A LINGUISTIC INQUIRY INTO SUPRASEGMENTAL USAGE IN HUMAN SPEECH

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Abstract
Suprasegmentals are complex sound features superimposed on syllables of words and longer utterances. They interact with sound segments which are arranged into syllables, to effect non-lexical changes in the meanings and functions of English utterances. These changes in turn contribute to more effective speech delivery and interpretation. However, many non- native speakers of the English language are unaware of these prosodic features and as a result, do not utilize them properly. This research therefore examines major prosodic elements by highlighting their meanings, features and functions in speech, drawing insights from printed and online materials. It concludes by advocating for the conscious learning, comprehension and regular application of suprasegmentals communication.
Keywords: Suprasegmentals, prosodies, length, rhythm, voice quality

Introduction

Speech is fundamental to human communications. Languages across the globe contain speech sounds which are scientifically arranged, described, employed and analyzed for accurate functionality (Akinola, 2018). Sound units description which can be articulatory, auditory or acoustic, occurs at the level of phonetics while their combination into meaningful utterances as well as their functions within and beyond the sentence are treated at the phonological level. Linguistic features like stress and rhythm which give additional meanings to sound objects are parts of the phonology of human tongues.

The Phonology of any language deals with the way its sounds function in a systematic manner (Cruttenden, 2014). It is the aspect of any language which describes the way its phonemes work particularly in conjunction with other neighbouring phonemes, that is, the way in which units of speech contrasts with each other to bring about a change in meaning. These contrasts may involve isolated sound segments (commonly called segments related phonology) through which minimal pairs like 'pat' and 'pan' or 'fat' and 'cat,' which differ only in relation to a single sound, are generated or it may involve a combination of several segments of sounds put together (suprasegmental phonology) over which prosodies like length, pitch and rhythm have been superimposed (Roach 2010; Anagbogu et al 2010).

In English language, phonemes such as / p, m, n, a, i, æ /, are put together to form larger units like /*pin*/, / *pæn* / and / *mæn* /. Each of these phonemes belongs to different categories which are, the consonants , for example, / *p, m, n*/ and the vowels, for example, /*a:, I, œ*/. Altogether, there are forty-four (44) sound segments in English language, twenty-four (24) of these are consonants (/*p, b, t, d, k, g, f, v , ɵ, ə, s, z, ʃ, ʤ, ʧ,ʒ, h, m, n, ɹ, l, r, w, j*/) while the remaining twenty (20) are vowels. Twelve (12) of the vowels are called monothongs or pure vowels and they are as follows /I, e, *œ, ʌ, ɒ, u, ɚ, i:, a:, ɔ:, u:, and ɜ:/* while the remaining eight (8) are known as diphthongs and they have been listed as follows / *ei, ai, ɔi, əu, au, iɚ, eɚ, uɚ/* (Jones 2006).

The vowel sounds of English combine with consonants to produce syllables as follows: / i/+/*t*/= /*it*/→ it, /*m*/+/*i:*/= /*mi:*/ → me, /*m*/+/*i:*/+/*k*/= /*mi:k*/→ meek, /*f*/+/ i/+/*t*/= /*fit*/→ fit and so forth. Syllables combine to form words (although many mono-syllabic words like the earlier examples given here, can stand independently as words in their own right). Hence, words can be mono-syllabic (having only one syllable), for example 'no', 'an', 'meat', 'you', or di-syllabic (having two syllables), for example 'employ', 'mother', 'teacher', 'abuse' or polysyllabic (having three or more syllables), for example nominate, politics, politicize, monotony.

Conceptual framework

Suprasegmentals or prosodies as mentioned above are complex sound contrasts / features superimposed on syllables of words and longer linguistic units (Roach, 2010; Osisanwo, 2012). These suprasegmental speech sound features often interact with sound segments to achieve non-lexical changes in the meanings and functions of English words, while leaving the lexical or ordinary dictionary interpretation of words unaffected. Thus, prosodies, such as stress, pitch, rhythm, loudness, length and voice quality among many others, which are discussed in this section, occupy a tier higher than the segmental tier in phonological analysis, as a result of which they are described as belonging to a non- lineal category (O'Grady, 2011).

