Suprasegmental Phonemes in Arabic and English: Intonation as A Case Study

Emad Farouq Al amarnih[1], **Hanene Lahiani**[2], **Nahla Alshalabi**[3,*] **& Ream Odetallah**[2,4]

Abstract: Objective: This research examines intonation as a vocal supra-segmental phenomenon in Arabic and English, focusing on declarative, interrogative, and exclamatory types of utterances. It aims to identify difficulties for English speakers learning Arabic intonation. **Methodology:** The study uses the contrastive analysis approach to help identify patterns that may pose challenges in learning Arabic. **Results:** show similarities in intonation patterns and tones but challenges in the semantic dimension due to differences in intonation levels. **Conclusion:** Suggestions on how to overcome those difficulties include training learners in Arabic intonation patterns and designing effective teaching curricula based on linguistic contrastive analysis.

Keywords: Intonation, Phonemes, Contrastive Analysis, Arabic Language, English Language.

الفونيمات فوق التركيبية في اللغتين العربية والإنجليزية: دراسة حالة التنغيم أنموذجا

عماد فاروق العمارنة[1]، وحنان اللحياني[2]، ونهلة زهدي الشلبي[3,*]، وريم عودة الله[2,4]

الملخص: الأهداف: تهدف الدّراسة إلى معالجة ظاهرة صوتية فوق تركيبيّة (Suprasegmental Phenomenon)، وهي التنغيم؛ وذلك باستعراض مفهومه، وبعض أنماطه من خلال المعطيات التي يقدّمها الواقع الرّاهن للتقابل بين اللغتين العربية والإنجليزية؛ لنتمكّن من معرفة الصّعوبات التي قد تواجه متعلّم اللغة العربية ولغته الأم الإنجليزية. **المنهجيّة:** رصدت الدّراسة السياقات والأنساق التي تجلّت فيها الظاهرة الصّوتيّة؛ مستخدمة المنهج التقابلي لتحليل الرّسالة اللغويّة؛ للكشف عن جوانبها المتعلّقة بأنماطها التنغيميّة، والطّبقات الصّوتيّة في اللغتين. **النّتائج:** خلصت الدراسة إلى مجموعة من النتائج، تمثّل بوجود اتفاق في النمط التنغيمي والطبقات الصوتية في اللغتين، وكذلك وجود صعوبات تتصل بالبعد الدلالي للتنغيم على مستوى السماع والأداء؛ بسبب الاختلاف في مستويات التنغيم بينهما. **الاستنتاجات والتّوصيات:** قدّمت الدراسة مجموعة من المقترحات؛ للتغلب على تلك الصعوبات، تمثّل بتدريب المتعلمين على الأنماط التنغيمية للغة العربية ذات المستويات الثلاثة: الصاعدة، والمستوية، والهابطة في مواقف كلامية حقيقية، وتصميم برامج تعليمية هادفة، وقد تم ذلك وفق معطيات التقابل اللغوي لهذه الظاهرة بين اللغتين.

الكلمات المفتاحية: التنغيم، الفونيم، التحليل التقابلي، اللغة العربية، اللغة الإنجليزية.

Introduction

The study of the phonic spectrum of speech is a key focus in modern linguistics, as it involves analyzing sounds, their articulation, their features, their changes, and tones in human language. This examination is essential for understanding language, as speech forms the basis of linguistic studies. Intonation, which refers to the patterns of sound and pronunciation in speech, plays a crucial role in conveying meaning and intentions effectively. It encompasses various elements such as tones, pauses, and cadence, all of which contribute to the speaker's expressive goals in a given context. However, Abu Morad (2014) states that in Arabic, the term has not been used until recently although a whole discipline in Arabic Literature, prosody, relies on aspects of intonation, namely meter.

Still, intonation is vital for audience perception, attention, and comprehension, highlighting its significance in language studies.

Methodology

Intonation, a vocal suprasegmental phenomenon, can be taught and learnt through contrasting Arabic and English data. The aim is to identify features in both languages to anticipate challenges for native English speakers learning Arabic. The contrastive analysis approach, a key mid-twentieth-century theory in applied linguistics, suggests that first-language interference is a hindrance in the acquisition of the second language, which suggests that the structural analysis of the two languages would provide a contrastive linguistic categorization between them, enabling the linguist to foresee the obstacles that the learner is likely to face (Brown, 2004).

