

Lesson-10

THE CONSONANTS OF ENGLISH-I

1. There are 24 consonants in the RP accent of English.
2. These consonants are described in terms of (1) voicing, (2) manners and (3) places of articulation.

	bilabial	labiodentals	dental	alveolar	Post-alveolar	Palate-alveolar	palatal	velar	glottal
Plosive	p b			t d				k g	
Fricative		f v	θ ð	s z		ʃ ʒ			h
Affricate						tʃ dʒ			
Nasal	m			n				ŋ	
Lateral				l					
Frictionless continuant	w				r		j		

3. Stop is often used as if synonymous with plosive.
4. In English, there are nine stops (six oral and three nasal)
5. Apart from the above stops, in some varieties of English, the glottal stop /ʔ/ is found as in beaten [ˈbiʔn].
6. English voiceless stops (p, t, k) are also aspirated in the beginning of the words such as [pʰaɪ, tʰaɪ, kʰaɪ].
7. Fricatives refer to a sound made with two articulators coming so close to each other that the air moving between them produces audible friction (or friction).
8. Remember that there is no complete closure between the articulators and there is a very simple stricture (or narrowing of the air passage).
9. In BBC English, we have several fricatives (both voiced and voiceless), as in fin [f], van [v], thin [θ], this [ð], sin [s], zoo [z], ship [ʃ], measure [ʒ], hoop [h].
10. Other fricatives may be heard in some forms of English (or in restricted contexts or speech styles, such as the palatal fricative [ç]).
11. A voiceless velar fricative [x] in Urdu, Pashto and Sindhi, a voiceless pharyngeal fricative [ħ] in Arabic, a voiced bilabial fricative [β] in Spanish.
12. Very common fricative sounds are /f, v, s, z, θ, ʃ, ð, h/ whereas [ʒ] is a less common fricative sound.
13. English fricatives are also divided into two categories (this distinction is made on the basis of energy made in their production);
14. fortis: /f, s, θ, ʃ, h/
15. lenis: /v, z, ð, ʒ/.
16. Stops and fricatives are together called ‘obstruents’ and they are similar in three ways:
17. They influence vowel length (vowels are shorter before voiceless obstruents),
18. voiceless obstruents at final position are longer than their voiced counterparts (e.g., race vs. rays),
19. obstruents are voiced only if the adjacent segments are also voiced (e.g., dogs).
20. An affricate sound is a type of consonant which is made of a plosive followed by a fricative with the same place of articulation (so, it is a mixture of two steps or gestures).
21. For example, /tʃ/ (the voiceless affricate) has /t/ and /ʃ/ as a sound at the beginning and end of the English words church /tʃɜ:tʃ/.
22. Remember that although it is very strange to call the combination of a plosive and a fricative a single sound (an affricate) (as it has been deliberated for quite some time) yet experts argue that an affricate is a single segment and accordingly it should be treated as a single unit.
23. There are two affricates in English: /tʃ/ and /dʒ/ (the first of these is voiceless, the second voiced) sounds as at the beginning and end of the English words church and judge. Both of them are post alveolar sounds by their place of articulation.

24. **Nasals** are the consonantal sounds in which the air escapes through the nose (**the soft palate** i.e., velum is **lowered**).
25. For nasal sounds, two articulatory actions are necessary; (1) the soft palate (**or velum**) must be lowered to allow air to escape through nose, and (2) a **closure** must be made in the **oral tract** (in order to prevent air from escaping through it).
26. This closure may be created at any place in the oral cavity (such as at **lips** position, for **bilabial /m/** sound; at alveolar, for **/n/** or at soft palate (velum) for **/ŋ/** sound).
27. English has these three nasal sounds (**m, n and ŋ**) which are very commonly found. All of them are nasal stops and they are **voiced** sounds.
28. The **consonants** which make very **little obstruction** to the airflow are called **approximants**.
29. These have traditionally been divided into two main groups: semivowels (such as /w/ in 'wet' and /j/ in 'yet') which are very similar to **close vowels** (**[u]** and **[i]**) but are produced as a rapid glide; and liquid sounds which have an identifiable constriction of the airflow (but they do **not obstruct** sufficiently to produce **fricative** noise, compression or the diversion of airflow)
30. this category includes lateral sound i.e., **/l/** as in 'lead' and **/r/** sound as in 'read'.
31. **Approximant** sounds; therefore, are not fricative and never contain interruptions to the flow of air.
32. The **BBC** accent of English has four approximant sounds:
33. **Bilabial:** /w/ as in whack
34. **Alveolar:** /l/ and /r/ as in lack and rack
35. **Palatal:** /j/ as in yak
36. Sometimes, experts need to differentiate among various kinds of **/r/** approximant (**tap, flap and trill**).

