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Investigating Intonational Phrasing in Equational Sentences by Iraqi Speakers Using Modern Standard Arabic

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Article information	Abstract
	This study focuses on studying how equational sentences can be intonationally phrased. The phrasing is achieved through determining the boundaries of each equational sentence (henceforth ES) in addition to examining the identity of the boundaries at the periphery of each element within the ES from syntactic, phonological and phonetic points of view. The model adopted in the study is the Autosegmental-Metrical Approach (henceforth AM) which is firstly presented by Pierrehumbert (1980) and developed by Ladd (2008) within the framework of intonational phonology. The data are produced by Iraqi speakers using the Modern Standard Arabic in their interviews on TV show programs. The utterances are collected, edited and analysed according to a specific notation system showing the internal syntactic structure in addition to the phonological and phonetic structures of the boundaries of each ES.

دراسة التقطيع التنغيمي في جمل المبتدأ والخبر لدى المتحدثين العراقيين باستخدام اللغة العربية الفصحى الحديثة

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المستخلص:

تركز هذه الدراسة على دراسة كيفية صياغة جمل المبتدا والخبر بشكل تنغيمي. وتتحقق الصياغة من خلال تحديد حدود كل جملة فضلا عن فحص هوية الحدود في محيط كل عنصر من النواحي النحوية والصوتية والنظامية الصوتية. والنموذج المعتمد في الدراسة هو النهج المتري القطعي الذاتي الذي بدأته بيير همبرت (1980) في أطروحة الدكتوراه وطوره لاد (2008) في كتابه في إطار علم الأصوات التنغيمي. تم إنتاج البيانات من قبل متحدثين عراقيين باستخدام اللغة العربية الفصحى الحديثة في مقابلاتهم في البرامج التلفزيونية. يتم جمع الألفاظ وتحريرها وتحليلها وفق نظام تدوين محدد يوضح البنية النحوية الداخلية فضلا عن البنية الصوتية والنظامية الصوتية لحدود كل جملة مبتدأ وخبر.

الكلمات المفتاحية : التقطيع، المبتدأ، الخبر

1. **Preliminary:**

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Most of the time speakers tend to produce their messages in different ways: they may produce them in one semantic and syntactic unit, or separate their speech into units that are mainly both semantically coherent and syntactically grammatical. In accordance with the second way, the resulting units may take different syntactic forms among which is the equational sentence. The current study sheds light on the intonational phrasing of the ES in relation to the boundaries of each unit

2. Intonational Structure:

The intonational structure, according to Selkirk (1984: p. 197f.), involves three things:

First, it involves the intonational phrasing of the sentence: the division of the sentence into one or more intonational phrases. An intonational phrase is a unit of prosodic constituent structure with respect to which the characteristic intonational contours of a language are defined. Second, the intonational structure of a sentence involves the assignment of pitch accents (prominence) to the words of the sentence. Third, the intonational structure involves the representation of the particular intonational contour of each intonational phrase (tones). (Words in brackets are ours).

3. Intonational Phrasing:

Among the phonologists who firstly shed the light on intonational phrasing was Selkirk (1984) showing that the intonational structure involves three things: First, it involves the "intonational phrasing" of the sentence, i.e. the division of the sentence into one or more "intonational phrases". Second, the intonational structure involves the representation of the particular intonational contour of each intonational phrase, and third, the assignment of pitch accents to words of the sentence (p. 197f.).

According to Pierrehumbert (1980: p. 2), who discussed the intonational structure of English, "the intonational contours of English are characterized as a sequence of pitch accents, flanked at the beginning by an (optional) boundary tone and at the end by a phrase accent and a final (obligatory) boundary tone, all of which are represented on an autosegmental tier separate from the tier(s) including segments and syllables."

Intonational phrasing, according to Wang and Hirschberg (1992: 186), is the structure that "divides an utterance into meaningful 'chunks' of information". Variation in phrasing can change the meaning hearers assign to tokens of a given sentence.

Tench (1996: p. 31) considers intonational phrasing "a system in intonation that divides spoken discourse into its separate individual intonation units." He continues by saying that each unit contains a single piece of information and illustrates how the speaker has organized the message's overall content. It is important to note that IP has variously been called sense-group, breath-group, tone-group, tone-unit, phonological phrase, phonological clause or intonational phrase (Cruttenden, 1996: p. 29), prosodic grouping (Breen et al., 2011: p. 1534), prosodic segmentation (Breen et al, 2011: p. 1535), and intonational segmentation (Breen et al, 2011: p. 1536). In the current work, the term used is "intonational phrase IP.

4. Theory of Intonational Phrasing:

Selkirk (1984: p. 287) shows that Pierrehumbert's 1980 theory of intonational contours in English is a theory of the contour of an intonational phrase. When an English sentence consists of a single IP, there

are only two boundary tone (at the left and right extremes of the sentence), one phrase accent (after the last pitch accent), and (in principle) any number of pitch accents. Selkirk adds that "the intonational contour of a single-IP sentence and a multiple-IP sentence will differ, therefore, in that the latter will contain phrase accents and boundary tones in medial position, before and after other pitch accents.

Selkirk expresses that "there are indeed limits on intonational phrasing – that there may be some that are simply ungrammatical. Our major task is to define the well-formedness conditions on intonational phrasing. The hypothesis is that the well-formedness conditions are of two general types, neither of them is syntactic in character as illustrated below.

(1) Syntactic–Prosodic Correspondence Rule for Intonational Phrasing

A matrix sentence must be exhaustively parsed into a sequence of (one or more) intonational phrases.

(2) Sense Unit Condition on Intonational Phrasing:

The immediate constituents of an intonational phrase must together form a sense unit.

The second is more substantive and places essentially semantic conditions on intonational phrasing.

These two rules are important in the sense that they generally control the existence of the boundaries in the utterance. The methodology suggested in the analysis of the speakers' performances draws heavily on these two principles due to conception that the IP structure plays a significant role in making the above principles in active during the chunking of utterances.

5. Boundary Tones:

Selkirk (1995: p. 551) explains that Pierrehumbert (1980) "isolates further tonal entity, the "boundary tone", which is positioned at the edge of a phrasal constituent." The end of an English sentence is necessarily marked by a final H% or L% boundary tone (a "%" following a tone indicates that the tone associates with the final (or initial) syllable of the phrase).

According to Watson et al. (2006: 1045), although speakers have a great deal of flexibility in where they choose to place intonational boundaries, boundaries tend to be produced in certain locations with a great deal of regularity.

Other well-known boundary signals, as stated by Frota (2000: p. 169), are "pauses and pitch movements." These temporal and melodic means of boundary marking have been shown to be positively correlated with the rank of the boundary they signal, i.e. higher boundaries are stronger than lower boundaries and these differences in boundary strength are reflected in the realization of the temporal and melodic edge markers. She adds that "it has been repeatedly mentioned that, in many languages, prosodic boundaries may be signaled by temporal and/or melodic means. These temporal and melodic markers may take various physical forms." At least three kinds of durational effects have been associated with boundary marking: (i) pre-boundary lengthening of final segments; (ii) pauses, defined as a momentary cessation of speech; and (iii) pre-pausal lengthening, that is the elongation of final segments induced by the presence of an ensuing pause (ibid. p. 171).

6. <u>The Hierarchy of Prosodic Constituents</u>:

According to Nespor and Vogel (1986: p. 2 - 11), "the prosodic constituents built on the basis of information contained in the morphological and syntactic components are not necessarily in a one-to-one relation with any of the constituents of the morphology or syntax." These seven units, from large to small, are: the phonological utterance (U), the intonational phrase (IP), the phonological phrase (Ph.P, or ip, which is the term adopted in this work), the clitic group (C), the phonological word (or prosodic word PWD), the foot (Σ), and the syllable (σ).

The higher prosodic levels, PWD, ip IP, are "interface levels". These higher categories are derived from interface interactions with the morphosyntax by mapping principles; they are not stated independently (Fery, 2017: p. 37). Our view in this study goes with taking into account these three prosodic levels only because of their intense relationships with the syntax – prosody interface.

6.1 <u>The Intonational Phrase (IP)</u>:

The Intonational Phrase (IP), according to Selkirk (1984: p. 27), "corresponds to a span of the sentence associated with a characteristic contour or melody. A sentence may correspond to one or more intonational phrases." She also argues that the idea that the definition of what may constitute an intonational phrase is "essentially semantic in character". This concept is important in the analysis of the speakers' performance, since the data have shown an extensive orientation from the speaker's part to divide their utterances to well-defined semantic units.

