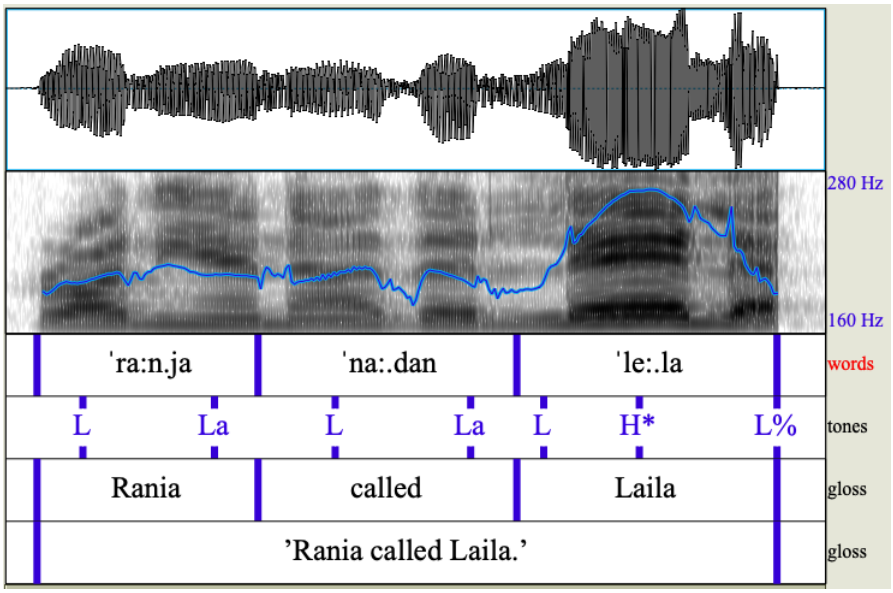

Figure 10a: An example f0 track of the sentence 'Rania called LAILA.' showing the three syllables object focus word with initial stress 'LAILA' with rising-falling tonal pattern, labeled as [L H* La],(F1)

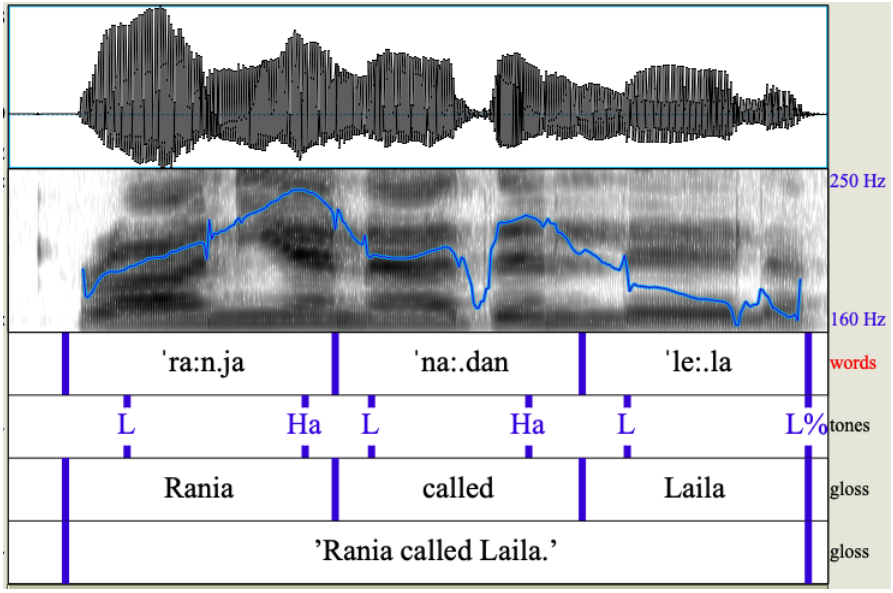

Figure 10b: An example f0 track of the default sentence 'Rania called Laila.', each word forms one AP with [L Ha] pattern. (F1)

Overall, subject, object and verb have the same tonal patterns when narrowly focused; in

all cases, the focused word forms its own AP, where H* is always associate with the stress syllable. Also, the AP-final boundary tone changes from [Ha] to [La], the tonal representation is [L H* La] instead of the [L Ha] in neutral focus, and the other non focus words change from [L Ha] to [L La].

4.2.4 Wh-words

As with the focus words, the wh-word also forms one AP marked with a rising-falling tonal pattern [L H* La]. Each pre-focus and post-focus portion is marked with an L tone marking the left edge and La tone at the right edge. The pitch also remains level and low before the wh-word and only starts rising towards the H* peak on the stressed syllable of the wh-word. In Figures (11(a)-(c)), the one-syllable wh-word [we:n] 'where', the initial disyllabic wh-word [mi.ta] 'where', and the final syllable wh-word [mɪn.we:n] 'from where' all form an AP which is marked with [L H* La] tonal pattern. The preceding and following words all have replaced Ha with La. In addition, as seen in figure 11(d), the subject WH question [mí:n] 'who', which is at the beginning of the sentence, is also marked with a [L H* La] tonal pattern, just the other WH-words that are sentence-medial.

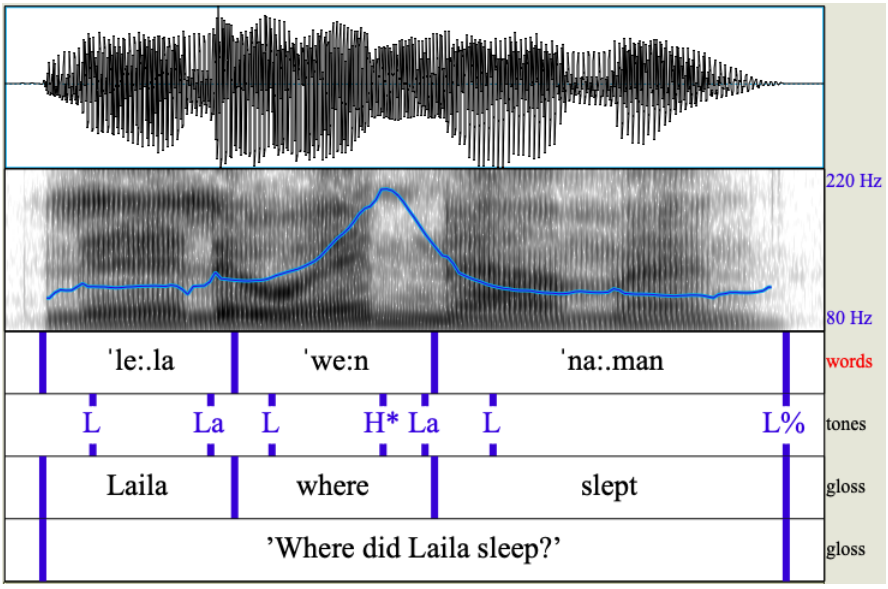

Figure 11a: An example f0 track of a question 'Where did Laila sleep?' shows that monosyllabic WH-word with rising-falling tonal pattern is labeled as [L H* La] . (M1)

