1. **Revision**

**1.1. Phonetics and Phonology**

***Phonetics***

Phonetics is the branch of linguistics that is concerned with the sounds of speech in terms of production, perception, description and representation by written symbols. This representation is usually referred to as the **phonetic****transcription**in which systems of phonetic writing are provided and aim at the accurate representation of any sequence of speech sounds*.* In this context, a uniform system has been put forward to cater for almost all possible sequences of human speech sounds. This system is known as the **International Phonetic Alphabet (IPA)** where human speech sounds are represented by specific symbols.

***Branches of Phonetics***

Phonetics has three main branches.

1. **Articulatory phonetics:** It is the study of the production of speech sounds. It is concerned with how humans use their vocal apparatus to speak. In other words, it covers the way the speech organs such as the lips and the tongue produce the sounds.
2. **Acoustic phonetics:** It is the study ofthe physical properties and the transmission of speech sounds. It studies the sound waves that transmit the sounds through the air from the speaker to the hearer.
3. **Auditory phonetics:** Itis the study of the perception of the speech sounds. It looks at the way in which the hearer’s brain decodes the sound waves back into the sounds originally intended by the speaker.

***Phonology***

Phonology is a subfield of linguistics which studies the sound system of a specific language (or languages). It is concerned with the study of speech sounds with reference to their distribution and pattering and to tacit rules governing pronunciation. In other words, phonology attempts to account for how speech sounds are combined, organized and convey meaning in particular languages.

So, whereas phonetics deals with the nature of sounds per se, phonology describes the way sounds function within a given language.

***Useful terminologies***

* **Phoneme:** A phoneme is the smallest contrastive unit of the sound system of a language. in other words, a phoneme is the smallest segment of the sound that, if changed, would produce a different word with a different meaning. Thus, while words convey meaning, phonemes are units from which words are formed. /m / and /p / are different phonemes in English because /met / and /pet/ are different words.
* **Phoneme Vs phone**

|  |  |
| --- | --- |
| **A phone is …** | **A phoneme is …** |
| One of many possible sounds in the languages of the world. | A contrastive unit in the sound system of a particular language. |
| The smallest identifiable unit found in a stream of speech. | A minimal unit that serves to distinguish between meanings of words. |
| Pronounced in a defined way. | Pronounced in one or more ways, depending on the number of allophones. |
| Represented between brackets by convention.   |  |  | | --- | --- | | **Example:** | [p ], [j], [ɫ] | | Represented between slashes by convention.   |  |  | | --- | --- | | **Example:** | /p /, /j/, /l / | |

* **Allophone:** A phoneme is manifested as one or more phones in different environments. These phones are called allophones. Thus, an allophone is any realization of a phoneme or a sound which counts as an alternative way of saying a phoneme in a particular language.
* **Minimal pair:** Two words which have the same number and order of sound segments except for one segment that occurs in the same place and makes a difference in meaning. ( pair Vs care , red Vs led).
* **Minimal set:** A number of words which have the same number and order of segments except for one segment that occurs in the same place in the string and makes a difference in meaning.

( beat Vs feet Vs seat Vs meat).

* **Transcription:** Transcription is the use of phonetic symbols to write down the way an utterance is pronounced. One obvious goal of phonetics is to be able to transcribe accurately any utterance in any language. It is common to distinguish between two kinds of transcription, based on how many details the transcribers decide to ignore:

**1- The broad transcription** (or phonemic transcription) represents the utterance in terms of phonemes. It ignores as many details as possible, capturing only enough aspects of a pronunciation to show how that word differs from other words in the language. In this kind of transcription, the slashes'/ / 'are used.

**2- The narrow transcription** (or phonetic or allophonic transcription) encodes more information about the phonetic variations of the specific allophones in the utterance. It captures as many aspects of a specific pronunciation as possible and ignores as few details as possible. In this kind of transcription, the square brackets'[ ]'are used.

For example, one particular pronunciation of the English word *little* may be transcribed using the IPA as /lɪtl / or [lɪtɫ̩]. The broad, phonemic transcription, placed between slashes, indicates merely that the word ends with phoneme /l/, but the narrow, allophonic transcription, placed between square brackets, indicates that this final /l/ ([ɫ]) is dark.

**Importance of studying phonetics and phonology**

To understand why it is important for a foreign learner to study phonetics and phonology, you may begin by comparing the way we write words and the way we pronounce them. What is quickly apparent is a host of orthographic inconsistencies. Fortunately, a student of phonetics and phonology can capture each individual sound in an ambiguous way using the IPA.

**Examples of orthographic inconsistencies**

* the same sound is spelled using different letters: s**ea**, s**ee**, sc**e**ne, rec**ei**ve, th**ie**f, mach**i**ne
* the same letter(s) can stand for different sounds: **s**ign, plea**s**ure, re**s**ign
* a single sound is spelled with a combination of letters: lo**ck**, **th**at, b**oo**k
* a single letter represents more than one sound: e**x**ist, e**x**treme, **u**se
* letters stand for no sounds at all: **k**now, i**s**land, colum**n**

**1.2. The English Vowels and Consonants**

**I- Vowels / Consonants**

* From a phonetic point of view, vowels are sounds produced with no obstruction to the flow of air as it passes from the larynx to the lips. In other words, air passes without any complete closure or narrowing between speech organs. A doctor who wants to look at the back of a patient’s mouth often asks the patient to say “ah”; making this vowel sound is the best way of presenting an unobstructed view. Producing a consonant involves making the vocal tract narrower at some location than it usually is. We call this narrowing a constriction.
* On functional grounds, the vowel is the sound which has a central, major, syllabic function (the vowel is usually in the middle of words). The consonant, however, is marginal, less important in the syllable.

1. **Description of vowels**

* **The pure vowels:** There are twelve vowels in RP:

**/i:/** as in meet **/ ɪ/** as in sit

**/e /** as in bed **/ æ/** as in hand

**/ ʊ/** as input **/u: /** as in soon

**/ ɒ/** as in pot **/ɔ:/** as in port

**/ɑ:/** as in part **/ə /** as inabout

**/ ɜ:/** as inword **/ ʌ/** as in cut

When describing a vowel, the following points must be taken into consideration:

1. The part of the tongue which is mainly raised: Is it the front, centre, or back one?

Accordingly there are three sets of vowels.