1. Department of Educational Diploma, Yarmouk University, Amman, Jordan. tem_enmad.alamarnih@yu.edu.jo
Orcid: 0000-0003-3247-6700
2. Department of English Language and Translation, Al Ain University, Abu Dhabi, UAE. hanene.lahiani@aau.ac.ae
3. Department of Arabic Language and Literature, Al Ain University, Abu Dhabi, UAE.
* Corresponding author email: nahla.alshalabi@aau.ac.ae
4 E-mail: reem.odetalla@aau.ac.ae

1 قسم الدبلوم التربوي، جامعة اليرموك، عمان- الأردن. tem_enmad.alamarnih@yu.edu.jo
2 قسم اللغة الإنجليزيّة والترجمة، جامعة العين، أبو ظبي، الإمارات العربية المتحدة.
hanene.lahiani@aau.ac.ae
3 قسم اللغة العربية وآدابها، جامعة العين، أبو ظبي، الإمارات العربية المتحدة.
* الباحث المراسل:nahla.alshalabi@aau.ac.ae
4 البريد الالكتروني: nahla.alshalabi@aau.ac.ae

Contrastive analysis in second language teaching is a subject of debate among language learners. Lado (1975) suggests that comparing the target language and the learner's native language can help identify patterns that may pose challenges in learning. For instance, the similarities between the two languages make learning easier, while differences can be more difficult. In the case of intonation, the challenge varies based on whether the languages use tone or intonation. Comparing languages like English and Arabic, which both use intonation, can provide valuable insights in contrastive studies.

This study compares and contrasts the aspects below in both languages, English and Arabic, and addresses potential challenges for English speakers learning Arabic intonation, offering solutions for effective teaching and learning. It also explores intonation as a vocal phenomenon in transformative generative theory, focusing on:

– Intonation as a vocal supra-segmental concept.
– Phonemes of vocal pitches in intonation.
– Types and objectives of intonation.

Literature Review

Intonation in Arabic: Intonation in Arabic is defined as "the changes that take place in the level of effort during connected speech" (Al shaieb, 2006); in other words, the changes in the level of the musical tone resulting from the vibration of the vocal cords, which are caused by the intensity of the vocal cords (Al shaieb, 2006).

This definition highlights the connection between intonation and acoustic phonetics, where the physical aspect of vocal cord vibration influences the pitch of the voice. Intonation serves as a grammatical and morphological principle that adds meaning and significance to the speaker's speech.

Harakat (1998) defines intonation as a change in the tone rise of the vocal chains, rather longer than that of the stress and often involving sentences or phrases (Harakat, 1998). Mario Bay (2010), on the other hand, defines it as a rhythmic sequence of events in a specific talk (Mario Bay, 2010).

It is noticeable that the above definitions on the listening aspect of the sentential and phrasal structures in the speech chain compared to the stress which involves the single word in terms of accentuation of pronunciation. As for the cadence, which is considered the specific listening feature, it must affect the sentence semantically on the level of the sentence's linguistic meaning. According to Rabba' (1999) if a learner fails to speak language, they cannot write it.

Additionally, intonation for Hadi (2014) involves the rising and fall of voice which considers the situation of the performance, or varying the performance of the expression according to the context where the variation is on the level of the word, the sentence, or the phrase (Hadi, 2014).

The context of the speech performance, including the speaker's state and the addressee's status, is the key factor influencing intonation. The psychological dimension of the situation plays a crucial role in determining intonation, with the speaker's psycho-linguistic perspective being a specific determinant.

Intonation in the Arabic language is defined as the interaction between the speaker and the listener, highlighting the importance of considering both dimensions in the teaching and learning processes (Amairah, 1984). Intonation involves emphasizing certain acoustics in a sentence or single word known as contextual semantic stress. (Amairah, 1984).

Tammam Hassen (2000) aptly combines intonation in spoken talk with its equally important role in written text. However, intonation surpasses enumeration in its ability to convey a sentence's functional meaning. This practical significance of intonation in everyday communication underscores the relevance of our studies in this field.