### Lesson-11

#### The Consonants of English-II

1. Speech sounds are produced with the movements of the **articulators** and sounds are often described in terms of their **articulatory** gestures.
2. Remember that sounds are not **static**; they are **movements**.
3. This idea makes it easier to understand the overlapping of sounds in terms of their articulatory gestures.
4. Try saying words **twice**, dwindle, quick and analyze the rounding of your lips for sound /w/.
5. In each of these three words, the **first** stop sounds are slightly rounded (when they are **clustered** with /w/ - /tw/, /dw/ and /kw/ respectively).
6. In these words, there is a tendency for gestures to overlap with those for adjacent sounds (stops with **bilabial** /w/ in this case).
7. This kind of gestural overlapping, in which a **second** gesture starts during the first gesture, is sometimes also called **anticipatory co-articulation**.
8. The articulatory gesture for the approximant sound is **anticipated** during the articulatory gesture for the stop.
9. The same kind of anticipatory **overlapping** takes place in words like tree and dream (compare them with tea and deem).
10. In **phonology**, overlapping refers to the possibility when a phone may be assigned to more than one phoneme (**phonemic overlapping**).
11. As a notion, overlapping was introduced by American structural linguists in the **1940s**.
12. **Overlapping** is a common feature of connected speech.
13. In a rapid (**connected**) speech, overlapping between sounds results in the positions of some parts of the **vocal** tract being influenced quite a lot by neighboring targets thus creating various forms (**allophones**) for one phoneme.
14. Keeping in mind this possibility of overlapping, a phoneme is an abstract unit that may be realized in several different ways (forms - **allophones**).

