

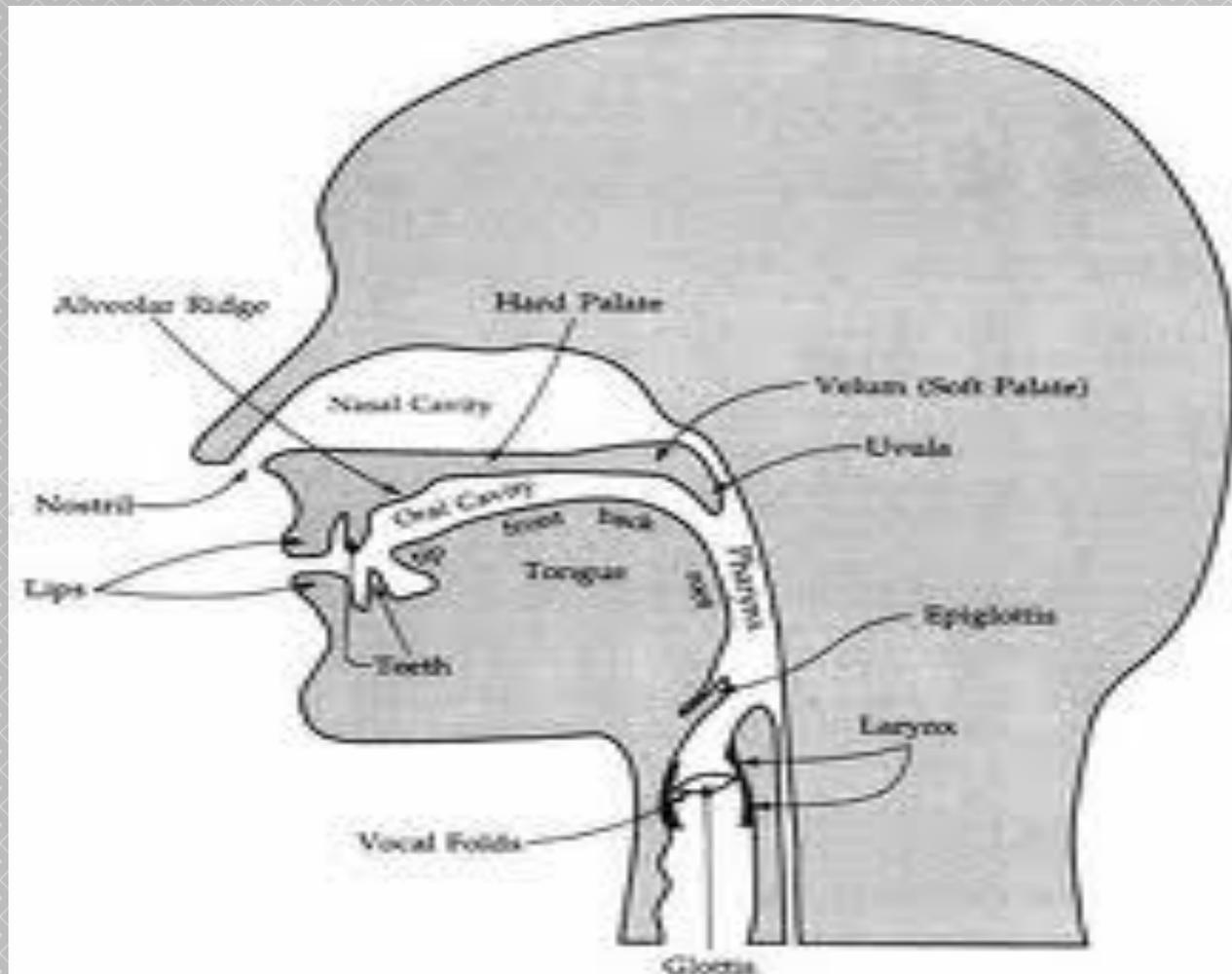
ENGLISH PHONETICS & PHONOLOGY

LECTURES PREPARED BY DR. ARWA AL SALMAN

The difference between phonetics and phonology:

- 1- Both are dedicated to the study of human speech sounds and sound structures.
- 2- Phonetics deals strictly with audible sounds and the things that happen in one's mouth, throat, nasal and sinus cavities, and lungs to make those sounds. It has nothing to do with meaning; whereas Phonology is both physical and meaningful. It explores the difference between sounds that change the meaning of an utterance.
- 3- Phonetics studies the phonemes or units of sounds that are used to create words; whereas Phonology studies the rules in any given language that govern how those phonemes are combined to create meaningful words.
- 4- Phonetics deals with the study of the production of sounds but Phonology deals with the study of the characteristics of sounds and their changes due to various factors such as climatic change, race and influence of other languages.
- 5- Phonetics relates to the sounds of language and phonology studies how those sounds are put together to create meaning.
- 6- Phonetics is the subset of Phonology as the latter depends on Phonetics as its subject matter.
- In short, Phonetics is the science which studies the characteristics of human speech sounds, their production, transmission and perception. And Phonology is the study of the sound systems of individual languages, their range and function.

Organs of speech:



- ◉ Organs of Speech:

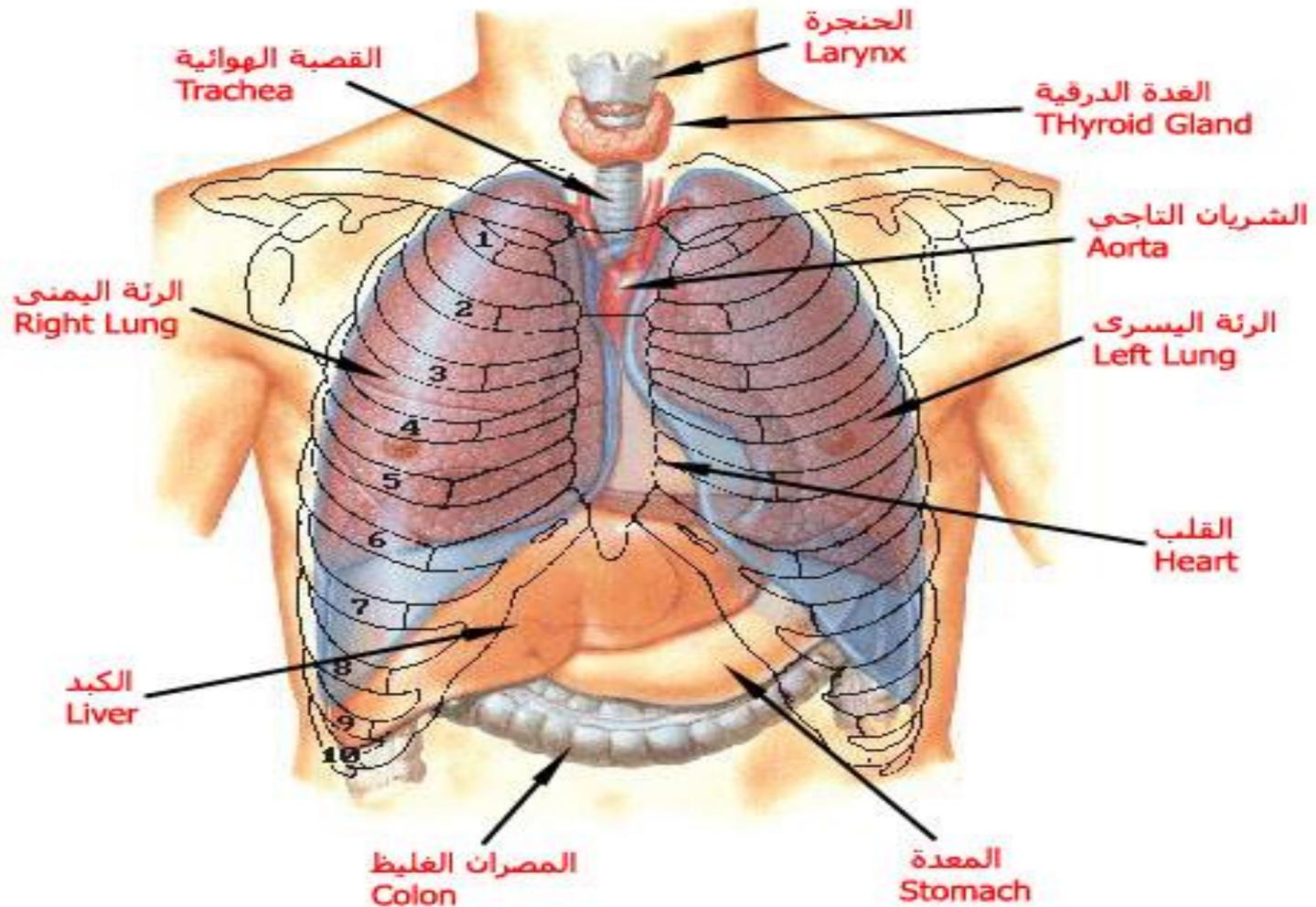
- ◉ 1- The lungs:

- ◉ The lungs are two spongy bodies composed of many small air sacks “the alveoli” which receive the air from small tubes ; the right and left bronchi. The bronchi in turn join the trachea through which the air passes from throat to the lungs. The lungs are enclosed in the thoracic cavity, bounded above and laterally by the rib- cage, and below the diaphragm.