Intonation in the English language: The definition of intonation in English does not differ from that in Arabic as a vocal supra-segmental concept. For instance, Brosnahan (1970) defines it as a musical tone or speech melody, while Jones (1978) says: "it is a change in the speech overtness." Halliday (1967) adds that intonation tacitly requires changes in the tonic level (Halliday, 1967); whereas Robins (1978) attributes the change in the level of voice to the speed of the vocal cords in the voiced parts of the things pronounced (Robins, 1978).

It is noticeable here that the definition of intonation as a vocal phenomenon is explained in terms of the vocal cords' vibration, which indicates that the physical aspect of intonation is the primary basis for explaining this phenomenon.

Nevertheless, intonation as a vocal phenomenon depends on the fundamental meaning, the situational meaning, and the contextual meaning, which denotes that the grammatical construction of the sentence is based on the fact that different tones are related to the different grammatical constructions (such as the exclamatory, the declarative or the imperative sentences). Thus, in English, it is the grammatical structure type that dictates intonation, and it is the nature of the speech situation that imposes on the speaker the type of intonation to use when talking to the addressee (Abu Helal, 1994).

On the other hand, Halliday (1967) affirms that intonation in English depends on the nature of the relationship between the speaker and the addressee in the discourse situation, whereas other features of intonation focus on situational and discursive meaning, where the situational meaning includes expressions like protest, interest, admiration, and encouragement (Halliday, 1967).

The Study

Intonation pitch phonemes in Arabic: These phonemes refer to the levels of vocal performance of intonation where the phonemic levels do not have any lexical meaning when they stand alone; however, any of them can modify the phrase's meaning in the same way any of the definite phonemes can. (Sini et al., 2014)

Linguists have identified two key aspects of voice pitch in Arabic:

– The performative aspect: this involves the pronunciation organs responsible for producing voice pitch, which varies among speakers and is influenced by factors like vocal cord vibration and malleability. This aspect requires speakers to use speaking skills that align with the voice system of the target language.

– The physical acoustic aspect: it explores how the voice produced impacts the ear and adds meaning beyond the words spoken. Voice pitch conveys additional meanings or intents that the speech chain denotes. (Melinberg, 1985, 16). Thus, linguists acknowledge the conventional understanding shared between the speaker and the listener.

From the above, it is noticeable that linguists of Arabic have defined the voice frequency levels of the speech chain in Arabic. For instance, the voice pitch is one of its acoustic features, an essential factor in meaning performance. The tone is contingent on the number of the vocal cords' vibrations in the second. This number depends on how tense the vocal cords are during the speaker's pronunciation of the vocal chain, resulting in different voice tunes.

Maslouh (1980) states the voice pitch levels in Arabic, such as falling, level and rising tones, play a crucial role in conveying specific meanings like interrogative, affirmative, exclamatory, or sarcastic tones. These levels help distinguish different types of sentences based on how the linguistic voice chain is pronounced. (Maslouh, 1980).

Abdul Jaleel (1997) concurs with Maslouh's levels and clarifies that the speech event chain includes both a rising tone and a falling tone, each having a nucleus as shown in figure 1 below.
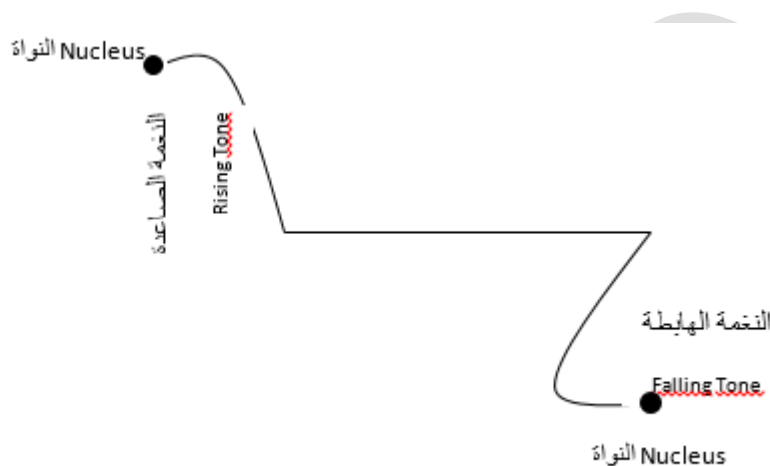

Figure (1): Speech event chain.

