An Autosegmental Analysis of Intonation in Selected English and Arabic Preaches

ABSTRACT
The present study deals with an Autosegmental analysis of intonation in English and Arabic preaches. Intonation is the lowering and rising of pitch within the sentence. Intonation is considered an important aspect of pronunciation. Autosegmental theory analyzes intonation in a new perspective by considering intonation as an autosegment. The main aim is to show how pitch and intonation in English and Modern Standard Arabic are independent “autosegmental” and to show the persuasive strategies used by the Priest/Imam in the sermon/Khutbah. It is hypothesized that tone and intonation are autosegments and they are not affected by the changes on the segments, and that the Priest/Imam uses many strategies to convince and persuade his audience. Accordingly, ten sentences are chosen from both English and Arabic preaches to be analyzed in terms of Autosegmental theory.

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1. Introduction:

Autosegmental theory is based on Generative Phonology. Generative phonology has been originated in 1950s by Chomsky and Halle, and then it has developed in in 1960s in the “The Sound Pattern of English”. SPE is referred to as the classical or standard generative phonology. “SPE is a theory of derivations and rules which makes a link between syntax and phonology (Clark and Yallop, 1990:340). In SPE tones are specified as features of vowels, while in Autosegmental tones are autonomous and they are related to the segments by association lines. The number of tones is not necessarily the same number of the vowels, and more than one tone may be associated to a syllable, also tones may spread to adjacent syllables (Malmacjar, 1991:196). Language is not used only to communicate meaning rather it is used for manipulating dissuading and guiding others. Religious orators, politicians, business professionals and advocates gain power and wealth by using language strategically. So the main aim of the preacher is to persuade his audience. The study of persuasion ‘rhetoric’ is considered a field in humanities located in social sciences. The Greek philosopher Aristotle was the first who developed a study of persuasion as he wanted to get an effective communicating (Simons, 2001:14).

2. Autosegmental Theory:

Goldsmith rejects the linear representation of segments. Stress, pitch, intonation, vowel harmony and nasalization are all considered autosegments not features of vowels (Goldsmith, 2017:4). He presents the principle of multiple tiers in which portions of distinctive features can act independently of other features, autosegments may be added or deleted without affecting the rest of phonological representation, each feature or a group of features which is in depended in this way forms a tier. The tier that contains segments (C, V) is called “Segmental tier” and the tonal pattern of the word is placed on the “Tonal tier”. However, Goldsmith observes that those tiers are associated by association lines which in turn are governed by Well-formedness Conditions. Those conditions work such as constrains on the possible phonological representations. According to WFC first every segment (vowel) must be associated with a tone, second each tone must be associated with ‘at least’ one vowel. And the last one is that association lines should not cross each other (Goldsmith, 1976:31).

2.3. Principals of Association:

The principle of association is called “the accentuation principle”. Which states when the language. has a sequence of Syllables e.g. ‘application’ with tone melody “Mid high Low” according to the language.an accent is assigned on one of the syllables.and one of the tones. The accent is written with an asterisk ‘*’.in this example the syllable ‘ca’ and the ‘H’ in MH*L tone take the accent. According to the accentuation principle the two starred elements are linked to each other. The last syllable ‘tion’ will take the ‘low’ tone .and the ‘Mid’ tone will spread on the first two syllables which in turn will make a pitch contour as shown in:
Goldsmith (1975:182) observes that after assigning the pitch accent syllable in accented languages, the rest of the tones spread left and right. There are two possibilities of spreading either from the boundary or from the accented syllables. Goldsmith states that when the WFC demands a spreading of tones to vowels and there is a potential ambiguity of whether to spread a starred or unstarred tone, always spread the unstarred tone. It preserves the function of the star indicating prominence. Intonation is found in many languages. But it is different from one language to another according to pitch patterns. It is used in languages to give meaning of affirmative, exclamation, and interrogative. Intonation is considered as a way of clarifying the meaning of sentence and it is defined as a sequence of changes in speakers' tone (Abd -Altaub, 1997:120). The speaker does not speak on a single tone in his/her speech rather speech goes up and down. Intonation refers to the sequence of pitch change with in the utterance. In Arabic and English intonation has a grammatical function.

2.4 The Structure of Tone Unit:

Connected speech are broken down to utterances, an utterance may be one word as (yes or no) or larger units which consist of phrases and sentences. Within an utterance there are smaller units on which intonation contour extends, this sequence of words is called tone unit or tone group. Roach (2009:120) classifies the tone unit into: Pre-Head (PH), Head (H), Tonic syllable (TS), Tail (T).