15. Similarly, the differences between various allophones of a phoneme can be explained in terms of **targets and overlapping gestures**.
16. The difference between two different forms of /k/ sound (as the [k] in key and the [k] in caw) may be simply due to their overlapping with **different vowels in context**.
17. Similarly, the **alveolar** [n] in ten is different than the **dental** [ɲ] in tenth. Both are the result of aiming at the **same target**,
18. But in **tenth**, the realization of the phoneme /n/ is influenced by the **dental** target required for the following sound.
19. An **articulation** is an articulatory phenomenon which involves a simultaneous overlapping of more than one point in the vocal tract as in the **co-ordinate stops (/pk/, /bg/, /pt/ and /bd/)** often heard in some languages from **West Africa**.
20. **Co-articulation**, at times, leads to create a difference between two allophones (which is actually the result of aiming at different targets).
21. In **experimental** phonetics, coarticulation is a way of finding out how the brain controls the production of speech sounds.
22. When we speak, many **muscles** are active at the same time and sometimes the brain tries to make them do things at a time that they are not capable of. For example, in the word **mum /mʌm/** the vowel phoneme is one that is normally pronounced with the **soft palate (velum)** raised to prevent the escape of air through the nose, while the two m phonemes must have the soft palate lowered.
23. Thus, the **soft palate** cannot be possibly raised so quickly, and, as a result, the vowel is most likely to be pronounced with the soft palate (velum) still lowered – making the vowel a **nasalised one**.
24. Thus, in this case, the **nasalization** is a **co-articulation** effect which is caused by the nasal consonants in **context (environment)**.
25. Another example of co-articulation is the **liprounding**.
26. Remember that it is just a list of a set of formal statements simply describing the behavior of a language. These are not the kind of **prescriptive** grammar rules that people are expected to abide by.
27. Consonants are longer when at the end of a phrase (e.g., **bib, did, don and nod**).
28. **Voiceless stops** (e.g., **p, t, k**) are aspirated when they are syllable initial (**pip, test, kick**).
29. **Voiced obstruents** (**b, d, g, v, ð, z, ʒ**) are voiced only when they occur at the end of an utterance or before a voiceless sound.
30. **Voiced** stops (b, d, g) and **affricate** (dʒ) are voiceless when they are syllable initial (except when immediately preceded by a voiced sound – compare a day with this day).
31. Voiceless stops (**p, t, k**) are **unaspirated** after /s/ in words such as spew, stew and skew.
32. **Voiceless** obstruents (p, t, k, tʃ, f, θ, s, ʃ) are longer than their voiced counterparts (**b, d, g, dʒ, v, ð, z, ʒ**) at the end of a syllable (e.g., **cap - cab and back - bag**).
33. **Approximants** (w, r, j, l) are at least partially **voiceless** when they occur after initial voiceless stop sounds (e.g., **play, twin, cue**).
34. The gestures for consecutive stops overlap, so that stops are unexploded when they occur before another stop (e.g., **apt and rubbed**).
35. In many accents of English, syllable **final** voiceless stops **/p, t, k/** are accompanied by an overlapping **glottal** stop gesture (e.g., tip, pit, kick).
36. /t/ is replaced by a glottal stop when it occurs before an **alveolar** nasal (e.g., beaten).
37. **Nasals** are syllabic at the end of a word - after an obstruent (e.g., **leaden, chasm**).
38. The **lateral /l/** is syllabic at the end of a word - a consonant (e.g., **paddle, whistle**).
39. An alveolar stop becomes a voiced tap when it occurs between two vowels the second of which is unstressed (winter – winner)
40. An **alveolar** consonant becomes dental before dental consonant (eighth, tenth, wealth).
41. **Alveolar** stops are reduced or omitted when between two consonants (/moʊst pIpl/ - /moʊs pIpl/).

42. A **homorganic** voiceless stop may occur after a nasal before a **voiceless fricative** followed by an unstressed vowel in the same word (e.g., hearing /t/ in in both agency and grievances).
43. A consonant is shortened when it is before an **identical** consonant (e.g., /k/ in cap and kept).
44. Velar stops become more **frontal** before more frontal vowels. (e.g., clap and talc).
45. The **lateral /l/** is velarized after a vowel or before a consonant at the end of a word.

## Lesson-12

### The Consonants of English-III

- 1) While **transcribing** (accurately and in detail), a small mark is added to a **phonetic** symbol to show the way it is spoken.
- 2) **Diacritics** include various marks such as accent marks (˘ ˆ ˆ), the signs of devoicing [o] and nasalization [̃]. The diacritic marks may be placed over a symbol, under it, before it, after it, or through it.
- 3) The **International Phonetic Association (IPA)** recognizes a wide range of such marks (diacritics) for both vowels and consonants.
- 4) In the case of vowels, diacritics indicate differences in **frontness, backness, closeness or openness, and lip-rounding or unrounding, nasalization and centralization.**
- 5) On the other hand, in the case of consonants, diacritics are used for **voicing or voicelessness**, for advanced or retracted **place of articulation**, aspiration and many other aspects.
- 6) These **small marks** are very important for detailed (**narrow**) transcription.
- 7) For a detailed transcription, **diacritics** are used to a symbol in order to narrow its meaning.

