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## **Intonation: Related Factors and Recent Approaches**

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### **Introduction**

Both Phoneticians and Phonologists seem to agree that there is an enticing overlap between segmental and suprasegmental (prosodic) features. Segmental features are envisaged as discrete segments which are commonly perceived of as entities; whereas features of spoken language extending over longer than one segment in the continuum of speech are collectively referred to as suprasegmental features which may even extend over relatively longer stretches of utterances, like one phrase, clause and sentence. This is to include any unit larger than the phoneme, in particular, the syllable, the foot and the tone-unit.

This suggests that such suprasegmental features are rather of a paralinguistic than of a linguistic nature. Paralinguistic messages then, deal primarily with the speaker's current emotional state, such as fear, surprise, anger, joy, boredom, etc. Besides, it studies the basic aspects of interpersonal interaction-such as aggression, appeasement, solidarity and condescension.



Intonation falls within the domain of suprasegmental features for it is concerned with stretches of speech extending over longer entities of segments or even mere words, referring to the variation in the pitch of the voice.

### **The Scope of Intonation**

Intonation seems to be of a mosaic nature since it is related to spoken language, i.e. it is tied up to the context of situation in which it occurs, the semiotic gestures and the psychological state of the speaker. Besides, it can be approached from the articulatory, acoustic and auditory facets of speech production.

Lehiste (1970:105) assumes that the production of intonation requires a series of steps: i) individual variation in the size and shape of the phonatory apparatus, ii) tension of the vocal folds, iii) subglottal pressure, iv) articulatory gestures of the tongue, and v) coupling of the larynx to the vocal tract. Taylor (1995:3) points out that intonation production is governed by a single articulation of the glottis; whereas segmental production is controlled by a number of articulators working in parallel.

Acoustically, loudness is the counterpart of intonation studied in terms of simple and sinusoidal waves, contraction and rare fraction of air all measured in terms of fundamental frequency which is in turn measured in Hertz. How the ear of the listener perceives of intonated utterances is highly attached to patterns of rises and falls that such utterances encompass. Intonation can be measured in decibels when the listener hears a given sentence in terms of loudness.

This study focuses on the fact that no language is spoken in a monotone, i.e. there must be some variation in uttering sentences or



even individual words. A word like Daddy can be twice produced; to inform the father to avoid a hall, or just to call him. Roach (2001:35) expounds that "intonation is an essential component of the discourse structure of speech as we speak in order to communicate".

Clark and Yallop (1995:358) define intonation as "tunes or speech melodies", a matter which seems rather more traditional in its orientation. On the other hand, Abercrombie (1967:104) and Hawkins (1984:193) assume that intonation is "pitch fluctuations"; fluctuation is to be interpreted as a certain amount of change in manner. This means that a given voice does not keep being static but rises and falls as the prominence of the uttered sentence permits. Yet, most phoneticians prefer to define intonation as "the variation in the pitch of the voice during speech"(Malemberg, 1963:80; Catford, 1977:111; Catford 1988:183).

Hawkins (1984:193ff) purports that intonation has three basic characteristics: i) it is language universal as no language can be spoken keeping to the same tone, ii) it is functional as it is never decorative, i.e. it is used for particular purposes, and iii) it is systematic, that it is to say, different speakers use the same patterns for the same purposes, although there may be dialect differences.

Abercrombie (1967:105) distinguishes between tone and intonation; arguing that "tone is speech melody when it is a property of the word"; whereas "intonation is speech melody when it is a property of the sentence". Catford (1988:183-4) agrees with Abercrombie in this viewpoint , arguing that pitch variation is related to short stretches of speech, typically of syllable length and to small grammatical units such as words and morphemes then it is tone , but if it is related to long stretches of speech, then we are dealing with intonation .



Laver (1994:462ff) reports that " patterns of pitch contribute to the lexical identification of the individual words". This is achieved through: i) word based tone systems when a contour pattern of pitch is associated with the entire word and as ii) syllable based tone systems, where every syllable is associated with relative pitch-value.

### **Factors Affecting Intonation**

Monghan (2003:3) observes that prosody covers a number of aspects of the speech signal like timing (including segmental duration, rhythm, pausing and speech rate, intensity, voice quality and intonation). Boves et al. (1984:20) assume that intonation is constituted by a number of independent factors: pitch, loudness and the temporal organization of the utterance. Besides, Crystal (1969:283) purports that intonation contours must be interpreted bearing in mind the existence of systematic interrelationships with other non-segmental features and other levels of language organization.