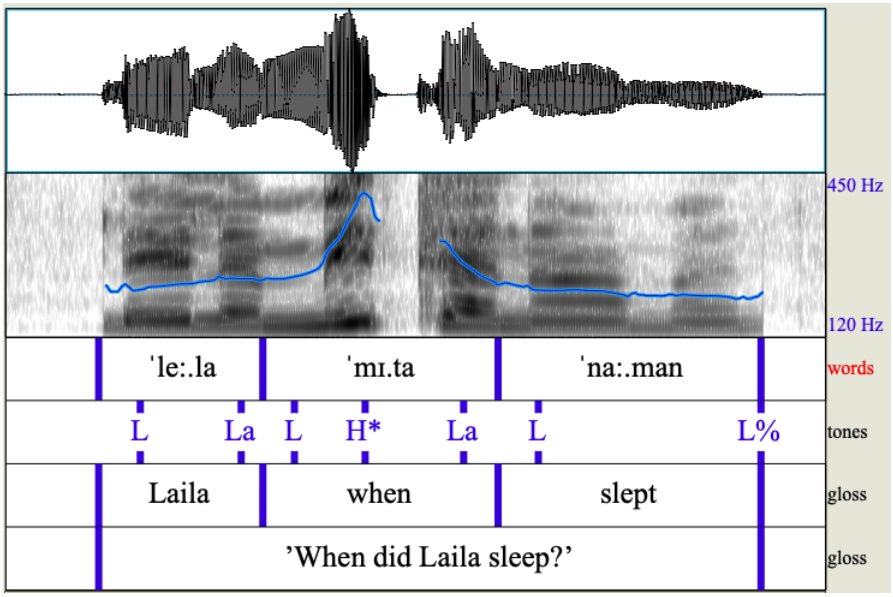

Figure 11b: An example f0 track of a question 'When did Mona sleep?' showing that the pitch accent H* and L tone are realized on the first syllable and the La boundary is realized on the final stressed syllable, thus a rising-falling AP tonal pattern, labeled as [L H* La] (F4)

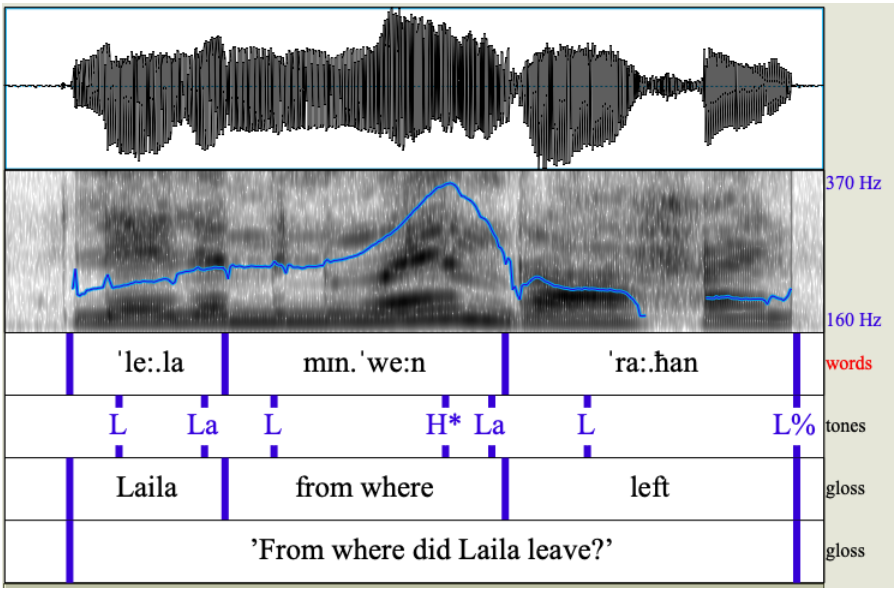

Figure 11c: An example f0 track of a question 'From Where did Laila leave?' showing that both the pitch accent [H*] and the [La] boundary are realized on the final stressed syllable, thus a rising-falling AP tonal pattern, labeled as [L H* La](F2)

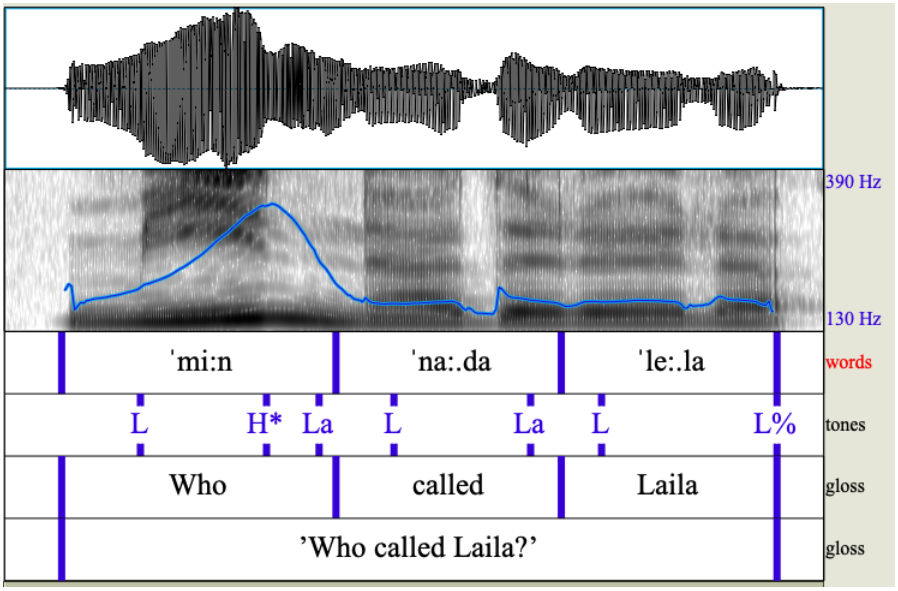

Figure 11d: An example f0 track of a question 'Who called Mona?' shows that monosyllabic subject WH-word with rising-falling tonal pattern is labeled as [L H* La] . (F1)