Suprasegmental features are realized in relation to the syllable. This means they rely primarily on the syllable for the attainment of their properties and the execution of their functions. The syllable has remained the most essential suprasegmental feature upon which others depend. It is a fundamentally important feature (Roach 2002 cited in Osisanwo 2013) without which other prosodic features - that bring about functional changes in utterances - cannot exist. It serves as the foundation of other prosodic features in all human languages and in English in particular. Therefore, the syllable will be the first prosodic feature to be dicussed in this study.

The syllable: This, as pointed out before, is the basic unit of any spoken language. It often consists of one or more consonants and at least a vowel or at times a vowel and a syllabic consonant (Anagbogu et al, 2010; Osisanwo, 2012). It contains a vowel which is the most obligatory element and it is known as the nucleus or the peak. The nucleus is often the most accentuated and the loudest part of the syllable. It may be preceded by a consonant which is called the onset and may be succeeded by another consonant sound known as the coda (a combination of the peak and coda is also described as rhyme). As earlier stated neither the onset nor the coda is fundamental to the formation of the syllable. Therefore, once there is a nucleus or a syllabic consonant as in, 'a' /*ei*/, panel /*pænl*/, eaten /*i:tn*/ etc, a syllable can be formed with or without the onset and the coda (Eneremadu, 2013; Elugbe, 2015). Below is the syllable structure as presented by (Roach, 2010).

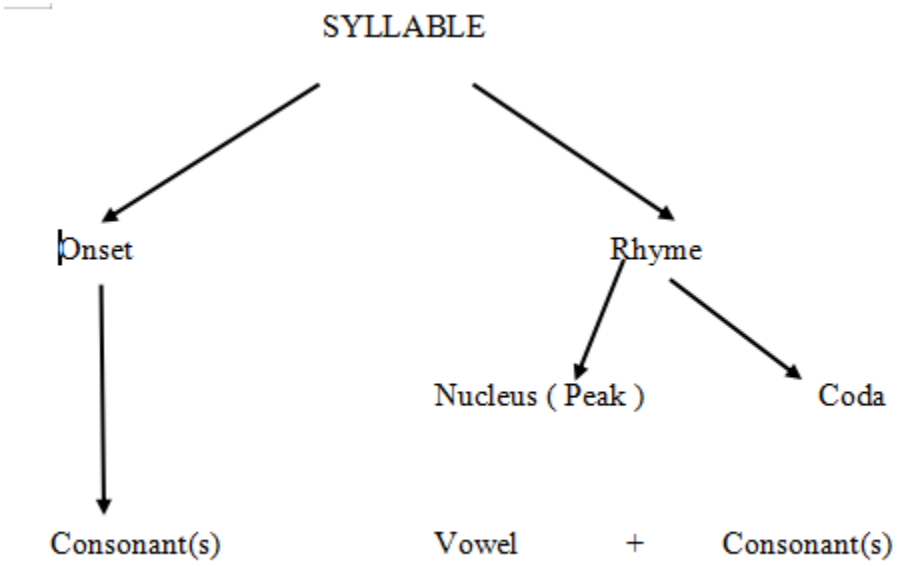

Figure 1.1: Components of a syllable culled from Roach (2010)

Using the above description of the elements of a syllable, the following words have been analysed thus:

An	--	VC (Peak + Coda= Rhyme)
Cup	--	CVC (Onset + Rhyme (that is, Onset + Peak + Coda)
Sword	--	CVC (Onset + Rhyme)
Schools	--	CCVCC (Onset + Onset + Peak + Coda + Coda)
Fridge	--	CCVC (Onset + Peak + Coda)
Twelfth	--	CCVCCC (Onset + Onset + Peak + Coda + Coda + Coda)