Remijsen (2004: 4) argues that "languages employ fundamental frequency, vowel quality, duration and parameters related to intensity and voice quality in many different ways". Meanwhile Cruttenden (1986:7) maintains that there is a general tendency to lay emphasis on length, loudness and pitch for two reasons: firstly, the relationship between their measurable attributes and their linguistic functions is complex, and secondly, these three features conspire to give some syllables prominence when compared with other syllables.

### **Pitch**

Pitch is an auditory property;" the rate at which vocal folds pulses recur"(Ladefoged, 2003:75). Ghalib (1977:223) adds that the pitch of the voice is determined by several factors, the



most important being the tension of the vocal folds, i.e. the more tense the vocal folds, the higher the pitch.

Clark and Yallop (1995:323) emphasize that pitch provides several layers of information to the listener, being a major contributor to voice quality as it helps to intensify sex and age of the speaker and it can in some cases be a means of distinguishing personality, attitude and even truthfulness of speakers. This explains why Cruttenden (1986) stresses the idea that pitch is the central correlate of intonation.

There are two important notions here: pitch - height and pitch - contour. The former refers to the relation placement of the syllable within the values of the pitch - span; whereas the latter refers to the shape and direction of the trajectory shown by any perceptible change in the pitch - value through the duration of the syllable.

Crystal (1969:143) purports that pitch movement of an utterance is best described in terms of the direction of pitch range (mainly referring to the width of a pitch glide which is variable) and the distance between pitch levels of adjacent static syllables. In this sense, the range of each pitch glide may be either increased (widened) or decreased (narrowed).

The simplest role played by intonation is to draw the hearer's attention to a part of a locution by highlighting a single syllable conventionally known as accentuation. Accent refers to the special weight given by the voice to a part of a word to give it auditory prominence. Accordingly, the pitch rises to a lower pitch. Knowles (1984:252) argues that "the meaning of intonation derives from investigating the different patterns that modify the accent contour". This excludes default accent



defined as "a discourse phenomenon in the sense that we need two sentences to make it appear" (Ronat, 1984:312). For further illustration consider the following example:

1. a- Has John read Slaughter- house five?

b- No, John doesn't read the book tense?

The "book" in b has been weakened and is understood as a repetition, i.e. a reference back to "Slaughter- house five".

Laver (1994:456ff) postulates that pitch is relative to the melody of a speaker's voice in two senses: firstly, the estimation of the pitch value of a single syllable as high, mid or low is a relative perceptual judgment made by listeners in terms of a hypothesized placement within the general range of pitch over which the speaker's voice is believed to move. Secondly, the pitch - value of a given syllable in a train of syllables in connected speech is judged by relativity to the pitch values of its immediate neighbors, as being the same, higher or lower. Clark and Yallop (1995:332) purport that fundamental frequency FO is "the number of times per second that the vocal folds complete a cycle of vibration"

In this connection, Fry (1979:68) purports that the FO of the vocal folds vibration is one of the most important aspects of larynx activity as far as speech and language are concerned. Besides, speech sounds are complex and consist of many different vibrations at different frequencies. Changes in FO, in this case, are what is perceived as changes in pitch and since "perceived pitch and FO are not related in a straightforward way, the terms are not normally kept separate " (Whichman,2000:10).



T'Hart (1984:193ff) assumes that the measurements of FO typically show a great variety of irregularities, amongst which is the virtual impossibility to perceive any speech melody. Besides, the nature and the order of all pitch movements in an utterance are determined by the intonation patterns amongst which there is at least one which possesses such phonetic properties as are necessary for bringing about a pitch accent.

### **Tempo**

Lehiste (1970:95) postulates that intonation is analogous to tempo since both carry nonlinguistic meanings. Intonation is mainly specified to refer to "the use of features of duration at the sentence level to reflect the attitudes of the speaker and the relative urgency of the message" (ibid: 95).

Two main points are suggested by Cruttenden (1986:177) as an attempt to explain the difficulty resulting from the absence of finding a suitable system to describe tempo : i) different rates of utterance form a gradient from very fast to very slow ,ii) it is not easy to relate meanings systematically to variations of speech.