To summarize, the WH- words have the same tonal representation as focus words in Farasani. There are some other languages such as Bengali (Hayes & Lahiri, 1991), where WH-words are also treated as the focus words prosodically. The next sections will present the other prosodic units of Farasani model, which are the intermediate phrase (IP) and the intonational phrase (ip).

4.3 Evidence of the Intermediate Phrase(ip)

In this section, I will show a few examples of syntactic structures whose right edge is marked by an ip boundary tone. These are relative clauses, alternative questions, and adjuncts, including prepositional phrases and adverbial phrases. The ip-final tone is distinct from the AP-final Ha; the ip has a higher pitch and counteracts the declination of f0 in the utterance. The following sections will describe how each syntactic constituent can be marked by an ip boundary tone.

4.3.1 Relative clauses

The intermediate phrase [H-] can mark relative clauses constituents. For example, in Figure 12(a), the whole sentence has four APs: [lé:.la] 'Laila' [li ʃá:.lan] 'who took', [ar.ró:b] 'the dress', and [ná:.man] 'slept'. However, between the subject relative clause [lé:la li ʃá:.lan ar.ró:b] 'Laila

who took the dress' and the main VP, the peak on the last syllable of the word [ar.ró:b] 'the dress' is higher than the preceding Ha peak, breaking the declination slope among Ha peaks. This higher peak is an ip-boundary tone, [H-], marking the end of the subject relative clause.

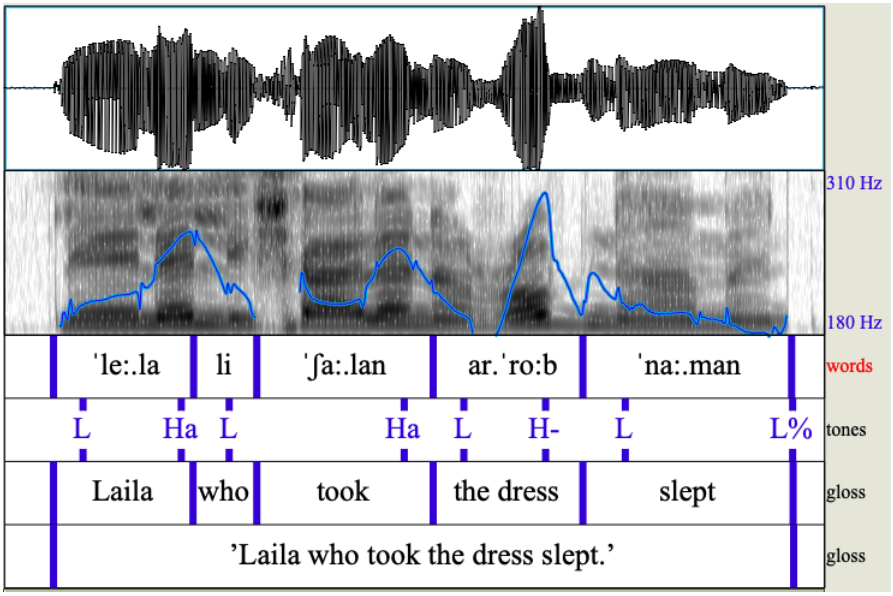

Figure 12a: An example of ip the boundary tone H- marking the end of the subject relative clause. (F1)

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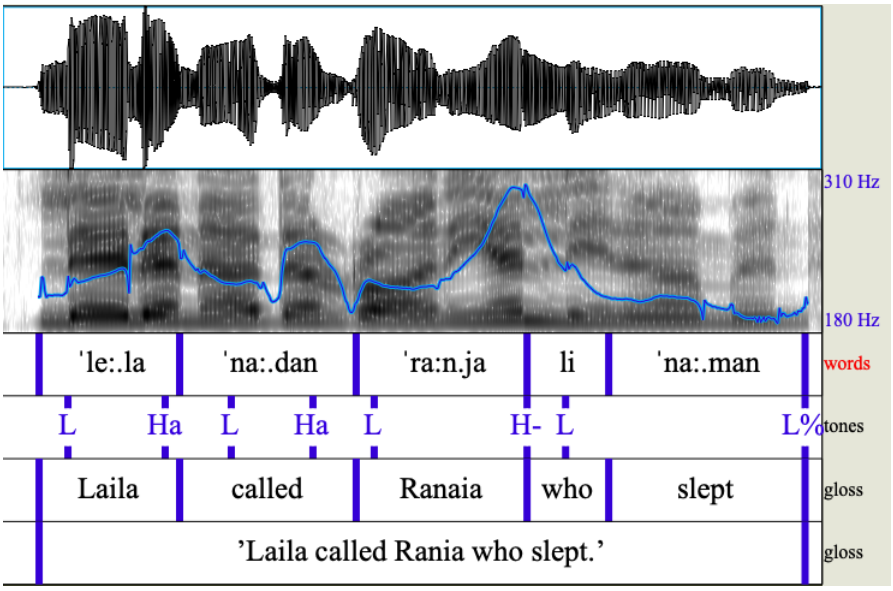

Figure 12b: An example of the ip boundary tone [H-] marking object relative clause. (F1)

In addition, the ip boundary tone [H-] can mark object relative clause constituents. As seen in Figure 12(b), [H-] appears at the right edge of [rá:n.ja] 'Rania'; it separates the head noun from the object relative clause, which is different from the case in Fig.12(a) where the subject relative clause forms one ip with the head noun. So, in Fig.12(a), the subject relative clause itself did not form one ip, but in Fig.12(b), the object relative clause forms one ip. Once again, this [H-], located on the last syllable of the word [rá:n.ja] 'Rania (name)', is higher than the preceding [Ha].