Within intonational phrases a word is usually selected. The selected word is important for the meaning of the utterance and it is called tonic syllable or nucleus. Phonetically a syllable is a signed (prominent) by giving it a change in pitch either raising or falling. The tonic syllable carries the rhythmic beat and it is always stressed. In Autosegmental theory Goldsmith uses the symbol $ to indicate tone unit boundary instead of using vertical lines, and he terms the tonic syllable by “Target Tone” While he uses “leading tones” to refer to pre-head and head in the tone unit and to refer to the tail he uses the words “Trailing Tones” so the tone unit in Autosegmental theory is represented in the following way:

$ Leading Tones – Target Tones – Trailing Tones $

2.5 Forms and Functions of Intonation


3. Discourse Dissection Model:

Oratory is considered as one of the most important kinds of art. Oratory is defined as “the art of making speech and delivering it”, it is found in many areas as religion, politics and low. A religious oration is called ‘Sermon’ and ‘Khutbah’. The aim of sermons is to meet the need of people and to show the social and political issues from a religious point of view. The preacher ‘Priest, Imam’ must meet those objectives when he delivers his speech (Abey: 1973:13).

The second model used in this study is “Discourse Dissection Model” by Braj Mohan (2013) this model is influenced by many other theories as Aristotelian theory of rhetoric and Mann and Thomson’s’ “Rhetorical structure theory”. Mohan gathered the ideas of persuasion from deferent theories and presented model witch take into consideration two sides prosody and persuasion. The model divides speech into parts then those speech parts are divided into minimal utterances units (MUU). MUU is a stretch of speech preceded and followed by discreet pauses (Mohan 2013:66). After dividing the speech into MUU the theory analyses pitch intensity loudness and pauses by using praat. Then the strategies used in the speech are analyzed (Mohan, 2013:68).

4. Methodology:

The analysis is made on two phases according to both Autosegmental theory and Discourse Dissection Model. The phonological and grammatical analysis is done by first assigning the tone unit. Second, the accented syllables in each tone unit must be assigned and the tonic syllable (pitch accent*) must be marked. Praat is used to get the pitch contour, intensity and Pause. It also shows the highest pitch within the word. So according to pitch extracted in Praat, the tone patterns are assigned. After assigning the pitch accent, tone for each tone unit is assigned either as fall, rise, or falling, rising. Tones are associated with segments using association lines and the WFC are applied on the association lines.

<table>
<thead>
<tr>
<th>Intention</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting the audience</td>
<td>-Addressing by names, greeting, using specific terms</td>
</tr>
<tr>
<td>Presenting the argument</td>
<td>-Giving an introductory statement</td>
</tr>
<tr>
<td>Explaining and elaborating the argument</td>
<td>Using Ethos to show his knowledge of the subject</td>
</tr>
<tr>
<td>Providing evidence – trustworthiness</td>
<td>-Providing evidence from the Bible, The Glorious Quran</td>
</tr>
</tbody>
</table>
appeal to emotions - appeal to logic - concluding the argument and -
Praying
and Al Hadith and cite them. - Using Logos and Pathos to appeal to emotion, need, facts - using emotive words, high, low pitch - using positive and negative motivations.

5. Data Analysis and Discussion:

The data analyzed in this study includes ten sentences from two sermons in both languages. The selected sentences are from the middle part of the data which is the development or the presentation of the argument.