The following six diacritics are quite important for attempting the detailed transcription exercises:

S.NO	Feature	Symbol	Examples	Transcription
1	Voiceless	◌ <sup>◌</sup> (small circle below)	quick	/kw <sup>◌</sup> ik/
2	Aspirated	◌ <sup>h</sup> (small /h/ above)	kiss	/k <sup>h</sup> ɪs/
3	Dental	◌ <sup>̪</sup> (dental sign below)	health	/hə <sup>̪</sup> lθ/
4	Nasalized	◌ <sup>̃</sup> (tilde symbol above)	man	/m <sup>̃</sup> æn/
5	Velarized	◌ <sup>̠</sup> (tilde symbol through)	pill	/p <sup>̠</sup> ɪl <sup>̠</sup> /
6	Syllabic n	◌ <sub>˙</sub> (small vertical line below)	mitten	/mɪ <sub>˙</sub> n/

- 8) **Aspiration** is a puff of noise made when a consonantal constriction is released and air is allowed to escape relatively freely (e.g., in English /p t k/ at the beginning of a syllable are aspirated).
- 9) **Phonetically**, aspiration is the result of the vocal cords being widely parted at the time of the **articulatory** release.
- 10) In some languages (such as **English**) aspiration is allophonic while in others (such as **Urdu**) it is **phonemic**.
- 11) **Pronunciation** teachers used to make learners of English practice aspirated plosives by seeing if they could blow out a candle flame with the rush of air after **p t k** – this can, of course, lead to a rather exaggerated pronunciation (and **superficial** burns).

- 12) A rather different **articulation** is used for the so-called **voiced** aspirated plosives found in many **Indian** languages (often spelt as 'bh', 'dh', 'gh') where after the release of the constriction the vocal folds vibrate to produce **voicing**, but are not firmly pressed together; the result is that a large amount of air escapes at the same time, producing a "**breathy**" quality.
- 13) It is not necessarily only stops that are aspirated as both **unaspirated** and aspirated affricates also exist in **Urdu**.
- 14) **Nasalization** is an **articulatory** process whereby a sound is made 'nasal' (when the air is passing through the **nasal** cavity) due its adjacent nasal sound (it is an articulatory influence of an adjacent nasal consonant, as in words like mat or hand).
- 15) A vowel can also be **nasalised** in words like man (when /a/ may be articulated with the **soft** palate **lowered** throughout), because of the **nasal consonants'** influence (this is called **anticipatory** coarticulation).
- 16) Remember that there is a difference between a 'nasal' and a '**nasalised**' sound. A sound is nasalized when the nasality comes from other sounds (such as above where the **vowel** would be referred to as a 'nasalized' vowel) whereas the '**nasal**' term suggests that the nasality is an essential identifying feature of a sound (in **Urdu** there are many nasal sounds).
- 17) A '**nasalized consonant**', on the other hand, is a consonant which, though normally oral, is articulated in a nasal manner because of some **adjacent (nasal) sound**.
- 18) In co-articulation, **velarisation** is a process whereby a constriction in the vocal tract is added to the **primary** constriction which gives a consonant its place of articulation.
- 19) More specifically, velarisation is an example of **secondary** articulation.
- 20) In the case of English "**dark /l/**", the /l/ **phoneme** is produced with its usual primary constriction in the **alveolar** region (try speaking this sound).
- 21) It is like the back of the tongue is raised for an /u/ vowel sound creating a **secondary (articulation)** constriction.
- 22) There are more examples, **life vs. file (/laɪf/ /faɪf/)** **clap vs. talc (/klæp/ /tæɪk/)**. It is a very common feature of Arabic and is quite important and interesting for **acoustic** analysis.