Note that changes occur in the meanings of words due to a rearrangement of the components of their syllable(s). If for instance the nucleus of the word 'pen' is replaced with an 'a' /æ/, the meaning changes as it will now be spelt 'pan'. Similarly, if the 'p' in the word 'pen' is replaced with an 'h' there's a change in meaning owing to the sound contrast and the word will be spelt 'hen'. Hence, the syllable undergoes different forms of sound contrasts, some of which are simple or minimal and are referred to as minimal pairs for they only involve phonemes within syllables like those mentioned earlier; (pan/pen, pen/hen), while others are complex as they extend across many syllables, words and longer utterances.

Stress: is another major prosodic feature of English phonology which is syllable-related. Words like 'rebel, 'insult and 'import are nouns because they are stressed on their first syllables while re'bel, in'sult and im'port are regarded as verbs because they have been stressed on their second syllables. Syllables are said to be stressed if they have been given the type of prominence which makes them stand out among neighbouring syllables. The placement of stress (marks) on linguistic units signals their uniqueness and distinction. In English language, some words are naturally stressed while some are not. Wachukwu (2013) maintains that only nouns, adjectives, adverbs, lexical verbs and demonstrative pronouns are stressed in sentences while auxiliary verbs, pronouns, prepositions and conjunctions are usually unstressed. Similarly, Quirk and Greenbaum (2000) explains that while open class items are stressed in English, closed class items are not. For instance, in the following sentences;
(i) 'James 'came to the 'school 'yesterday.
(ii) They will not 'come.
All the content words, that is, 'James', 'came', 'school' and 'yesterday' are stressed in sentence (i). However, only the word 'come' is stressed in sentence (ii). Oguamanam (2014) however claims that a naturally unstressed word can be stressed to achieve emphasis. This view agrees with that of Quirk and Greenbaum (2000) which describes the phenomenon as an interference with normal accentuation to highlight any word we please by means of contrastive stress. The implication of this is that words like 'he', 'can', 'on', 'and' among many other closed-system words can also be stressed. Hence, all the words in the sentence 'I 'too'can!' are stressed. This has been achieved by means of intonation simply to emphasize the speakers' undetected ability. This is owing to the fact that stressed words are naturally perceived to be louder, longer and higher in pitch than unstressed words.

Rhythm: This is another suprasegmental feature realizable mainly in relation to syllable. Rhythm has been described most commonly as the regular time interval between the production of a stressed syllable and the next stressed syllable in utterances. This implies that the regularity of the time interval between a stressed syllable and the next occurring stressed syllable is uniform for all English sentences regardless of the number of unstressed syllables between them (Anagbogu et al 2010; Roach 2010). It is as a result of this that the rhythm of English (and other languages like Russian and Arabic) has been referred to as stress timed while that of non intonation languages is said to be syllable timed.

A unit of rhythm is called the foot where the foot comprises a stressed syllable together with all succeeding unstressed syllables up to (but excluding) the next stressed syllable (Roach, 2010; Anagbogu et al, 2010; Jones, 2011). The following utterances explain this better.

(i) His 'house is on a 'major 'road.
(ii) A 'twenty 'man 'panel.

In each of the utterances above the time intervals between the various feet are somewhat regular regardless of the differences in the number of unstressed syllables preceding, intervening or succeeding the stressed syllables. In (i) for instance, the first foot contains one unstressed (his /hiz/) and one stressed syllable (house / haus/), the second contains one stressed syllable (is /iz/) and two unstressed syllables, (on /ɒn/, a /ə,/) while the third has one stressed and one unstressed syllable, (ma /mei/ and jor /ʤər/) while the fourth has only one stressed syllable. The sentence therefore has four feet. Each of these feet is produced at the same duration as others. In utterance (ii), there are four feet. The first foot contains the indefinite article (a /ei/) in its strong (accentuated) form, the second contains one stressed syllable (twen /twen/) and an unstressed syllable (ty /ti/), the third foot has one stressed syllable (man /mɚen/) while the fourth foot has one stressed syllable (pan /pɚen/) and one unstressed syllable (el /el/).