Crystal (1969:152) considers this parameter significant for the study of speech, although it does not change the meanings of words. Moreover, it neither conveys something about the mode of the speaker nor about the circumstances under which the utterance took place.

Clark and Yallop (1995:330) argue that tempo, as a strategy, may be used to demarcate stretches of speech within discourse, e.g.:

2- Is the how to write English course on this year?



A clause may be spoken faster than other elements in the utterance as a signal of its shifted status. And Crystal (ibid: 152) assures that “accelerated tempo may serve to indicate an embedded phrase or clause in English”.

### **Duration**

Duration is the most complex feature whether it is viewed as the length of time which a speaker decides to take to produce a linguistic unit, or as the duration of the acoustic correlates of the unit on the spectrogram or even as the length of time during which takes a listener to hear that unit. Yet, Cruttenden (1986:2) postulates that the relevance of length as a prosodic feature is difficult to access because there are often different influences on the absolute duration of a segment or syllable.

Duration is dependent to a considerable degree on the tempo of speaking, and mainly refers to the length of time involved in the articulation of a sound or syllable. This suggests that duration is the physical length of sounds as measured in milliseconds. Lehiste (1970:118) assumes that duration is the perceptual correlate of time dimension.

Lehiste (ibid) prefers to use the term “intrinsic duration” to refer to the duration of a segment as vowels are correlated with tongue height. Other factors being equal, a high vowel is shorter than a low vowel. If the production of a given sound involves three stages; one stage may be longer than the others. For instance, the release of a plosive consonant usually involves two phases-explosion and fraction and then aspiration. The duration of the explosion phase is limited by the decay time of the vocal cavities participating in the vibration. She





defines time as "the inverse of the bandwidth of the major resonance excited by the explosion"(ibid: 121ff).

Thus, it is inferred that the duration of sounds may be conditioned by the following factors: I) point and manner of articulation of the segment itself, ii) preceding and following segmental sounds, iii) suprasegmental factors of the sound within a higher- level phonological unit.

### **Loudness**

Loudness is an auditory property attached to sounds and equals intensity or amplitude in acoustic terms and measured in decibels. It varies as a gradient on a scale ranging from soft to loud. As such, it is dependent on the size of the vibrations of the vocal folds as a result of variation in air- pressure, i.e. increasing the frequency of the vocal folds vibrations may make one sound seems louder than another.

Cruttenden (1986:3) purports that it is difficult to assess the relevance of loudness or intensity as a prosodic feature since there are often different influences on the absolute intensity or loudness of a syllable or sequence of syllables. Yet, both are dependent on the breath-force used by a speaker, and determine the division of speech into syllables by the ebb and flow of increasing and decreasing breath-force on vowels and consonants. Open vowels are, for instance, acoustically of greater intensity than close vowels.

Cruttenden (ibid) postulates that the relationship of absolute intensity to perceived loudness is by no means linear and that the relationship is different in different frequencies. Denes et al (1973:179) agree with this postulation, stating that when the second vowel is longer, listeners hear the stress on the second



syllable, as in to object. This shows that the duration, rather than the intensity, of the vowel segments can determine which syllable is heard as stressed.

Lehiste (1970:113) expounds that the threshold of audibility varies among individuals and may vary for the same person under different conditions. The different sensitivity of the ear to different frequencies forms the basis of the dependence of loudness upon frequency; one may be subjectively louder than the other if it falls into a frequency range at which the ear is more sensitive.

### **Rhythm:**

This term refers to the perceived regularity of prominent units in speech. It is the pattern produced by the systematic relationship of its stronger and weaker parts as they succeed each other. It is primarily associated with the speakers muscular movements when unaffected by such factors as hesitation which may slow the speaker down, or excitement which may speed him up.

Halliday (1985:271) assumes that natural speech in languages is highly rhythmic; it tends to have a regular beat. Yet, it may be rhythmic in different ways depending on the language. Halliday (ibid) further presents two types of rhythm in language, i) "syllable-timing" in which the tempo depends on the same syllable so that the syllables tend to be of roughly the same length, and ii) "foot-timing" which depends on the foot where the syllables may vary in length of which the first syllable is always salient. Halliday (1970:1) prefers to use the word "salient" rather than "stressed" and in this sense he seems to follow Abercrombie



who assumes that the word "stressed" per se refers to many different things.