* **Front vowels** or sounds in which the main raising is made by the front of the tongue toward the hard palate. The front vowels are **/i: /** **/ɪ / /e/ /æ/**
* **Central vowels** or sounds in which the main raising is made by the centre of the tongue toward the hard palate. The central vowels are **/ ɜ:/ /ʌ/ /ə/**.
* **Back vowels** or sounds in which the main raising is made by the back of the tongue toward the soft palate. The back vowels are **/ʊ/ /u: / / ɒ /ɔ:/ /ɑ:/.**

1. The degree of raising of the tongue: the vowels in which the tongue is held as high as possible consistently with not producing a frictional noise are called **close** ( **high**) vowels ( /i: / and /u:/). Those in which the tongue is as low as possible are called **open (low)** vowels ( e.g. / **ɑ:/ ).** Those in which he tongue is placed in an intermediate position are called **mid** vowels. A further more refined distinction differentiates between two groups of mid vowels: **half-close** ( e.g. /e / **/ʊ/)** and **half-open** (e.g. **/ɔ:/ /ʌ/**) vowels.
2. The kind of opening formed by the lips. The lips can, generally, have three shapes.
   * **Rounded** such as in the vowel **/ u: /** in words like: ‘gr**ou**p’, ‘sh**oe**s’, ‘m**o**ve.’ The corners of the lips are brought together towards each other, with the lips pushed forward. You can notice this by looking at a mirror while trying to articulate the examples mentioned above.
   * **Spread** as in the vowel **/ i: /** in words like: ‘gr**ee**n’, ‘ach**ie**ve’, ‘pl**ea**se’. The corners of the lips are moved away from each other, as for a smile.
   * **Neutral** such as with the vowel **/ɑ: /** in words like ‘c**al**m’, h**ea**rt’, and ‘f**a**ther’. The lips are not noticeably rounded or spread.
3. The state of the tension of the tongue: **Tense** vowels do require in their formation a greater degree of tongue tension than **lax** vowels. Long vowels are usually described as tense vowels **/ɑ:/ /i:/ /ɔ:/ /u:/ /ɜ:/**  while short vowels are considered as lax ones **/ɪ/ /e/ /æ/ / ɒ / /ʊ/ /ʌ/ /ə/**.

* **The diphthongs**

A diphthong is a sound that is produced as a result of a glide from one vowel to another. There are eight diphthongs in RP:

/ **eɪ** / as in play / **ɪə /** as in hear

/ a**ɪ /** as in high **/eə/** as in hair

/ **ɔɪ** / as in boy **/ʊə** / as in pure

/ **əʊ /** as in low

**/ aʊ/** as in how

A distinction is made between

* **Falling/ Rising diphthongs:** according to the position of the more prominent element in the diphthong, we divide diphthongs into **falling** –if the prominent element comes first – and rising diphthongs –if the less prominent element comes first.
* **Opening/closing and centring diphthongs: opening** diphthongs are produced when the degree of aperture increases with the glide. If the second element is closer than the first, we have a **closing** diphthong. There are also **centring** diphthongs –if the glide is from a marginal vowel in the vowel chart either back or front to a central vowel.
* **Wide/narrow diphthongs:**

**Wide diphthongs:** the glide implies a more radical movement of the speech organs.

**Narrow diphthongs:** the two vocalic elements occupy neibouring positions on the vowel chart.

* **The triphthongs**

A triphthong is a glide from one vowel to another and then to a third, all produced rapidly and without interruption.

There are five triphthongs in RP. They are composed of the five closing diphthongs with the schwa /**ə/** added on the end.

/ **eɪə** / as in player

/ a**ɪə /** as in higher

/ **ɔɪə** / as in loyal

/ **əʊə /** as in lower

**/ aʊə/** as in flower

**III. Description of consonants**

We classify consonants along four major dimensions:

* place of articulation
* manner of articulation
* voicing
* force of articulation
* **Place of articulation**

The place of articulation of a consonant specifies where in the vocal tract the constriction occurs. From front to back, the places of articulation that English uses are:

**Bilabial:** In a bilabial consonant, the lower and upper lips approach or touch each other. The English bilabials are /p/, /b/, /m/and /w/.

**Labiodental:** In a labio-dental articulation, the lower lip and the upper teeth act together in producing the sound. English /f/ and /v/ are labiodental consonants.

**Dental:** In a dental consonant, the tip and rims of the tongue articulate with the upper teeth. English /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\130.gif/and /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\131.gif/are dental consonants. There are actually a couple of different ways of forming these sounds:

* The tongue tip can approach the back of the upper teeth, but does not press against them so hard that the airflow is completely blocked.
* The blade of the tongue can touch the bottom of the upper teeth, with the tongue tip protruding between the teeth -- still leaving enough space for a turbulent airstream to escape. This kind of /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\130.gif/and /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\131.gif/ is often called interdental.

**Alveolar:** In an alveolar consonant, the tongue tip or the tongue tip and blade approaches or touches the alveolar ridge. The English alveolars include /t/, /d/, /n/, /s/, /z/, /r/ and /l/.

### Palato-Alveolar: The blade or the tip and blade of the tongue articulates with the alveolar ridge. At the same time, there is a rising of the front of the tongue towards the hard palate. The English palato-alveolars include /ʃ/ , /ʒ/, /tʃ/ and /dʒ/. Because these sounds are produced somewhere between the alveolar ridge and the hard palate, they are sometimes referred to as post-alveolars.

**Palatal:** In a palatal consonant, the front of the tongue approaches the hard palate( ther is no movement of the tip of the tongue). The only English ‘consonant’ that is produced with a palatal articulation is /j/.

**Velar:** In a velar consonant, the back of the tongue articulates with the soft palate, or velum. A velar place of articulation in English is limited to /k/, /g/, and /ŋ/.

**Glottal:** The glottis is the opening between the vocal folds. In an /h/ this opening is narrow enough to create some turbulence in the airstream flowing past the vocal folds.

* **Manner of articulation**

### Plosives: For plosives – also called stops – a solid obstruction is built up somewhere within the oral tract, initially completely blocking the airstream coming up from the larynx. This blockage is then usually released abruptly, so that the air that was compressed behind the obstacle can escape with a kind of explosive movement, producing a ‘cracking’ or ‘popping’ sound. The group of plosives in English comprises /p/ & /b/, /t/ & /d/, /k/ & /g/.