Shattuk-Hufnagel and Turk (1996: p. 210) demonstrate how the IP "is the domain of a perceptually consistent intonational contour, or tune, and how it is an intonationally defined prosodic element." According to Pierrehumbert (1980), "the IP contains a specified sequence of phonological elements: nuclear pitch accent followed by a phrase accent and a boundary tone (additional prenuclear pitch accents are optional)."

6.2 <u>The Phonological Phrase (Ph.P) or Intermediate Phrase (ip)</u>:

Several authors have proposed that IPs can be either subdivided or combined into other intonational constituents. The Phonological Phrase (Ph.P) as called by Pierrehumbert (1980: p. 55) "is a prosodic constituent occurring right beneath the intonational phrase. It is composed of a group of words bearing at least one pitch accent." The edge tone appearing at intermediate phrase boundaries is called a "phrase accent". It controls the pitch shape between the last pitch accent of the intermediate phrase and the beginning of the next one. Conventionally, phrase accents are represented as H- or L-.

6.3 <u>The Phonological Word or Prosodic Word (PWD)</u>:

The phonological word, according to Nespor and Vogel (1986: p. 109) is "the lowest constituent of the prosodic hierarchy which is constructed on the mapping rules that make substantial use of nonphonological notions." In particular, the relationship between the morphological and phonological elements of the grammar is represented by the phonological word. Furthermore, the category that takes center stage right away in the foot is the phonological term. Specifically, every foot in a given string needs to be categorized into a phonological word; no other category is allowed to do so. As a result, every

foot is completely included in a PWD; in other words, syllables from a single foot are never part of separate phonological words.

Another definition for the phonological word (PWD), comes from Gussenhoven and Jacobs (2011: p. 253) in which it corresponds normally to a one-to-one fashion to the morphological word. The term adopted in this work is the Prosodic Word (PWD).

7. Previous Studies on Intonational Phrasing in Arabic:

Many studies have been carried out concerning the intonational phrasing in Arabic. The following sections discuss briefly most of these studies.

7.1 Helmuth:

Through a series of researches, Hellmuth (2004, 2007, 2012, and 2016) discussed the prosodic structure of Egyptian Arabic (EA) as to phonological phrasing (2004), pitch accent distribution (2007), variable cues to phrasing (2007), and comparing the mapping of syntactic structure to prosodic structure in Jordanian Arabic and Egyptian Arabic (2016).

In addition to the phonological targets that determine the boundary location both utterance-medially and/or finally, there are certain phonetic cues "employed to mark instances of the same type (or level) of prosodic juncture in the same positionin the sentence, and there is also (what proves to be principled) variation in the types of cuesemployed at distinct instances of (what are expected to be) the same type/level of junctureoccurring at different positions in syntactic structure." (Hellmuth, 2012: p. 237). More specifically, a boundary was only drawn when two of the potential phrasing cues listed below were seen in order to arrive at the most conservative phrasing analysis: local pitch reset, pre-boundary lengthening, failure of epenthesis, phrase-final pitch accent lowering, pause, and high (H-) or low (L-) phrase tone. Table (2.1) shows phonetic cues whereby the positions of juncture among the different prosodic categories can be detected, which is reproduced from Hellmuth (2012: p. 262).

Table (1): Cues labels for the description of each boundary

No.	Label	Name	Definition
1.	B	Boundary Tone	Boundary shows a full boundary tone (usually a final fall)
2.	D	Downstep (Final Lowering)	Peak of the word at the boundary is produced at a lower level than expected from effects of downstep alone, relative to pitch level of the previous peak.
3.	H- or L-	Phrase Tone	Boundary shows either H- or L- phrase tone
4.	L	Lengthening	Word at the boundary is lengthened
5.	P	Pause	Boundary is followed by a pause
6.	R	Reset	Following peak is produced at higher level than the peak of the word at the boundary.
7.	S	Suspension of Downstep	Peak of the word at the boundary is produced at the same level at the previous peak
8.	U	Upstep	Peak of the word is produced at a higher level than the previous peak.

7.2 Rifaat:

Rifaat (2005) tries to give a preliminary description of intonation in MSA limiting "the investigation to the description of the basic elements and rules of the complete "intonational sentence" (p. 50). He distinguishes between "tune" and "phrase" as denoting the IP and ip, respectively, showing that a "tune is complete when itconveys a complete intonational meaning" (p. 53). A tune, according to him, is either simple or complex when it contains more than one phrase. The accents types are either [HL], denoting a final Tune boundary, or [LH], denoting either "a final tune boundary or a final phrase boundary." He also discusses the existence of phrase boundary between intermediate phrases or, using his term "phrase" if it shows a "qualitative effect on the preceding pitch accent or on the pitch trend line of the whole Tune." (p. 56)

We agree with Rifaat in that a tune, or the IP, fulfils its completeness when it conveys a full intonational meaning, a point that will be rendered one of the tenets of the data analysis in the current work. However, the tone [HL] and [LH] will be adopted but with some modifications, especially in the analysis of IP and ip boundaries. In relation to the phrase boundary, the two conditions mentioned above will be among many standards which are relied on in determining the edges of ip(s) within an IP.

7.3 Al-Safi:

Alsafi (2017: p.1) discusses intonational phrasing in MSA read sentences. The main results are that the longer the sentence, the more probable phrasing takes place. Additionally, SVO sentence structure tends to be phrased as (S) VO rather than (SV) O, whereas the VSO structure tends to have the phrasing of (VS) O rather than V (SO) evenwhen both of the subject and object are prosodically heavy and syntactically complex. Moreover, phrasing can depend on various factors. First, the unit that is liable to be phonologically phrased can be any syntactic unit and that there is no strict condition for the size of any syntactic unit to form a separate phonological phrase even if it contains one single prosodic word. Second, each of the relative clause and prepositional phrase may very likely be phrased separately from the rest of the preceding elements of the sentence basically relying on whether or not it becomes a dependent argument for the preceding head within the same utterance. Third, balance in the constituent size concerning the number of prosodic words "ωs" in each phonological phrase is also an essential factor in the process of phrasing. Many candidates have opted to produce utterances that reserve the balanced sizes of each separate intonational phrase. Fourth, different intonational cues are used in phrasing. The cues "H-PL" demonstrate a higher level of occurrence than the occurrence of "L-RPL" cues throughout the utterances, whether in the domain of the subject or object.

In this study, we take Alsafi's work as a starting point to investigate intonational phrasing patterns, concerning syntax – prosody interface, in MSA TV interviews. The main point is that our data consist of spontaneous speech taken from TV interviews in order to discuss the prosodic phrasing that occurs within these interviews.

8. Modern Standard Arabic (MSA):

The phrase "modern standard Arabic" (MSA) refers to the standard form that is thought to be the highest on the continuum and is extensively employed in particular contexts by educated individuals. Arabic

speakers who are literate could be able to comprehend it if they are exposed to it through the media (TV, radio, religious contexts, etc.).

9. Sentences in Arabic:

This section discussesthe Arabic sentences, the simple ones in particular. According to Ryding (2005: p. 57), "traditional Arabic grammatical theory divides sentences into two categoriesdepending on the nature of the first word in the sentence." Sentences whosefirst word is a noun or noun phrase are termed "nominalsentences", and sentences whose initial word is a verb are termed "verbal sentences." This first-word criterion is not based on whetherthe sentence contains a verb, but on whether the verb is initial or not.

Abu-Chacra (2018: p. 40) agrees with Ryding as regards dividing Arabic sentences into nominal and verbal but not according to whether a sentence begins with a noun or a verb. Rather, whether a sentence contains a verb or not demonstrate that "a nominal sentence does not contain a verb and consists of two components: subject and predicate. The subject is usually a noun (phrase) or pronoun inthe nominative case. The predicate may be a noun (phrase), pronoun, anindefinite adjective, or an adverb of place or time." A nominal sentence refersto the present tense and does not require the copula to be. A verbal sentence, on the other hand, contains a verb, and has the following basic word order:verb + subject + object or complement. In spoken colloquial Arabic this isoften: subject + verb + object or complement.