4.3.2 Adjuncts

The ip boundary tone [H-] can separate the matrix clause from adjuncts such as adverbial phrases and the prepositional phrases. The adjunct constituent (AdvP or PP) is observed here to surface after an [H-] boundary tone; in other words, the pre-adjunct portion of the sentence forms one ip. In Figure 13(a), the third peak at the last syllable of the object[lé:.la] 'Laila (name)'is higher than the Ha peak, indicating a boundary tone, which ends the first ip. Similarly, in Figure 13(b), the boundary tone ip is at the end of the object and before the following adjunct (PP) [mín al.mó:l]'from the mall'.

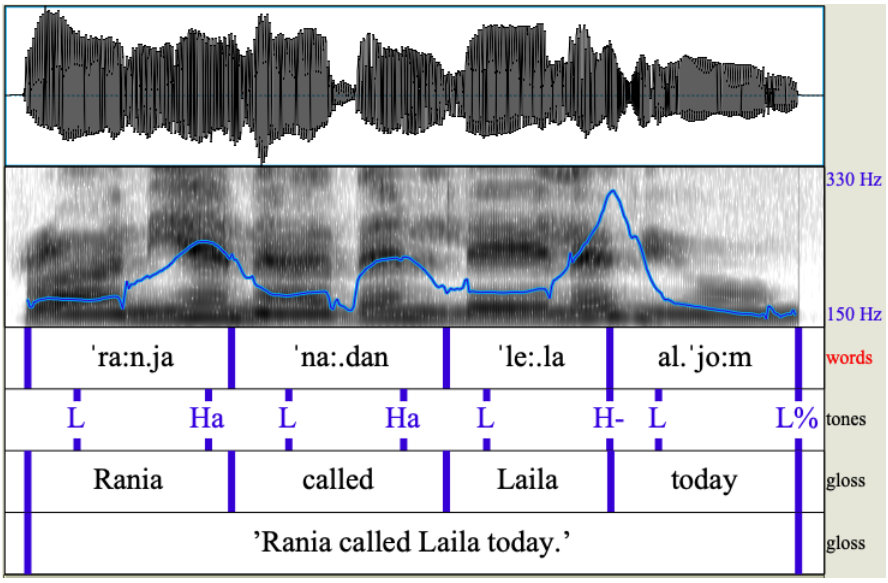

Figure 13a: An example of the boundary tone [H-] marking the end of object and before the adverb. (F1)

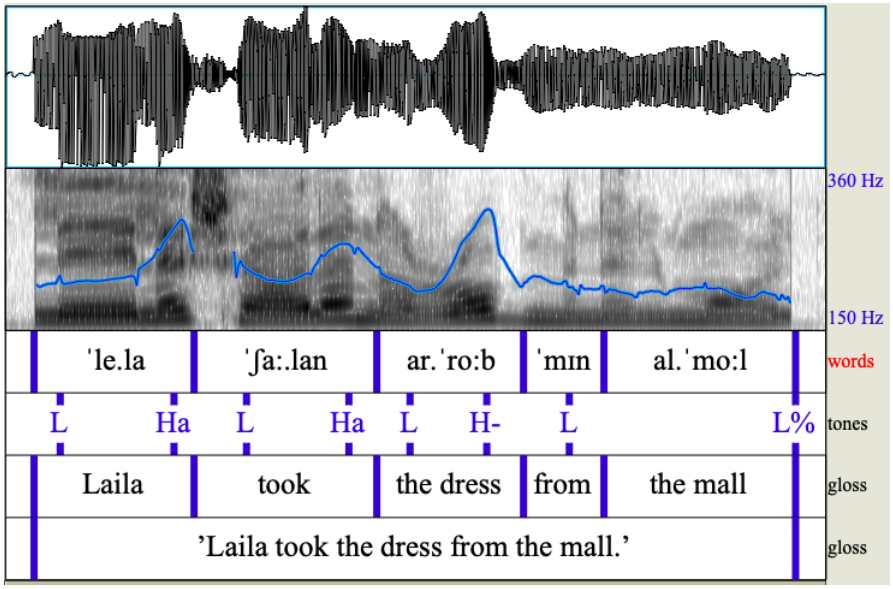

Figure 13b: An example of the boundary tone [H-] marking the end of the object before prepositional phrase 'from the mall'.(F1)

4.3.3 Alternative questions

Another place where ips are observed is with alternative questions. Here, [H-] marks the boundary between the first syntactic constituent, which denotes the first alternative, and the second, which denotes the second alternative. The high tone at the end of the first alternative in Figure 14(a) is noticeably higher than all the high tones in the sentence, suggesting that it is an ip [H-] tone.

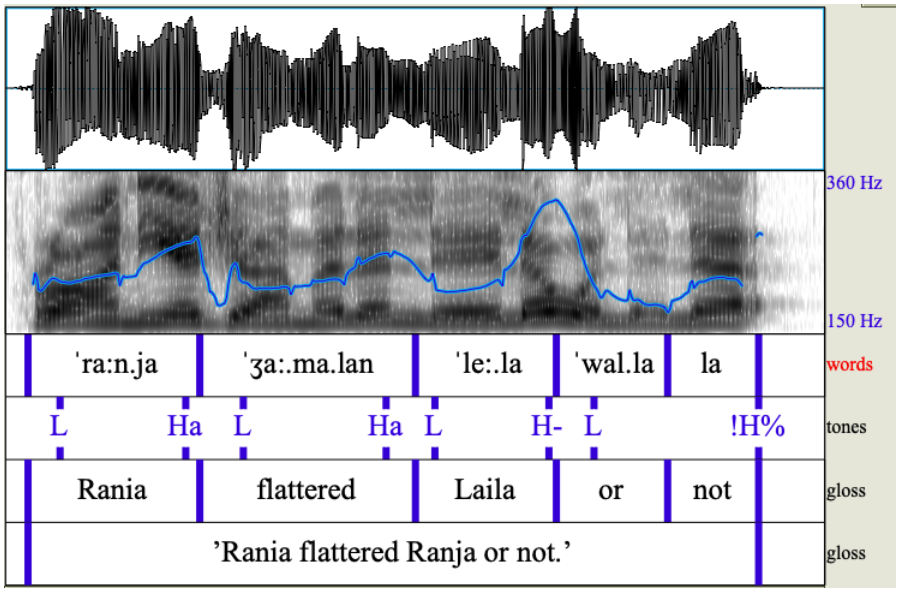

Figure 14a: An example of the boundary tone [H-] in alternative question .(F1)

To summarize, this section shows that the intermediate phrase ips boundaries [H-]in Farasani mark the syntactic structures including relative clauses, adjuncts and alternative questions.