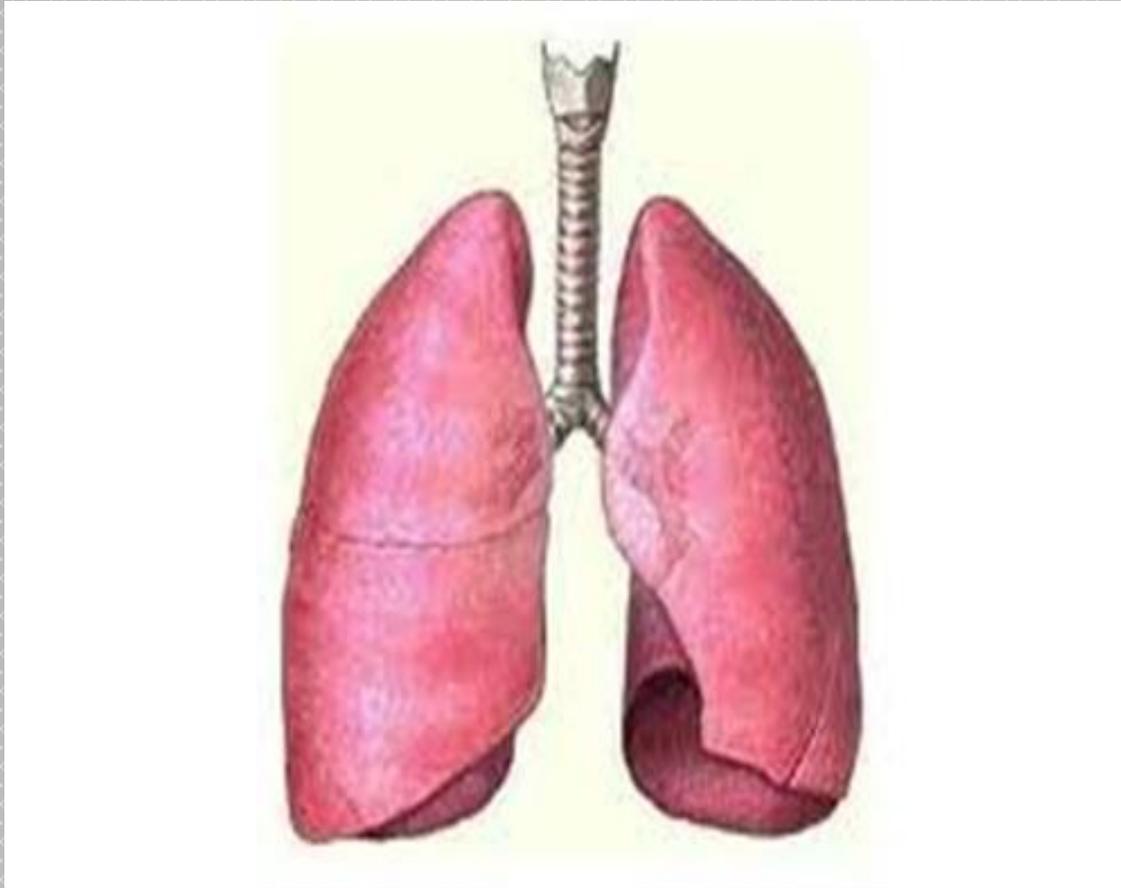
- ◉ The act of respiration involves two phases, inspiration and expiration. When air is made to move out of the lungs , we say that there is an aggressive pulmonic airstream. The pressure of the air below the vocal folds (the sub glottal pressure) can be varied:-

- ◉ 1- Variations in intensity: we produce voicing with high intensity for shouting, for example, and with low intensity for speaking quietly.
- ◉ 2- Variations in frequency: if the vocal folds vibrate rapidly, voicing will be of high frequency.
- ◉ 3- Variations in quality: voice quality varies from harsh to breathy, murmured or creaky.

◎ The position of the lungs:



◎ The lungs:

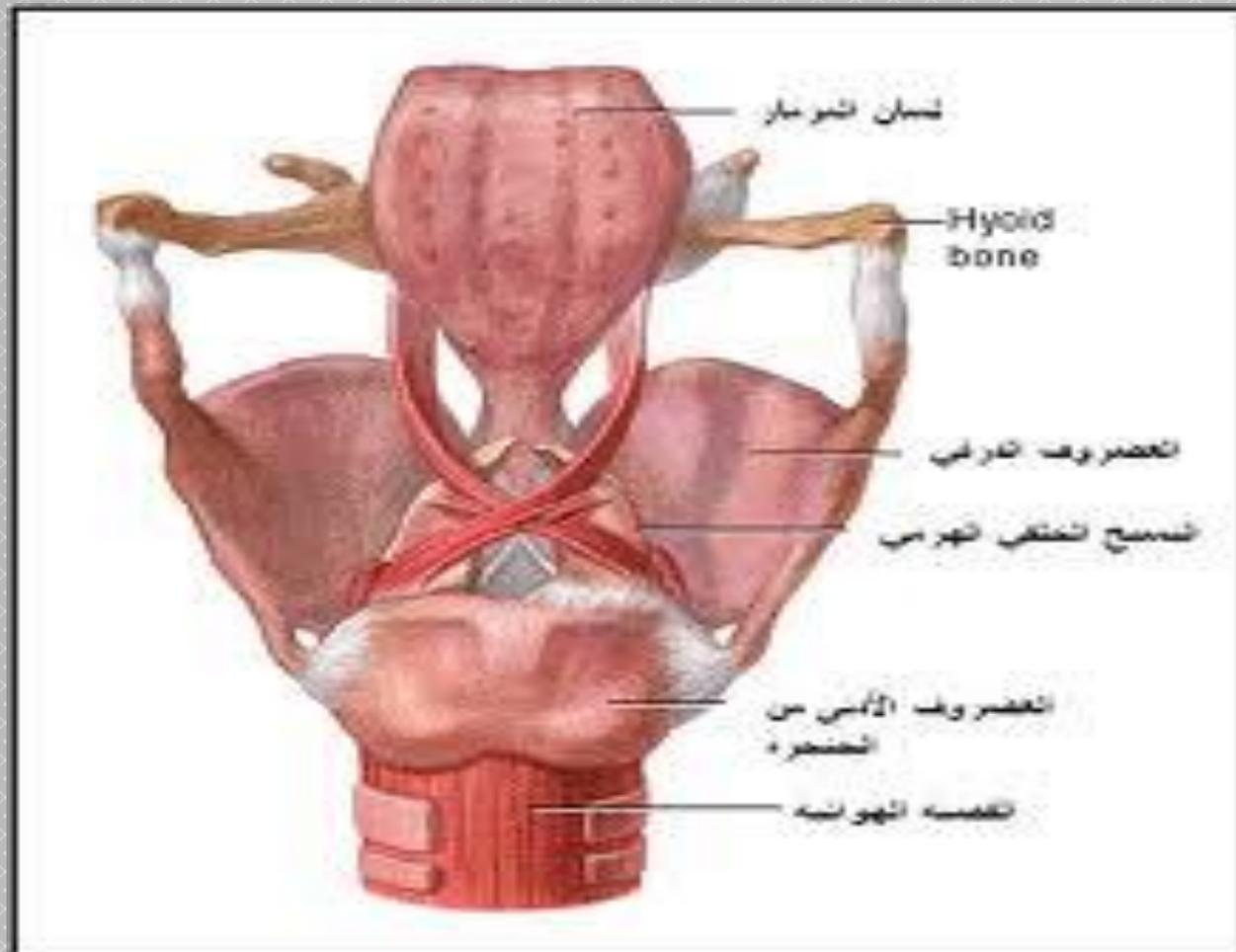


○ 2- The Larynx:

- The basic function of the larynx is as a valve in the respiratory system. Thus in the process of swallowing, the larynx is automatically shut to ensure that food or drink pass through the pharyngeal cavity into the esophagus and not into the windpipe. The valve action of the larynx is also important in short-term physical exertion as a means of stiffening the thorax when we inhale deeply and hold our breath. In speech, the larynx is important as a source of sound and as an articulator.
- The larynx connects to the lungs via the windpipe or “Trachea”, which consists of a series of roughly horseshoe-shaped cartilaginous sections held together by membranous tissue. The larynx has a skeletal frame formed by a series of cartilages. Some of these cartilages are able to move with respect to each other in ways which affect both the larynx`s valving action and it`s functions in speech production. It`s three main cartilages are:
 - 1- The cricoid cartilage: which forms the base of the larynx and is also the last cartilaginous section of the trachea.
 - 2- The thyriod cartilage: consists of two flat plates forming an angle anteriorly which acts as a shield for the vocal folds.
 - 3-The arytenoid cartilages: which are attached to the back of the vocal folds and responsible for their movements.
 -

- Inside the larynx lie the vocal folds which are two thick flaps of muscles which have distinctive mechanical properties and to some extent move independently of each other, and they may respond differently to the same muscular forces. The vocal folds can move into the following positions:
- 1-They can be wide apart for normal breathing and usually during voiceless consonants.
- 2-If air passes through the glottis when it is narrowed, the result is a fricative sound.
- 3-When the edges of the vocal folds are touching each other, or nearly touching, air passing through the glottis will cause vibration. Air is pressed up from the lungs and it pushes the vocal folds apart so that a little air escapes and the vocal folds are brought again to each other.
- 4-They can be firmly pressed together so that air cannot pass through them and this is called a “glottal stop” or “glottal plosive”.

◎ The larynx:



- **3-The Pharynx:**

- It is a tube of muscle shaped rather like an inverted cone, typically around 12 cm long. It lies between the glottis and the base of the skull. It acts as an air passage for respiration, aids in ingestion of food, and provides drainage for the nasal passages.

- **4-The Soft Palate: (The Velum)**

- It is a continuation of the roof of the mouth, posterior to the bony structure of the hard palate. It consists of a flexible sheet of muscular tissue covered in mucous membrane ending at the “uvula”, a small tip of muscle and flexible tissue. When raised ; the velum serves to seal off the nasal cavity to produce oral sounds and when lowered, air passes through the nose to produce nasal sounds. The velum is a section in the partition between the oral and the nasal cavities.