<table>
<thead>
<tr>
<th>NO</th>
<th>UTU's</th>
<th>Utterance</th>
<th>Structure</th>
<th>Tone</th>
<th>Pitch</th>
<th>Intensity</th>
<th>Pausa Sec</th>
<th>Intention</th>
<th>Persuasive strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>Come on, think for yourself, free yourself from restraints of what God said</td>
<td>Rising- falling</td>
<td>276</td>
<td>78</td>
<td>1.474</td>
<td>Order</td>
<td>The priest wants to put the audience in the scene by telling real incidents.</td>
<td>Giving an incident of Adam and Eve and Satan and how Satan encouraged them to not listen to Gods word and eat from the tree. The priest uses a rising pitch. He uses the strategy of appeal to fact (logos).</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Can you take God's words for it?</td>
<td>Rising</td>
<td>197</td>
<td>84</td>
<td>0.110</td>
<td>Explanation</td>
<td>The priest wants to put the audience into the scene by telling stories.</td>
<td>The priest tells the story of Adam and Eve and shows how Satan has deceived them. And uses rising tone when he shows how Satan has questioned God's words. He appeals to Logos.</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>The heavens declare the Glory the greatness the majesty the worth, of God</td>
<td>Rising</td>
<td>193</td>
<td>74.5</td>
<td>0.635</td>
<td>Statement</td>
<td>The priest wants to show the greatness of God.</td>
<td>The priest appeals to pathos. He describes the greatness of God using A high pitch and a high intensity to glorify God, also the priest uses emotive words as 'magnesty, glory, worth'. He appeals to Pathos</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>That shocks us, that is the last thing we would think of</td>
<td>Falling</td>
<td>256</td>
<td>80.340</td>
<td>1.075</td>
<td>Explanation</td>
<td>The priest wants to show falling of surprise.</td>
<td>The priest is describing the situation in which there is no Bible and shows how astonished we would be if there is no message from God. He uses the strategy of appeal to logos.</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Dear friends, just think of the cost of liberty</td>
<td>Falling</td>
<td>187</td>
<td>70</td>
<td>0.502</td>
<td>Suggestion</td>
<td>The priest wants to connect the audience to the topic.</td>
<td>The priest uses the strategy of appeal to Ethics by addressing the audience by the vocative phrase 'dear friends' which connects them and attract them. Attention also he uses low pitch to speak deeply about freedom.</td>
</tr>
</tbody>
</table>

The table (4.1) presents the analysis of English utterances. The structure of the sentences is shown as well as their function to show how the tone is related to the sentence type. Prosodic features as pitch and intensity are also analyzed with pauses as in the figure (4.1).
Here the blue line refers to pitch pattern which represents fundamental frequency (F0). F0 is important in studying intonation and differences in pitch patterns are used to show stressed syllables and the tone of the sentence, while the yellow line refers to intensity which is the acoustic correlate of loudness. The intensity is changed by the speed of the speech, when the speaker talks quickly the intensity is lowered and the intensity goes up when the speech is slow. The phonological analysis in this study focuses on how pitch contours goes up and down within the domain of the sentence as the example in the figure (4.1):

“The heaven declare the glory the greatness the majesty, the worth of God”

The example number (3) in the table has a declarative structure and function as a statement. The utterance is composed of two tone units

2. According to Autosegmental theory, stress must be assigned depending on stress rules and praat analysis; this sentence starts with a high tone falling in the middle then rises up until the end of the sentence.

3. According to Well-formed conditions association lines do not across each other and no TBU stays without association, to solve this problem some words are associated to the preceding low tone. And according to Obligatory Contour Principal no identical tones are allowed so they are reduced to one tone:
The heaven declare the glory the greatness the majesty the worth of God

The first example had a rising –falling tone while the following example has rising tone and forms upstep tone in which each high tone in the sentence is higher than the preceding tone:

Figure (4.) Praat Analysis of the Pitch contour

"Can you really take Gods words for it"

This example which is number (2) in the table has an interrogative structure and functions as a question. Questions may take different tones and sometimes it is by the tone that listeners differentiate between a declarative statement and a declarative question. Yes, No questions may have a falling or a rising tone, if it is pronounced with a low tone it indicates gentle pressing while the high tone it indicates exclamation. This sentence is composed of one tone unit so only external boundaries are drowned.

According to Obligatory Contour Principles, identical tones are not allowed, so each identical tone will be replaced by one tone. The association lines are redrawn and tones spread left and right.

To show his competence and get the audiences trustworthiness, the priest mentions different verses of the Bible to support his claim beside telling stories and incidents related to the topic. Asking questions is considered one of the persuasive strategies used by the Priest. Here the priest wants to get the audiences trustworthiness by telling the story of
Adam and Eve. So, the priest uses the strategy of appeal to fact also he uses a rising pitch.

Pauses are analyzed in studying intonation because of their effect on meaning and the style of speech. A pause is a period of time that acts as punctuation mark for speech. Pauses are important because they give the preacher time to gather his thoughts and ideas, and to receive feedback from the audience. Pauses are also important for the audience; it helps them to decode and analyze the message. The length and the place of pauses is related to grammatical and information structure. The preacher uses pauses to direct the audience and to get their attention. Also, he uses pauses to avoid monotonous speech as in the following example in which the Priest uses pauses between the imperative sentences:

Figure(4.2) Praat analysis of English sentence ()

“Come on, think for yourself, free yourself from the restraints of what god said”

This example has an imperative structure and function as a command. It is composed of three tone units

$ come on$ think for yourself $ free yourself from.what god said$

The highest pitch is on the word ‘yourself’ 276 Hz and intensity 78 db, while pause is 1,474 sec. The sentence starts with a low tone rising until it reaches the highest tone on the pitch accent word (yourself) then keeps falling down until the end of the sentence. Two cases of downtrends are found in this sentence. The tone of the first two tone units goes up and each high tone is higher than the preceding one (upstep). While in the third tone unit each high tone is lower than the preceding high tone this is called (downstep). The two tiers are associated and association lines are drawn.