9.1 Equational Sentence (ES):

The equational sentence, according to Ryding (2005, 59), is verbless in the sense that the verb "kaana" "to be" is not normally used in the present tense indicative; it is simply understood. These sentences consist of a subject or topic(mubtada?: 'what is begun with') and predicate (xabar: 'piece of information, news'). They begin with a noun phrase or pronoun and are completedby a comment on that noun phrase or pronoun. Different groups of words and phrases, including nouns, predicate adjectives, pronouns, and prepositional phrases, might represent the comment or predicate. The reason these sentences are "equational" is that the subject and predicate "equate" with one another and form a full statement, or equation.

10. Data Collection Procedures:

It was said that literate Arabic speakers who can create or write MSA typically utilize it since they comprehend it from exposure to it on television, radio, in religious situations, etc. As a result, we opted to search within the previous sources for the data that fulfill the requirements of the current work, namely, Iraqi television. The selected TV program are "?aTra:f ?alHadi:th" "Parts of the Talk" broadcasted on Al Sharqiya Channel, "naxla 3ira:qiyya" "Iraqi Palm Tree" broadcasted on "Al-Iraqia" Channel, and "bil3ira:qi:" "In Iraqi" broadcasted on "Al-Hurra Iraq" Channel.

10.1Choosing the Speakers:

Since the current work is mainly concerned with the intonational phrasing patterns manifested in MSA in Iraq, and since the MSA variety is mostly used by educated people within TV programs, it was our orientation to analyze the utterances produced by those people in such programs. Though utterances of both males and females were chosen to be the data of analysis, the study did not take into account the gender distinction in the analysis. This is because the focus was only on discussing the various patterns of

intonational phrasing demonstrated by Iraqi people in TV interviews regardless of male-female speech distinctions.

10.2 Downloading the YouTubes:

A detailed survey of Iraqi TV programs was made concerning the sociolinguistic situations of the speakers, whether hosts or guests. The survey focused on how much the speakers use the MSA during the interviews. The result was that in most of the Iraqi TV programs, the use of MSA as the language of conversation in these programs was relatively high.

10.3 Conversion into MP3:

After being downloaded, the YouTubes were all converted into MP3 format files using MediaHuman YouTube to MP3 Converter, Version 3.9.9.83. The purpose of the conversion from YouTube into MP3 format files was to compress the audio-visual format of the YouTubes up to 95% of its original quality size while maintaining good enough audio quality. Consequently, the MP3 audio files were processed and edited easily.

10.4 Editing the Audio Files:

In order to extract the utterances that show the phrasing done by each speaker, an editing software program is required. Each audio file was edited by using the GoldWave Software, Version 6.77. Through the GoldWave, each utterance can be partitioned, isolated into small wave format, and saved in a separate audio file so that each instance of phrasing can be observed and saved in different file names. The speeches were transliterated in ELAN using a transliteration system for Arabic developed for IVAr(Hellmuth&Almbark, 2017). The prosodic phrasing-chunking was carried out based on auditory impressions only. The transliteration and initial phrasing were exported to Praat Software (Boersma and Weenink, 2023).

11. Data Recognition:

The main concern of the current work is recognizing the prosody-syntax relationship in the Iraqi MSA TV interviews. So, in order to achieve this aim, we had to go through all the interviews that took place in the TV programs seeking for patterns of conversation whose essence contains the MSA variety of language. Seeking a high degree of consistency in data selection and, consequently, data analysis, we had to go through every interview in all the conversation samples selected tentatively for the investigation. All the interviews contained a register switch from MSA, whether low or high variety, into the vernacular but in several occasions. As a result, and since the basic concern was investigating the intonational phrasing in conversations done in MSA variety, the focus and the selection were on the speech samples produced in MSA only.

12. Fundamental Frequency Detection:

One of the hypotheses assumed in this work is that pitch variation during the speech plays a basic role in detecting the location of the boundaries that straddle both the intermediate and intonational phrases. So, Praat (Boersma and Weenink, 2023) was used to pinpoint the beginning and ending of each speech sample. The minimum level of fundamental frequency was 40 Hz while the maximum level was 500 Hz. This wide range enables us to analyze different conversation samples in a consistent way. Accordingly, the F0 of the beginnings and endings of all the utterances, whether produced in the form of complete intonational phrases or intermediate phrases, are recorded within this range. We believe that pitch variation within both types of prosodic phrasing plays a significant role in determining the phrasing types as to the prosodic constituents in the spoken utterances under investigation.

13. Methodology and Notation:

Specific methodology and notation are suggested to account for the description of intonational phrasing in MSA Iraqi interviews. It is thought that this methodology can be applicable on the speakers' performances in a way that satisfies the requirements of the hypotheses set forth in the current work.

13.1 Autosegmental-Metrical Theory:

At the beginning, it is important to explain the general framework within which our working methodology is suggested. According to Ladd (2008: 43) the general approach of Autosegmental-Metrical Theory (henceforth AM) has its origins in three influential PhD theses, namely Liberman (1975), Bruce (1977), and – especially – Pierrehumbert (1980). He adds that "the AM theory adopts the phonological goal of being able to characterize contours adequately in terms of a string of categorically distinct elements, and the phonetic goal of providing a mapping from phonological elements to continuous acoustic parameters."

Arvaniti, (2022: p. 25) discusses the AM theory as reflecting "the connection between two subsystems of phonology required for intonation, an autosegmental tier representing intonation's melodic part, and metrical structure representing prominence and phrasing."She explains, "According to the foundations of AM, intonation is phonologically expressed as a string of low (L) and high (H) tones and combinations thereof. The abstract symbolic (phonological) primitives of intonation are the L and H tones. Their identity as Hs and Ls is largely determined by "phonetic observation and defined in relative terms: H is used to represent tones deemed to be high in a melody with respect to the speaker's range and other tones in the same contour; L is used to represent tones deemed to be low by the same criteria" (Pierrehumbert 1980: 68–75). A melody's tonal components all work together to produce a pragmatic interpretation of a statement. Tone entities are pragmatically meaningful morphemes.

13.2. The Notation:

In order to explain the prosodic structure of an utterance, a certain notation is needed. Generally speaking, Silverman *et al*. (1992: p. 867) proposed the ToBI (**Tone and Break Indices**) system which was "designed for use in labelling intonation and prosody in databases of spoken Mainstream American English". A ToBI transcription for an utterance, according to Beckman et al. (2005: p. 28) consists minimally of six parts, two are continuous phonetic records and four are symbol strings. The primary continuous phonetic record is an audio recording of the utterance. The waveform in the top panel of each

figure is a graphic representation of this recording. The other continuous phonetic record is some representation of the fundamental frequency (F0) contour.

The four symbol strings are:

a. A Tone Tier:

It consists of labels for distinctive pitch events, transcribed as a sequence of high (H) and low (L) tones marked with diacritics indicating their intonational function as parts of pitch accents or as phrase tones marking the edges of two types of intonationally marked prosodic units, those associated with two different degrees of juncture or boundary strength, i.e., the intermediate phrase, that is ip versus the intonational phrase, that is IP.

b. A Break Index Tier:

The degree of junction felt between each pair of syllables as well as between the last word and the quiet at the end of the utterance is rated using break indices. Following every word that has been transcribed in the orthographic tier, they must be noted. Every junction needs to have a specific break index given to it, even ones that come after fragments and filled pauses. The following collection of values is selected to determine the break index values:

(0) Cases of clear phonetic marks of clitic groups with very close inter-word juncture, i.e. a juncture smaller than a word boundary

(1) Most phrase-medial word boundaries.

(2) Word boundaries marked by pitch accent but no intonational phrase boundaries (minor/accentual phrase boundaries), or ordinary phrase-internal word end.

(3) Intonational phrase boundaries marked by a single rising phrase tone (major/intermediate phrase boundaries).

(4) Full intonation phrase boundary; i.e. marked by a final boundary tone after the last phrase tone.

c. An Orthographic Tier

The orthographic tier shows a straightforward transcription of all of the words in the utterance, either in ordinary English orthography or transliteration of the utterance in any other language.

d. A Miscellaneous Tier

The miscellaneous tier, like the orthographic tier, can include many events that are arguably not part of prosody like a cough that stands for an occurrence of disfluency in the utterance (Beckman et al (2005: p. 28f.). See also Beckman and Elam (1997: p. 8ff.) and Helmuth (2011: p. 6)

Since our main concern is to investigate the prosodic-syntactic constituency, certain modifications for the original notation are made.

1. The first phonetic record will contain only the pitch representation that obviously shows the phonetic record of the utterance.