**Fricatives:** In the stop /t/, the tongue tip touches the alveolar ridge and cuts off the airflow. In /s/, the tongue tip approaches the alveolar ridge but does not make a complete closure. There is still enough of an opening for airflow to continue, but the opening is narrow enough that it causes the escaping air to become turbulent (hence the hissing sound of the /s/). In a fricative consonant, the articulators involved in the constriction approach or get close enough to each other to create a turbulent airstream. The fricatives of English are /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\128.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\129.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\130.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\131.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\132.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\133.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif/, /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif/ and /h/.

**Affricates:** An affricate is a single sound composed of a plosive and a fricative. In English /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\103.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif/, the airflow is first interrupted by a plosive which is very similar to /t/. But instead of finishing the articulation quickly and moving directly into the next sound, the tongue pulls away from the plosive slowly, so that there is a period of time immediately after the plosive where the constriction is narrow enough to cause a turbulent airstream. The second English affricate is /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\104.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif/.

### Nasals: Nasal consonants in English are fairly limited in number. There are only three – /m/, /n/ and /ŋ/ – and these correspond to the plosives, with the added feature that during their production the velum is lowered. This allows the air to escape through the nasal cavity instead of the oral one.

**Lateral:** Sounds which involve airflow around the sides of the tongue are called laterals. /l / is the only lateral in English.

**Approximants:** In an approximant, the articulators involved in the constriction are further apart still than they are for a fricative. The articulators are still closer to each other than when the vocal tract is in its neutral position, but they are not even close enough to cause the air passing between them to become turbulent. The approximants of English are / w /, / j /, and /r /.

**Other terms**

**Obstruents / Sonorants**

Consonants are classified in two general categories:

* **Obstruents**: those articulations in which there is a total closure or a stricture causing friction, both groups being typically associated with a noise component. There is a distinctive opposition between voiceless and voiced types. Obstruents include plosives, affricates and fricatives.
* **Sonorants:** those articulations in which there is only a partial closure or an unimpeded oral or nasal escape of air. Such articulations are typically voiced and frictionless, i.e. without a noise component, and may share many phonetic characteristic with vowels. Sonorants include

nasals, laterals and approximants.

**Stops:** A stop consonant completely cuts off the airflow through the mouth. In the consonants /t /, /d/, and /n/, the tongue tip touches the alveolar ridge and cuts off the airflow at that point. In /t / and /d/, this means that there is no airflow at all for the duration of the stop. In /n/, there is no airflow through the mouth, but there is still airflow through the nose. We distinguish between

* nasal stops, like /n / which involve airflow through the nose, and
* oral stops, like /t / and /d /, which do not.

**Liquids:** Liquids occur when the air stream flows continuously through the mouth with less obstruction than that of a fricative. Liquids comprise /l / and /r /.

**Glides:** Glides occur when the air stream is unobstructed, producing an articulation that is vowel-like, but moves quickly to another articulation making it a consonant. Sometimes glides are referred to as semivowels. The glides in English include the /w/ in witch and the /j / in yes.

**Retroflex:** In a retroflex consonant, the tongue tip is curled up and back towards the rear edge of the alveolar ridge. English /r / is a retroflex approximant (in producing this sound, the tip of the tongue does not actually touch the alveolar ridge).

* **Voicing**

The level of vibration of the vocal cords determines whether a sound is voiced or voiceless. If the vocal cords are apart, then air can escape unimpeded. Sounds produced in this way are said to be voiceless. The easiest example of this is to whisper. When you whisper, your glottis is wide open. Therefore, all the sounds produced are voiceless. However, if the vocal cords are very close to each other, the air will blow them apart as it forces its way through. This makes the vocal cords vibrate, producing a voiced sound.

There are several pairs of sounds in English which differ only in voicing -- that is, the two sounds have identical places and manners of articulation, but one has vocal cords vibration and the other does not.

Voiceless: / p , t, k, f, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\130.gif, s, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\103.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif /

Voiced: / b, d, g, v, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\131.gif, z, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif, C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\104.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif /

The other sounds of English do not come in voiced/voiceless pairs. /h /is voiceless, and has no voiced counterpart. The other English consonants are all voiced: / r/, / l/, /w/, /j /, /m/, /n /, and /C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\119.gif/.

* **Force of articulation**

In addition to voicing, the force of articulation is another feature that makes the difference between these two classes of consonants (voiced/ voiceless). Some consonants such as /p /, /t /, and /k / are produced with more force than /b /, /d /, and /g /. Accordingly, voiceless consonants are called fortis (meaning ‘strong’) and voiced consonants are called lenis (meaning ‘weak’).

The description of the English consonants can be summarised in the following table:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | bilabial | | labiodental | | dental | | alveolar | | Palato-alveolar | | palatal | | velar | | glottal | |
| plosive | p | b |  | |  | | t | d |  | |  | | k | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\110.gif |  | |
| nasal |  | m |  | |  | |  | n |  | |  | |  | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\119.gif |  | |
| fricative |  | | f | v | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\130.gif | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\131.gif | s | z | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif |  | |  | | h |  |
| lateral |  | |  | |  | |  | l |  | |  | |  | |  | |
| affricate |  | |  | |  | |  | | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\103.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\134.gif | C:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\104.gifC:\Users\Shaun\Desktop\polycope\Describing consonants_fichiers\135.gif |  | |  | |  | |
| approximant |  | w |  | |  | |  | r |  | |  | j |  |  |  | |

**2. The Allophonic Variation of the English Phonemes**

***Phonemes***

A phoneme is the smallest unit, by which one can distinguish one word from another, i.e., it is the smallest contrastive unit in the sound system of a language. It is usually represented between slashes /…/. The phonemes of a language can be found by constructing minimal pairs: for example, *lead*vs *read*, *feet* vs. *feed.*

***Allophones***

An allophone is a phonetic variant of a phoneme in a particular language. This variant is context-based. Eg**:** [**ph** i:k] *peak* [s**p**i:k] *speak*

[p] [ph ] are allophones of the English phoneme /p/ because the 'p' sound in p*eak* is slightly different from the 'p' sound in *speak*.

Different languages have different groupings for their phonemes. For instance, [p] and [ph] belong to the same phoneme in English, but to different phonemes in Chinese. In Chinese, switching [p] and [ph] does change the meaning of the word. Thus, switching allophones of the same phoneme won't change the meaning of the word: [sphɪt] still means 'spit'.