- **5- The Hard Palate:**

- It is an arched bony structure that starts after the alveolar ridge and ends approximately level with the rearmost molars. It is a section in the partition between the oral and the nasal cavities. It helps to produce alveo-palatal sounds /ʃ, ʒ, tʃ, dʒ/

- **6- The Alveolar Ridge:**

- It is a thick membranous covering on the bony structure which joins the tooth-bearing bone of the upper jaw and the arched structure of the hard palate. It is a section in the partition between the oral and the nasal cavities.

- **7-The Lips:**

- They are bony structures made up of the upper and lower flats. Sounds made in contact with the teeth are termed “Dentals”.

⊙ 8- The Lips:

- ⊙ They are the anterior termination of the oral cavity and thus also of the entire vocal tract. They consist of two fleshy folds which are richly supplied with muscles and are formed externally of skin and internally of mucous membrane. The lips can be kept wide open so as not to obstruct the passage of air. Besides, they can take different shapes when producing vowel sounds.

◎ The Tongue:

- ◎ It is a mobile, most flexible and elastic organ of speech which lies at the floor of the mouth. It consists largely of muscle, with an outer covering of mucous membrane and a fibrous septum dividing it longitudinally. It is closely associated with the functions of taste, chewing, swallowing and speaking.
- ◎ For practical purposes, the upper surface of the tongue is divided into the following functional areas: 1)the tip, 2)the blade, 3) the front (dorsum), and 4) the root. The tip and the blade lie against the alveolar ridge, the front against the hard palate and the root against the soft palate.

Consonants:

Consonants are speech sounds having the phonological characteristics of their initiality to be at the beginning and end of syllables. To classify sounds as consonants; however, an articulatory phonetic description is generally needed with reference to six main factors:

1-Air-stream: the source & direction of air-flow identifies the basic class of sounds. The vast majority of speech sounds are produced using pulmonic aggressive air.

2-Vocal folds: voiced sounds are produced when the vocal folds vibrate, whereas voiceless sounds are produced when there is no vibration & the folds remain open.

3-Soft palate: when the soft palate is lowered, air passes through the nose and the sound is described as nasal or nasalized; when it is raised, air passes through the mouth and the sound is oral.

- ◉ **4-lips**: the position of the lips is an important feature of the description of certain sounds (especially vowels) , such as whether they are rounded or spread, closed or open.
- ◉ **5-Manner of articulation**: it is a major descriptive parameter ,referring to the type of constriction or movement that happens at any place of articulation, such as the marked degree of narrowing, or a closure with slow release.
- ◉ **1-Total Closure**:
- ◉ **1-Plosive sounds**: in the articulation of stops, the velum must be fully raised to allow adequate build-up of intra-oral air- pressure during the stoppage with a complete closure at some point in the vocal tract. A plosive sound is then articulated with the following characteristics:

- 1-One articulator is moved against another, or two articulators are moved against each other, so as to form a total stricture & this is called the closure phase.
- 2- The air is compressed in the vocal tract & this called the hold phase.
- 3-The compressed air is allowed to escape with an audible sound called 'plosion'.
- 4- There may be voicing during part or all of the plosive articulation & this is called the post-release phase.
- English plosives are / p, b, k, g, t, d /.

○ 2- Nasal sounds:

- A complete closure is made at some point in the mouth& the soft palate is lowered so that air escapes through the nose. Nasal sounds are: bilabial / m /, alveolar / n / and velar/ ŋ/.

○ 3-Affricate sounds:

- A complete closure is made at some point in the mouth and the soft palate is raised. Air pressure builds up behind the closure and is then released relatively slowly. The first element of the sound has a sharp plosive character followed by an element of audible friction, as in /tʃ/ and /dʒ/.Affricates are usually described as complex consonants since they begin practically the same as the closure & hold phases of /t /,but instead of a rapid release with plosion & aspiration, the tongue moves to the position of the fricative /ʃ/.

- > **2- Intermittent Closure:**
- > **Roll or Trill:** one articulator taps rapidly against another typically the tongue-tip against the uvula in the different kinds of trilled / r /.
- > **3- Partial Closure:**
- > **Lateral:** a partial closure is made at some point in the mouth in such a way that the air –stream is allowed to escape around the sides of the closure as in / l /. This sound has three allophones: 1) dark /l/ which occurs after a vowel as in Almighty /ɔ : l ma I tI/ and before a consonant as in eels /i:lz/, 2) light (clear) /l/ which occurs before a vowel as in feel /fi:l/, 3) devoiced /l/ after /p, t, k/.
- > **4-Narrowing:**
- > **Fricatives:** in the production of these sounds, two vocal organs come so close together that the movement of air between them causes audible friction as in / f, v, s, z, ʃ, ʒ, j, θ /.
- > When fricatives are produced, the air escapes through a small passage and makes a hissing sound. Fricatives are continuant sounds as one can continue making them without interruption.

- ⊙ **6- Place of Articulation**: this refers to the point in the vocal tract at which the main closure is made, such as the lips, the teeth or hard palate. In accordance we have :
- ⊙ **1-Bilabial**: both lips are involved .as in / p, b, m /.
- ⊙ **2-Labio-dental**: the lower lip touches the upper teeth, as in / f, v/.
- ⊙ **3-Dental**: the tongue-tip touches the inside of the lower front teeth & the blade touches the inside of the upper teeth, as in/ð, θ/.
- ⊙ **4-Alveolar**: the blade touches the alveolar ridge , as in /t, d , n /.
- ⊙ **5- Palato- alveolar**: the blade articulates with the alveolar ridge with a simultaneous raising of the front of the tongue towards the hard palate, as in/ʃ, ʒ, tʃ, dʒ/.
- ⊙ **6-Palatal**:the blade touches the hard palate as in / s, z/.
- ⊙ **7-Velar**: the back of the tongue articulates with the soft palate, as in / k ,g, ŋ /.
- ⊙ **8-Glottal**: the vocal folds come together to cause a closure or friction, as in / h/.

○ Description of Consonants:

- / p / Bilabial, plosive, voiceless, fortis
- / b / Bilabial, plosive, voiced, lenis
- / t / Alveolar, plosive, voiceless, fortis
- / d / Alveolar, plosive, voiced, lenis
- / k / Velar, plosive, voiceless, fortis
- / g / Velar, plosive, voiced, lenis
- / θ / Dental, fricative, voiceless, fortis
- / ð / Dental, fricative, voiced, lenis
- / s / Alveolar, fricative, voiceless, fortis
- / z / Alveolar, fricative, voiced, lenis
- / f / Labio-dental, fricative, voiceless, fortis
- / v / Labio-dental, fricative, voiced, lenis
- / ʃ / palato-alveolar, fricative, voiceless, fortis
- / ʒ / palato-alveolar, fricative, voiced, lenis
- / h / Glottal, fricative, voiced, lenis

- /tʃ/ Palato- alveolar, affricate, voiceless, Fortis
- /dʒ/ Palato- alveolar, affricate, voiced, lenis
- /m/ Bilabial, nasal, voiced, lenis
- /n/ Alveolar, nasal, voiced, lenis
- /ŋ/ Velar, nasal, voiced, lenis
- /w/ Velar, semi-vowel, voiced, lenis
- /l/ Alveolar, lateral, voiced, lenis
- /r/ Alveolar(post-alveolar), lateral, voiced, lenis
- /j/ Palatal, semi-vowel, voiced, lenis

○ Notes:

○ **1-/ŋ/**

○ This sound is phonetically simple and phonologically complex ; because:

○ 1-It never occurs at the beginning of words.

○ 2- It occurs medially as follows:

○ A- When /ŋ/occurs at the end of a morpheme, it occurs without a following /g/ as in:

○ singer /s I ŋ ð / , hanger / h æ ŋ ð /

○ An exception to this rule is words ending in –er, -est:

○ longer /l ɒ ŋ g ð / , longest /l ɒ ŋ g ð s t /

○ B- When /ŋ/ occurs in the middle of the morpheme, it has a following /g/ as in :

○ finger / f I ŋ g ð / , anger / æ ŋ g ð /

○ 3- /ŋ/ occurs after five short vowels only:

○ /I/ sing, /e/ length , /æ/ hang, /ʌ/ dung, /ɒ/ long

2- /j/ and /w/

- These approximant sounds are phonetically like vowels but phonologically like consonants. From the phonetic point of view the articulation of /j/ is practically the same as that of a front close vowel such as /i:/ ; but is very short. In the same way /w/ is closely similar to /u:/. But despite this vowel-like character, we use them like consonants; and this can be shown by the consonantal distribution of /j/ and /w/. Both
- 1- /j/ and /w/ are preceded by the indefinite article “a” which occurs only before consonants:
 - a way a year
- 2- They are also preceded by the definite article / ðð/
 - /ðð w eɪ/ , /ðð j Ið/
- 3- /j/ and /w/ are devoiced and slightly fricative before / p, t, k/as in
 - pure / p j uð/ (no words begin with pw)
 - tune /t j u: n/ twin /t w In/
 - queue / k j u:/ quin /kwɪn/

3- /r/

- This consonant is important in that considerable differences in its articulation and its distribution are found in different accents of English. As far as foreign learners of RP are concerned, /r/ is a post-alveolar approximant in that the articulators approach each other but do not get sufficiently close to each other to produce a “complete” consonant such as a plosive, nasal or fricative.
- The important thing about the articulation of /r/ is that the tip of the tongue approaches the alveolar area in approximately the way it would for /t/ or /d/, but never actually makes contact with any part of the roof of the mouth.
- If /r/ occurs at the beginning of the syllable preceded by /p, t, k/, it is devoiced as: in press, tress and cress.
- A final characteristic of the articulation of /r/ is that it is usual for the lips to be slightly rounded.
- In RP, /r/ occurs only before vowels (and thus it is called non-rhotic accents) as in red /red/ , ride /r a I d/
- - /r/ is not pronounced before consonants as in : hard /h a: d/, cares /keɪ z/
- - /r/ is not pronounced in final position as in : car /k a:/ , ever /e və/
- Accents having /r/ pronounced in final position and before consonants are called “rhotic accents”.