2. The first symbol string will label the phonetic cues instead of the tones, since phrasing cues are decisive in limiting the constituency boundaries. Within the same tier, the tone of the final pitch accent will be determined in order to show the identity of the final TBU in at the level of IP and ip.

3. The third tier, namely, the break indices one will be used to show only the (3) and (4) juncture values. This is also due to our main concern with expressing the limits of prosodic-syntactic phrasing which is carried out through positing the abovementioned values on phrases boundaries.

4. Orthographic tier, which is normally posited at the third string, will move down to the forth tier.

5. Finally, the last tier, namely, the Miscellaneous Tier will be left out since the data collected in this study have witnessed no interruptions which can be regarded as disfluency to the utterances (cf. Hellmuth, 2011: p. 7).

For example, Figure (1) shows the notation of the analysis of an utterance according to the ToBI system.

Figure(1): Notation of an utterance analysis
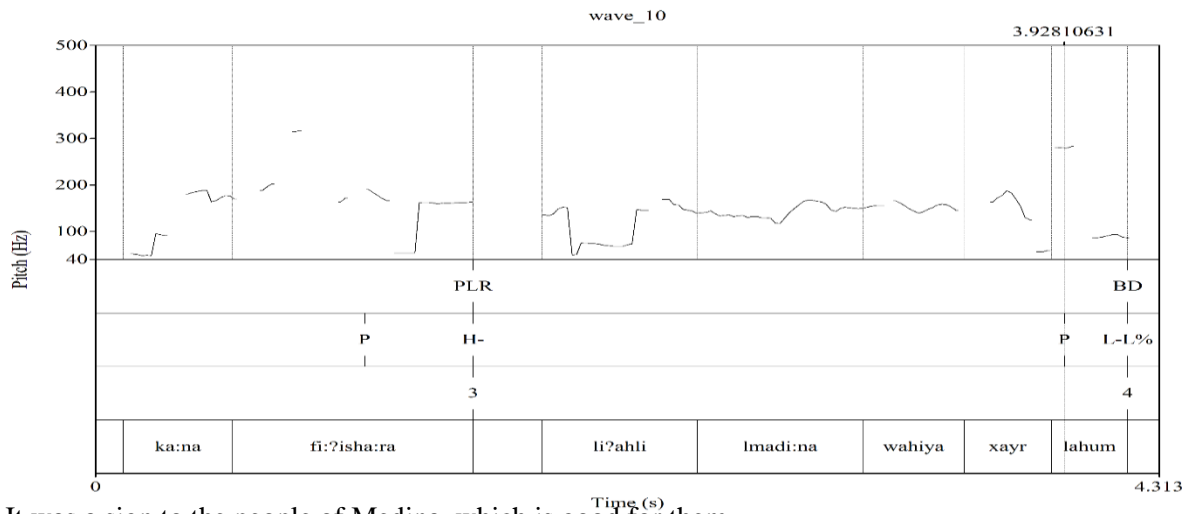
-It was a sign to the people of Medina, which is good for them.

The upper panel shows the phonetic shape of the utterance. The first tier shows the phonetic cues that demarcate the boundaries of the IP as having two ips: the first boundary is expressed through three cues: (P)ause denoting a boundary that is followed by a pause, (L)engthening, where the word at the boundary is lengthened, and (R)esetting which determines the edge of the first ip. The second ip coincides with the IP boundary that ends with the cues (B)oundary which shows a full boundary tone (usually a final fall) and (D)ownstepping, in which the peak of the word at the boundary is produced at a lower level than expected from effects of downstep alone, relative to pitch level of the previous peak.

The second tier shows the H- tone ending the first ip with a rise in the pitch level than the final peak pitch level expressed by the (P)rominence position at the end of the ip. Then, the whole IP ends with the second ip edge tone L- and the IP final tone L% reaching the baseline of the speaker.

The third tier expresses the break index of the type of juncture at the relevant position, namely, No. 3 which indicates the ip boundary, whereas the final boundary carries No. 4 as a signal of IP boundary juncture.

Finally, the fourth tier represents the transliterated form of the utterance using IVAr (Hellmuth&Almbark, 2017).

14. <u>Analysis Procedures:</u>

Certain procedures have been followed in the analysis of the data under investigation.

1- Each speaker's utterance was analysed through the above notation in order to show pitch representation using Praat.
2- The edges of the IP and ip are identified:
   a. phonologically by determining the ip edge tones "H-" or "L-" for the ip and "L% or H%" for the IP through observing the direction of pitch shape at the end of the two constituents represented in the graphic representation at the top panel of the notation.
   b. phonetically by determining the phonetic cues at the edgesand recording the F0 values of the peak of the nuclear pitch accent and the lowest level of the pitch line at the very end before the boundary. The variance in the F0 levels for the two points is significant in ascertaining the identity of the edge tone determined by Step a in addition to the researcher's judgement. It is assumed that the F0 value of the ip L- tone is higher than that the IP edge tone L-L%, and that ip H- tone F0 value is lower than that of the IP final tone, i.e., L-H%.
   c. To add more strength to the boundary position, the F0 value of the first point in the following ip to the F0 value of the first accent immediately after the boundary in the next ip was also calculated to show the influence of Reset phonetic cue between two ips within one IP.
   d. Syntactically speaking, it is assumed that, in addition to Steps (a-c) above, the ip boundary, especially within the IP consisting of more than one ip, corresponds to a syntactic maximal projection (XPs) such as Noun Phrases (NPs), Verb Phrases (VPs), and Adjective Phrases (APs) and thatIP roughly corresponds to a clause (either a so- called 'root clause' or an embedded clause
3. The prosodic words' (PWDs) limits are determined according to Chahal and Hellmuth (2014: p. 371f.) in that a PWD usually is consisted of a content word (a word stem and affixes) which may additionally be cliticized. They add that "clitics are not stressed and do not enter into stress assignment rules." This observation further emphasizes that only one level of lexical stress occurs in the PWD and that, consequently, only one pitch accent is expected to occur within this constituent. Only the last pitch accent, i.e., the nuclear accent, in the final PWD in ip and IP is relevant for our analysis, since it is the constituent at which boundaries occur. Then, the number of PWD(s) in each ip is calculated and settled at the bottom of a specific table that is put under the notation.
4. As a procedure collecting the phonological target with the F0 value at the boundary, arrows are used to explain the pitch movement with its F0 values according to the direction of the tone as follows:

**Table (2): Arrows used to express the pitch direction at boundaries**

↘	L-	shows the direction of pitch from the peak of the last pitch accent to the lowest pitch line at the ip boundary (descending pitch movement).
↗	H-	shows the direction of pitch from the peak of the last pitch accent

		to the highest pitch line at the ip boundary (ascending pitch movement).
⌐	L-L%	shows the end of the IP boundary which also expresses the last ip in the utterance with the lowest pitch value reaching the baseline of the speaker.
⌐	L-H%	shows the end of the IP boundary which also expresses the last ip in the utterance with a higher pitch level.

5. Each ip is preceded and followed by the F0 value from the last peak at the ip boundary to the final pitch line accept for the beginning of the first ip in an utterance. Between the F0 values, an English translation of the utterance whether standing as an ip or an IP is given.

6. Below the translation and F0 values, a table scheme representing the semantic, phonological and syntactic divisions of an utterance. The semantic division is determined according to the norms of the sense unit expressed as IP(s). The phonological division is expressed through the IP and ip distribution within a one sense unit in addition to the number of the PWD(s) with an utterance. Finally, the syntactic analysis of the elements included with an IP is elicited within the scheme table.

7. The syntactic structure of each PWD in MSA in general has been established following Ryding (2005).

Thus, the general design for the notation used in the analysis of intonational phrasing in MSA Iraqi interviews is shown in Figure (2).