***Useful phonological notions***

* 1. **The environment**

Usually, an allophone is produced when one of the phoneme's features changes under the influence of the context in which the phoneme appears. This context is also known as the environment. An environment or a context is all the parts of the utterance that directly surround a given sound. The environment of a sound may be adjacent sounds, or a break in the sound such as at the beginning of a syllable, word or phrase. For example:

* In the word [pæt], [p\_t] is the environment for the sound [æ].
* In the word [pen], [pe\_#] is the environment for the sound [n] (“#” represents the of end a word)

A phoneme is made of certain features that are basic to it. If this phoneme occurs in certain phonetic environments, one or more of its features may undergo changes caused by those environments. Changes can be either random or predictable (by rules). Those changes lead to the production of allophones of this phoneme.

* 1. **Complementary distribution**

In English [ph ] is the aspirated /p/ which appears in specific environments ( for example, it occurs in word-initial position) whereas the unaspirated one appears in other contexts ( for example, it occurs after initial /s/). Therefore in English, the allophones aspirated [ph ] and unaspirated [p] of the underlying phoneme /p/ are said to be in complementary distribution. Complementary distribution is the mutually exclusive relationship between two allophones. It exists when one allophone occurs in an environment in which the other allophone never occurs.

Allophones occur in complementary distribution because the phonetic environment determines which allophone occurs: if all environments were equal, a phoneme would only have one allophone. In addition, the environment affects the allophones most often in a predictable way.

* 1. **Free variation**

Occasionally, two sounds occur in the same environment without causing a difference in meaning. Such sounds are not considered contrastive but are said to be in free variation. One type of free variation that we encounter is when we compare different realizations of one and the same phoneme by various speakers or in the speech of one and the same person in different situations. Free variation differs from complementary distribution because it is context-free and it differs from phonemic variation because it is not contrastive. Good examples in English include the realisation of word-initial *th* as either [ð ] or [d ] , the realisation of *leap* as either [ li: **ph**] or [li: **p** ] , and the realisation of **e** in *economics* as either */e /* or */ i:/.*

***Allophonic variation of English consonants***

Different realizations of the same consonant can vary with respect to aspiration, voicing, place of articulation, manner of articulation, and glottalisation.

* 1. **Aspiration**

Aspiration is one of the changes that may occur on a phoneme. In other words, it is a feature that characterises one of the allophones of a given phoneme. Aspiration is the presence of a puff of air at the end of a sound. For example, the voiceless plosive / p / can be aspirated [ph] , i.e., pronounced with a /h/ sound. You can see aspiration by putting your fingers in front of your lips and notice the difference in breathiness as you produce pairs like:

Pin [**ph**ɪ n] and spin [s**p**ɪ n] / Pie [**ph**aɪ ] and spy[s**p**aɪ]

In English, voiceless plosives (or stops) / p t k / are aspirated at the beginning of a stressed syllable: Piece [**ph**i:s], Cat [**kh**aet ], Tea [**th**i: ], impel [Im**ph**el ]. However, after a syllable-initial /s/ or at the beginning of an unstressed syllable, voiceless plosives are not aspirated: speed [s**p**i:d], super [su: **p**ə], looking [lʊ**k**ɪŋ].

## **Devoicing**

Some features of sounds may change because of their occurrence in a specific environment. Devoicing is a process affecting a sound which we would normally expect to be voiced but which is pronounced without voicing in a particular context. For instance, when l, r, w, j (which are voiced) follow the voiceless consonants p, t, k in syllable initial position, they are devoiced or produced as voiceless sounds. In this case, a small symbol (**°**) is put under each devoiced sound.

**3. Variations in place of articulation**

* The alveolar sounds / t, d, n, l / are articulated as dentals before the dental fricatives /θ , ð /.
* */*m / and /n */* become labiodental before/ f */* and */* v*/.*
* Velarization:It is a secondary articulation of consonants by which the back of the tongue is raised toward the soft palate during the articulation of the consonant. In a narrow transcription, velarization is indicated by printing a tilde or swung dash through the letter [ɫ].

The English phoneme / l / has two [allophones](http://odin.prohosting.com/hkkim/cgi-bin/kaeps/glossary.htm#allophone): the so-called **clear ‘*l’*** [l], as in *'leave* [li:v], and **dark ‘*l’*** or**velarized ‘*l***’ [l_vel], as in *'shield, heal'* [shi:l_veld, hi:l_vel].

* + The clear allophone occurs before vowels and /j/ (*lake, failure*)
  + The dark allophone occurs before consonants and word-finally (*melt, fail*)

**4. Variations in manner of articulation**

* The frictionless continuant /r/ is articulated as a fricative after /d/ and unaspirated /t /(*dry*/ stream)
* The frictionless continuant /j/ becomes fricative (and voiceless) when it combines with /h/ (*huge)* and when preceded by the aspirated voiceless plosives (pure, cues, tune).

**5. Glottalisation**

A glottal stop is a consonant made by closure of the vocal cords. The phonetic symbol for a glottal stop is [ʔ]. In some British accents, a glottal stop can actually replace the voiceless alveolar plosive [t] as the realisation of the /t/ phoneme when it follows a stressed vowel, e.g.: getting, better. This type of pronunciation is found in many urban accents, notably London, Leeds, Glasgow, Edinburgh and others, and is increasingly accepted among educated young people. Sometimes a glottal stop is pronounced in front of a /p t/ or /k/ if there is not a vowel immediately. This addition of a glottal stop before a consonant is referred to as glottalisation or glottal reinforcement.

***Summary of English consonantal allophones***

**Plosives (stops)**

/ p / voiceless bilabial

[ph ] aspirated (but with weaker aspiration in unstressed syllables)

[p ] unaspirated after /s/ in a syllable-initial cluster

/ b / voiced bilabial

[ b ] voiced initially and between voiced segments

[ b ] devoiced before a voiceless consonant or silence

/ t / voiceless alveolar

[th ] aspirated (but with weaker aspiration in unstressed syllables)

[t ] unaspirated after /s/ in a syllable-initial cluster

[t ] dental before dental consonants

/ d / voiced alveolar

[ d ] voiced initially and between voiced segments

[ d ] devoiced before a voiceless consonant or silence

[ d ] dental before dental consonants

/ k / voiceless velar

[kh] aspirated (but with weaker aspiration in unstressed syllables)