◎ 4- Important Definitions:

- ◎ 1- The Phoneme: is the minimal unit in the sound system of a language.
- ◎ 2-The Allophone: is the variant of the phoneme.
- ◎ 3- Free Variation: is the substitutability of one sound for another in a given environment, with no consequent change in the word's meaning, as when different pronunciations are given to "either" /i: ð ð / and / a I ð ð /.
- ◎ 4- Complementary Distribution: is the mutual exclusiveness of a pair of sounds in a certain phonetic environment, e.g. the voiceless allophone of / l / occurs after / p / as in "plan", so voiced / l / is used initially when no /p/ precedes.
- ◎ 5- Glottal Stop: is the audible release of a complete closure at the vocal folds.

- ◎ **6- Secondary Articulation:** is a modification applied to the main articulation of a speech sound.
- ◎ **1- Glottalisation:** is a secondary articulation involving a simultaneous glottal constriction, especially a glottal stop, which is used in English to reinforce a voiceless plosive at the end of a word as in “what” /w ɒ t̚/.
- ◎ **2- Velarization:** is a secondary articulation involving a movement of the back part of the tongue towards the velum [ɫ], for example syllable-final /l/ as in “cool” is given a velar resonance as compared to syllable-initial /l/ as in “leap”.
- ◎ **3- Palatalization:** [j] is a secondary articulation involving a movement of the tongue towards the hard palate. For instance, /t/ is alveolar and can be palatalized if during its articulation, the front part of the tongue moves towards the hard palate, as in tune /tʲ j u: n/.
- ◎ **4- Labialization:** is a secondary articulation involving lip-rounding [ʷ] /tʷ ɔ: k/.
- ◎ **5- Nasalization:** is a secondary articulation involving the addition of nasality, [̃] “morning” /m ɔ:̃ n I ŋ/.

◎ **Phonemic Transcription:**

- ◎ 1- only the sounds which have linguistic functions, i.e. the phonemes are symbolized.
- ◎ 2-Phonemic symbols are written between oblique brackets //.
- ◎ 3- The units which account for difference of meaning will be identified, as in / p en /, / p in/, and / p^æ n/.
- ◎ 4- Only the phonemes are given symbols.

◎ **Phonetic Transcription:**

- ◎ 1- Sounds are symbolized on the basis of their articulatory/ auditory identity regardless of their function in the language.
- ◎ 2-Phonetic symbols are written between square brackets [].
- ◎ 3-The aim is not to identify the functional significance of sounds but to identify the sounds as such.
- ◎ 4-different degrees of allophonic detail are introduced with narrow transcription which is relatively detailed or broad transcription which is less detailed.

Problems in Phonemic Analysis:

◎ 1- The problem of Analysis:

- ◎ The phoneme is a fundamental unit in language but it is difficult to decide what are the phonemes of a language.
- ◎ The affricates /tʃ/ and /dʒ/ are phonetically composed of a plosive followed by a fricative. It is possible to treat each of the pair /tʃ/ and /dʒ/ as a single consonant phoneme, and it is also possible to say that they are composed of two phonemes each – either /t/ plus /ʃ/ or /d/ plus /ʒ/ all of which are already established as independent phonemes of English ; this will be called the two phoneme analysis of /tʃ/ and /dʒ/ .

◎ Realization as two phonemes:

- ◎ If it could be shown that the phonetic quality of /t/ and /ʃ/ (or /d/ and /ʒ/ in /tʃ/ and /dʒ/ was clearly different from relations of /t/ and /ʃ/ , /d/ and /ʒ/ found elsewhere in

- Similar contexts , as in (hutch) /h ʌ tʃ / and (hush) / h ʌ ʃ /. This would support the analysis of /tʃ / and /dʒ / as separate phonemes.
- **The one- Phonemic Analysis:**
- **1- The Allophonic Evidence:**
- There is some allophonic evidence that supports the two-phoneme analysis. We find this in the occurrence of glottalization of /p, t, k / and then /tʃ /.
- 1)- one-consonant phoneme occurring medially; no glottalization is found :
 - Upper / ʌ p ɔ /
 - Better / bet ɔ /
 - Backer /b æ k ɔ /
- 2)-Two-consonant phonemes occurring medially, glottalization is normal:
 - Optic /v p t I k/ , / v ʔ p t I k/
 - Boxer /b ɒ k s ɔ/, / b ɒ ʔ k s ɔ /

- 3- /tʃ/ occurring medially ,glottalization is normal after a stressed syllable.
- Butcher /b u tʃ ə / /b u ʔ tʃ ə /
- Matches /m æ tʃ I z/ /m æ ʔ tʃ I z/
- Watching / w ɒ tʃ I ŋ / / w ɒ ʔ tʃ I ŋ /
- This makes the medial occurrence of / tʃ / looks more similar to a medial two-consonant phoneme cluster.
- **2-Distribution As One Phoneme:**
- It could be argued that the proposed phonemes /tʃ/ and /dʒ/ have distribution similar to other consonants, while other combinations of plosive plus fricative do not (as in pf, dz , t θ). It can be easily shown that /tʃ/ and /dʒ/ are found initially, medially and finally and that no other combination has such a wide distribution. This argument, though supporting the one-phoneme analysis, does not actually prove that /tʃ/ and /dʒ/ must be classed with other single-consonant phonemes.

◉ 3-Consonant Cluster:

- ◉ If /tʃ / and /dʒ / were able to combine quite freely with other consonants to form consonant clusters, this would support the one-phoneme analysis. Initially, however /tʃ / and /dʒ / never occur in clusters with other consonants. In final position in the syllable, we find that /tʃ / can be followed by /t/ as in (watched) /w ɒ tʃ t / and /dʒ / by /d/ as in (wedged) /w e dʒ d/.

◉ 4-Intutions:

- ◉ Finally, it has been suggested that if native speakers of English who have not been taught Phonetics feel that /tʃ / and /dʒ / are each one sound, we should be guided by their intuitions and prefer the one-phoneme analysis.

◉ Problems Of Assignment:

- ◉ One problem of assignment is a case where /I/ and /i:/ are clearly distinct in most cases, but still there are other contexts where we find a sound which cannot be said to belong to one or other of these two phonemes as in the case of (ey, y) when it comes finally. The suggested solution is to use the symbol /i/ , which does not represent any single phoneme and this is called (neutralization).
- ◉ Beauty /bju:ti/ story /stori/

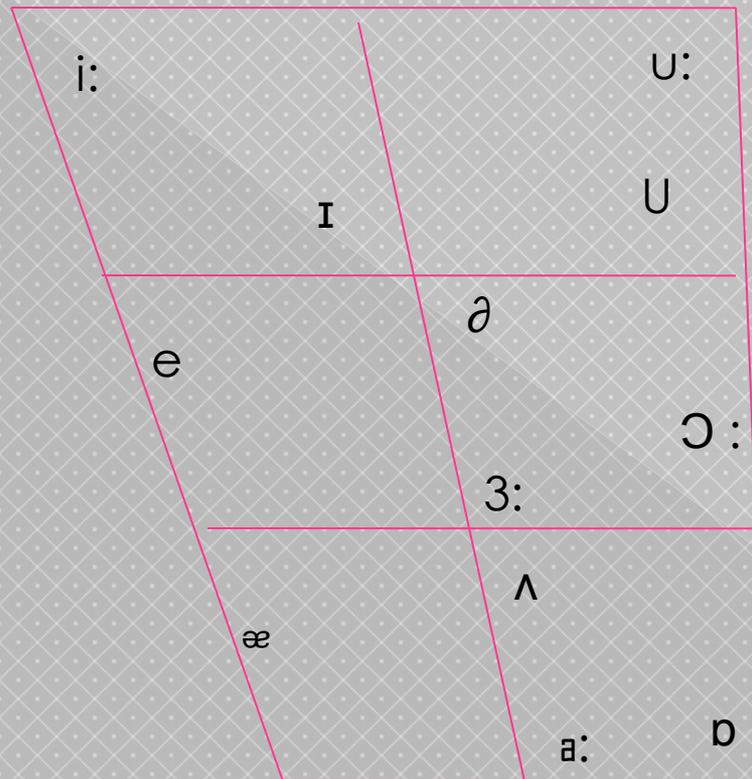
○ Vowels:

- Vowels are speech sounds found in the mid of the syllable . They are normally described with reference to four criteria:
- 1- The part of the tongue raised; front, center , back.
- 2-The kind of the opening made at the lips: rounding & spreading.
- 3-The position of the soft palate raised for oral vowels and lowered for vowels which have been nasalized.
- 4-The extent to which the tongue rises in the direction of the palate: high, mid and low.

- ◉ Cardinal Vowels:

- ◉ These are a set of standard reference points devised by Daniel Jones (1881-1967) to provide a precise means of identifying the vowel sounds in a language. The cardinal vowel system is based on a combination of articulatory and auditory judgments. Four theoretical levels of tongue-height are recognized:
 - ◉ 1-The highest position to which the tongue can be raised without producing audible friction.
 - ◉ 2-The lowest position the tongue is capable of achieving.
 - ◉ 3 & 4 are two intermediate levels which divide up the intervening space into areas that are articulatory and auditorily equidistant.
- ◉ Cardinal vowels have the following characteristics:
 - ◉ 1-They are universal and language-independent.
 - ◉ 2-They are monophthongs (each vowel has a single perceived auditory quality).