Figure (2): General notation of data analysis
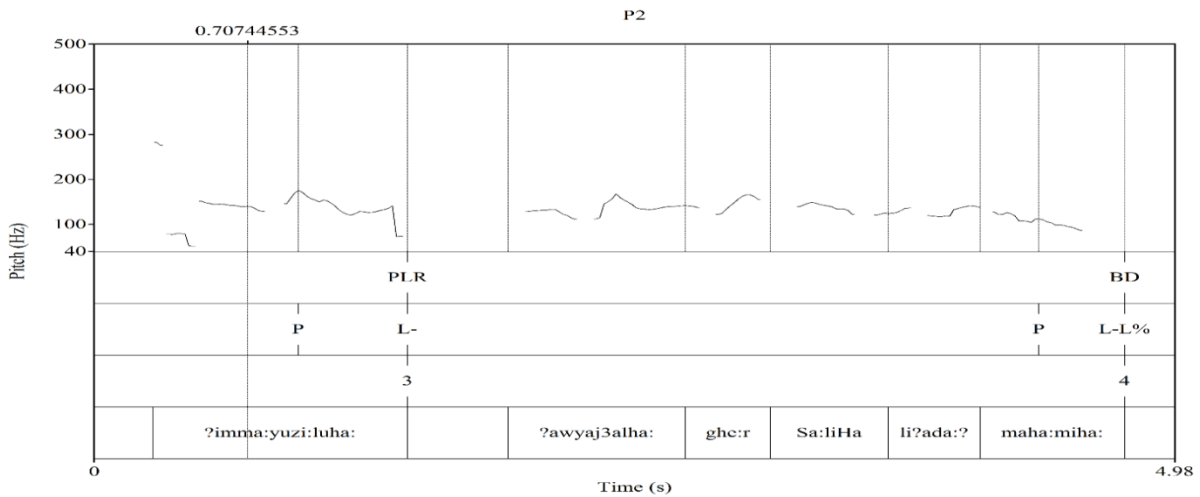
It either removes it **(173.2 ↘ 73.65)**
(128.4 ↗ 167.8) or makes it unfit to perform its tasks. **(86.95⌐)**

SU	
IP	
ip 1	ip 2
Disjunctive Clause	Disjunctive Clause

| Part 1 "?imma:"	Part 2 "(?aw"				
part.VP	part.VP	O	AnnN	PP	AnnN
1 PWD	5 PWDs				

15. <u>Data Analysis</u>:

After eliciting the methodology and notation that will be followed in analyzing the data selected for the current research, an application of the methodology and notation on the data is carried out in this section. What is important here is to show how the intonational phrasing works in MSA Iraqi interviews mainly focusing on the phonetic, phonological, and syntactic designs of ES sentences according to the data under analysis.

15.1 <u>One IP Containing One ip</u>:

This category shows an ESthat takes a full IP as can be shown below.

(Figure 3): Notation of (H.AZ.8)
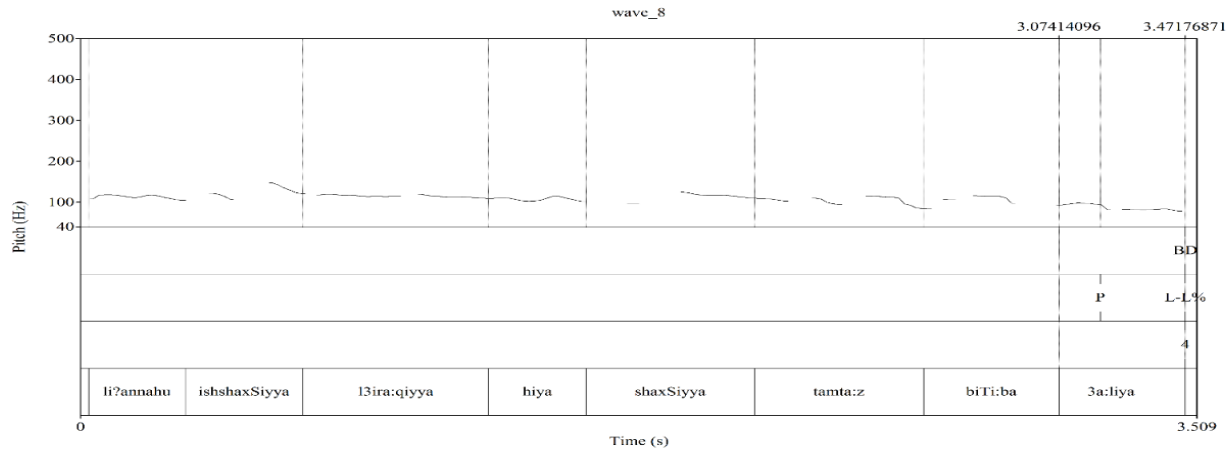
Because the Iraqi personality is characterized with a high kindness. (**81.39↝**)

SU
IP
ip
Part. S   Adj   Pred. V PP Adj
8 PWDs

Figure (4): Notation of (F.M.13)
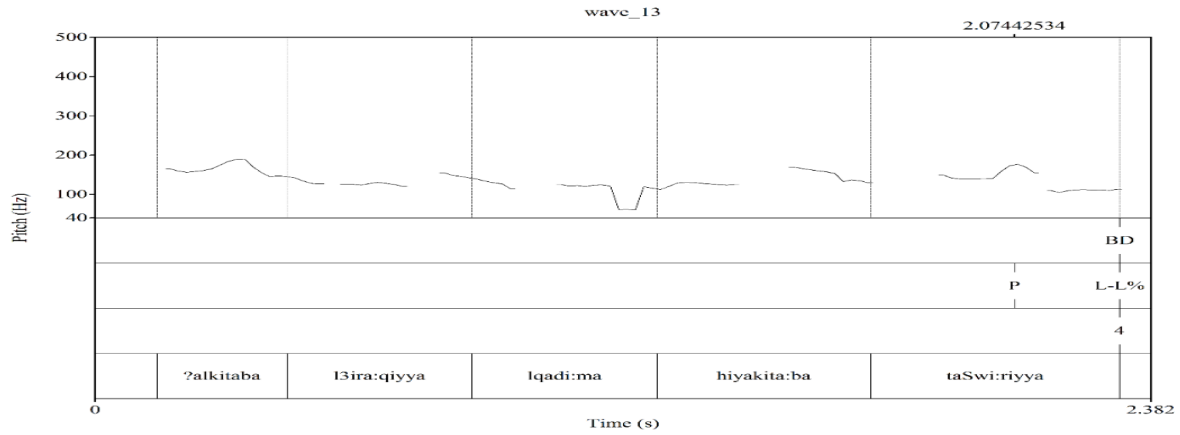
Old Iraqi writing was pictorial **(102.3↴)**

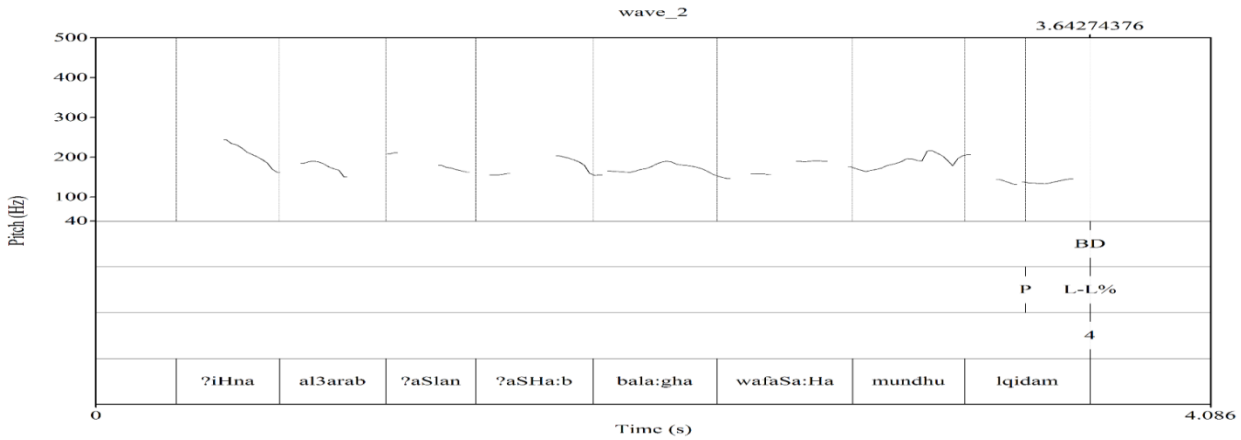| SU	
IP	
ip	
S	Pred.
S Adj. Adj.	Co.Pro. N Adj.
6 PWDs	