This brings "foot" into discussion. Abercrombie (1967:11) uses this term to refer to "the space in time from the incidence of one stressed-pulse up to, but not including, the next stressed-pulse". To say that the foot is a rhythmic unit implies that the time taken by each foot is more or less the same.

Phoneticians agree that feet may be single or may consist of a series of syllables up to about seven or eight or even more in rapid speech. In general, the more formal the speech, the fewer the feet in each tone group. As far as meaning is concerned, the particular meaning that the speaker wishes to convey may make it necessary to split a single clause into two or more tone groups, or to combine two or more clauses into one tone groups, or to combine two or more clauses into one tone group.

The tonic syllable carries the main burden of the pitch movement in the tone group. Two ways are possible here: First the tonic syllable covers the widest pitch range so if the tone group is on a falling tone, the tonic syllable will have a greater falling movement than any of the other syllables; second, it occurs. Immediately after a pitch jump, where instead of a continuous rising or falling movement, there is a jump up or down between syllables.

### **Prominence**

Crystal (1997:375) defines prominence as "the degree to which a sound or a syllable stands out from others in its environment". Ladd (1996:9) suggests two prominence patterns. First, weak-strong which is the normal stress pattern used when there is focus on the phrase as a whole, and a second strong-



weak used in a discourse context where a specific syllable in the phrase is under discussion. And Brazil et al. (1980:39) add that "prominence is a property associated with a word by virtue of its function as a constituent of a tone unit". In this way, making any word prominent, whether lexical or not, constitutes a meaningful choice.

Cruttenden (1986:7) classifies prominence into two categories :i)as a feature of words as stored in one's mental lexicon(word-stress) and ii)as a feature of connected speech (sentence- stress).Such prominences are seen as linguistically important for they may distinguish different lexical meanings ,e.g. bello'w and bi'llow, or different grammatical classes, e.g. 'insult and ins'ult, or even to show that certain syllables are more prominent than others as in:

3 - John didn't do it

And 4 - John didn't do it.

Furthermore, sequences of prominent and non-prominent syllables form the framework of connected speech, since they produce a particular rhythmical effect as they form the backbone of intonation.

Ladd (1996:160ff) proposes two types of prominence: i) normal stress, and ii) focus-to-accent. Normal stress encompasses a single primary stress or sentence stress, simply known as the result of operation of phonological rules on surface syntactic structures, i.e. it has no meaning or function. On the other hand focus - to- accent means that certain word in utterances can be focused or highlighted to signal newness, contrast or some other special informativness.



It is from focus-to-accent that the term broad focus emerged referring mainly to the idea that focus may extend on whole constituents or whole sentences and not on individual words only. Thus, normal stress can be seen as a description of where an accent is placed when focus is broad.

Laver (1994:513) argues that prominence can be achieved through syllable stress by the existence of a hierarchy of acoustic cues to the stressed status of syllable in English.

Prominence can also be achieved through using "syllable weight" which underpins metrically relevant rules of stress-placement. It is a phonological term incorporating two kinds of syllables: i) light syllables whose rhyme is made up of a nucleus consisting of a short vowel, followed by a maximum of one short consonant, and ii) heavy syllable whose phonological length is greater than one "mora", which is the phonological length of a light syllable .

Taylor (1995:23) argues that prominence of an accent does not have a straightforward relationship with the FO contour. Because of the declination effect, the later an accent occurs in a phrase, the lower its peak FO value will be. The effect of declination is compensated for the listener, thus two accents occurring at different times in a phrase can have equal prominence but widely differing FO values.

### **Voice-Quality**

Crystal (1969:283) purports that voice-quality is a variable which should not be ignored as "any understanding of the relativistic basis of the linguistic contrasts in a person's speech



is dependent on its prior recognition". Crystal (1997:330) later assumes that voice-quality is:

the permanently present, person's background voice - quality derives from a combination of such factors as pitch height, loudness level, tempo and timber of speaking.

These features that characterize voice-quality may be habitual or permanent and may involve a fixed articulatory setting, for example, a nasalized quality with incomplete raising of the soft palate. Fry (1979:69) maintains that "individual speakers differ from each other in the use and formation of both the larynx mechanism and the vocal tract", and that "differences in vocal folds vibration play a major role in enabling listeners to identify individual voices".