### Lesson-13

#### English Vowels-I

1. Although the **RP accent** of English has **20 vowel** sounds (including **monophthongs – short and long** vowels and **diphthongs**) yet there is a **discrepancy** about the number of vowels in other varieties of English.
2. As a result, the vowels of English can be transcribed in many different ways because accents of English **differ** greatly in the vowels they use, and because there is no one (**single**) right way of transcribing even a **single accent of English**.
3. There are **different** sets of symbols used for the **transcription** of English vowels depending on the accent of the language and the reason for making the **transcription**.
4. The difference in English vowels is not only related to the number of vowels but it is also found in the '**length**' and '**quality**' of vowel sounds.
5. In order to fully understand the nature of **English** vowels, we need not only to examine various varieties of English but also the **vowel quality and vowel space**.
6. **Quality** is a term used in **auditory** phonetics and **phonology** to refer to the characteristic resonance, or timbre of a sound, which is the result of the range of frequencies constituting the sound's **identity**.
7. **Variations** in vowels are describable in terms of quality, (e.g. the **distinction between [i] and [e]** vowels etc.) would be called a **qualitative** difference.
8. One of the **major** problems describing vowels is the difficulty to describe precisely the **tongue** position (during the production of a vowel) as people cannot determine appropriately for themselves where their tongues are.

9. So it is important for you to remember that the terms we are using (for the **description** of vowels) are simply labels that describe how vowels sound in relation to one another. They are not absolute **descriptions** of the position of the body of the tongue.
10. The reason is that it is perfectly possible to make a vowel sound that is halfway between a **high** vowel and a **mid-vowel** and even it is possible to make a vowel at any specified distance between any **two** other vowels.
11. This is because of the fact that vowels form a **continuum** (try gliding from one vowel to another -from /æ/ in had to /i/ as in he (try to stay as long as possible on the sounds between them). The result you can see is the difference in **vowel** quality.
12. **Vowel sounds** are tricky to be described phonetically accurately because they are points, or rather areas, within a continuous space.
13. A language has a certain **finite** number of contrasting vowels, each of which may be represented with a **discrete** alphabetic symbol but phonetically each will correspond to a range of typical values, and between any two actual vowel sounds there is a **gradient** continuum which determines the dimensions of **auditory** vowel space.
14. Phonetically, the four vowels **[i, æ, a, u]** (as given in the **cardinal** vowel system) give us something like the four corners of a space showing the **auditory** qualities (or possibilities) of auditory vowel space.
15. **Phoneticians** often use terms like high, low, back, and front when they simply label the auditory qualities of vowels and do not describe tongue positions.
16. Many of the **American** vowels are essentially different than those of **British** – and that is why it is different English (compare Standard American Newscaster English with British English as spoken by **BBC** newscasters).
17. When you carefully listen to **American vowels [i, ɪ, ε, æ]** as in words heed, hid, head, had (spoken by a native speaker of English) these vowels sound as if they differ by a series of **equal** steps.
18. Even some **Eastern American** speakers would make a distinct diphthong in heed so that their [i] is really a glide (diphthong) starting from almost the same vowel as that in hid.
19. Similarly, the **back** vowels also vary considerably in both forms of English (e.g., many **Californians** do not distinguish between the vowels in words father and author).
20. Similarly, the vowels **[o, u]** as in good and food also vary considerably as they have a very **unrounded** vowel in good and a rounded but central vowel in food.
21. In short, **American** English in ways is distinct from the **British** English and as the students of phonetics and phonology we should try to explore these differences.

### Lesson-14

#### English Vowels-II

- 1) **Diphthong** is a single vowel consisting of the features of **two** vowels. Its most important feature is the glide from one vowel quality to another one (so basically it is a **glide**).
- 2) The **BBC** accent of English contains a large number (eight in total) of diphthongs including three ending at **/ɪ/** (eɪ, aɪ, oɪ – as in words bay, buy and boy), two ending at **/ʊ/** (əʊ, aʊ – as in words no and now) and three ending at **/ə/** (ɪə, eə, ʊə - as in words peer, pair and poor ).
- 3) There had been a point of difference whether a diphthong should be treated as a **single** phoneme (in its own right) or it is a combination of **two** phonemes.
- 4) On the basis of **phonetic** classification of vowel sounds and manners of articulation, we need to compare **diphthongs with monophthongs and triphthongs**;
- 5) a **monophthong** is a vowel with no qualitative change in it
- 6) a **diphthong** is a vowel where there is a single (perceptual) noticeable change in quality during a syllable (as in English words beer, time and loud)
- 7) a **triphthong** is a vowel where two such changes can be heard.