[k ] unaspirated after /s/ in a syllable-initial cluster

/ g / voiced velar

[ ] voiced initially and between voiced segments

[ ] devoiced before a voiceless consonant or silence

**Nasals**

/ m / voiced bilabial

[ɱ ] labiodental before / f, v/

[m] elsewhere

/ n / voiced alveolar

[n ] dental before dental consonants

[ɱ ] labiodental before / f, v/

[n ] elsewhere

/ŋ / voiced velar No allophonic variation

**Fricatives**

/ f / voiceless labiodental No allophonic variation

/ v / voiced labiodental

[ v ] devoiced before a voiceless consonant or silence

[ v ] elsewhere

/ θ / voiceless dental No allophonic variation

/ ð / voiced dental

[ð ] devoiced before a voiceless consonant or silence

[ð ] elsewhere

/ s / voiceless alveolar No allophonic variation

/ z / voiced alveolar

[z ] devoiced before a voiceless consonant or silence

[z ] elsewhere

/ʃ / voiceless palato-alveolar No allophonic variation

/ ʒ / voiced palato-alveolar

[ʒ ] devoiced before a voiceless consonant or silence

[ʒ ] elsewhere

/ h / voiceless glottal

[ ] voiced between voiced segments

[ ] elsewhere

**Affricates**

/tʃ / voiceless palato-alveolar No allophonic variation

/dʒ / voiced palato-alveolar

[dʒ] devoiced before a voiceless consonant or silence

[dʒ] elsewhere

**lateral**

/ l / voiced alveolar

[ɫ ] velarized (dark) before a consonant except /j/ or before silence

[ɫ ] dental before / θ, ð /

[ l ] devoiced after aspirated /p, k/

[ l ] elsewhere

**Approximants**

/ r / voiced alveolar ( postalveolar)

[ ] tap after / θ, ð /

[ɹ ] fricative after syllable-initial /d/ and unaspirated /t /

[ɹ ] devoiced after aspirated /p, t, k/

[ɹ ] elsewhere

/ j / voiced palatal

[ç ] voiceless fricative after aspirated /p, t, k/ and for /hj.../

[ j ] elsewhere

/w/ voiced labial-velar

[ ][w ] voiceless after aspirated /p, t, k/

[w] elsewhere

***Allophonic variation of English vowels***

Different realizations of the same vowel can vary with respect to vowel length and nasalization.

**1. Vowel shortening**

Vowels are shortened before voiceless consonants, i.e., they are pronounced slightly shorter than usual. When the vowels: **i:, u:, ɜ: ɑ: ɔ:** are shortened by a following voiceless consonant, they are transcribed **i˙, u˙, ɜ ˙, ɑ˙ ɔ˙.** Short vowels can similarly be influenced by the following voiceless consonant and are produced even shorter than usual. When the vowels **ɪ** **, e**, **ə , ʊ, æ, ʌ, ɒ** are shortened by the following voiceless consonants, you put a small symbol on each vowel as in **ě ,**  **ǐ ,** **…**

**2. Nasalization**

Vowels in English are noticeably nasalized when they occur before nasal consonants in the same syllable. The diacritic used to indicate nasalization is a tilde over the vowel: bin [b ɪ n]

## **The Syllable**

## **Defining the syllable**

## The syllable is a basic unit of speech studied on both the phonetic and phonological levels of analysis. Despite of the fact that people can easily count the number of syllables in a sequence in their native language, there is no universally agreed upon definition of what a syllable is.

## **Phonetic definition:** **Phonetically,** syllables are usually described as consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after that centre, there will be greater obstruction to airflow. In the monosyllable (one-syllable word) *cat* /kæt/, the vowel /æ/ is the “centre” at which little obstruction takes place, whereas we have complete obstruction to the airflow for the surrounding plosives /k/ and /t/.

## **Phonological definition:** **phonologically,** asyllable is defined as a complex unit made up of nuclear and marginal elements. Nuclear elements are the [vowels](http://www.personal.rdg.ac.uk/~llsroach/phon2/artic-intro.htm) or syllabic segments; marginal elements are the [consonants](http://www.personal.rdg.ac.uk/~llsroach/phon2/artic-intro.htm) or non-syllabic segments. In the syllable *paint* /peɪnt/, the diphthong /eɪ/ is the nuclear element, while initial consonant /p/ and the final cluster /nt/ are marginal elements.

**Sonority theory**: According to the **sonority theory**, pulses of pulmonic airstream in speech correspond to peaks in sonority. The sonority of a speech sound is explained as its relative loudness compared to other sounds. Thus nuclear elements or syllabic segments can be described as intrinsically more sonorous than marginal or non-syllabic elements.

Speech sounds can be ranked in terms of their sonority according to a **sonority scale**. The sonority scale for English is given below. Voiced segments are more sonorous than voiceless ones and sonorants are more sonorous than obstruents; vowels are more sonorous than consonants and open vowels are more sonorous than close ones. The disyllabic word *painting* /ˈpeɪntɪŋ/ has been plotted onto the sonority scale as an example.

## **↑** vowels   •     •

## **more sonorous** glides

## liquids

## nasals   •   •

## **less sonorous** fricatives

## affricates

## **↓** plosives •     •

    p eɪ n t ɪ ŋ

## → *linear sequence of phonemes* →

As can be seen from the chart, there are two peaks of sonority in the phoneme string /p-**eɪ**-n-t-ɪ-ŋ/, namely the vowels /**eɪ** **ɪ**/. This is to indicate that the number of syllables is two as well.

**The structure of the syllable**

The syllable has two immediate constituents : the **Onset** (O), which includes any consonants that precede the nuclear element (the vowel), and the **Rhyme** (R), which subsumes the nuclear element (the vowel) as well as any marginal elements (consonants) that might follow it. The Rhyme, in turn, further branches into **Peak** (P), also known as **Nucleus** (N), and **Coda** (C). The Peak (Nucleus), as the designation suggests, represents the “nuclear” or most sonorous element in a syllable. The Coda includes all consonants that follow the Peak in a syllable. Syllable structure may be represented graphically by means of a “tree diagram”.

## S

O R

N C

k æ t

**Optional constituents** In the case of *cat* /kæt/, the Onset, Peak and Coda each consist of one segment: the consonant /k/ occupies the Onset, the vowel /æ/ – the Peak, and the consonant /t/ is the Coda of this syllable. However, there are syllables in English where either or both marginal elements (i.e. O and/or C) are absent – only the Peak is an **obligatory** element in all languages, and in English both the Onset and the Coda are **optional**.