(Figure 5): Notation of (AB.AS.7)
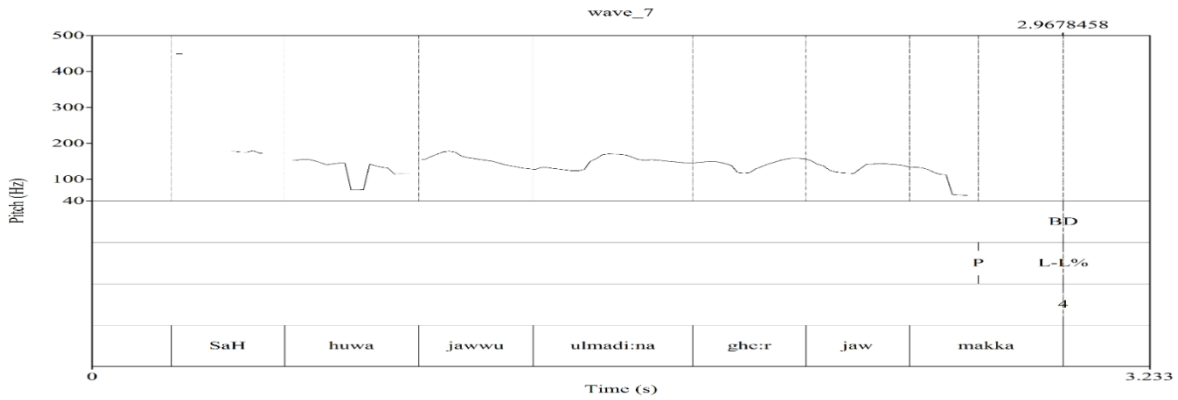
It is true that the atmosphere of Medina is different from that of Mecca. **(56.24↴)**

SU				
IP				
ip				
Part.	S	AnnN	Pred.	AnnNAnnN
7 PWDs				

Figure (6): Notation of (R.AD.2)

We Arabs have been pithy and eloquent since ancient times **(145.7↴)**

SU
IP
ip
S (appos.) Adv. Pred.   AnnN.   CooN   PP.
8 PWDs

Figure (7): Notation of (Z.J. 10)
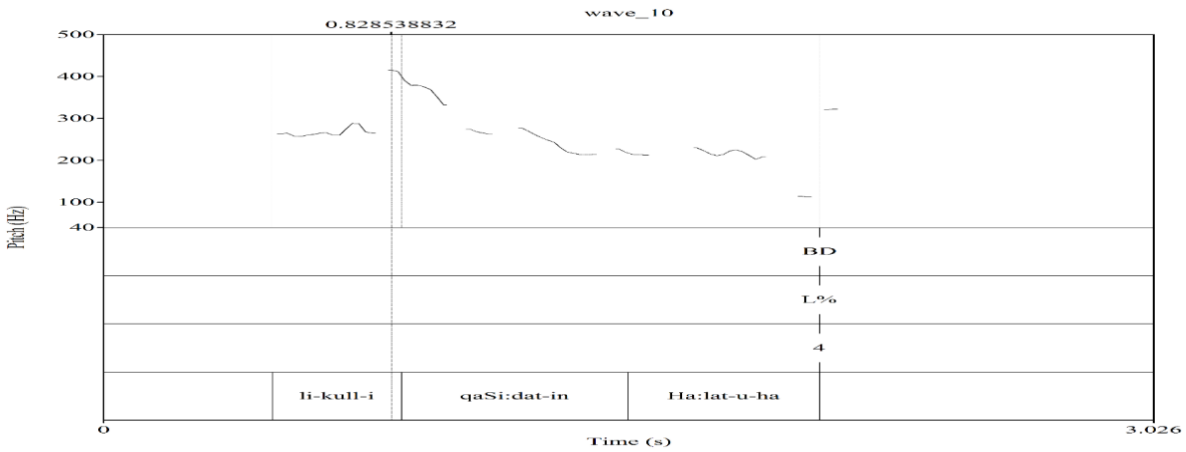
Every poem has its own situation. **(113.1↴)**

| SU	
IP	
ip	
Pred.	S
PP AnnN	NP

Figures (3-6) demonstrate IPs where each contains one ES having the structure of S Pred. except for Figure (7) which shows a reversed ES having the structure of Pred. S. Because the Pred. is in the form of aprepositional phrase, the item that is possessed is in the nominative case,being the subject of an equational sentence (Ryding, 2005: p. 61).Each IP demonstrates a fully intonationally sense unit and ends

with the phonetic cues BD and, phonologically, with the final boundary tones L-L% that signal the end of the whole IP reaching approximately the baseline of each speaker.

15.2 An IP Containing More than One IP:

In this category, a single IP may consist of more than one ip expressing an ES element in its own as can be shown below.
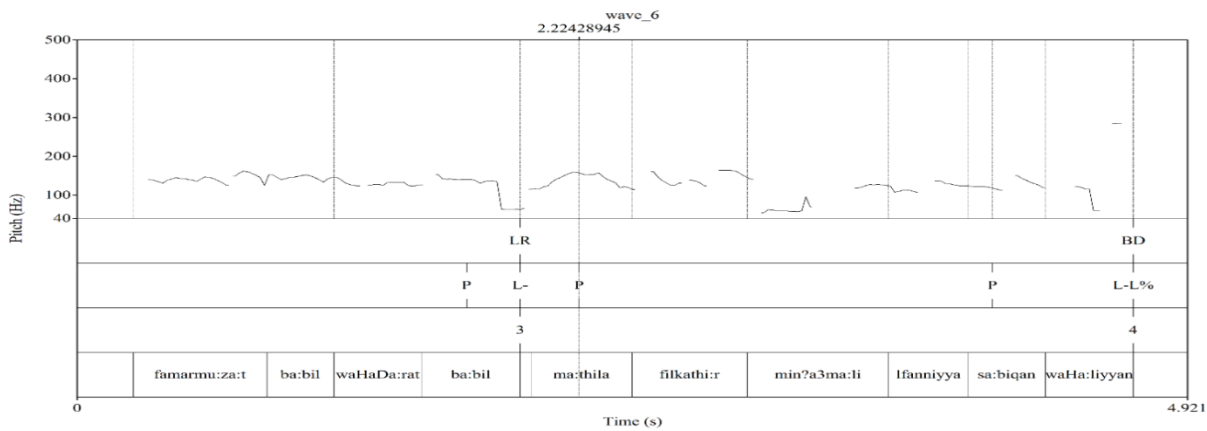
Figure (8): Notation of (Z.J.5)
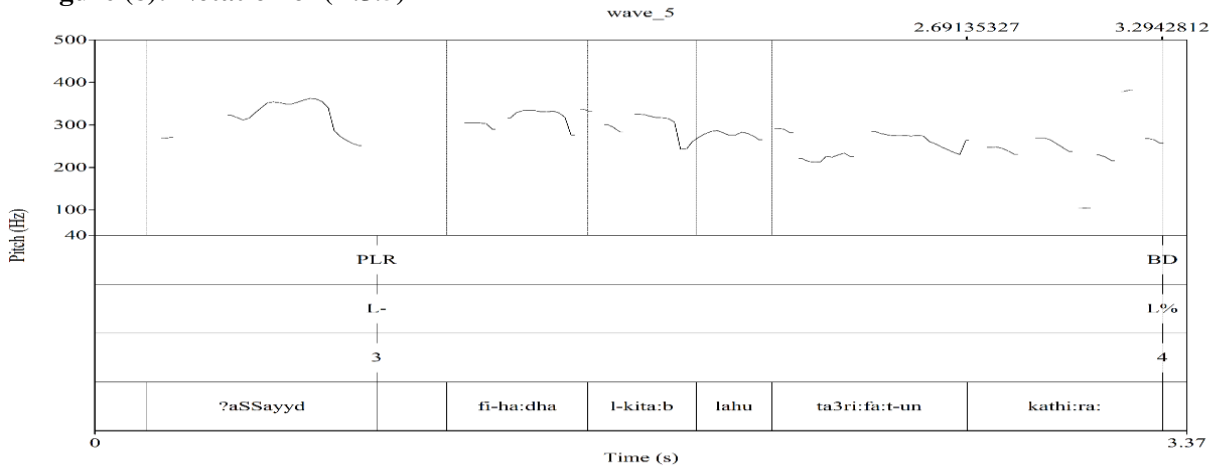
Fishing **(361.9) ↘ 251.8)**