- 3-They are peripheral.
- 4- They are articulatory as well as auditorily equi-distant and of constant values.



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- Cardinal vowels differ from ordinary vowels in that they are a set of vowels, arranged in a close-open, front-back diagram, which are vowels of any particular language.
- They show the range of vowels that the human vocal apparatus can make and a useful way of describing, classifying and comparing vowels.
- They are extremes of vowel quality.
- They are general and universal, i.e. they are familiar to the speakers of most European languages.

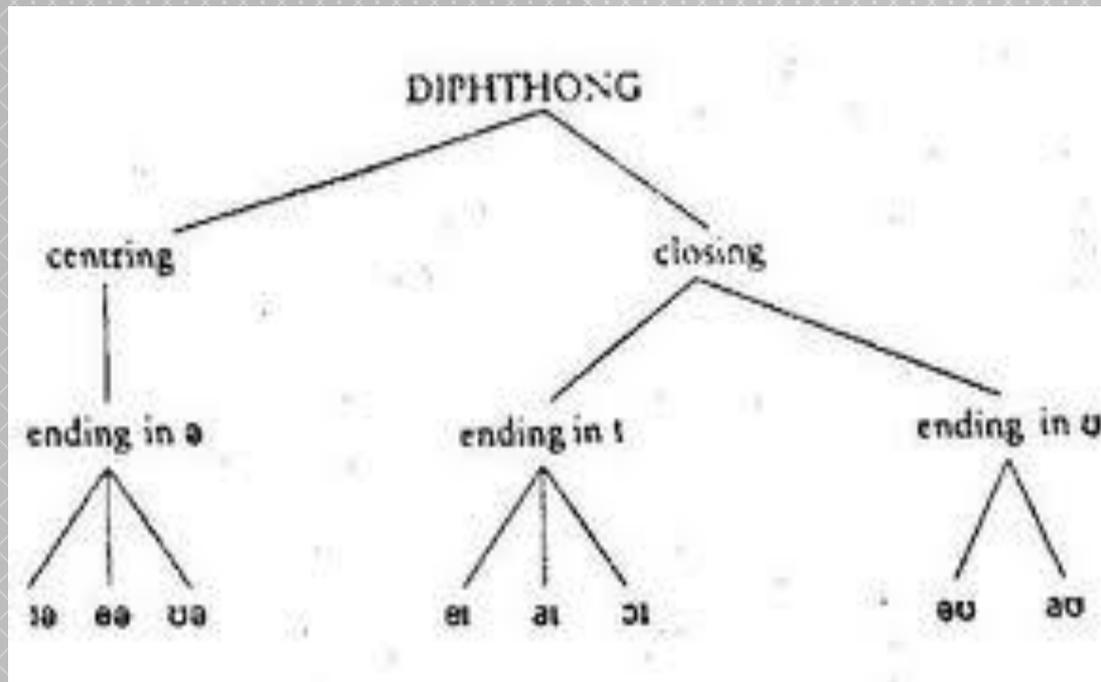
- /ɪ / front, close, short ,spread
- / i: / front, close, long, spread
- / e / front, mid-close & mid-open, short ,spread
- /æ/ front , open, short , semi-rounded
- /a: / central, open, long, semi-rounded

- /ɒ/ back, open, short , rounded
- /ɔ : / back, mid-close & mid-open, long, rounded
- / u / back, close, short , rounded
- / u: / back, close, long, rounded

- /ʌ / central, mid-open, short , rounded
- /ə / central, mid-close, short , spread
- / ɜ: / central, mid-close, long , spread

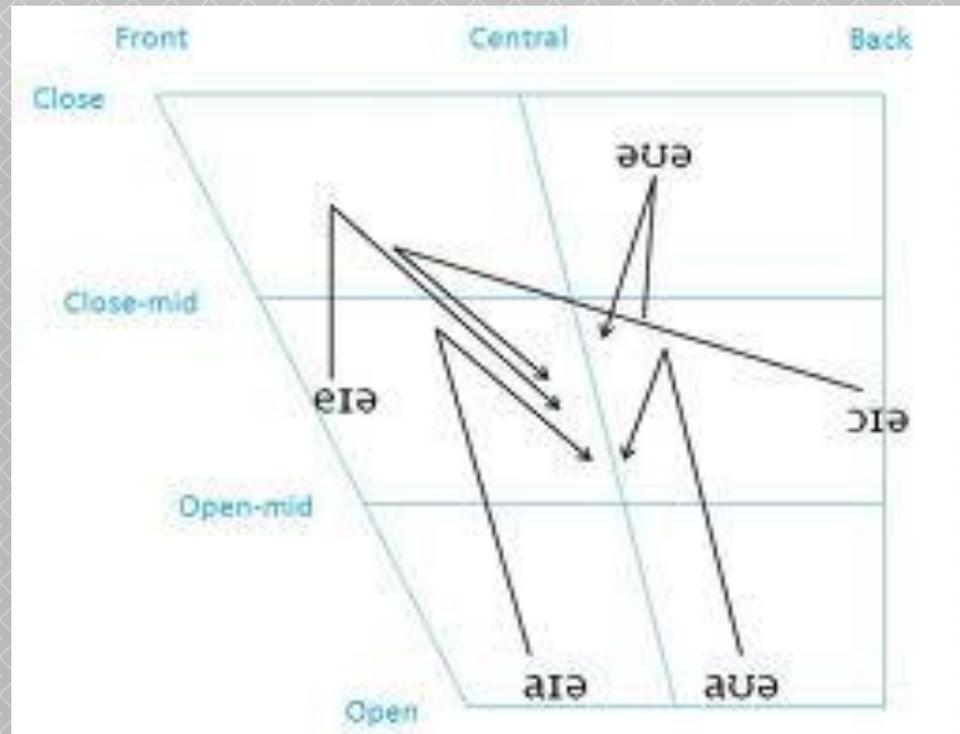
Diphthongs:

- Diphthongs are sounds made out of a movement or glide from one vowel to another . A vowel which remains constant and does not glide is called a pure vowel. Vowels can glide to: 1) ə, 2) I and 3) u.



Triphthongs:

- A triphthong is a glide from one vowel to another and then to a third, all produced rapidly and without interruption.
- /eɪ/ + /ð / = eɪð (layer)
- / aɪ / + /ð / = aɪð (liar)
- /ɔɪ / + /ð / = ɔɪð (loyal)
- /əʊ / + /ð / = əʊð (lower)
- /aʊ / + /ð / = aʊð (power)

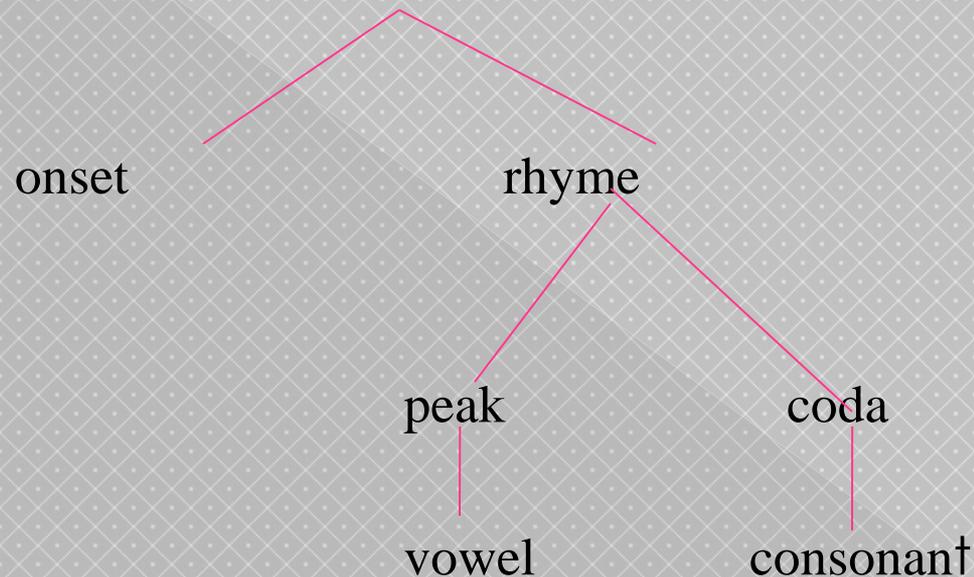


Suprasegmental Phonology:

- It is a type of Phonology whose domain extends over more than one successive minimal element. Thus, stress is a Suprasegmental feature whose domain is a syllable. This type of Phonology is also known as Prosodic Phonology.
- Syllable:
- The syllable is a unit of pronunciation typically larger than a single sound and smaller than a word. The vowel usually forms the nucleus of the syllable. Phonetically, syllables are described as consisting of a centre which has little or no obstruction to air-flow and which sounds comparatively loud; before and after this centre, there will be greater obstruction to air flow.

- Phonologically, syllables involve looking at the possible combinations of English phonemes . It is simplest to start by looking at what can occur at the beginning of the first word when we begin to speak after a pause. In the same way, we can look at how a word ends when it is the last word spoken before a pause.

- Syllable



○ Notes:

- 1-Onset: it is the constituent that starts the syllable.
- 2-Rhyme: it is an immediate constituent of the syllable.
- 3-Peak (**nucleus**): it is the most sonorous element of the syllable typically a vowel.
- 4-Coda: it is the consonant that follows the nucleus.
- 5- A minimum syllable would be a single vowel in isolation, e.g. are / a: /, or / ɔ:/, err / ɜ: / are preceded and followed by silence.
- 6- Some syllables have an onset, that is they have more than just silence preceding the centre of the syllable, key / k i: /, more / m ɔ:/.
- 7-Syllables may have only a coda, am/ ^æ m/ ought /ɔ: t/.
- 8- Some syllables have an onset and a coda, run/r ʌ n/, fill/fɪl/.
- 9-The first syllable of the word may either begins with a vowel(zero onset) or a consonant except / ɲ/&/ ʒ/(which are rare).