The speech event involves interrogative aspects that require a responsive reaction while conflicting images of intonation are used to report information. The tones can vary and intertwine based on the structure of speeches, including sequential, segmental and discontinuous elements. According to Hassan (2000), intonation patterns are context-dependent and can take various forms and are categorized into three levels: level intonation in informative sentences, rising intonation in questions and imperatives, and falling intonation in lamentation and distress (Hassan, 2000, p. 230).

Shaker (2012), however, clarifies that there are four levels of voice pitch used in intonation: low, medium, high, and higher. He also admits the relativity of the phonemes of the voice pitch (Shaker, 2012).

From the above, we conclude that the levels of voice pitch and tone in the spoken speech chain vary among Arab linguists and range between three and four levels. This may be due to the absence of limits separating those levels because demarcating them depends largely on listening, on the various Arabic accents, and on the linguistic situation in which the spoken speech chain is performed.

Intonation Patterns in Arabic: Intonation patterns in Arabic involve voice vibration forms, and each intonation pattern encompasses two aspects:

1. the distribution of the voice pitch phoneme (its different levels)
2. the final stop is related to the objective behind intonation (interrogative, informational, affirmative)

Arab linguists have debated whether the final stop should be included in the intonation pattern, with some arguing that the word carrying the intonation cannot be divided into syllables between the voice pitch and the final stop.

As an example, Sini (2004) claims that the intonation pattern in the question tag "Isn't it?" starts from a low voice and then rises gradually, which is graphically presented as follows:

Isn't it?

Meanwhile, Hilal (2009) divided the intonation pattern into tone groups, which means the group of words accompanied by any intonation pattern's units or a step on the intonation scale (Hilal, 2009).

For instance, in the sentence: *The news / seems to me/ fake*, we expect the phrases above to vary in length (based on the time it takes to pronounce them) depending on the number of words and syllables making up each phrase. Besides, these phrases and their beginnings are defined utilizing various tools such as pauses, lengthening or shortening of the final syllables, and using the usual rising or falling intonation at the end. Indeed, the speaker does not necessarily maintain one level of the voice pitch in pronouncing word syllables carrying intonation, as the last syllable of the final word pronounced must include the pause.

Badri (1982) explains that every intonation pattern comprises several voice pitch phonemes that rise to the top at one single position and fall afterward to the final stop. If we examine the intonation pattern in the sentence: Ahmad arrived (as a response to the question: who arrived?), we notice that a pause occurs after the first syllable of "Ahmad".

If we represent the levels of the voice pitch in a word with the first figure, and if the last number after the final word stands for the final syllable, whether rising or falling, the intonation pattern in the sentence above will be as follows:

*(3) Ahmad +(2) arrived.

This sentence can be classified as being at the normal informative level. However, if we replaced level /3/ of the voice phoneme pitch with /4/ in the sentence, it would not be a normal informative sentence but rather an emphatic one, as the following sentences illustrate:

* (2) Mohamed + (ate) + (3) apples (1): normal

* (2) Mohamed + (ate) + (4) apples (1): emphatic

The second sentence differs from the first in that the intended meaning is that Mohamed ate apples and nothing else.

It is worth noting that when phonemes /3/ and /4/ meet in a speech situation, they will have the same denotation because the phoneme of each voice pitch is relative.

However, suppose we want to analyze the intonation value of the word's intonation pattern when it ends with a rising tone. In that case, this pattern changes from informing or emphasizing to interrogation, as illustrated below:

1. (2) Mohamed + (2) ate + (3) apples (1)
2. (2) Mohamed + (2) ate + (4) apples (1)
3. (2) Mohamed + (2) ate + (3) apples (3)

The form of the intonation pattern in the interrogative sentence seems as follows: (2,3,3), while that of the exclamatory sentence is (2,4,4).

It is clear that the pauses of the intonation voice pitch take three forms:

(,,   ) level, rising and falling on the classification.

We should also realize that the speech context foretells the objective of the intonation voice pitch used by the speaker and that the hearer recognizes it simultaneously. For instance, in the following sentence:

The true Moslem prays:

1. (2) **The true Moslem** + (3) prays (1) normal informative
2. (2) **The true Moslem** + (4) prays (1) emphatic
3. (2) **The true Moslem** + (3) prays (3) there is more to say
4. (2) **The true Moslem** + (3) prays (3) interrogative
5. (2) **The true Moslem** + (4) prays (4) exclamatory

In the end, every intonation pattern must have one peak and end with a final stop. The examples above show that the peak of the intonation patterns is on the last word.