- 8) **Diphthongs**, or 'gliding vowels', are usually classified into phonetic types depending on one of the two elements that is the more **sonorous**: 'falling' (or '**descending**') diphthongs have the first element stressed.
- 9) In the English examples: '**rising**' (or 'ascending') diphthongs have the **second** element stressed.
- 10) This term is used to describe some varieties of English (e.g., **American**) pronunciation in which the /r/ phoneme is found in all its **phonological** contexts.
- 11) Remember that in the **BBC** accent of English, /r/ is only found **before** vowels (as in 'red' /red/, 'around' /əraʊnd/), but never before **consonants** or before a **pause**.
- 12) In **rhotic** (e.g., some American) accents, on the other hand, /r/ may occur before consonants (as in 'cart' /kɑ:rt/) and before a pause (as in 'car' /kɑ:r/).
- 13) While the **BBC** accent is **non-rhotic**, many accents of the British Isles are **rhotic** (including most of the **south and west** of England, much of Wales, and all of Scotland and Ireland).
- 14) Similarly, most speakers of American English speak with a **rhotic** accent, but there are **non-rhotic** areas including the **Boston** area, lower-class New York and the Deep South.
- 15) From English language teaching point of view, foreign learners encounter a lot of difficulty in learning not to pronounce /r/ in the wrong places.
- 16) A **vowel** may take one out of three forms: **stressed, unstressed and reduced**.
- 17) Most of the time a vowel is completely pronounced when it is in a stressed syllable but the same vowel is different in quality (**allophonic form**) when it takes place in an **unstressed** syllable, and, of course, it is reduced to another form when it is in a **reduced** syllable.
- 18) Remember that in most cases, various reduced vowels are taking the shape of a **schwa** vowel /ə/.
- 19) The symbol /ə/ may be used to show many types of vowels with a central, reduced vowel quality. A vowel in an **unstressed syllable** does not necessarily have a completely reduced **quality**.
- 20) All the English vowels can occur in **unstressed** syllables in their full, unreduced forms and not all but many of them can occur in all possible **three** forms.

### Lesson-15

#### English Vowels-III

1. **Tense and Lax** are the labels of '**strong**' and '**weak**' given to vowels on the basis of their behavior.
2. This is one of the comparative features of sound set up by **Jakobson and Halle** in their distinctive feature theory of phonology to show variations in the manner of articulation for vowels.
3. **Lax** sounds are produced with less muscular effort and movement, and are relatively short and indistinct vowel sounds (e.g., **i, e, ɒ, æ, ʌ, ʊ, ə** vowels articulated near the center of the vowel area) compared to tense sounds (e.g., **u:, i:, ɜ:, a:, ɔə, iə**).
4. In other words, a **lax** vowel is said to be the one produced with relatively little **articulatory** energy.
5. It is mainly **American phonologists** who use the terms lax and tense in describing English vowels.
6. The terms can also be used for consonants as equivalent to **fortis (tense) and lenis (lax)**, though this is not commonly done in present day **description**.
7. These are the terms used in the **phonetic** classification of consonantal sounds on the basis of their manners of articulation.
8. **Fortis** refers to a sound made with a relatively strong degree of muscular effort and breath force compared with the other sound (known as **lenis**).
9. The distinction between **tense and lax** is used for vowels on the similar lines.
10. The labels '**strong**' and '**weak**' are sometimes used for the contrast involved, but these are more prone to ambiguity.
11. In English, these are the voiceless consonants ([**p**], [**t**], [**f**], [**s**], etc.) which tend to be produced with **fortis** articulation (their voiced counterparts being relatively weak i.e., lenis), and often, when the voicing

distinction is reduced, it is only the degree of **articulatory** strength which maintains a contrast between sounds.