4.4 Evidence of the Intonational Phrase (IP)

The intonational phrase (IP) is higher than an intermediate phrase (ip) in the prosodic hierarchy and can include more than one ip. An IP is marked by a boundary tone on the final syllable of the phrase, like the ip. The boundary tones that have been found are [L%], [H%], [!H%] , and [HLH%]. Each boundary tone will be illustrated below.

The most common boundary tone is [L%], which marks declarative sentences, as seen in Figure 15(a), where it is realized on the last syllable of the word [li.gi:.ná:h] 'found it'. [L%] boundary tone is also found in WH-questions, as in Figure 15(b). [H%] boundary tone can be used to indicate surprise , as in Figure 15(c). H% can also be used to indicate continuation of an sentence or an idea, as in Figure 15(d). The downstepped boundary tone [!H%] marks the alternative questions as in Figure 15(e). However, the boundary tone that marks the simple yes-no question is different from the alternative yes-no question; [H%] boundary tone is used to indicate simple yes-no question as in figure 5(f). There is a noticeable difference between [!H%] and the [H%] boundary tone. Specifically, [!H%] is higher than the [L%] in declarative sentences, but lower than the [H%] in sentences of surprise and continuation. In addition, the [HLH%] boundary tone is used to indicate shock, as in figure 15(g) 'Is Rami upset?!'. This boundary tone has a falling-rising contour: a high pitch target is reached first, followed by lowering, then rising again; these three tonal targes are all realized on the IP-final syllable, justifying an IP-final boundary tone.

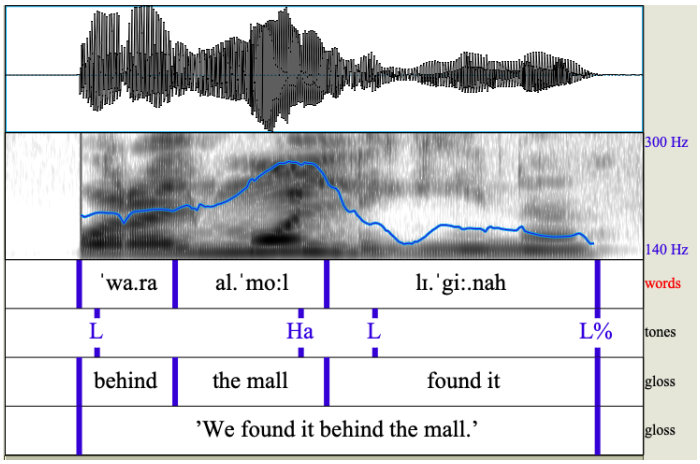

Figure 15a: An example f0 track of a declarative sentence, 'We found it behind the mall.'. The sentence ends in a [L%] boundary tone. (F2)

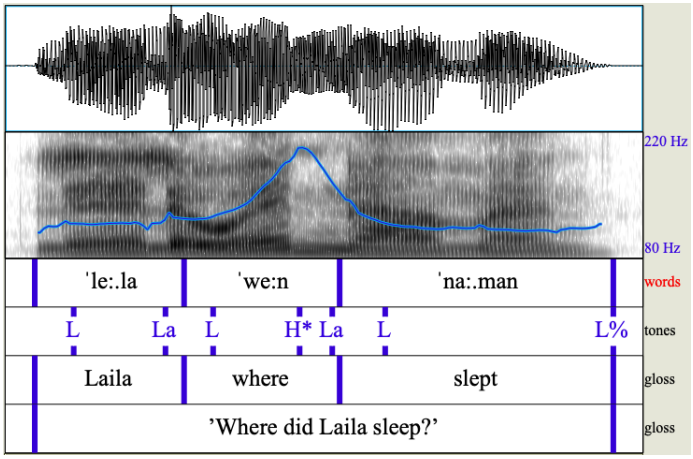

Figure 15b: An example f0 track of a question, 'Where did Laila sleep?' The question ends in a [L%] boundary tone. (M1)

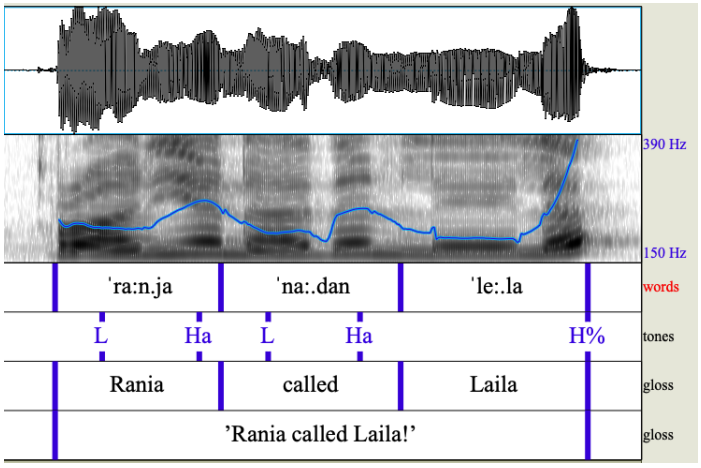

Figure 15c: An example f0 track of a surprising sentence, 'Rania called Laila!' The sentence ends in a [H%] boundary tone. (F1)