However, if the first word represents the peak, this signifies then that the meaning is emphatic. Still, the degrees of emphasis vary depending on the different intonational pitches within the speech chain. For instance, if the tone peak is placed on **the true Moslem** and excludes **prays**, then we are accentuating that it is **the true Moslem** who prays, not other Moslems; on the other hand, if the intonation peak is on the predicate **prays**, then we are emphasizing the act of praying rather than anything else.

Grammatical Functions of Intonation: The functions of intonation are not limited to conveying meaning and denotation. Intonation also has grammatical functions such as:

Distinction between sentence patterns:

We usually distinguish between affirmative and interrogative sentences because the latter includes the question tool while the former does not. However, this distinction based on the existence of a question tool does not always lead to the recognition of the sentence pattern; instead, one of the main distinctions might be through vocal and musical coloring or intonation. In this way, the denotation of interrogation may change into affirmation and vice-versa, as in this Quranic verse where God almighty says: "Has there come upon man a period when he was nothing to be mentioned? (Al Insan, 1).

The question tool used in this verse – the inversion / the word ((هل)) in Arabic-, which is customarily used for interrogative sentences, expresses affirmation because of the intonation function despite the existence of the question tool. In contrast, when we say:

You are walking while you are tired?

In this sentence, no question tool is used. However, by using intonation and contextual denotation, the sentence has turned from affirmative to interrogative, and this function is called the substitution principle. This principle consists of deleting a phrase and substituting it with voice intonation, such as in the following Quran verse:

"Yusuf, turn away from this. And you, ask forgiveness for your sin; you are indeed in the wrong" (surah Yusuf, verse 29), where the word – "Oh," " "يا in Arabic - used before the addressee's name has been deleted and replaced with another expressional principle which is intonation. Thus, this verse should be recited with a high tone laden with a load of emotion and passion, although the word customarily used before the addressee's name is omitted and replaced with intonation on the name of the addressee (Bakheet, 2015).

Regarding other examples of the distinction between declarative, enunciative and interrogative sentences, Ibn Mahran Al Naisabouri says: "The long vowel [æ], or [أ] in Arabic, (which, like inversions in English, marks interrogative sentences in Arabic) has ten functions, and that of distinction is like the one in ((ألآن)) or "is it now?" and unanimously stands for the question word "Alif" in Arabic " أ." However, in case there is a doubled letter after the long vowel, another "alif" is added to achieve the interrogation word, like the following example: "آلذاكرين الله" where the long vowel between the declaration and the enunciation in the sentence. When it is pronounced as a long vowel, then it shows interrogation, whereas its deletion means that the sentence is declarative, such as the Quran verse: "When the blind man approached him." (surah Abasa, verse 2) (Awadh & Naama, 2006)

The grammatical function of intonation

With intonation, we can decide whether the speech act belongs to another type of linguistic style, such as declaration, interrogation, confirmation, or exclamation, and what distinguishes exclamation from interrogation in the three sentences below:

– How friendly Zaid is!

– How nice is Zaid?

– Zaid did not do well.

In Arabic, the three sentences are made up of the exact three words: (ما/ أحسن/ زيد (ا), and the only difference is the diacritical marks on the second and third word. As the ancients thought, what distinguishes sentences 1 and 3, for example, is the intonation rather than syntactical inflection. (Al Shaieb, 2006)

Among the other grammatical functions of intonation, the adjective connection or disconnection can affect the sentence's meaning and syntactical parsing depending on the intonation pattern used when pronouncing it.

For example, let us take the sentence: Compassionate Mohamed arrived/ Mohamed the compassionate arrived.

This sentence may contain a subject + an adjective + a verb or a subject + a verb + a predicate for a deleted subject of a nominal sentence presumed to be (he). Should we take the voice aspects into account, we will be able to define the sentential and syntactic system of this sentence in the following ways:

Mohamed + pause + the compassionate + arrived + falling intonation.

Mohamed + connection + the compassionate + arrived + rising intonation.

Here, in the first utterance, the word compassionate is a predicate of a deleted subject of a nominal sentence, and this utterance includes two sentences: Mohamed arrived—the compassionate.