○ Consonant Cluster

○ When a syllable begins with two or more consonants together, we call them a consonant cluster, as in :street, cream, spray.

○ Initial two-consonant clusters are of two sorts in English:

○ 1)One sort is composed of **s (the pre-initial)** followed by a set of a small set of consonants /t, w , m/**(initial consonants)**: sting /stI ŋ/,sway / s w eI/,and smoke/s m ðu k/.

○ 2)The other sort begins with **a set of about fifteen consonants (the initial)**, followed by **one of the set / l, r, w, j/(the post-initial)** as in : play/p l eI/, try /tr aI/, quick /q w I k/, few /f ju:/.

○ Initial three-consonant clusters is similar to initial two-consonant clusters. The **s** is **the pre-initial consonant** and the **/p, t, k/** that follow are **initials**.

○		l	r	w	j	-----Post initial
○	S + p	splay	spray	-----	spew	
○	t	-----	string	-----	stew	
○	k	sclerosis	screen	squeak	skewer	

- Looking at **final consonant clusters**, we find the possibility of up to four consonants at the end of a word. If there is no final consonant we say that there is a “zero coda”. When there is one consonant only, this is called the final consonant which may be any consonant except /h, r, w, j/.

- Final two-consonant cluster** may be either:

- 1) A final consonant preceded by a pre-final consonant which forms a small set: /m, n, ŋ, l, s/, as in bump /b ʌ m p/, bent /b e n t/, bank / b æ ŋ k/, belt / b e l t/, ask / a: s k/.

- 2) A final consonant followed by a post-final consonant of the set :/s, z, t, d, θ/ as in : bets /be t s/, /beds /b e d z/, backed / b æ k t/, bagged /b æ g d/, and eighth / eI t θ/.

- Final three-consonant cluster** may be:

- 1) pre-final plus final plus post-final:

	pre-final	final	post-final	
He	l	p	t	(helped)
Bo	n	d	z	(bonds)

- 2) The second type shows that more than one post-final consonant can occur in a final cluster; final plus post final 1 plus post-final 2. Post-final 2 is again one of the set /s, z, t, d, θ/.

	pre-final	final	post-final(1)	post final (2)	
Fi	-----	f	θ	s	(fifths)
Ne	-----	k	s	t	(next)
Pro	m	p	t	s	(prompts)
Si	-----	k	s	θ	(sixths)
Te	-----	k	s	t	+s (texts)

- **Strong and weak syllables:**

- One of the most noticeable features of English is that it incorporates many weak syllables. Saying that a given syllable is weak means that it has its own phonetic characteristics. Weak syllables can have four types of peak:

- 1- The schwa / ə /.

- 2- A close front unrounded vowel in the general area of /i:/ & /I/.

- 3- A close back rounded vowel in the general area of /u:/ & /U/.

- 4- A syllabic consonant, i.e. a syllable which contains no vowel at all but consists entirely of the consonant, e.g. bottle / b ɒ t l̩ /.

- **1-The Schwa / ə /:**

- The schwa / ə / is the most frequently occurring vowel in English and it is always associated with weak syllables. In quality, it is mid, central and lax.

- 1- Spelt with (a) ; strong pronunciation would have / æ/,as in:
 - attend / ə t e n d/ character/ k æ r ə k t ə /.
- 2- Spelt with (ar) ; strong pronunciation would have / a:/,as in:
 - particular /p ə t I k j ə l ə / molar /m ə u l ə /.
- 3- Spelt with (o); strong pronunciation would have / ɒ/, as in:
 - tomorrow /t ə m ɒ r ə u/ potato /p ə t eɪ t ə u/.
- 4- Spelt with (or), strong pronunciation would have /ɔ:/, as in:
 - forget /f ə get/ opportunity / ɒ p ə t j u:n ə t i / .
- 5- Spelt with (e), strong pronunciation would have / e/, as in:
 - violet /v aɪ ə l ə t/ postmen / p ə u s t m ə n/.
- 6- Spelt with (er), strong pronunciation would have / ɜ: /, as in:
 - perhaps /p ə h æ p s/ stronger / s t r ɒ ŋ g ə /.
- 7- Spelt with (u), strong pronunciation would have / ʌ /, as in:
 - Autumn /ɔ: t ə m/ support /s ə p ɔ: t/.
- 8- Adjectival endings with –ate ;strong pronunciation is /eɪ/ as
 - in: intimate /ɪ n tɪ mə t/ accurate/ æ k j ə r ə t/.

- ◉ 9- Spelt with(ough): thorough /θ ʌ r ə / , borough /b ʌ r ə /.
- ◉ 10- Spelt with (ous): gracious /g r eɪ ʃ ə s / , callous /k ə l ə s /.
- ◉ **2-Close-front and close-back vowels:**
- ◉ Two other vowels are commonly found in weak syllables. One close-front in the general area of /i:/ and /ɪ/, and the other close-back rounded in the general area of /u:/ and /ʊ/. We find /i/ occurring in:
 - ◉ 1- Word-final position in words spelt with final (y) or(ey),e.g. happy ,valley and in morpheme-final position when such words have suffixes beginning with vowels, e.g. happier /h æ p i ə /, easiest / i: z i ə s t /, hurrying /h ʌ r i ɪ ŋ /.
 - ◉ 2-In prefixes such as those spelt (re), (pre) and (de) if it precedes a vowel and is unstressed, e.g. react /r i ə kt/, preoccupied / p r i ɒ k j u p a ɪ d /, deactivate / d i ə kt ɪ v eɪ t /.
 - ◉ 3- In the suffixes spelt –iate, -ious when They have two syllables ,e.g. appreciate / ə p r i: ʃ i eɪ t /.
 - ◉ 4-If the following words are unstressed (he, she, we, me, be, the) when it precedes a vowel.

- **3-Syllabic Consonants:**

- A consonant which constitutes a syllable by itself is said to be a “syllabic consonant “. English syllabic consonants are: /l, m, n, ŋ / and /r/.

- **1- /l/**

- Syllabic /l/ is perhaps the most noticeable example of the English syllabic consonants, though it would be wrong to expect it in all accents . It occurs after another consonant and it’s production depends to some extent on the nature of that consonant. It occurs with:

- 1- Alveolar consonant preceding as in cattle /k æ t l/ and

- muddle /m ʌ d l/.

- 2-Non-alveolar consonant preceding as in trouble /t r ʌ b l/.

- **2- /m , ŋ/**

- Both can occur as syllabic, but only as a result of processes such as assimilation and elision. We find them sometimes in words like happen /h æ p n/ an uppermost / ʌ p m ə u s t/, though / ʌ ə p m ə u s t/ would be more usual. Another examples is: broken key /b r ə u k ŋ k i:/.

-

○ 3-/r/

- Syllabic /r/ is less common in British English. It occurs:
- 1- Where non-syllabic /r/ is also acceptable, as in history /h I s t r i/ and 2- Where /ɹr/ is also acceptable as in : flattery /f l æ t ɹ i/.

○ 4- /n/

- It is the most frequently found and the most important syllabic nasal. Weak syllables which are composed of a plosive or a fricative consonant plus /ɾn/ are common except in initial position in words. So we can find words like tonight /t ɾ n a I t/ with /ɾ/ before /n/, but medially and finally, we find much more commonly a syllabic /n/, as in / θ r e t n / and / θ r e t n I ŋ/ which correspond to threaten and threatening respectively.
- Syllabic /n/ is also common after alveolar plosives and fricatives; in the case of /t/ and /d/ followed by /n/, the plosive is nasally realized by lowering the soft palate : eaten /i:t n /.

- ◎ Syllabic /n/ occurs in two other cases: 1) after bilabial consonants, as in happen /h æ p n /, and ribbon / r I b n /, 2) after /f, v/ as in : often/ ɒ f n / and heaven /h e v n /.

- ◎ Note:
- ◎ We may have a combination of syllabic consonants, national /n æ ŋ n l /, literal / l I t r l /, visionary / v I ʒ n r i /.

- Stress:



- **Stress** is used to refer to the degree of force used in producing a syllable. We can study stress from the point of view of production and of perception ; the two are obviously closely related, but are not identical. The production of stress is generally believed to depend on the speaker using more muscular energy than is for unstressed syllables, i.e. **stress** is the muscular energy used by the speaker when producing a stressed syllable.

- From the perceptual point of view, all stressed syllables have one characteristic in common, that is “prominence”, i.e. stressed syllables are recognized as stressed because they are more prominent than unstressed syllables. **Stress** in this case is the prominent items as perceived by the listener.

- Stressed syllables have the following characteristics:
- 1- Stressed syllables are louder than unstressed syllables.
- 2- Stressed syllables are longer than unstressed syllables.
- 3- Stressed syllables are high-pitched.
- 4- A stressed syllable gains prominence as it carries a vowel that is different in quality than neighbouring vowels.
- Prominence then is produced by four main factors:
- 1)loudness, 2)length, 3)pitch, and 4)quality.
- **Levels of stress:**
- There are certain factors determining stress placement:
- 1-Whether the word is simple or complex as a result of containing one or more affixes or of being a compound word.
- 2-The grammatical category to which the word belongs.
- 3-The number of syllables in a word.
- 4-The phonological structure of those syllables.