B. persuasive strategies

The priest intention is to show how Satan has deceived Adam and eve by telling them to think about themselves and not think about what god
told him. So, he tells the story and asks question and then he mentions what Satan ordered them with a high pitch, he uses appeal to emotion, to show how Satan has deceived Adam and Eve. So, the priest appeals to Logos by telling real incidents.

<table>
<thead>
<tr>
<th>NO</th>
<th>TUs</th>
<th>Utterances</th>
<th>Structure</th>
<th>Tone</th>
<th>Pitch (Hz)</th>
<th>Intensity (db)</th>
<th>Pause (sec)</th>
<th>Intonation of the sentence</th>
<th>Intention</th>
<th>Persuasive Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>ول جاءنا لصلاة الخمسين</td>
<td>Interrogative</td>
<td>Rising-falling</td>
<td>460</td>
<td>83</td>
<td>0,354</td>
<td>Whispers</td>
<td>The Imam wants to elaborate the subject, and he wants to give examples</td>
<td>The Imam appeals to logos. He elaborates the subject by saying that the parents pray for their child's goodness and even if they become hardened on their child, they do that for the sake of his goodness.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>إن عكر الله أكبر ما أروع هذا اللحظة هنا الأنان</td>
<td>Exclamatory</td>
<td>Rising</td>
<td>412</td>
<td>83</td>
<td>0,388</td>
<td>Exclamatory</td>
<td>The Imam appeals to emotion by using the strategy of appeal to Pathos. He uses a very high pitch and using emotive words as “what a great”. Also, he wants to emphasize his ideas by using repetition of “Allah is greatest”</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>إن قدر الامن من يبغي توحيد وله يدلاً لانيثه</td>
<td>Imperative</td>
<td>Rising</td>
<td>419</td>
<td>83</td>
<td>0,332</td>
<td>Others</td>
<td>The Imam wants to warn the audience from disobeying parents</td>
<td>The Imam wants to warn the ones who disobey their parent’s, and he uses high pitch to appeal to emotion of anger.</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>إن قد قهر الله</td>
<td>Declarative</td>
<td>Rising</td>
<td>496</td>
<td>84</td>
<td>0,366</td>
<td>Statement</td>
<td>The Imam wants to show how hard it is To lose your parents.</td>
<td>The Imam appeal to logos. He talks about the fact of difficulty of losing parents.</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>إن الله يحب أن يكون له ولياً</td>
<td>Imperative</td>
<td>Rising</td>
<td>309</td>
<td>83</td>
<td>0,272</td>
<td>Others</td>
<td>The Imam wants to advise the audience to beware from disobeying your parents</td>
<td>He appeals to Ethos by addressing them “worshippers of Allah” And warning them from treating their parents in a bad way.</td>
</tr>
</tbody>
</table>

Table (4.2) presents the analysis of Arabic data. The Imam starts the Khutbah by praising God and the prophet (peace be upon him). In presenting his khutbah, it has been observed that the Imam uses many strategies. He appeals to Aristotle tools of persuasion strategies. The Imam uses the strategy of appeal to manners (Ethos), appeal to fact (Logos), and appeal to emotion (Pathos) with other strategies as positive and negative motivation.

Here it is interesting to shed light on the sentence number (1) in the table. The sentence is composed of two-tone units and has an interrogative structure. The first tone unit starts with a high tone and continues rising until the end of the tone unit. Statements have falling tone but here it ends with a high tone –as shown in Praat analysis- to indicate that he has not finished yet. While the second tone unit starts with a high tone falling dawn until the end of the tone unit. However according to autosegmental theory stress must be assigned with pitch depending on Praat analysis. The sentence has a high pitch and a high intensity about 460 ‘Hz’ and 83 ‘db’.
The pause between the two sentences is short about 0.354 ‘sec’.