However, compassion in the second utterance is an adjective that modifies Mohamed's subject (Bishr, 2004).

Among the poetic evidence in this field is the incident between Al Yazidi and Al Kissa'ee, witnessed by Al Rasheed (Al Sayouti 1975). He said: Is there anything wrong with this verse? Then he read it:

The wild ass cannot be a colt

Nor can the colt be a colt.

Al Kissa'ee said the poet was destitute, so Al Yazidi said: Investigate it. The first man repeated: 'Destitute, the second "colt" must be accusative as it is a predicate for "be."' As a result, Al Yazidi threw his cap on the ground, saying: I am Abou Mohamed. The verse is correct, but it has a noun as the subject of a nominal sentence, and he said: the colt is a colt. What we notice is that Al Yazidi used a pause before the second "colt" and a rising intonation. (Al Sayouti 1975)

In conclusion, intonation in Arabic takes four phonemic levels:

1. The falling level, coded /1/

2. The medium level, coded /2/

3. The high level, coded /3/

4. The highest level, coded /4/

The highest level is used in the intonation pattern, denoting exclamation or the imperative with a rising tone at the end; if the tone is falling, it only denotes emphasis but with deep emotion. Earlier, we concluded that the intonation pattern includes both the voice pitch phoneme (the level) and the final pause, mainly when the tone peak is placed on the last word of the speech chain; however, if the tone peak is placed on the first word of a multi-word context, then the intonation denotes nothing but emphasis.

Intonation in Arabic involves distinguishing sentence patterns and other grammatical functions related to several linguistic styles, such as interrogation, exclamation, negation, emphasis, etc.

Intonation pitch phonemes in English: The pitch phonemes of intonation in English are considered mere intonation phonemes that do not alter the lexical meaning as they are self-existent. However, they play an additional role in modifying the language situation-based meaning the speaker wants to express and convey to the addressee. In this vein, Nelson (1956) explains that the levels of the voice pitch in English can be classified into two performance levels:

1. **The level of the voice pitch in the declarative sentence** where the intonation level matches with the second level and ends with the first one. Hence, the sentence at this level does not have any additional expressive value.

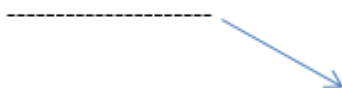As an example, let's take the following: Isn't it?

Figure (2): The voice pitch in the declarative sentence.

2. **The level of voice pitch in non-declarative speech** where the intonation ranges between the second and the fourth levels

In declarative speech, the speaker rarely uses contextual speech uniformly but rather uses high or low tones of level 1 to 3 for some words.

Example: John is a good   teach / er
        (2)   (2)   (3)   (1)

We notice here that, on the level of declarative speech, the level of the voice pitch tends to rise; however, the final pause makes the voice tone on the last syllable of the last word fall, which varies from the most frequently used pattern in English that ends with a falling tone (Ben Azzouz, 2013).

It is worth noting that the level of the rising voice pitch adds a new meaning to the sentence containing a special type of questions, such as:

1. /He/ /is a/ /student/ ------------ /He's / / a/ /student/?

    (2)   (3)   (1)   (2)   (3)   (3)

2. / He/ /lives/ here/. -------------- /He/   /lives/ here/?

    (2)   (3)   (1)   (2)   (3)   (3)

From the two examples above, we conclude that the intonation voice pitch ending with a rising tone has turned the speech from declarative to structural.

III.5 Intonation patterns in English

Some intonation patterns and their levels can be summarized according to the following examples:

1. Question patterns

    Yes/ no questions

    Example: **Do you visit   Amman?**
              (2)   (2)   (3)

    Wh questions

    Example: **What's your name?**
              (3)   (2)   (1)

2. Exclamation: The level falls from 4 to 2, and it expresses exclamation in two different ways:

    a- using the wh question word. Example: What a fine day!
                                              (3) (2)   (1)

    b- From the context of declarative speech. Example: Ali is the winner!
                                                        (2) (2) (3) (1)

3. Emphasis: the voice tone of the systematic word starts at level 3, then falls to level 2, and eventually to level 1. Example:
    I   saw   Laila   yester / day
    (3)   (3)   (2)   (1)

    Yet, if we want to emphasize the previous sentence emotionally, the word (Laila) will be spoken with a level 4 voice pitch.