It should be noted that all the four feet in (ii) and their likes are rhythmically uttered with roughly the same interval particularly in slow and careful utterances. In fast, in naturally occurring speeches, the interval may differ slightly as some form of stress shift may have occurred (possibly due to assimilation or elision). Like other suprasegmental sound features, rhythm helps us to discover the items in the message which are more important as well as changes in the speaker and the issues being discussed (Roach 2001in Nordquist, 2010).

Loudness: The notion of loudness implies that some sounds are higher when pronounced and can be perceived as such by the ear. It refers to the volume or amplitude of speech sounds. The loudness of a speech sound/syllable is largely related to the amount of acoustic energy employed for its articulation by the speaker (Cruttenden, 2014; Anagbogu et al, 2011) In effect, some sounds are generally or inherently more sonorous than other sounds with which they have the same length, stress and pitch (Ladefoged & Johnson 2006; Anagbogu et al 2011; Cruttenden 2014; Anyanwu 2013). Vowels are naturally higher in sonority than consonants. However, some vowels (e.g. the vowels /*a:*/ and /*æ*/ are equally of greater sonority or loudness than other vowels. This is because they are louder than the high vowels /*u*/ and /i/. In the same vein, some consonants also have greater sonority than others. For example, the nasal sound /*m*/ is louder than the voiced fricative / *z* / (Ladefoged & Johnson, 2006). With these factors in place, some syllables tend to have greater intensity than others.

Loudness is hierarchical in nature. Open vowels are the loudest of all the phonemes. They are louder than close vowels , which are the next on the sonority scale, while close vowels are more sonorous than glides. Glides, are higher in sonority than liquids in human speeches, liquids are louder than nasals while nasals are louder than fricatives. Fricatives are also louder than affricates. Affricates are equally louder than plosives (Cruttenden, 2014). Regular utilization of voice amplitude increase in speech, enhances the speaker's confidence and in turn fosters impactful content delivery and effective audience management (Herbert Hoover, 2022). Loudness can be used to begin a new topic or sub-topic as well as to highlight key points. A low voice and sentences with the final falling tone may equally be employed at the commencement of a discussion / speech, to prepare the audience for the presentation, but, a louder voice volume will be needed whenever major aspects of the speech are to be emphasized. This improves listener concentration and intelligibility (Communication center, 2022).

Length: Length refers to the amount of time spent by a speaker to articulate a particular speech sound or syllable. Hence, we say that some sounds or syllables are phonologically longer than others given the same circumstances (Jones 2011; Osisanwo 2012; Anagbogu et al, 2010). Long vowels (for example /*i:*/ and /*u:*/) are naturally longer than their short counterparts (for example /i/ and /u/). Vowel lengthening often results in syllable lengthening. However, a speaker may deliberately lengthen some syllables of some words in an utterance in a manner different from their usual length in order to assign to them additional meaning or to display deep emotional feelings. Length is different from duration because while duration can be physically measured, length cannot as it is only realizable through auditory perception. Nonetheless, they are often used interchangeably (Jones, 2011; Cruttenden, 2014). Hence, according to Anyanwu (2013), the duration of sound is also the time it takes a speaker to produce it.

Voice quality: This is a major prosodic feature which readily reveals the feelings, moods and intentions of interlocutors. It has been viewed by some linguists as an individual's background features that distinguishes his voice

from other people's voices or the outcome of different forms of vocal fold vibration as perceived by the ear (Crystal,1969; Laver 1980, 1994 cited in Roach, 2010; Roach. 2010). Similarly, Cruttenden (2014) maintains that voice quality is the state of the vocal organs with which a speaker's voice can be described over a long period of time. Explaining further, he opines that voice quality may be the feature of an individual's voice, may be peculiar to a language or dialect or may be the type employed by users of a particular parlance when conveying some attitudinal or emotional information.