## **Onset Peak Coda**

## *sea* /si:/ /s/ / i:/ Ø (none)

*on* /ɒn/ Ø /ɒ/ /n/

## *eye* /aɪ/ Ø / aɪ / Ø

## **Closed syllable, Open syllable** Syllables ending in a consonant, e.g. *cat* /kæt/, *it* /ɪt/, *eat* /i:t/, are traditionally known as **closed** syllables, whereas those ending in a vowel, as in *sea* /si:/ or *eye* /aɪ/, are called **open**. In terms of syllable structure, in closed syllables the Coda is present, i.e. we have a branching Rhyme, while open ones have non-branching Rhymes – the Coda element is absent. Syllable Onset is irrelevant to this distinction.

## **Phonotactics**

**Phonotactics,** also known as **sequence constraints,** are restrictions on the number and type of segments that can combine to form syllables and words; they vary greatly from one language to another. In English, for example, a word may begin with up to three consonants, but no more than three. If a word does begin with three consonants, the first will always be /s /, the second must be chosen from among the voiceless stops / p  t  k  / and the third from among the liquids / l r / or glides  /w  j/. Thus we get words as 'squeeze' / s k w i: z / in English, but not words as / p s t a p /.

### The syllable onset

* If a syllable starts with a vowel, we say the syllable has a zero onset. Any vowel can occur at the beginning of a syllable although /u / is rare.
* If the syllable begins with a single consonant, the consonant may be any phoneme except / ŋ /; / ʒ / is very rare.
* If the syllable begins with more than one consonant, we call this a consonant cluster. (A consonant cluster is a group of consonants which have no intervening vowel. It is important to distinguish clusters and diagraphs. Clusters are made of two or more consonant sounds, while a diagraph is a group of two consonant letters standing for only one sound).
* Two consonant clusters
  + / s / + / p, t, k, f, m, n, l, w / ( spin, stick, skill, sphere, smell ,snow, slow, swim). In this type of clusters, the / s / is called pre-initial consonant and the other consonant is called the initial consonant.
  + Consonant plus / l, r, w, j / (plate, grin, slip, music etc). In this type of clusters, the first consonant is the initial and the second is the post-initial consonant.
* Three consonant clusters

Some syllables begin with three consonants, although the combinations are limited. The three consonants are called the pre-initial, the initial and the post-initial. The pre-initial consonant is always/ s /, the initial consonant is always / p, t or k / and the post-initial consonant is always / l, r, w or j /. Examples are ‘splay’, ‘spray’, ‘spew’, ‘string’, ‘stew’, ‘sclerosis’, ‘screen’, ‘squeak’ and ‘skewer’.

### The syllable coda

* If there are no consonants at the end of the syllable, we say it has a zero coda. A syllable without a coda is called an open syllable, and a syllable that has a coda is called a closed syllable.
* A single consonant is called the final consonant. Any consonant except h, r, w and j may be final.
* Two consonant clusters
  + Pre-final / m. n, n, l, s / followed by a final consonant ( bump, bent, belt, bank, ask )
  + Final consonant plus post-final / s, z, t, d, θ / ( bets, beds, backed, bagged, eighth )
* Three consonant clusters
  + Pre-final plus final plus post-final ( helped, banks, bonds, twelfth)
  + Final plus post-final 1 plus post final 2 / s, z, t, d, θ / ( fifths, next, lapsed)
* Four consonant clusters
  + Most are pre-final plus final plus post final 1 plus post-final 2 ( twelfths, prompts)
  + Occasionally, there is one final and three post final consonants (sixths, texts).

To sum up, the English syllable may be described as having the following maximum phonological structure:

Pre-initial initial post-initial pre-final final post-final1 post-final2 post-final

Onset vowel Coda

## **Division of syllables**

  Usually syllables are fairly easy to count. For example, most English speakers can tell us that *intercontinental* has six syllables. On the other hand, it is sometimes difficult to divide a word into syllables. If we first look at just the segments in *dictate*, we can imagine three possible divisions, with /- / showing the syllable break: *di-ctate*, *dic-tate, dict-ate*. The correct choice is determined by the principle of **maximisation of onsets**. This principle means that we make the onset as large as possible. In the case of *dictate*, the largest onset would be *di-ctate*; however, we note that / kt / never occurs in English as the onset of the first syllable of a word. Therefore, we try the division *dic-tate*; here, / t / is a possible onset for a word. The division of *dic-tate* thus results in the largest possible onset.

**Strong and Weak syllables**

English has both weak and strong syllables. The most important distinction is that a strong syllable can have its peak on any English vowel phoneme except ə, whilst a weak syllable can only have its peak on ə , a close front unrounded vowel i , a close back rounded vowel u , or a syllabic consonant. Weak syllables also tend to be quieter and shorter than strong syllables.

**Schwa / ə /**

Any syllable containing the schwa is a weak syllable. The schwa can take the place of many other vowels that would be present if the syllable were strong (imagine saying the following words with stress on the italicised part). These are /æ/ (*a*ttend), /a: / (p*ar*ticul*ar*), eɪ (intim*ate*), / ɒ / (carr*o*t), / ɔ:/( (f*or*get), / e / (viol*e*t), / 3: / (p*er*haps), / http://www.antimoon.com/images/a.gif/ (aut*u*mn).

**Close front and close back vowels**

In weak syllables it is very difficult to tell whether a high front vowel should be transcribed as i: or ɪ (think of the vowel at the end of ‘busy’). It is also difficult to tell whether a close back vowel should be ʊ or u : (think of the vowel in ‘to’). In each case the sound doesn’t seem to be either of the two phonemes. The solution adopted by Roach is to use the symbol for the long vowel but without the length mark e.g. / bɪ zi / and / tu /.

* The close front unrounded vowel is found in

a) word-final position in words spelt with “y” or “ey” after one or more consonant letters: happy/ valley and in morpheme-final position when such words have suffixes beginning with vowels: *happier*/ *easier* / *hurrying*.

b) in a prefix if it precedes a vowel : *react / preoccupied / deactivate*.

c) in the suffixes spelt “iate” and “ious” when they have two syllables: *appreciate / hilarious*.

d) the following words when unstressed: *he, she, we, me, be* and the word *the* when it precedes a vowel.)

* The close back rounded vowel is found in the words *you*, *to, into, do*, when they are unstressed and are not immediately preceding a consonant and *through* and *who* in all positions when they are unstressed. This vowel is also found before another vowel within a word as in *evacuation* and *influenza*).