- The term '**fortis**' is sometimes used loosely to refer to strong vowel articulation also, but this is not a standard practice.

Following is the list of statements regarding the rules for English vowel allophones:

- Other things being equal, a given vowel is longest in an open syllable, next longest in a syllable closed by a voiced consonant, and shortest in a syllable closed by a **voiceless** consonant (e.g., compare sea, seed, seat or sigh, side, site).
- Other things being equal, vowels are longer in the **stressed** syllables (e.g., compare below and billow).
- Other things being equal, vowels are longest in **monosyllabic** words, next longest in words with two syllables, and shortest in the words with more than **two** syllables (e.g., speed, speedy, speedily).
- A reduced vowel may be voiceless when it is after a **voiceless** stop (and before a voiceless stop. Compare potato with catastrophe).
- Vowels are nasalized in syllables closed by a **nasal consonant** (e.g., /man/).
- Vowels are retracted before syllable final [ɪ] (as in words peel, pail, pal). Compare your pronunciation of /i:/ in heed and heel, of /eɪ/ in paid and pail, and [æ] in pad and pal.

### Lesson-16

#### English Words and Sentences-I

- There is a lot of difference between words spoken in **isolation** than in a connected speech.
- The key difference between citation speech (where a word is in its complete form) and **connected** speech is the variable degree of emphasis placed on different words in the connected speech.
- This "**degree of emphasis**" is probably related to the amount of information that a word conveys in a particular utterance (in conversation).
- For example, the citation **speech/conversational** speech difference is particularly **noticeable** for the closed class of words.
- This class of words such as **determiners** (a, an, the), **conjunctions** (and, or), and **prepositions** (of, in, with)—the **grammatical words**—are very rarely emphasized in the connected speech, and thus their normal pronunciation in the connected speech is quite different from their citation speech forms.
- But remember that, as with other words, **closed-class** words show a strong form, which occurs when the word is emphasized, as in sentences such as: He wanted pie and ice cream, not pie or ice cream.
- There is also a weak form which occurs when the word is in an **unstressed** position.
- Words can have **two** possible forms: weak and strong. In other words, one of the two possible pronunciations for a word in the context of connected speech is '**strong**' and the other is '**weak**'.
- The '**strong**' form is the result of a word being **stressed** (e.g., I want bacon and eggs vs. I want bacon and eggs – where the stress is on AND in order to emphasize it).
- The notion is also used for **syntactically** conditioned alternatives, such as your book vs. the book is yours.
- On the other hand, the weak form is that which is the result of a word being unstressed as in the **normal** pronunciation of OF in cup of tea, and in most other grammatical (closed form of) words.



- 12) Several (**closed class/function**) words in English have more than **one** weak form (e.g. and [ænd] can be [ənd], [ən], [n], etc.
- 13) **Stress** is a term used in phonetics to refer to the degree of force (for making it louder and longer) used in producing a syllable.
- 14) The usual distinction is between stressed and **unstressed** syllables, the former being more **prominent** than the latter (and marked in **transcription** with a raised vertical line, [']).
- 15) This **prominence** is usually due to an increase in loudness of the **stressed** syllable, but increases in length and often pitch may also contribute to the overall impression of prominence.
- 16) **Stressed** syllables are produced with greater effort (force) than unstressed and **stressed** syllables tend to be longer than the unstressed.
- 17) In terms of its linguistic function, stress is often treated under **two** different headings: word stress (**lexical** stress) and sentence stress (**emphatic** stress).
- 18) The analysis of the degree of **stress** is another interesting area.
- 19) It has attracted a great deal of attention in the middle decades of the **twentieth** century.
- 20) The point is how many degrees of stress need to be recognized in order to account for all such contrasts, and show the **inter-relationships** between words derived from a common root, such as telegraph, telegraphic and telegraphy.
- 21) In the **American** structuralist tradition, four such degrees are usually distinguished, and analyzed as stress phonemes, namely (from strongest to weakest) (1) 'primary', (2) 'secondary', (3) 'tertiary' and (4) 'weak'.
- 22) These contrasts are, however, demonstrable only on words in isolation as in the **compound elevator** operator. In **phonological** analysis, most of the experts only distinguish among three degrees of stress namely 'primary', 'secondary' and 'weak' or 'unstressed' (e.g., ig., zæm.i.'nei.jən).
- 23) **Stress** is a large topic and despite the fact that it has been extensively studied for a very long time, there remain many areas of **disagreement** or lack of understanding.
- 24) So, it is important to consider what factors make a **syllable** count as stressed.
- 25) Stress is basically a prominence of **syllable** in terms of loudness, length, pitch and quality and all of them work together in order to make a syllable stressed.
- 26) As discussed above, **two** types of stress are important.
- 27) **Firstly**, stress on a syllable within a word (the **lexical** stress) which changes the **grammatical** category of a word (compare insult with insult) and also change meaning among other things.
- 28) On the other hand, stress on a word or certain words in a **phrase or sentence**.
- 29) This type of stress (on word(s) within sentences) is called **sentence level or prosodic stress**.
- 30) This is, in fact, a change or **modification** to word level stress in a sentence which is basically a change of 'beat' on certain words in a sentence. Remember that, we create 'rhythm' in spoken language on the basis of stress.