Hence, voice quality may be personal, dialectical, contextual or regional phonation features which distinguish a person or people's voices from those of others on a regular basis. Voice qualities are known as phonation types and the most common ones are creaky voice, breathy voice, ventricular voice, whispery voice, falsetto voice, raised-larynx and lowered-larynx voices. Voice quality as earlier discussed reveals speakers' mood, feelings and some peculiar speaking styles. Hence, some are associated with the context in which they are often employed, thus, breathy voice is referred to as bedroom voice, whispery voice is known as stage whisper or library voice while lowered- larynx voice is known as sepulchral or vicar's voice (Cruttenden, 2014; Njemanze, 2014).

Pitch: This is equally a suprasegemental property of speech super imposed on syllables and longer linguistic units. It has been defined as the extent to which a sound is high or low (Anyanwu 2013). This highness or lowness of a voice is related to the vibration of the vocal chords (Elugbe, 2015).This implies that sounds are produced with different pitches owing to the fact that the vibration of the vocal chords takes place at different frequencies. Thus, alterations in the tension of the vocal folds give way to the realization of most of the variations in the pitch of the voice while we speak, while the variations reveal different types of information about speakers some of which are, the sex of the speaker, the age of the speaker, and the emotional state of the speaker at the time they are speaking (Ladefoged & Johnson 2006).

Additionally, an individual's pitch readily influence people's perception of them. People's usage of pitch also affects the way other people interact with them (Apple et al., 1979 ; Klofstad et al., 2016; Kim, 2020). An increase in the flow of air stream from the lungs leads to an increase in voice pitch (which explains why a creaky voice for instance, will usually have a low pitch while a tiny voice usually has a high pitch) while differences in the position of vocal folds in different phonation types results in variations in pitch.

Summary

Suprasegmentals are essential components of human speech. They add sweetness, melody, meaning and interpretive depth to our utterances - beyond what is conveyed by syntactic structures alone - thereby making speech more readily comprehensible. The syllable, for instance, is frequently modified in spoken language as it serves as the foundation for other prosodic features in all human languages, particularly in English. Other prosodic elements such as rhythm and pitch function in relation to the syllable, paving way for additional semantic and pragmatic interpretations that arise through non morphological and non -syntactic language usage.

Additionally, when rhythm is carefully applied, language users can identify the more important parts of utterances and track changes in the topic under discussion (Roach 2001in Nordquist, 2010). Loudness enhances content delivery, improves audience engagement and fosters listener concentration. Lengthening particular syllables during speech allows speakers to convey deep emotional expressions, while voice quality reflects speakers' mood, feelings and some special speaking styles. All these features and - more are realized through our everyday use of suprasegmentals in spoken communication.

Conclusion

The prosodic features discussed above play invaluable roles in human discourse. For instance, the application of suprasegmentals enhances communication, helps interlocutors achieve the intended implied and inferred conversational meanings and facilitates audience engagement and control. However, many non- native speakers of the English language are unaware of these features and, as a result do not utilize them effectively (Jowitt, 2000).
Many public speakers and other second language English users tend to rely either solely on low pitch or exclusively on high-pitched utterances believing this will foster proper speech delivery and maintain audience attention. Unfortunately, the opposite is often the case. Listeners are more engaged when presentations are delivered using effective speaking styles, which are achieved through a careful combination of the prosodic elements. These include

occasional lenghtening of syllables, intentional accentuation of words for emphasis, regular modulation of voice amplitude, and the purposeful use of rythmic patterns.

This study therefore advocates for deliberate study, comprehension and application of the suprasegmental features of English by non- native speakers in general - and by aspiring and practicing public speakers in particular - for optimal speaker- listener interaction, speech production, interpretations and audience management.

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