4. Question tags: these come at the end of a declarative sentence where the voice tone rises and then falls on the question.

    Example: You are a / teacher,   aren't you?
              (2)   (3) (1)   (3)   (1)

5. In a list of items, the voice tone on the last item starts high and then falls at the end.

    Example: We want some / soup,   some salad,   a cup of coffee and a pie.
              (2)   (3)   (2)   (3)   (2)   (3) (3)   (1)

As for the tone's focal point, although English does not consider it, it is very important when the speaker uses it in an emotional situation, and in practice, it is quite hard to distinguish the tone's situational meaning from its discursive meaning.

Contrastive data

On the Level of the Intonation Phenomenon: Taking into account the definition of intonation in both languages as one of the definite phonemes, we claim that voice-pitch phonemes are equal in both languages. Consequently, both express intonation since they use the voice pitch in sentences and phrases and affirm that intonation is the tone of some words in a sentence or on one single word. This accentuation aims to highlight the word(s) acoustically and add semantic meaning from the speaker to the addressee, and it results from the vibration of the vocal cords in the voiced parts of the speech chain. The data mentioned above facilitate the study of intonation using a contrastive approach.

Thus, we find that, as far as the intonation phenomenon is concerned, Arabic and English do not differ in terms of the concept's significance and components because both languages belong to a similar intonation system when it comes to the voice pitch used by the speaker to produce intonation sentences, and the same voice pitch heard by the addressee.

Based on the above, this study assumes that, when learning Arabic, the English native speaker's acoustic perception in recognizing the phenomenon of intonation in Arabic is not affected, and it will be easy for him/her to notice intonation and identify it in sentences or speech.

On the level of the voice pitch phonemes: The voice performance of intonation in Arabic ranges from two to three levels, namely, the falling tone in lamentation and distress, the level tone in declarative sentences, and the rising tone in imperative and interrogative sentences, as the following graph shows:
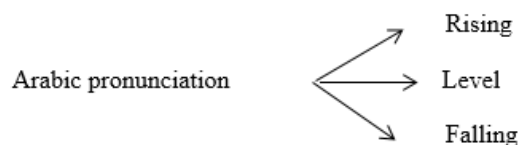
Figure (3): Intonation in Arabic.

Others, however, think that there are four levels in the voice pitch performed in intonation which are: the falling tone, the level tone, the rising tone and the highest tone.

In contrast, the levels of the voice pitch are classified into two levels:

1. **The level of the voice pitch in declarative sentences** where the intonation level is in level 2 and then ends in level 1. In this level, the sentence does not have an additional value of expression; it is rather declarative only.

2. **The level of the voice pitch in non-declarative speech** where the use ranges from level 2 to level 4. This type can be seen in non-declarative speech such as interrogation expecting a positive or a negative reply as explained in the following graph.
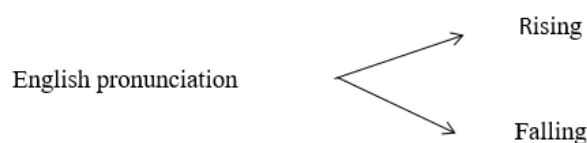
Figure (4): Intonation in English.

According to the above-mentioned data, the learner of Arabic whose mother tongue is English will presumably encounter difficulties in recognizing the voice pitch phonemes in Arabic because they are too numerous on the acoustic level. This will therefore be reflected in the level of the voice production of words and sentences with high levels of voice pitch, especially since, as explained before, the addressee cannot identify the meaning and significance of intonation in these levels because the situations where intonation is performed are so numerous and so varying compared to intonation situations in English, which confirms the study of (Shakri, 2016).

The level of patterns and functions of intonation: The survey of intonation patterns has revealed that the intonation pattern in Arabic involves the distribution of the voice pitch phonemes in the form of voice levels and the final stop. Although Arab linguists disagree on whether the final pause is an element of the intonation pattern, the researchers contend that it is not possible to talk about a voice pitch phoneme without the presence of a pause, as the speech situation and purpose define the time and place of the pause.