Figure number (4.9) Praat analysis of Arabic sentence (1)

"If your parents blame you out of something for mending you, remember how many times they prayed wishing your success secretly and publicly"

$Wa\ in\ atabaka\ lislahika\ astinthara$ $LT - TS$

$Fakum\ nahuluka\ sadeqa\ alduaa\ biltawfeq\ siran\ wa\ jihara$ $LT - TS - TT$

Association lines are assigned between the segmental and tonal tier, and the Wellformedness conditions (WFC) are applied and the tone spreads left and right.

$Wa\ in\ atabaka\ lislahika\ astinthara$$
$LT \ LH \ LH* \ S$

$Fakum\ nahuluka\ sadeqa\ alduaa\ biltawfeq\ siran\ wa\ jihara$$
$LT \ H* \ L \ HL \ HL \ S$

The imam wants to elaborate the subject by showing how parents are great; he says that they pray for their child’s goodness. He uses the strategy of appeal to fact and emotion, the fact that even if the parents become hardened on their child, they do that for his own good. It is worth mentioning that the Imam speaks slowly and loudly, so the intensity of his speech is high, as shown in figure (4.10) it reaches 83 ‘db’ in the following example
Figure (4.10) praat analysis of Arabic sentence (2)

"الله اكبر, الله اكبر ما اروع هذا البر وهذا الأدب"

Allaho Akbar Allaho Akbar, Ma arwaa hatha albir wa hatha aladab
Allah is the greatest! Allah is the greatest! How splendid such dutifulness is! And how great such manners are!

The sentence has an interrogative structure and functions as an exclamation; it is composed of a nominal phrase followed by an independent clause. There are two tone units with a short pause between them so both external and internal boundaries are drawn

$\text{Allaho Akbar Allaho Akbar} \quad \text{ma arwaa hatha al albir wa hatha aladab}$

The sentence starts with a high tone on both tone units and ends with a rising tone

The highest pitch is on the word ‘’ 412 Hz and the intensity of the sentence is 83 db. After assigning tone WFC are drawn with association principals

$\text{Allaho Akbar Allaho Akbar} \quad \text{ma arwaa hatha albir wa hatha aladab}$

The imam wants to elaborate the subject, he uses the strategy of appeal to pathos, by using rising pitch to show great this religion is, the imam also uses repetition by repeating the phrase ( Allaho Akbar Allaho Akbar) to emphasize how astonished he is.

Contour tones are found in in the next example, as shown by praat analysis the pitch rises up then falls on the same vowel in the word /ina/

<table>
<thead>
<tr>
<th>ɪna (segmental tier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H L (Tonal tier)</td>
</tr>
</tbody>
</table>

"ان فقد الوالدين مصاب جد جلل ورزء اشد وقعا من الاسل"
‘Ina faqada alwalidayn musabun judu jalal, wa rîzun ashadu waq̣an min alʔasal’

‘Losing one’s parents is a serious problem and it is a disaster that strikes harder than being staped with a spear

Also, the sentence has a falling tone, and each high tone is lower than the preceding one (downstep) as shown in the figure (4.11).

According to Obligatory contour principle no identical tones are allowed, therefore two identical tones are reduced to one as in the following:

The imam talks about how parents are a great thing in our lives and losing them is very hard, harder than anything else. He says that the pain of losing them is more difficult than becoming sick. Here he uses emotive words and low pitch to appeal to emotion of sorrow. Different sentence structures are associated with different tones, statements are associated with falling tone and questions are associated with rising. The example shown in the figure number (4.12) has an imperative structure and function as warning. According to Praat analysis the sentence has a rising tone. The sentence also has a high pitch 419 ‘Hz’ and a high intensity 83 ‘db’ with a short pause 0.332.

6. Conclusions:
This study has reached at the following conclusions
1. Autosegmental theory presents and analyzes intonation in a new way different from other theories and models that deal with intonation by assigning tone on a different tiers from the segments and by using association lines to link between the tones and the
segments and that is different from the traditional method in which a curved line has been used to indicate the intonation pattern.

2. Pitch, stress and intonation are autosegmentalized in English and Arabic. The tone of a vowel is not considered one of its features, there is no specific tone for a specific vowel. In any language system every syllable has a fixed feature as bilabial, dental or + - nasal, but there is no high or a low syllable. However, the same syllables may have different tones in different words.

3. The tone of a word may not be changed by the phonological and grammatical rules. A vowel may be deleted or substituted or becomes disyllabic without affecting the tone, rather the tone shifts to the neighboring syllable. Nevertheless, the same tone may spread on different syllables; therefore, tones are assigned on a separate tier from the segmental tier.
References