○ **Two-syllable words:**

○ **1-Verbs:**

- 1- If the second syllable of the verb contains a long vowel or diphthong, or if it ends with more than one consonant, that second syllable is stressed:

○ apply / ə ' p l a I / attract / ə ' t r æ k t /

- 2-If the second syllable contains a short vowel and one final consonant, the first syllable is stressed:

○ enter / e n t ə / open / ə u p ə n /

- 3-A final syllable is also unstressed if it contains / ə u / :

○ follow / ' f ə l ə u / borrow / ' b ə r ə u /

○ **2- Adjectives:**

- Two-syllable simple adjectives are stressed according to the same rule of verbs(adverbs also apply to the same rule):

○ lovely / ' l ə v l i / divine / d I ' v a I n /

○ **3-Nouns:**

- If the second syllable of a noun contains a short vowel, the first syllable takes the stress. Otherwise ,stress will be on the second syllable:

○ money / ' m ə n i / estate / I ' s t e I t /.

○ **Three-syllable words:**

○ **1-Verbs:**

- 1- If the last syllable contains a short vowel and ends with no more than one consonant, that syllable will be unstressed and stress will be placed on the preceding penultimate syllable:

○ encounter / ɪ ŋ ' k a u n t ə / determine / d I t ɜ : m I n /

- 2-If the final syllable contains a long vowel or ends with more than one consonant, that final syllable will be stressed:

○ entertain / e n t ə ' t e I n / resurrect / r e z ə ' r e k t /

○ **3-Nouns:**

- 1-If the final syllable contains a short vowel or / ə u/, it is unstressed. If the syllable preceding contains a long vowel or diphthong or ends with more than one consonant, that middle syllable will be stressed:

○ Disaster / d I ' z a : s t ə / synopsis / s I ' n ɒ s I s /

- 2-If the final syllable contains a short vowel and the middle syllable contains a short vowel and ends with no more than one consonant, both final and middle syllables are unstressed and the first syllable is stressed:

○ quantity / ' k w ɒ n t I t i / custody / ' k ʌ s t ə d i /

○

- 3-three-syllable simple nouns are different. If the final syllable is of this type, stress will usually be placed on the first syllable. The last syllable is usually quite prominent so that in some cases it could be said to have secondary stress:

○ intellect / ' I n t ə l ə k t / stalactite / ' s t æ l ə k aɪ t /

- **2-Adjectives:**

- Adjectives seem to need to the same rule:

○ Opportune / ' ɒ p ə t j u: n / insolent / ' I n s l ə n t /

- **Complex word stress:**

- Complex word stress is of two types: 1) words made from a basic stem with the addition of an affix ,and 2)compound words which are made of two (or occasionally more) independent English words ,e.g. Ice-cream and armchair.

- **1-Affix words:**

- Affixes can either be:

- 1- Prefixes which come before the stem (un + pleasant)

- 2-Suffixes which come after the stem (good+ ness).

○ **1- Suffixes carrying primary stress:**

○ Here, stress is on the first syllable of the suffix. If the stem consists of more than one syllable, there will be a secondary stress on one of the syllables:

- - ain entertain / , e n t ə ' t eɪ n /
- - ee refugee / , r e f j u ' dʒ i: /
- - eer mountaineer / , m a u n tɪ ' nɪ ə /
- -ese Portuguese / , p ɔ: tʃ ə ' g i: z /
- -esque picturesque / , pɪ k tʃ ə ' r e s k /
- -ique unique / , j u: ' n i: k /

○ **2-Suffixes that influence stress in the stem:**

- - eous advantageous / ə d v ə n ' t eɪ dʒ ə s /
- - graphy photography / f ə ' t ɒ g r ə f i /
- - ial proverbial / p r ə ' v ɜ: b ɪ ə l /
- - ic climatic / k l aɪ ' m ə tɪ k /
- - ion perfection / p ə ' f e k j ʊ n /

- - ious injurious /ɪn 'dʒuədriðs/
- - ty tranquility /træŋ 'kwɪlɪti/
- - ive reflexive /rɪ 'fleksɪv/

○ **3- Suffixes that do not affect stress placement:**

- - able comfortable /'kʌmfətbəl/
- - age encourage /ɪn 'kʌrɪdʒ/
- - al refusal /rɪ 'fju:zəl/
- -en widen /'waɪdən/
- -ful wonderful /'wʌndəfəl/
- -ing amazing /ə 'meɪzɪŋ/
- - ish devilish /'devɪʃ/
- - like birdlike /'bɜ:dlʌɪk/
- - less powerless /'paʊələs/
- -ly hurriedly /'hʌrɪdli/
- - ment punishment /'pʌnɪʃmənt/
- -ness yellowness /'jeləʊnes/
- -ous poisonous /'pɔɪzənəʃ/
- -fy glorify /'glɔ:rɪfaɪ/
- - wise otherwise /'ʌðəwaɪz/
- - Y funny /'fʌni/

○ **Note:**

- If the final syllable of the stem contains a long vowel or diphthong, or if it ends with more than one consonant, that syllable receives the stress:

○ importance /ɪ m ' p ɔ: t ə s/

- Otherwise, the syllable before the last one receives the stress:

○ consonant / ' k ɒ n s ə n t/

○ **2- Compound words:**

- Compound words consist of a stem plus an affix so that it can be analyzed into two words, both of which can exist independently as English words:

- 1- Two nouns (the stress is on the first)

○ suitcase / ' s j u: t k eɪ s/ sunrise / ' s ʌ n r aɪ z/

- 2- Compounds with adjectival first element and the –ed morpheme at the end have stress on the second word:

○ bad- ' tempered half- ' timbered

- 3-Compounds in which the first element is a number tend to have final stress:
three- ' wheeler second- ' class

- 4-Compounds functioning as adverbs are finally stressed: head- ' first north- ' east

- 5-Compounds which function as verbs and have an adverbial first element take final stress: down- ' grade ill- ' treat.

○ **Variable stress:**

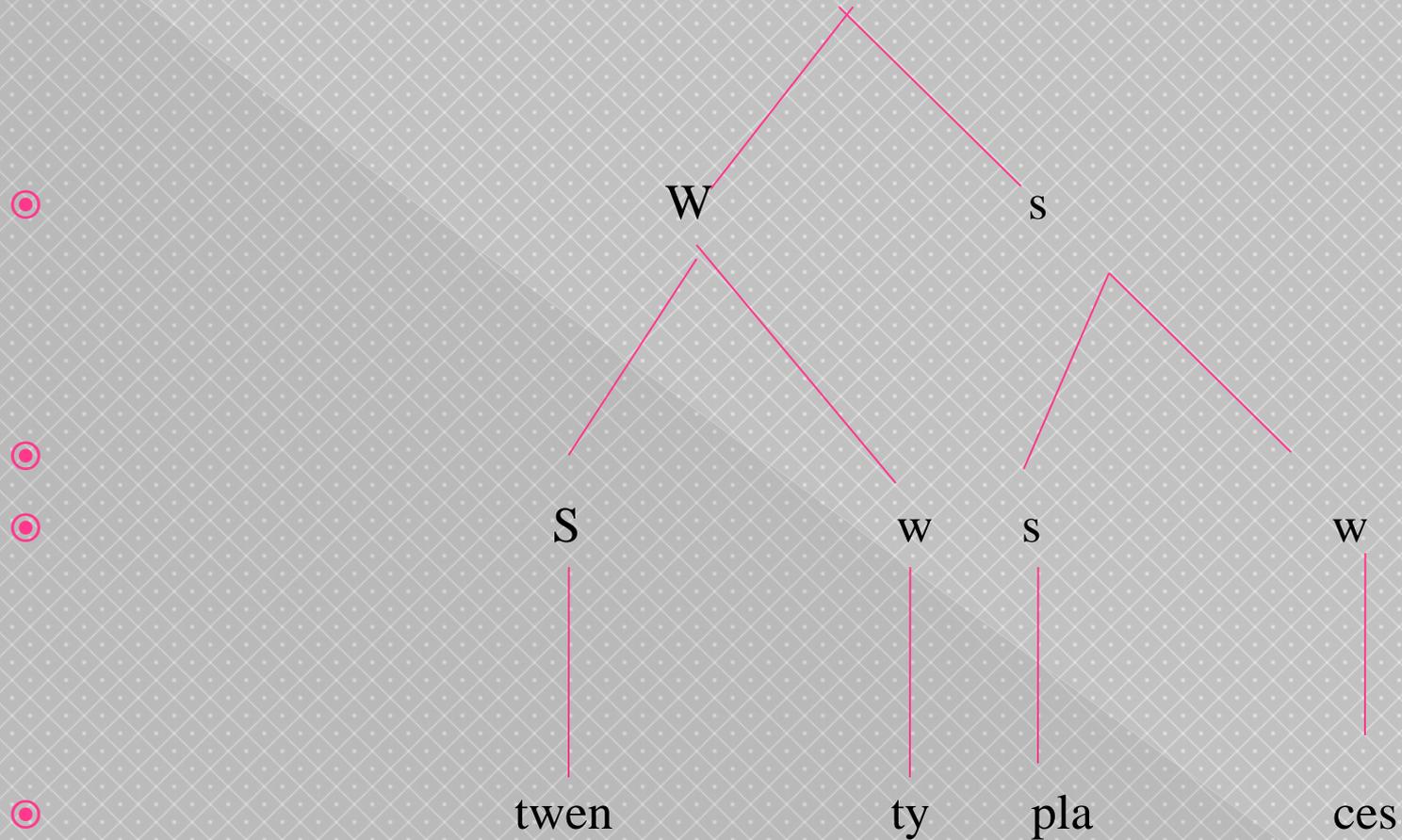
- This refers to the items in which the first part of the compound and the noun that follows take stress:
- a ' bad-tempered ' teacher
- a ' half-timbered ' house
- a ' heavy -handed ' sentence

○ **Word-class pair:**

- When a pair of a prefix-plus-stem words exists, both members of which are spelt identically, one of which is a verb and the other is either a noun or an adjective, the stress will be placed on the second syllable of the verb and on the first syllable of the noun or adjective:
- abstract / ' æ b s t r æ k t/ (adj.) / æ b ' s t r æ k t/ (v.)
- export / ' e k s p ɔ: t/ (n.) / ɪ k ' s p ɔ: t/ (v.)
- desert / ' d ə s ə t/ (n.) / d ɪ ' s ɜ: t/ (v.)