(305.4 ↗ (334.1) in this book has many definitions **(257.1↴)**

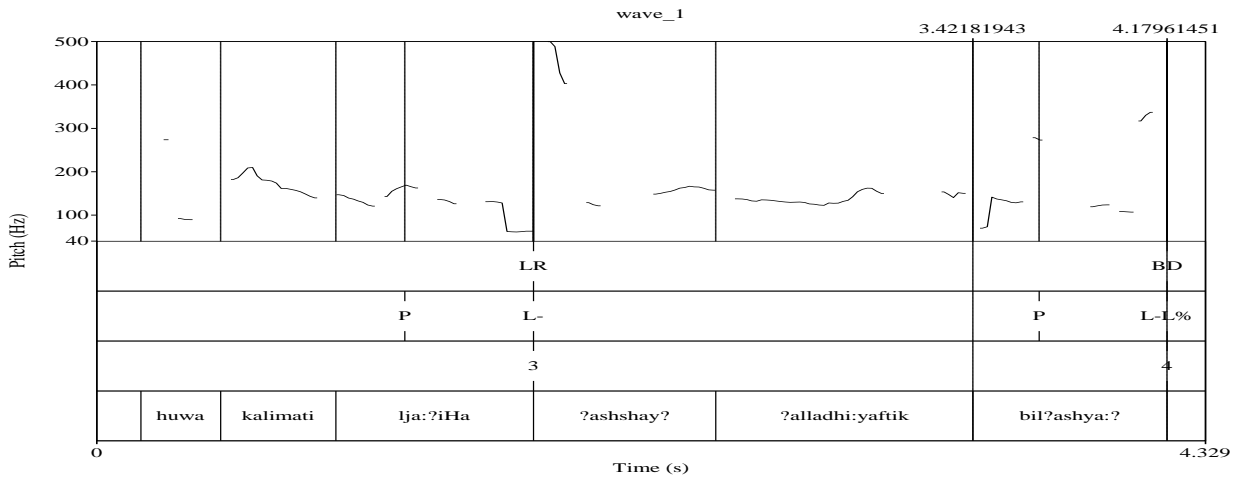| SU	
IP	
ip 1	ip 2
S	Pred.
N	PP AnnN PP N Adj
1PWD	5PWDs

Figure (9): Notation of (F.M.6)

The symbols of Babylon and the Babylonian civilization **(149.6(P) ↘ 65.02)**
(115.4 ↗ (P)159.4) are present in many of my artistic works, past and present **(59.62↓)**

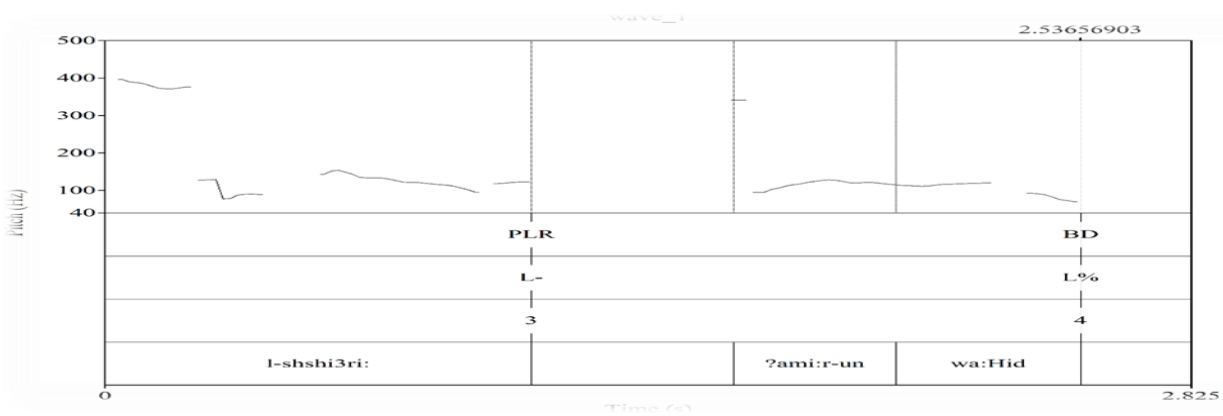| SU	
IP	
ip 1	ip 2
S	Pred.
NAnnN Coo. N AnnN	N PP PP Adj. Adv. Adv.
4 PWDS	6 PWDs

Figure (10): Notation of (AB.AS.1)

The word pandemic **(168.1(P) ↘ 62.92)**
(128 ↗ (P)166.1) something that kills things. **(106.5↓)**

SU	
IP	
ip 1	ip 2
Pr. S Ann.N	Pred. rel.pr. V PP
3 PWDs	3 PWDs

Figure (11): Notation of (Z.J.1)

Poetry **(153.6(P) ↘ 122.9)**
(95.11 ↗ (P)128.2) has one prince **(70.19↴)**

SU	
IP	
ip 1	ip 2
Pred.	S Adj.
1 PSW	2 PWds

Figure (12): Notation of (Z.J.4)
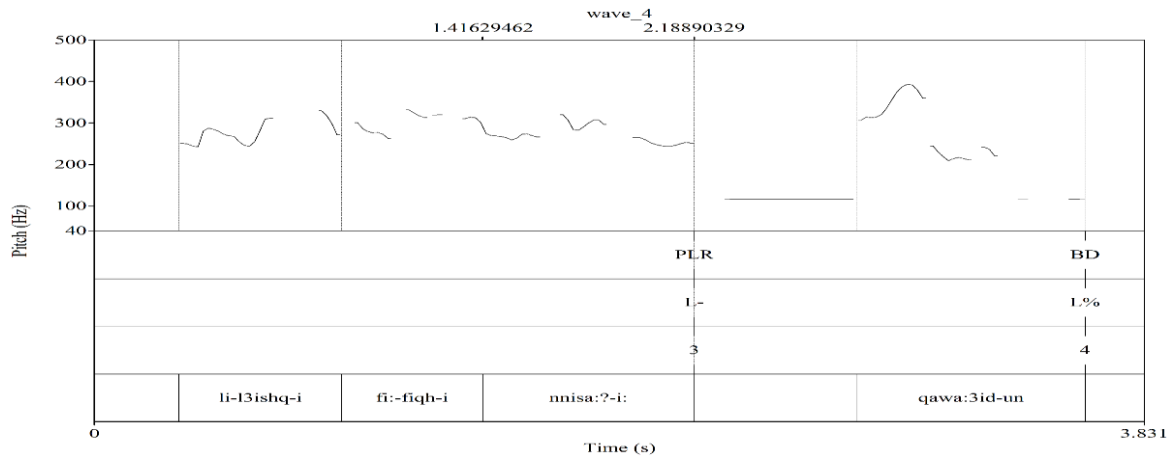
Love in women's thoughts **(320.1(P) ↘ 251.5)**
(305.4 ↗ (P)392.9) has rules **(108.3↴)**

SU	
IP	
ip 1	ip 2
Pred. (PP) PP AnnN	S
3 PWDs	1 PWD

Each utterance in Figures (8-10) shows a tendency of the ES elements, namely S and Pred., to be in a separate ip within one single IP each. The utterances inFigures (11) and (12) demonstrate a similar phrasing but with different word-order that shows a reversed ES, yet with each element as a separate ip with one IP.The number of the PWDs in the S position varies from one PWD as in Figure (8) and (12), two in Figure (11), three in Figure (10) and four in Figure (9). Similarly, the PWDs in the Pred. varies from 1   in Figure (11)(three in 12, 10,) (six in Figure 9).