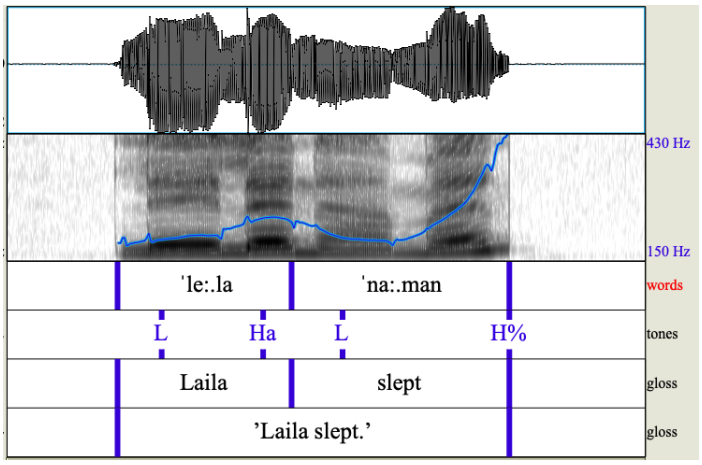

Figure 15d: An example f0 track of the sentence in a [H%] boundary tone indicating continuation . (F1)

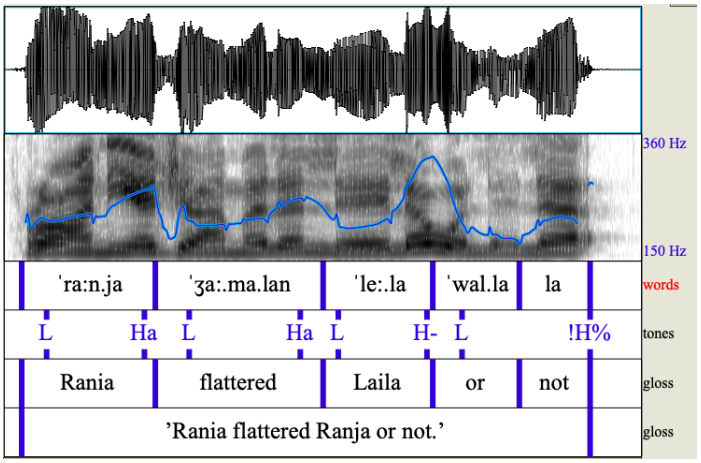

Figure 15e: An example f0 track of an alternative questions, 'Did Rania flatter Laila or not?' The question ends in a [!H%] boundary tone. (F1)

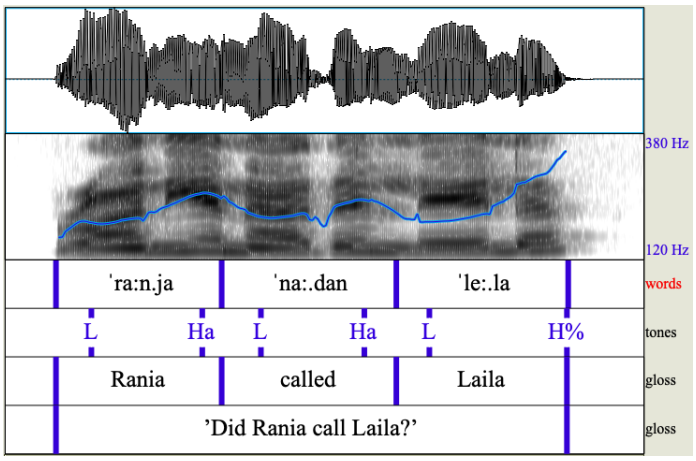

Figure 15f: An example f0 track of a simple yes-no question,'Did Rania call Laila?' The question ends in a [H%] boundary tone. (F1)

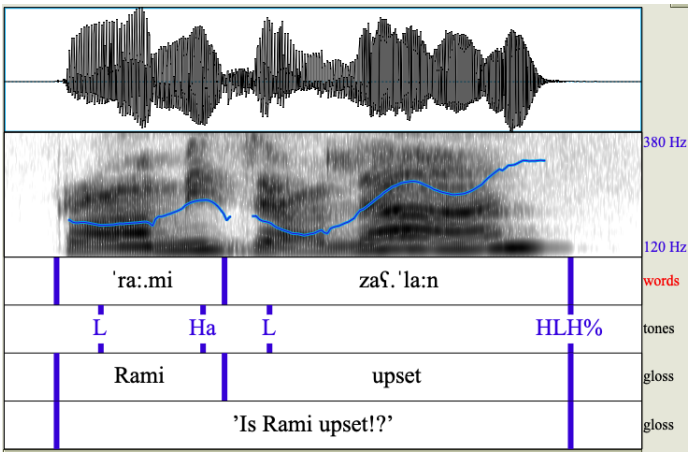

Figure 15g: An example f0 track of a shocking sentence, 'Is Rami upset!?' The sentence ends in a [HLH%] boundary tone. (F1)

Chapter 5

Discussion and conclusion

This study introduces a preliminary model of intonation in Farasani Arabic. Farasani was shown to have an accentual phrase (AP), which usually manifests as [L Ha] pattern in default sentences. Typically, each content word forms one AP. Farasani Arabic is typologically unusual because it ignores stress in its intonation for default sentences; regardless of the stress locations, APs are marked by the L Ha pattern. That is, a stressed syllable does not carry a pitch accent in neutral focused sentences.

Though rare, this type of exception is found in the intonational systems of Kuot (Lindström & Remijsen 2005), Wolof (Rialland and Robert 2001), and Uyghur (Major & Mayer 2019). However, unlike these languages where stress is categorically never involved in intonational contours, stressed syllables do carry a pitch accent in Farasani when they occur in words that are narrowly focused and wh-words.

Furthermore, this study also shows that Farasani also has prosodic units larger than AP, i.e., ip and IP. The ip marks the edge of a syntactic constituent or syntactic grouping within a sentence, and the right edge of ips are marked with the H- boundary tones. Also, I have found four types of IP boundary tones in Farasani; the boundary tones of Farasani are H%, which can mark surprisal sentences or indicate continuation; !H%, which marks alternative questions; L%, which marks declarative sentences and wh-questions; and HLH%, which marks a shocked utterance.