- ◉ Aspects of connected speech:
- ◉ 1-Rhythm:
- ◉ Rhythm refers mainly to the perceived regularity of prominent units in speech. It is primarily associated with the speaker's muscular movements when unaffected by such factors as hesitation or excitement.
- ◉ Stress-timed rhythm is a theory found in English; implying that stressed syllables will tend to occur at relatively regular intervals whether they are separated by unstressed syllables or not, i.e. all the feet are supposed to be roughly of the same duration.
- ◉ Some theories of rhythm point to the fact that some feet are stronger than others, producing strong-weak patterns in larger pieces of speech above the level of the foot. As such, the rhythm of a phrase like “twenty places” would be as follows:

○ The sequence of strong & weak feet:



○ By analyzing speech in this way, we are able to show the relationships between strong and weak elements and the different levels of stress that we have.

- **2-Assimilation:**

- This term refers to the influence exercised by one sound segment upon the articulation of another, so that the sounds become more alike or identical. Assimilation has the following types:

- **1- Regressive Assimilation(also anticipatory):**

- Here, the sound changes because of the influence of the following sound, e.g. “ten bikes” / t e b b a I k s/ & “that person” / ð æ p p 3: s n/. This is particularly common in English in alveolar consonants in word-final position.

- **2- Progressive Assimilation:**

- The sound changes because of the influence of the preceding sound, e.g. “lunch score” / l ʌ n ʃ k v/, “newspaper” / n j u: s p e i p ə /.

- **3- Coalescent (or reciprocal)Assimilation:**

- There is mutual influence or fusion of the sound upon each other, e.g. “ don’t you” / d ə u n tʃ u/, where the /t/ and /d/ have been fused to produce the affricate / tʃ /.

3- Linking:

- Linking refers to a sound which is introduced between linguistic units, usually for ease of pronunciation. In English, the linking /r/ is the most familiar example of this process, as when the /r/ in “car” is pronounced before a vowel “car oil” / k æ r ɔɪ l / , or when an /r/ is introduced without there being justification in the writing, e.g. “shah of” / ʃ a: r əv /. Also /r/ is not pronounced in “four” / f ɔ: / because it occurs in word final position but in “four eggs” / f ɔ: r e g z /, it is pronounced because it is followed by a word beginning with a vowel.
- Linking or intrusive /r/ is a special case of ” juncture”(which stands for the relationship between one sound and the sounds that immediately precede and follow it) which been of some importance in phonological theory.
- A phrase like “my turn” can be transcribed as / m aɪ t ɜ: n / or / m aɪ t ɜ: n / Here, /m/ and /I/ and /t/ and / ɜ:/ are in close juncture and /m/ and /n/ are in external open juncture since one is preceded and the other is followed by silence. The problem of internal open juncture occurs when one hears (my turn) as (might earn). The difference is that the /t/ is aspirated in (turn) not in (might) and the /aɪ/ is shorter in (might) than in (my).

○ 4- Elision:

- This term refers to the omission of sounds in connected speech. Both consonants and vowels may be affected and sometimes whole syllables may be elided. It is typical of rapid casual speech.
- 1- Loss of weak vowel after /p, t, k/, as in better /b e t ə/.
- 2- Weak vowel + /n, l, r/ becomes a syllabic consonant.
 - tonight /t ə n aɪ t/
 - police /p l i: s/
 - correct /k r e k t/
- 3- Avoidance of complex consonant clusters.
- 4- Loss of final /v/ in “of” before consonants:
 - lots of them /l ɒ t s ə ð ə m/.
- 5- Some contractions of grammatical words. The best known are:
 - 1- Had, would spelt (‘d) and pronounced /d/ after vowels and /əd/ before consonants.
 - 2- Is, has spelt (‘s) and pronounced /s/ after fortis consonants and /z/ after lenis consonants except /s, z, ʃ, ʒ, tʃ, dʒ/ where it is pronounced /ɪz/.

- 3- Will spelt ('ll) and pronounced /l/ after vowels and / ɫ / after consonants.
- 4-Have spelt ('ve) and pronounced /v/ after vowels and / ð v / after consonants.
- 5- Not spelt (n't) and pronounced / n t / after vowels and / ŋ t / after consonants.
- 6- Are spelt ('re" and pronounced / ð / after vowels , usually with some change in the preceding vowel, e.g. you / j u : / ,but you a re / ju ð /.
- 7- We are ,we 're / w ɪ ð / ; they / ð eɪ / ; they are , they 're / ð e ð / . Linking /r/ is used when a vowel follows.

◉ **Intonation:**

- ◉ This term is used in the study of Suprasegmental Phonology referring to the distinctive use of patterns of pitch or melody. Pitch refers to the level of tone on a scale ranging from low to high.
- ◉ For pitch differences to be linguistically significant, it is a necessary condition that a pitch difference must be perceptible ; it is possible to detect differences in the frequency of the vibration of a speaker's voice by means of laboratory instruments. Pitch differences must also be under the speaker's condition.
- ◉ It is important to mention that pitch variations is called "tone", but pitch variations in the syllable is known as " intonation". There are three levels of simple tones: 1)level, 2)rising, and 3) falling, and two other complex tones, rise-fall and fall-rise.

- **The Tone-unit:**

- This is a unit generally greater in size than the syllable. It may consist of only one syllable. It is structured as follows:

- **1- The Pre-head:**

- It is composed of all the unstressed syllables in a tone-unit preceding the first stressed syllable. Thus the pre-head is found in two environments:

- 1-When there is no head, e.g. in an hour

- 2-1-When there is a head, e.g. in a little less than an hour

- **2-The Head:**

It is that part of tone-unit that extends from the first stressed syllable up to the tonic syllable. If there is no stressed syllable before the tonic syllable, there cannot be a head.

- 3- The Tonic-syllable.**

- 4- The Tail:**

Any syllable between the tonic-syllable and the end of the tone-unit is called the tail.

◎ The Structure of the Tone-unit:

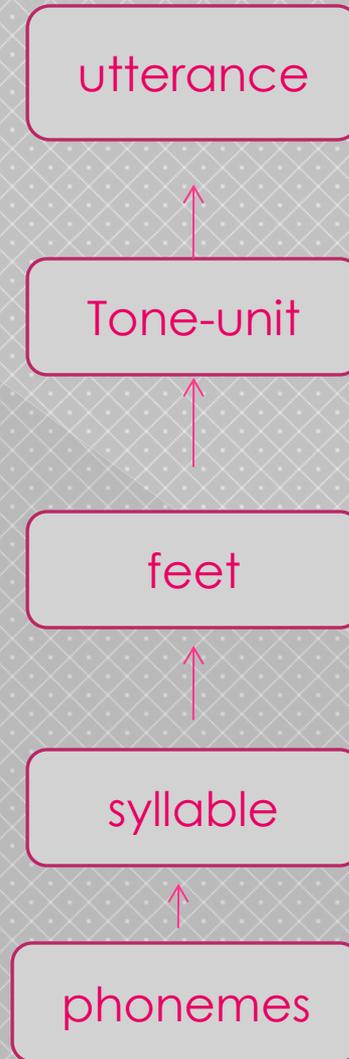


- ◎ **The Tonic-Syllable:**

- ◎ It is a syllable which carries a tone. It has a high degree of prominence and a type of stress called tonic stress. The tone-unit has a place in a range of phonological units that are in a hierarchical relationship :speech consists of a number of utterances , each utterance consists of one or more tone-units, each tone-unit consists of one or more feet, each foot consists of one or more syllables, each syllable consists of one or more phonemes.



◎ The Structure Of The Tonic-Syllable



- ◎ **Functions of Intonation:**

- ◎ **1- The Attitudinal Function:**

- ◎ Here, intonation enables us to express emotions and attitudes as we speak, and this adds a special kind of meaning to spoken language in accordance to the situation.

- ◎ **2- The Accentual Function:**

- ◎ Intonation helps to produce the effect of prominence on syllables that need to be perceived as stressed, and in particular the placing of tonic stress on particular syllables marks out the word to which it belongs as the most important in the tone-unit.

- ◎ **3- The Grammatical Function:**

- ◎ The listener is better able to recognize the grammar and the syntactic structure of what is being said by using the information contained in intonation, for instance, such things as the placement of boundaries between phrases, clauses or sentences, the difference between questions and statements and the use of grammatical subordination may be indicated.

○ 4- The Discourse Function:

- Intonation can signal to the listener what is to be taken as “new” and what is already “given”, can suggest when the speaker is indicating some sort of contrast or link with material in another tone-unit , and in conversation can convey what kind of response is expected.

○ Meanings of Tones:

○ 1-Fall:

- -Finality: That is the end.
- -Definiteness: Stop talking.

○ 2-Rise:

- -General questions: Can you help me?
- -Listing: Red, brown and yellow.
- -More to follow: I phoned them right a way and they agreed to come.
- -Encouraging: It won't hurt.

◎ **3-Fall-rise:**

- ◎ -Uncertainty: You \checkmark may be right.
- ◎ -Doubt: Is it \checkmark possible.
- ◎ -Requesting: Can I \checkmark buy it.

◎ **4- Rise-fall:**

- ◎ -Surprise: -You were \wedge first.
- ◎ -Being impressed: \wedge All of them.

◎ **5- Level yes-no:**

- ◎ To convey a feeling of saying Something routine, uninteresting or boring:
- ◎ - - Good Morning.