15.3 More than One ES within an Utterance:

In this category, an utterance may contain more than on IP wherein an ES stands for one single IP as can be shown in Figures (13-16).
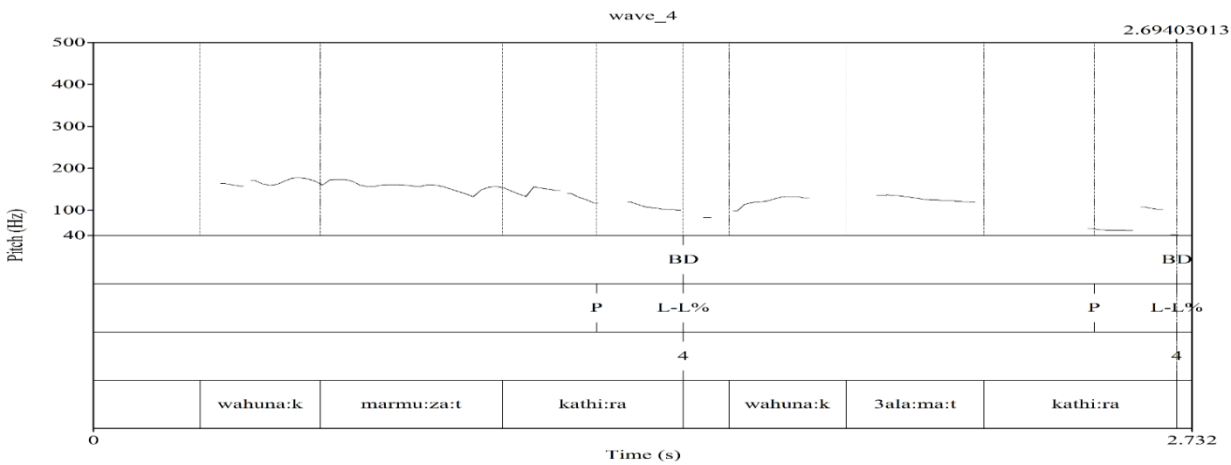
Figure (13): Notation of (AB.HAM.12)
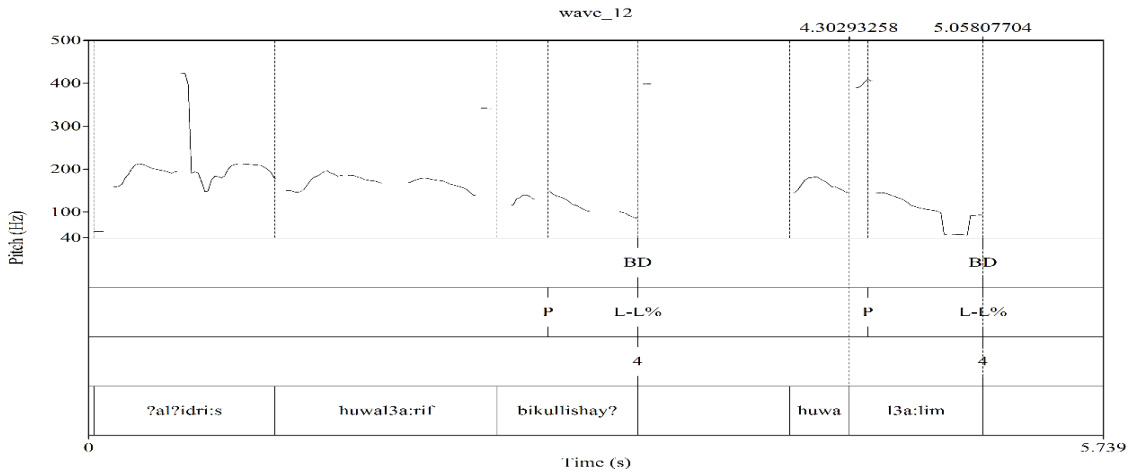
Al-Idris is the one who knows everything **(86.5↷)**
He is the all-knowing **(47.05↷)**

SU	
IP 1	IP 2
ip 1	ip 2
S Pred. PP	S Pred.
3 PWDs	2 PWDs

Figure (14): Notation of (F.M.4)

There are many symbols **(102↷)**
and there are many signs **(105.2↷)**

SU	
IP 1	IP 2
ip	ip
Pred. S Adj.	Pred. S Adj.
3 PWDs	3 PWDs

Figure (15): Notation of (F.M.19)
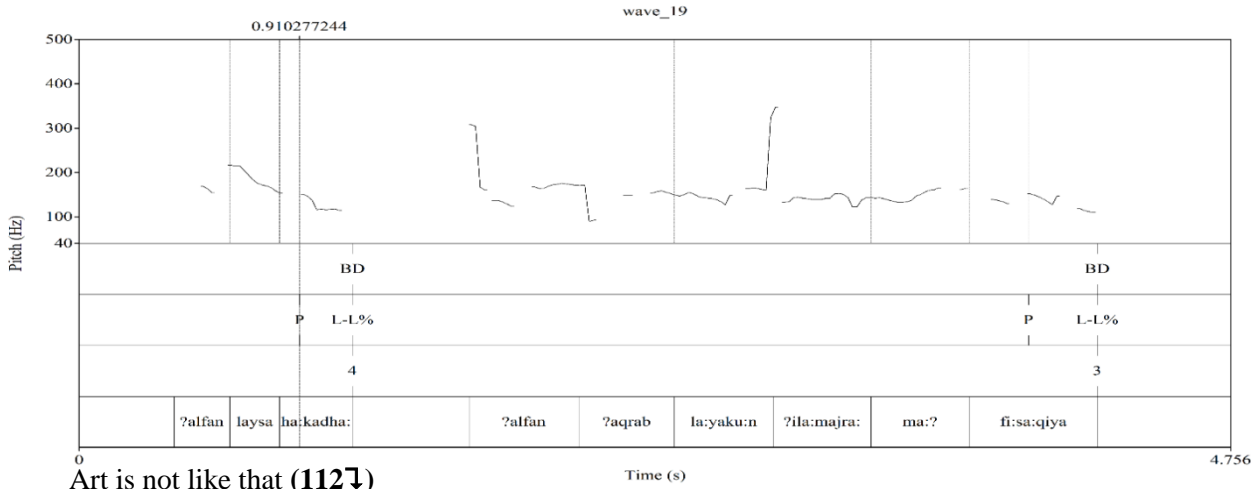
Art is not like that **(112↴)**

Art is just like water in stream **(110.9↴)**

SU	
IP 1	IP 2
ip	Interm.Ph.
S V Adv	S Pred. Rel.V S PP
3 PWDs	6 PWDs

Figure (16): Notation of (AB.HAM.1)
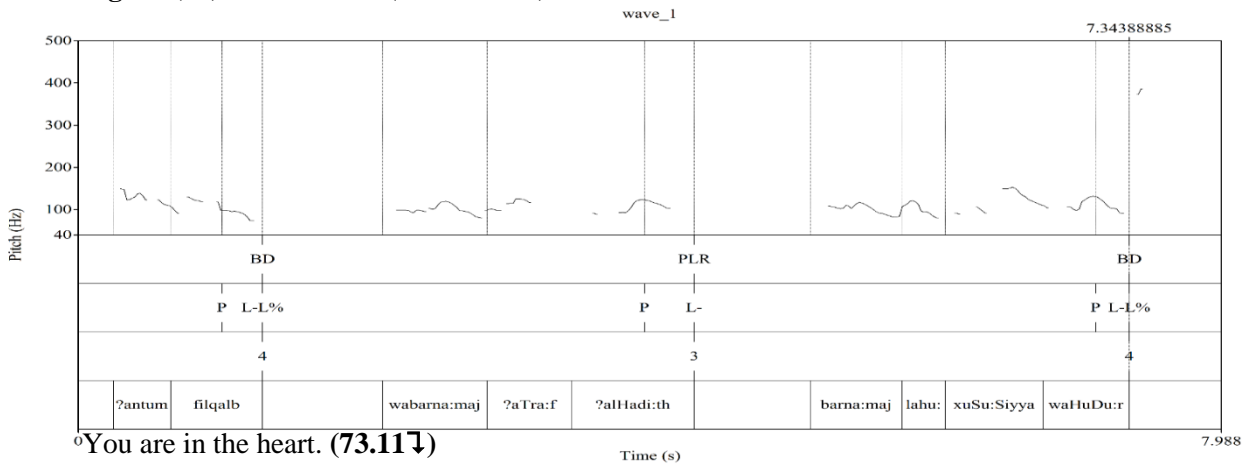
⁰You are in the heart. **(73.11↴)**

And "Parts of Talk" program **(123.2(P) ↘ 102)**

(107.9 ↗ (P)117.4) has its own uniqueness and presence. **(91.08↴)**

SU		
IP 1	IP 2	
ip	ip 1	ip 2
S PP(Pred.)	S AnnNAnnN	Pred. PP(Pred.) S CooN
2 PWDs	3 PWDs	4 PWDs

Figures (13-16) demonstrate utterances where each IP stands for a single ES. In Figure (16), the second IP contains two ips wherein the first ip stands for the S while the second ip shows the Pred. that is followed by sub ES that is regarded as a comment for the preceding Pred.

16. Discussion and Conclusion:

The preceding sections show that different structure of ESs can demonstrate various IPs within one utterance. What is important is that there is no fixed internal structure of ES in each IP. Different structures are observed whether in the case of having one ES taking one IP, each ES element stands for an ip, or many ESs form one single utterance. This variation is also observed in the number of PWDs whether it be in one IP or within the ES elements at the ip level.

This research investigated the ES occurrences with the Iraqi TV speakers using the MSA. It is found that an ES may form one single IP, each element within one ip, or that one utterance contains more than one ES. There are no limits for the number of the PWDs whether within the ES elements, namely, S and Pred., or for the whole ES in one utterance.

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