### **Stress**

Stress is a phonological feature by which a syllable is heard as more prominent than others, i.e. it is the degree of force used in producing a syllable due to the increase in loudness of the stressed syllable. In English," the position of stress can change the meaning of a word and so forms part of the phonological composition of the word"(Roach, 2002:73)

Roach (1991:85ff) maintains that stress could be studied from the point of view of production and of perception as:

The production of stress is generally believed to Depend on the speaker using more muscular energy Than is used for unstressed syllables. From the perceptual point of view, however; all stressed Syllables have one characteristic in common and



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That is prominence.

Ladefoged (2002:23) assumes that in some languages, stress may be fixed but in English the stress occurs on different syllables in ways that are somewhat predictable.

Roach (1991:86) postulates four main points as factors that determine why a given syllable is more prominent than others; i) stressed syllables are louder than unstressed, ii) stressed syllables are longer than unstressed, iii) a stressed syllable is said with a pitch that is noticeably different from that of the others, and iv) a syllable will tend to be prominent if it contains a vowel that is different in quality from neighboring vowels.

### **Intonational Structure:**

Roca and Johnson (1999:383) state that " any English utterance, irrespective of length, can be delivered in a variety of tunes". Utterance of language is certainly intonated with the pitch rising and falling as one says words. The most prominent syllable of a tone-unit then is: level, falling, rising, and rising-falling.

Three types of tones are traced in prosodic literature: i) word tone which associates with material positioned shortly after the word tone, ii) phrase tone postulated by the richness of the pitch that gravitates to the last word tone in every utterance, and iii) boundary tone which associates to segmental material on the edge of the domain where intonational



association takes place. Tone choice, in this case, is not dependent on linguistic features of the message, but rather on the speaker's assessment of the relationship between the message and the audience (ibid:1999:391).

Crystal (1969:233) assumes that the tone unit in British English can be classified into: pre-head, head, nucleus and tail, among which the nucleus alone is obligatory. Other phoneticians, however, seem to agree about the structure of intonation to be mainly classified into pre-tonic, tonic, and post-tonic. The purpose of tone-group is to mark off agr. unit of information, breaking up longer utterances into easily digestible components.

There are two common types of pre- tonic: i) a high type in which the pitch gradually descends to the nucleus, and ii) a low type in which the pitch stays low. The nuclear tones, on the other hand, are : i )the falling tone which requires a fall on the nucleus and following syllables are to be spoken at the same low pitch, ii) the rising tone in which the rise may start on the nucleus and continue rising throughout the post-tonic structure, iii) the falling-rising, where the changes in pitch take place at a lower overall pitch than in the rise, iv)the rising- falling, where a higher pitch than in the fall and then begins to diminish it turns into a falling pitch, and v) neutral where the tune starts mid and ends mid.

The nucleus carries the most prominent element in the utterance, and then follows stressed and unstressed elements. It is important to mention that the nucleus is an obligatory element; whereas the pre-tonic and post-tonic are optional.





Intonation can show differences in meaning by varying the width of the accent range on individual pitch accents. In addition, certain types of meaning can be signaled by the overall width of pitch-range of intonation group, this is typically known as "key"; provided that "key choices are made and recognized with reference to the comparable pitch choice of the immediately preceding tone unit"(Brazil et al.1980:24).

Brown et al. (1980:36) expound that three types of meaning are available: i )affective meaning : the increased involvement of the speaker with his utterance is realized by a shift-up in key, implying a raising in the speaker's pitch-range, ii) interactional structure using a shifted-up key in questions and a low terminal to indicate finality and a not-low terminal to indicate more information to come, and iii) speech function where the speaker may mark a question as conductive by choosing a low terminal , and non-conductive by choosing a not- low terminal.

### **Intonational Meaning**

Halliday (1970:21) argues that the importance of intonation is that it is a means of saying different things, so “if you change the intonation of a sentence, you change its meaning. Hawkins (1984:197) expounds that a system of intonation aims to select and represent whatever elements or components contribute to a distinction in meaning, and to relate these to actual patterns of pronunciation.

Chen (2004:1)purports that pitch contour per se is not the only means of conveying intonational meaning since it depends



also on the phonetic realization of pitch contour which involves variables such as pitch –range(including span and register variations) and alignment of pitch peaks provided that the form-function relations between variations in pitch-range alignment and meaning are gradient.