The study also showed that the pause depends on the time the speaker takes to pronounce the accentuated voiced sequence in a word or a sentence in terms of length or shortness. In this respect, there is no difference between the two languages, as they both use the same components of the voice pitch phoneme; however, the difference lies in the articulation of the semantic and situational intonation patterns, which are influenced by the rising or level tone before the pause. In this way, English uses the falling tone most often, while Arabic opts for the rising tone. Intonation patterns in both languages may be nearly identical regarding voice structure, though they differ in the semantic significance of some intonation components. That is why the learner of Arabic, whose mother language is English, will face some difficulties in the performance of the rising intonation pattern and in identifying it acoustically to understand its purpose, apart from the learner's inability to recognize the significance and intended meaning of this pattern, except for the yes or no question pattern. This finding is consistent with the results of Saber (2021), which explained that the semantic value of intonation in Arabic differs from that in English. Additionally, the Arabic intonation pattern slightly differs from the English pattern, which concurs with the studies of Ben Slama (2017) and Dihani (2022).

The functions of intonation in Arabic involve distinguishing between sentence patterns, such as interrogative and exclamatory sentences, on the one hand, and declarative sentences, on the other hand. The study also explains that in surveying those purposes that agree on that specific function, interrogative sentences in Arabic that are introduced with the question word (هل) may imply that the sentence has turned into an affirmative, which is not the case in English. This may add another hindrance for the learner of Arabic, whose mother tongue is English since s/he cannot distinguish actual interrogation from affirmation in both listening and speaking contexts. Again, this is consistent with with Mohyee Aldeen's (2015) study on the grammatical function of intonation, where the author listed some of the numerous and diverse grammatical functions of intonation in Arabic that are absent in English. This is due to the fact that Arabic is a declinable language and English is not. This will lead to substantial difficulties that the English native learner of Arabic will encounter in identifying the grammatical functions of intonation semantically, acoustically, and in speaking.

Conclusion and suggested remedies

After having surveyed the problems mentioned earlier related to the voice pitch in the phenomenon of intonation, it is now possible to classify them as follows:

1. **Acoustic problems**: These are due to the difference between the levels of the intonation voice pitch between Arabic and English and between the pauses in the intonation pattern, as English has only two levels. In comparison, Arabic has three levels of intonation and voice pitch. It is widely admitted that listening is one of the significant skills in the language teaching/ learning process. Because the learner of Arabic, whose mother tongue is English, is used to listening to only two voice pitch levels, s/he will need help identifying the three levels of the language s/he is learning, Arabic in this case.

2. **Performance problems**: The second layer of the intonation problem is closely intertwined with the acoustic issues. As learners primarily rely on listening to learn and imitate intonation, any shortcomings in their listening skills can lead to a weakness in their language

performance related to intonation. This challenge is further compounded by the complexity of language production and the intricate processes involved in practicing intonation patterns.

3. **Semantic problems**: Owing to the differences in the levels of intonation voice pitch and the pause of the intonation pattern between the two languages, there are several differences in the significance of some intonation patterns. As a result, the circle of the semantic significance of intonation in Arabic will grow more prominent, while that in English will shrink and get smaller. This is true on the expressive level, which refers to the emotional or attitudinal meaning conveyed by intonation, however, the problem will be more complex when it comes to the functional level of the intonation pattern, which refers to the grammatical or pragmatic function of intonation, as mastering the intonation function of a language is highly more complex than the expressive aspect because of another learning stimulus, which is the linguistic situation.

4. Problems related to the **language features**: these are problems involving features of the second language that do not exist in the mother language. The problem here is particularly about parsing, as this is a characteristic of Arabic but does not exist in English, and it necessarily has an impact on the semantic issues because the phenomenon of parsing expands the performance circle of intonation as well as its significance and functions.

For the above-mentioned reasons, this study suggests the following solutions:

1. Give learners enough training on the intonation patterns with rising, level and falling levels using oral, acoustic, and graphic-situational approaches.

2. Expose learners to speech aspects that they describe through real language situations, such as workplace conversations or social interactions, using an intonation style inexistent in the mother language to overcome the various difficulties of intonation performance.

3. The study advocates for the design of purposeful educational syllabi, rooted in the situational conversation style. These syllabi, when implemented on learners, can effectively adopt the direct learning/teaching style, thereby achieving the functionality of the language.

4. Provide learners with grammatical knowledge that is linked to the intonation phenomenon, such as the use of stress and intonation to convey emphasis or the role of intonation in forming questions and teach them this knowledge through listening and speaking first, and then through reading and writing afterward.

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