As a language with stress, but which realizes pitch accents in only limited contexts, Farasani is a valuable contribution to our understanding of prosodic typology. Jun (2014)'s prosodic ty-

pology model classified languages based on three parameters. The first parameter is *word prosody*, or whether a word is marked in the lexicon by stress, pitch, both of these, or none. The second parameter is *prominence type*, which classifies languages by whether they mark prominence on heads (i.e. stressed syllables) or edges (i.e. phrase boundaries). The third parameter is *the degree of macro-rhythm* which classified languages based on the phrase-medial tonal rhythm. Languages can be grouped and categorized along all these three parameters. In Farasani, since all words typically form their own APs, which have a consistent rising pattern, Farasani can be characterized as having a strong macro-rhythm. In this way, Farasani macro-rhythm is similar to Egyptian Arabic but stronger than Lebanese Arabic (Jun 2014). Also, Farasani is classified as edge-marking languages (e.g. Seoul Korean) but as head/edge marking languages (e.g. Bengali) in the focus condition. It is edge-marking because a word is purely marked by an AP boundary(=edge) tone in the default sentences, but it is a head/edge prominence language in the focus context because a prominent word is marked by both pitch accent on the stressed syllable and the AP initial and final boundary tones.

Since this is the first study investigating the intonational model in Farasani, the model is still preliminary. Future research into Farasani intonation would benefit from the collection of more data with naturalistic speech, and sentences with varying types of syntactic structures.

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Appendix

(2) Declarative sentences

a. Declarative sentences. (different subject nouns)

mú.na ná:.d-an lé:.la
Mona called-3sg.f-PER Laila
Mona called Laila.'

b. lé:.la ná:.d-an lé:.la
Laila called-3sg.f-PER Laila
'Laila called Laila'

c. rá.na ná:.d-an lé:.la
Rana. called-3sg.f.PER Laila
'Rana called Laila'

d. r:ań.ja ná:.dan lé:.la
Rania called-3sg.f.IMP Laila
'Rania called Laila.'

e. lam.já:.na ná:.-dan lé:.la
Lamiana called-3sg.f-PER Laila
'Lamiana called Laila.'

f. ʕɪ.leː.máːn ná:.an lé:.la
Elaiman called-3sg.f-PER Laila
'Elaiman called Laila'

g. lam.já:.na ná:.d-an mú.na
Lamiana called-3sg.f-PER Mona
'Lamiana called Mona."

(3) Declarative sentences. (different verbs and object nouns)

a. mú.na gá:.l-an al.gó:l
Mona explain-3sg.f-PER the.story
'Mona explained the story'

b. rá:n.ja ná:.d-an mú.na
Rania called-3sg.f-PER Mona
'Rania called Mona.'

c. mú.na ʕál.la.man rá:n.ja
Mona taught-3sg.f.PER Rania
'Mona taught Rania.'

d. mú.na ná:.dan rá.na
Mona called-3sg.f.PER Rana
'Mona called Rana.'

e. mú.na ná:.d-an lé:.la
Mona called-3sg.f-PER Rania
'Mona called Rania.'

f. mú.na ná:.d-an ra:ń.ja
Mona called-3sg.f-PER Rania
'Mona called Rania.'

g. lé:.la ʕal.la.mán-nu al-gó:l
Laila taught-3sg.f.PER-him the-story
'Laila taught him the story.'

h. lam.já:.na dá:.ka.ran al-kí:m.ja
Lamiana studied-3sg.f.PER-him the-Chemistry
'Lamiana studied Chemistry.'

(4) subject relative clause

a. mú.na li ná:.d-an lé:.la ná:.m-an
Mona who called-3sgf.PER. Laila slept-3sg.f.PER
'Mona who called Laila slept.'

b. lam.já:.na li ná:.d-an rá.na ná:.m-an
Lamiana who called-3sgf.PER. Rana slept-3sg.f-PER
'Lamiana who called rana slept.'

c. mú.na li rá.ga.dan al.jó:m rá:.han
Mona who slpt-3sgf.PER. the-today left-3sg.f-PER
'Mona who slept today left.'

d. lam.já:.na li gá.ra-an al-ki.tá:b ná:.m-an
Lamiana who read-3sgf.PER. the-book slept-3sg.f.PER
'Lamiana who read the book slept.'

e. mú.na li ná:.d-an lam.já:.na ná:.m-an
Mona who called-3sgf.PER. Lamiana slept-3sg.f.PER
'Mona who called Lamiana slept.'

(5) Object relative clauses

a. mú.na ná:.d-an lam.já:.na li ná:.m-an
Mona. called-3sgf-PER Lamiana who slept-3sg.f.PER
'Mona called Lamiana who slept.'

b. lé:.la ná:.d-an mú.na li rá.ga.d-an
Laila called-3sgf-PER. Mona who slept-3sg.f.PER
'Laila called Mona who slept.'

c. lam.já:.na ná:da lé:.la li rá.ga.d-an
Lamjana called-3sgf-PER Laila who slept-3sg.f.PER
'Laila called Laila who slept.'

d. lam.já:.na na:dan rá:.n.ja li rá.gad-an
Lamjana called-3sgf-PER. Rania who slept-3sg.m.PER
'Laila called Rania who slept.'

(6) Focus sentences ranging in length, stress locations, and also varied which word to focus,

(verb focus)

a. mú.na gá:.l-an al-gó:l
Mona Explained-3sg.PER the-story
'Mona EXPLAINED the story.'

b. lám.ja:na gá:.l-an al-gó:l
Lamiana Explained-3sg.f.PER the-story
'Mona EXPLAINED the story.'

c. rá:n.ja ná:.d-an mú.na
Rania Called-3sg.f.PER Mona
'Rania CALLED Mona.'

d. mú.na ʕál.la.m-an rá:n.ja
Mona Taught-3sg.f.PER Rania
'Mona TAUGHT Rania.'

e. lé:.na ʒá:.ma.l-an rá:n.ja
Mona Flattered-3sg.f.PER Rania
'Mona FLATTERED Rania.'

f. lé:.la ʕal.la.mán-nu al-gó:l
Laila Taught-3sg.f.PER-him the-story
'Laila TAUGHT HIM the story.'

g. lam.já:.na dá:.ka.r-an al-kí:m.ja
Lamiana Studied-3sg.f.PER-him the-Chemistry
'Lamiana STUDIED Chemistry.'