Chen (2005:1) further expounds that there are two views on where intonational meaning comes from, viz. the linguistic and phonetic signaling of intonation. In the first type, specific parts of the pitch contour may convey meaning; whereas in the second, the phonetic implementation of the pitch contour may also convey meaning, usually independently of its identity. The linguistic and phonetic scales may cope together to show how intonational meanings are implemented.

Brazil (1984:49) expounds that for a pair of sentences to be useful, they must satisfy two conditions :i)there had to be a difference in the intonation treatment of the two members , and ii) one member of the pair had to elicit a high measure of agreement as to the intonation treatment of the differentiating feature .

Ladefoged (2002:14) reports that intonation is important for marking the clauses that go to make up a sentence, though it is difficult to be traced in written language except in the case of using intonation for sometimes "the pitch contour may indicate that certain parts of the sentence do not constitute to the truth condition of the sentence but elicit the speaker – listener relationships” (Brazil1984:10).

Phoneticians agree as to the meaning that the falling and rising tones may convey. The former is normally used in a straight forward reply to a question and the latter to convey



doubt, uncertainty or some of the questioning modality for some confirmation. Halliday (1970:23) raises two points in this connection first, that a falling tone means certainty with regard to yes or no; whereas a rising contour means uncertainty. Second, a falling pitch means polarity known whereas a rising tone may show a polarity unknown.

### **Intonational Function**

Brazil (1984:46) postulates that the significance of intonation is related to the function of the utterance as an existentially appropriate contribution to an interactive discourse. Lehiste (1970:96) expounds that certain changes in intonation may be accompanied by changes in the function of the utterance signaling a difference between a statement and a question. The manner in which intonation features are used to achieve this means varies between two schools of thought: those proposing that intonation should be specified in terms of a number of pitch levels and those suggesting a number of significant contours or pitch configurations.

The traditional view about the function of intonation is that it signals the speaker's attitude towards what he is saying or towards some part of the context in which he is speaking .Crystal (1969:289) finds it important to introduce a scale of intonational functions as follows:

Table (7)  
A Scale of Intonational Functions



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Minimal attitudinal/grammatical Function.  
Function. → Maximal attitudinal/grammatical Function.

Gimson (1983:264) proposes two main functions for the rises and falls in pitch level: i) the accentual and ii) non-accentual functions. The former refers to intonation changes that are the most efficient means of rendering prominent for a listener those parts of an utterance on which the speaker wishes to concentrate attention; whereas the latter is used as a means for distinguishing different types of sentences ,i.e. as a statement or a question within the limits of the non-accentual function.

### **Models of Intonation**

Many models appeared in an endeavor to establish a satisfactory description of intonation and are intended to stand out as a system per se. Two such approaches are chosen here, viz. Halliday (1967) and Taylor (1995).The first system is grammatically based whereas the second is phonetically oriented.

#### **Halliday (1967)**

Halliday (1967:12) recognizes a phonological rank scale of, in descending order, tone-group, foot, syllable and phoneme for English, such that each higher ranking unit completes units of the rank immediately below. Halliday (ibid:18) proposes three independent systems of intonational choice for spoken discourse: i)tonality," the number and location of tone-group boundaries"; ii)tonicity," the placing of the tonic syllable", and



iii)tone," the choice of primary and secondary tone"." The tonic segment begins with the tonic nucleus, the location of tonic prominence: the foot(and syllable) carrying pitch movement of a given tone choice"(Halliday,1985:53) .

According to Halliday, rhythm in English is based on a unit known as the foot. Each foot may consist of one or more syllables which can either be stressed and/or unstressed. This is generally known as the tone-group (less commonly "tone-unit).Melody as a linguistic feature is called intonation; so the tone-group is the unit of intonation. Each tone-group consists of a whole number of feet.

As regards their function, there is an important difference between the tone-group and the foot. The foot is not itself the realization of an any semantic unit. This is not to say that variation of rhythm never carries contrast in meaning, since it does not as in:

5-Tell me/when/he/comes/

"Inform me of the time of his arrival"

6-Tell me when he/comes/

"Inform me at the time of his arrival".

The tone-group, on the other hand, is not only a phonological constituent; it also functions as the realization of something else, viz. a quantum or unit of information in the discourse. The tone group comprises two elements of structure: an optional pretonic segment followed by an obligatory tonic segment, each of which may consist of one or more complete feet.