**Syllabic consonants**

Ordinarily, every syllable contains a vowel as its central part (nucleus). However, in a few cases, we find syllables which contain nothing that could conventionally be classed as a vowel. In these cases, we call the consonants that form the nuclei of the syllable as syllabic consonants, and we transcribe them with a vertical line underneath. The most common syllabic consonants are /l, m, n / *(bottle, button, table, cattle, fiddle, sickle, castle, chasm, rhythm, deepen, widen, ribbon, cotton, fasten, written*).

Words which have syllabic consonants can alternatively be pronounced with the vowel /ə**/**. However, such pronunciations with the vowel are typical of a very careful, slow speech and may sound artificial; the pronunciations with the syllabic consonant are much more common.

**Syllabic / l /**

Syllabic l occurs in unstressed syllables after the following consonants:

|  |  |  |  |
| --- | --- | --- | --- |
| / t / | Little, bottle, hospital, pistol | / s / | Castle, parcel, whistle, colossal |
| / d / | Saddle, muddle, handle, pedal | / z / | Puzzle, drizzle, dazzle, hazel |
| / p / | Couple, people, example, principal | / k / | Knuckle, article, classical, comical |
| / b / | Able, trouble, global, jumble | / n / | Communal, channel, tunnel, panel |

It also occurs after / g / as in struggle, eagle and / v / as in shovel.

**Syllabic / n /**

Syllabic n occurs in unstressed syllables after the following consonants:

|  |  |  |  |
| --- | --- | --- | --- |
| / t / | Button, rotten, threaten, kitten | / s / | Listen, loosen, comparison, person |
| / d / | Sudden, widen, garden, pardon | / z / | Cousin, horizon, poison , prison |
| / p / | Happen, deepen, open, sharpen | / f / | Often, deafen, stiffen, soften |
| /ʃ/ | Fashion, action, politician, musician | / v / | Seven, given, eleven, proven |
| /ʒ / | Illusion, collision, occasion, precision |  |  |

It also occurs after /θ / as in strengthen and lengthen

**Syllabic / m/**

Words ending in –sm have a syllabic / m / as in the following words:

Buddhism, capitalism, criticism, journalism, mannerism, socialism, chasm, enthusiasm.

* 1. **Stress in Simple Words**

**The Nature of Stress**

**Stress** is the relative emphasis that may be given to certain [syllables](http://wapedia.mobi/en/Syllable) in a word. It refers to the degree of force with which a speaker pronounces a syllable or a word. It is almost certainly true that in all languages, some **syllables** are in some sense stronger than other syllables; these are syllables that have the potential to be described as stressed.

Stress, as a sound phenomenon, can be studied from two points of view: production and perception. The production of stressed syllables is said to imply a greater muscular energy than the production of unstressed syllables. From the perceptive point of view, stressed syllables are prominent. Prominence is produced by four main factors: loudness, length, pitch and quality.

**Levels of Stress**

One of the areas in which there is little agreement is that of *levels* of stress: some descriptions of languages manage with just two levels (stressed and unstressed), while others use more. In English, one can argue that if one takes the word 'indicator' as an example, the first syllable is the most strongly stressed, the third syllable is the next most strongly stressed and the second and fourth syllables are weakly stressed, or unstressed. This gives us three levels: primary, secondary and unstressed.

**Placement of Stress within a Word**

In order to decide on stress placement, it is necessary to make use of some or all of the following information:

1. Whether the word is morphologically simple, or whether it is complex as a result either of containing one or more affixes (suffixes and prefixes), or of being a compound word.
2. The grammatical category to which the word belongs.
3. The number of syllables in the word.
4. The phonological structure of those syllables.

**Single-syllable words**

Single syllable words present no problem. If they are pronounced in isolation, they are said with primary stress.

**Two syllable words**

-The basic rule for verbs is that if the second syllable contains a diphthong or a long vowel, or if it ends with more than one consonant, the second syllable is stressed.

ap'ply ar'rive at'tract as'sist

If the final syllable contains a short vowel and one (or no) final consonant, the first syllable is stressed.

'enter 'envy 'open 'equal

A final syllable is also unstressed if it contains / / (e.g. 'follow , 'borrow )

Most two syllable-words that seem to be exceptions to the above rules might be interpreted as being morphologically complex (e.g. permit )

-two syllable adjectives are stressed according to the same rule:

'lovely di'vine

'even correct

'hollow alive

Exceptions: honest / perfect

* nouns require a different rule: if the second syllable contains a short vowel, the stress is usually on the first syllable. Otherwise, it will be on the second syllable.

'money es'tate

'product bal'loon

'larynx de'sign

* Other two syllable words as adverbs and prepositions seem to behave like verbs and adjectives.

**Three syllable words**

**-**In verbs, if the last syllable contains a short vowel and ends with no more than one consonant, the syllable will be unstressed, and stress will be placed on the preceding ( penultimate) syllable.

en'counter de'termine

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

enter'tain resur'rect

- Nouns require a different rule. If the final syllable contains a short vowel or / /, it is unstressed; if the syllable preceding this final syllable contains a long vowel or diphthong, or if it ends with more than one consonant, that middle syllable will be stressed.

mi'mosa di'saster po'tato

If the final syllable contains a short vowel and the middle syllable contains a short vowel and ends with not more than one consonant, both final and middle syllables are unstressed and the first syllable is stressed.

'quantity 'emperor 'cinema 'custody

- If the final syllable contains a long vowel or diphthong or ends with more than one consonant, the stress is on the first syllable.

'intellect 'marigold

'alkali 'stalactite

- Adjectives seem to need the same rule

'opportune 'insolent

'derelict 'anthropoid

1. **Complex Word Stress**

Complex words are of two major types: words made from a basic stem word with the addition of an affix (a prefix or a suffix), and compound words, which are made of two (or occasionally more) independent English words.