(7) Focus sentences ranging in length, stress locations, and also varied which word to focus,

(subject focus)

a. mú.na ná:.d-an lé:.la
Mona called-3sg.f.PER Laila
'MONA called Laila.'

b. lé:.la ná:.d-an lé:.la
Laila called-3sg.f.PER Laila
'LAILA called Laila.'

c. rá.na ná:.d-an lé:.la
Rana called-3sg.f.PER Laila
'RANA called Laila.'

d. rʲan.ja ná:.d-an lé:.la
Rania called-3sg.f.PER Laila
'RANIA called Laila.'

e. lam.já:.na ná:.d-an lé:.la
Lamiana called-3sg.f.PER Laila
'LAMIANA called Laila.'

f. ʕí.le:.má:n ná:.d-an lé:.la
Elaiman called-3sg.f.PER Laila
'ELAIMAN called Laila.'

g. lam.já:.na ná:.d-an mú.na
Lamiana called-3sg.f.PER Mona
'LAMIANA called Mona.'

(8) Focus sentences ranging in length, stress locations, and also varied which word to focus,

(object focus)

a. mú.na ná:.d-an lam.já:.na
Mona called-3sg.f.PER Lamiana
'Mona called LAMIANA.'

b. mú.na ná:.d-an ʕí.le:.má:n
Mona called-3sg.f.PER Elaiman
'Mona called ELAIMAN.'

c. mú.na ná:.d-an rá.na
Mona called-3sg.f.PER Rana
'Mona called RANA.'

d. mú.na ná:.d-an lé:.la
Mona called-3sg.f-PER Laila
'Mona called LAILA.'

e. mú.na ná:.d-an rá:n.ja
Mona called-3sg.f-PER Rania
'Mona called RANIA.'

(9) Sentence with prepositional phrases and adverbs

a. mú.na lá.g-an fu.lú:s fi al-mó:l
Mona found-3sg.f.PER money in the-mall
'Mona found money inside the mall.'

b. mú.na ná:.d-an lé:.la fi al-mó:l
Mona called-3sg.f-PER Laila in the-mall
'Mona called money inside the mall.'

c. mú.na ná:.d-an lam.já:.na fi al-mó:l
Mona called-3sg.f-PER Lamiana in the-mall
'Mona called Lamiana inside the mall.'

d. mú.na lá.g-an fu.lú:s fóg al-lán.bah
Mona found-3sg.f-PER money above the-light
'Mona found money above the light.'

e. mú.na lá.g-an fu.lú:s al-jó:m
Mona found-3sg.f-PER money today
'Mona found money today.'

f. mú.na ná:.d-an lé:.la al.jó:m
Mona called-3sg.f.PER Laila the-today
'Mona called money today.'

g. mú.na ná:.d-an lam.já:.na aḿs
Mona called-3sg.f.PER Lamiana yesterday
'Mona called Lamiana yesterday."

h. mú.na kál.la.man lé:.la al.jó:m
Mona talked-3sg.f-PER Laila the-today
Mona talked to Laila today.'

(10) Alternative questions

a. mú.na gá:.lan al.gó:l wál.la la
Mona explain-3sg.f-PER the.story or not
'Mona explained the story or not?'

b. rá:n.ja ná:.dan mú.na wál.la la
Rania called-3sg.f-PER Mona or not
'Rania called Mona or not?'

c. mú.n ʕál.la.man rá:n.ja wál.la la
Mona taught-3sg.f-PER Rania or not

'Mona taught Rania or not?'

d. lé:.na ʒá:.ma.lan lam.já:.na wál.la la
Mona flattered-3sg.f-PER Lamiana or not
'Mona flattered Lamiana or not?'

e. lé:.la ʕal.la.mán-nu al-gó:l wál.la la
Laila taught-3sg.f.PER-him the-story or not
'Laila taught him the story or not?'

f. lam.já:.na da:́.ka.r-an al-kí:m.ja wál.la la
Lamiana studied-3sg.f.PER-him the-Chemistry or not
'Lamiana studied Chemistry or not?'

(11) Sentences with wh-words

a. lé:.la wé:n ná:.m-an
Laila where sleep-3sg.f-PER
'Where did Laila sleep?'

b. lé:.la wé:n ʒán
Laila where come-3sg.f.PER
'Where did Laila come?'

c. lé:.la mí.ta ná:.m-an
Laila when. sleep-3sg.f-PER
'When did Laila sleep?'

d. lé:.la min.wé:n ʒán
Laila from-where come-3sg.f.PER
'From where did Laila come?'

e. lé:.la wé:n rá.ga-dan
Laila where sleep-3sg.f.PER
'Where did Laila sleep?'

(12) Surprising sentences

a. mú.na gá:.lan al.gó:l
Mona explain-3sg.f.PER the.story
'Mona explained the story!'

b. rá:n.ja ná:.dan mú.na
Rania called-3sg.f.PER Mona
'Rania called Mona!'

c. mú.na ʕál.la.man rá:n.ja
Mona taught-3sg.f.PER Rania
'Mona taught Rania !'

d. lé:.na ʒá:.ma.lan lam.já:.na
Mona flattered-3sg.f.PER Lamiana
'Mona flattered Lamiana !'

e. lé:.la ʕal.la.mán-nu al-gó:l
Laila taught-3sg.f.PER-him the-story
'Laila taught him the story!'

f. lam.já:.na dá:.ka.r-an al-kí:m.ja
Lamiana studied-3sg.f.PER-him the-Chemistry
'Lamiana studied Chemistry!'

(13) Shocked utterance

a. mú.na. gá:.l-an al.gó:l
Mona explain-3sg.f.PER the.story
'Mona explained the story?!'

b. rá:n.ja ná:.d-an mú.na
Rania called-3sg.f.PER Mona
'Rania called Mona?!'

c. mú.na ʕál.la.man rá:n.ja
Mona taught-3sg.f.IMP Rania
'Mona taught Rania ?!'

d. lé:.na ʒá:.ma.lan lam.já:.na
Laila flattered-3sg.f.IMP Lamiana
'Laila flattered Lamiana ?!'

e. lé:.la ʕal.la.mán-nu al-gó:l
Laila taught-3sg.f.IMP-him the-story
'Laila taught him the story ?!'

f. lam.já:.na daʔ.ka.ran al-kí:m.ja
Lamiana studied-3sg.f.PER the-Chemistry
'Lamiana studied Chemistry?!'