Besides being the domain of the organization of the information process into given and New, Information unit has another function, viz, an interpersonal function which realizes the semantic values of



key which are related in turn to the system of mood. Key here is not expressed structurally but prosaically via the tone contour; the melodic tone of the tone-group.

In this system, there are falling tones which indicate certainty and polarity known; whereas rising tones convey certainty or polarity unknown. The system can extend outward from the simple opposition of falling and rising in two directions: i) by neutralization (neither falling nor rising) and ii) by combination, i.e. both falling and rising simultaneously used.

Halliday classifies tones into primary and secondary. The secondary tones are in fact of two types: I) the tonic secondary tones which are the finer grades of pitch movement in the tonic segment and ii) the pre-tonic secondary tones which are different pitch contours in the pre-tonic segment. Primary tones are: rising, falling, rising-falling, falling-rising; all marked and neutral which is unmarked.

The foot in Halliday's system must begin with a salient "stressed" syllable. It comprises two elements: i) ictus, and ii) remiss. Ictus is the salient syllable; whereas remiss is any weak syllable or any syllable following the ictus.

Halliday proposes three terms in this theory: i) tonality which refers to the distribution of utterances into tone-groups, ii) tonicity mainly referring to the placement of the tonic syllable in the tone-group and iii) tone which comprises primary and secondary tones.

According to Halliday, the proposed grammatical meaning of a particular primary tone is to convey "the contextual sentence function", and varies depending on mood. I.e. sentence type. There are three major moods, i.e. declarative, interrogative and imperative. The set of contextual sentence functions includes statement, question, command, answer and exclamation. In each mood, a primary tone is supposed to be related to mood and is more



discoursal (given vs. new information) in some cases but more attitudinal ( forceful, causal) in other cases.

Ghalib(1977:24) assumes that "formally and theoretically , Halliday's system is very neat and it brings a regularity to the rhythm group". And Crystal (1969:43ff) expounds that :

... His primary aim is on concentrate on those  
Places in English where intonation can be shown  
To be independently systematic and the patterns  
Able to be systematized into a formal grammatical  
Statement which displays the contrastive possibilities  
At any specific place in the language and which allows  
Us to link intonation with other grammatical choices.

Nevertheless, Taylor (1995:31) postulates that the difficulty in using the British School as the basis for a formal system is not restricted merely to problems with the synthesis models. The need for a grammatical specification has been brought into question. Taylor (ibid:32)further assumes that much work will have to be carried out before an FO phonology mapping system could be developed for the British School. However, the usefulness of building such a model must be questioned. Designing a phonology FO grammar that is inherently linked to a problematic phonology will hamper the grammar in its ability to analyze FO contours.

### **Taylor (1995)**

Taylor proposes a phonetic model of English intonation which is a system for linking the phonological and FO descriptions of an utterance. It is atypical formal analysis/synthesis system. In this system, the phrase component could be altered so as to provide sharply rising and falling phrase shapes, thereby giving more control over the amplitudes of the rise and fall parts of the accent



component, besides proposing a new accent component that has different rise and fall characteristics.

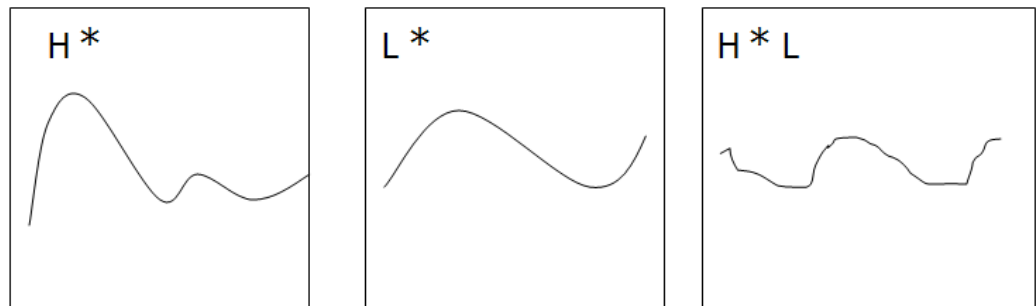
This theory addresses the issue of tune, phrasing, scaling and timing. The subject of tune is perhaps the most important, but also may be the easiest to resolve due to the large amount of agreement between theories about how many levels of intonational phrasing exist and how they relate to one another and what linguistic factors determine them.