**Affix Words**

Affixes will have one of three possible effects on word stress:

1. The affix itself receives the primary stress (semicircle / personality).

2. The word is stressed just if the affix was not there (unpleasant / marketing).

3. The stress remains on the stem, but it is shifted to a different syllable (magnet / magnetic)

1. **Suffixes**

* **Suffixes carrying primary stress themselves:** 
  + **-ee**: refu'gee , tru'stee -**eer**: mountai'neer, volun'teer
  + -**ese**: Portu'guese, chi'nese -**ette**: ciga'rette, cas'sette
  + -**ique** : u'nique, an'tique, phy'sique -**esque**: pictu'resque
* **Suffixes that do not affect stress placement:** 
  + -**able**: 'comfort - 'comfortable -**age**: 'anchor - 'anchorage
  + **-al**: re'fuse - re'fusal **-en**: 'wide - 'widen
  + -**ful**: 'wonder - 'wonderful -**ing**: a'maze - a'mazing
  + -**ish**: 'devil" - 'devilish -**like**: 'child - 'childlike
  + -**less**: 'power - 'powerless -**ly**: 'hurried - 'hurriedly
  + -**ment**: e'stablish - e'stablishment -**ness**: ' careless - 'carelessness
  + -**ous**: 'poison - 'poisonous -**fy**: 'glory - 'glorify
* **Suffixes that influence stress in the stem:** 
  + -**eous**: advan'tageous -**graphy**: pho'tography -**ial**: com'mercial **-ic**: cli'matic -**ion**: per 'fection -**ious**: lu'xurious
  + -**ty**: tran'quility -**ive**: re'flexive

**Other useful rules**

**1.** Words ending in  ***-ic***  or  ***-ics*** have their main stress on the syllable before the last one ( or    penultimate syllable ). **Examples** : spe'cific  -  diplo'matic  -  idio'matic  -  demo'cratic  -  au'thentic  -  fan'tastic  -  pho'netics  -  re'public  -  scien'tific  -  pessi'mistic  -  sta'tistics  -  ritua'listic  -  mathe'matics  -  sympto'matic

The most common **exceptions** are: 'Arabic  -  a'rithmetic  -  'arsenic  -  'catholic  -  'lunatic - 'politic(s)  -   'rhetoric.

**2.** Words ending in  -***ical*** have their main stress on the second syllable before the last. **Examples:** e'lectrical  -  me'chanical  -  eco'nomical  -  paren'thetical  -  psycho'logical

**3.** When a word in  -***i****c* generates a word in  -***icist,  -icize*** or  -***icism***, then the main stress remains on the same syllable. This means that these words behave accentually like words in  -***ical*** *.*

**Examples** : ro'mantic   **>**   ro'manticism                   'Critic        **>**   'criticism

                   'Classic     **>**    'classicist                    I'talic        **>**     I'talicize

**But** :    'politic      **>**     po'liticize                    'Catholic   **>**    ca'tholicism)

**4.** Words ending in  *-****ion*** are stressed on the syllable before*-ion***.**

**Examples** : sus'picion  -  'legion  -  'cushion  - 'tension  -  'caption - vari'ation  - exploi'tation  - excla'mation -  consti'tution  - compen'sation  -      di'mension  - trans'lation  -  satis'faction  -  suppo'sition  -  me'dallion  -  pre'caution

**5-** Final  -***ional***  words are stressed in the same way as  -***ion*** words.  The same applies to  final   -***ionist***,  ***-ionism*** and  *-****ionize*** derived words.

                 Sen'sation                  **>**  sen'sational               Tra'dition                  **>**   tra'ditional

                 ' Fraction                     **>**   'fractional                  'Nation                      **>**  'national

                  Abo'lition                 >    abo'litionist                    Edu'cation               **>**    edu'cationist

                  Im'pression              **>**    im'pressionism             Per'fection           >    per'fectionism

                   Revo'lution             **>**    revo'lutionize                   'Union                    **>**    'unionize

**6.** The rule for  **-*ion*** ( see above )  also applies to words ending in the following:

**-*io*** :  port'folio, 'ratio, 'patio, 'radio. **-*ior*** : 'senior, su'perior, 'junior.

**-*ious*** : sus'picious, har'monious, a'trocious. **-*uous*** : con'temptuous, con'tinuous, 'virtuous.

**-*eous*** : spon'taneous, advan'tageous, cou'rageous.

**2. Prefixes** Prefixes in English are not usually stressed

**un-**: unhealthy,unwise,unnecessary   
    **in-**: intolerant, insufficien, indifferent     **mis-**: misplace, misrepresent, misunderstand

**dis-**: discourage, disintegrate, discolour **il-**: illegal, illiterate, illegibl

**Compound Words**

Compound words may receive stress either on the first or the second element. Words which do not receive primary stress normally have secondary stress. The most familiar type of compound word is the one which combines two nouns, and normally has stress on the first element:

'car-ferry ' sunrise 'tea-cup 'orange juice 'airport 'sitting room 'dressing gown 'cheesecake 'lipstick 'newspaper

However, a variety of compounds receive stress on the second element:

- Most adjective+ noun compound nouns have main stress on the second part and secondary stress on the first part:

social se'curity hot po'tato absolute 'zero central 'heating split in'finitive inverted 'commas

* adjectives with an adjectival first element and the –ed morpheme at the end

bad-'tempered half-'timbered heavy-'handed

* compounds in which the first element is a number

three-'wheeler second-'class five-'finger

**Word-Class Pairs**

There are several dozen pairs of two-syllable words with identical spelling which differ from each other in stress placement, depending on what word class they belong to. Normally, one of these pairs is a verb and the other is either a noun or an adjective. The stress will be placed on the second syllable if the word is a verb, but on the first syllable if the word is a noun or an adjective.

abstract 'æbstrækt (A) æb'strækt (V)  
conduct 'kɒndʌkt (N) kən'dʌkt (V)  
contract 'kɒntrækt (N) kən'trækt (V)  
contrast 'kɒntraːst (N) kən'traːst (V)  
desert 'dezət (N) dɪ'zɜːt (V)  
escort 'esk ɔːt (N) ɪ'sk ɔːt (V)  
export 'eksp ɔːt (N) ɪk'sp ɔːt (V)  
import 'ɪmp ɔːt (N) ɪm'p ɔːt (V)  
insult 'ɪnsʌlt (N) ɪn'sʌlt (V)  
object 'ɒbdʒɪkt (N) əb'dʒekt (V)  
perfect 'pɜːfɪkt (A) pə'fekt (V)  
permit 'pɜːmɪt (N) pə'mɪt (V)  
present 'preznt( N, A) prɪ'zent (V)  
produce 'prɒdjuːs (N) prə'djuːs (V)  
protest 'prəʊtest (N) prə'test (V)  
rebel 'rebl (N) rɪ'bel (V)  
record 'rek ɔːd (N) rɪ'k ɔːd (V)

subject 'sʌbdʒɪkt (N) səb'dʒekt (V)