The issue of scaling seems to be the most controversial as accents have different prominences, but disagreements exist over how many choice speakers have in deciding these prominences. Regardless of whether one takes a phonological or a paralinguistic view, a phonological system of description should have the ability to express the prominence of accents.

Most of the movements, Taylor (1995:67) argues, in an FO contour occurred in the vicinity of its pitch accents. Except at the beginning and end of phrases, the FO contour nearly always followed a straight line. It is therefore seemed appropriate to follow a third element to join the rise and fall elements. This element is described by a straight line which in principle could be of any length.

The new element is termed the connection element due to the fact that it connects the rises and falls of different pitch accents. In most cases, the connection elements of a contour have no phonological function; the FO contour is merely "coasting in neutral" to the next pitch accent. From extensive examination of FO contours, the following figure is deduced:





**Figure (6)**  
**Taylor's (1995) FO Contours**  
**Adapted from Taylor (1995:67)**

Concerning the sequence of elements, it seems that in principle any element could follow any other. The only restriction was that there was no occurrence of two contiguous connection elements. This seems quite a reasonable restriction as the rise and fall elements can be regarded as conscious actions; whereas the connection element carries little intonational meaning.

In this system, three levels of timing were realized. The first (what Halliday terms "tonicity") concerns the description of the placement of pitch accents, i.e. where pitch accents occur. This is easy to describe since each accent is associated with a particular syllable. The second kind of timing helps to separate fall accents from rise-fall. The third type is segmental timing which determines how the segmental nature of a pitch accent syllable governs the location and duration of RF C (rise, fall and connection).

The high class has several types: i) down step realized as H and a fall with little or no rise.ii) late, which is used to differentiate a fall from a fall-rise and it is realized by a rise section of greater duration than normal and a peak occurring later in the syllable,iii) elevated, where both the rise and fall sections have a large amplitudes. These features are non-exclusive so that an accent can be marked with more than one feature.



There are a small number of L accents, thus there seems less variety and the only subdivision that is made is whether or not a fall occurred leading to the accent syllable. This feature is termed "antecedent" fall which distinguishes between a simple L and H+L, the latter having antecedent fall.

In Taylor's model, there is a non-pitch accent phonological phenomenon as there are boundaries used to mark boundary rises. Here, two main reasons were found for the phrase-final boundary rise, as a continuation rise in which the contour rises at the end of the phrase to indicate that another related phrase was about to follow or it may be used as part of a compound accent construction such as a fall-rise. Both cases are delimited by silence.

There are also connection sections which, although do not have meaning, they are still needed to produce FO contours. Occasionally, differences in the use of the connection elements themselves were found to change the perception of the meaning of the utterance. Rising connection elements were found to be phonologically significant in pre-nuclear positions.



## Conclusion

Intonation is concerned with stretches of speech extending over longer entities of segments. It is assumed that no language is spoken in a monotone, i.e. there must be variation in uttering sentences or even individual words. It is stated that intonation is constituted by a number of independent factors: pitch ,loudness, and the temporal organization of the utterance. Besides, intonation contours must be interpreted bearing in mind the existence of systematic interrelationships with other non –segmental features and other levels of language organization. The significance of intonation is related to the function of the utterance as an existentially appropriate contribution to an interactive discourse. Certain changes in intonation may be accompanied by changes in the function of an utterance signaling a difference between a statement and a question

Many models appeared to provide a suitable description of intonation. In this study two models have been chosen' viz.Halliday (1967) and Taylor (1995).The first one is grammatically based while the second is phonetically oriented.Halliday proposes three independent systems of intonational choice for spoken discourse: tonality; tonicity; and tone. According to Halliday the proposed meaning of a particular primary tone is to convey the contextual sentence function and varies depending on mood, i.e. sentence type whether eclarative, interrogative or imperative. Taylor(1995)proposes a phonetic model of intonation in which he links the phonological and the FO descriptions of an utterance .His theory addresses the issue of tune ,phrasing, scaling and timing. In this system, three levels of timing were realized. The first (what Halliday terms' tonicity'). The second kind of timing helps to separate fall accents from rise-fall. The third type is segmental timing which determines how the segmental nature of a pitch accent syllable governs the location of RFC (rise, fall, and connection).



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