### Lesson-17

#### English Words and Sentences-II

1. Sentence **rhythm** is another feature of a **connected** speech.
2. Actually, speech is perceived as a sequence of events in time, and the word **rhythm** is used to refer to the way events are distributed in time.

3. Obvious example of **vocal** rhythms is chanting as part of games (for example, **children** calling words while skipping or cricket crowds calling their favorite **team's** name).
4. In **conversational** speech, the sentence rhythm is a **bit** complicated, but it is clear that the timing of speech is not random.
5. An extreme view (though a quite **common** one) is that English speech has a rhythm that allows us to divide it up into more or less equal intervals of **time** called feet, each of which begins with a **stressed** syllable: this is called the **stress-timed** rhythm hypothesis (and languages are divided on the basis of this phenomenon into **stress-timed** and syllable-timed languages).
6. Languages where the length of each syllable remains more or less the same as that of its **neighbors** whether or not it is stressed are called **syllable-timed** languages.
7. Most evidence from the study of real speech suggests that such **rhythms** only exist in a very careful and controlled speech, but it appears from **psychological** research that listeners' brains tend to hear timing regularities even where there is little or no **physical** regularity found.
8. **Intonation** refers (very) simply to the variations in the pitch of a speaker's voice (**f<sub>0</sub>**) used to convey or alter meaning but in its broader and more popular sense intonation covers much of the same field as '**prosody**' where variations in such things as voice quality, tempo and loudness are included.
9. It is certainly possible to analyze pitch movement (or its **acoustic** counterpart, fundamental frequency) and find regular patterns that can be described and tabulated.
10. Some experts look for an underlying basic pitch melody (or a **small** number of melodies) and then describe the factors that cause deviations from these **basic** melodies.
11. On the other hand, there are experts who have tried to break down these **pitch** patterns into **small** constituent units such as "**pitch phonemes**" and "**pitch morphemes**".
12. The approach most widely used in **Britain** takes the tone unit as its basic unit and looks at the different pitch possibilities of the various components of the **tone** unit (the pre-head, head, tonic **syllable/nucleus**, tail, etc.).
13. **Intonation** is said to convey emotions and attitudes. Other linguistic functions have also been claimed (e.g., grammatical structure and new information – the effect of **prominence**).
14. Interesting relationships exist in **English** between intonation and grammar; for example, in a few extreme cases a perceived difference in grammatical meaning may depend on the **pitch** movement.
15. '**Intonation**' is pitch variation at sentence level and it could be described in terms of **intonational** phrase. In order to describe intonation, we need to analyze the role of a 'stressed syllable' (i.e., pitch change of one syllable) which further creates a major change '**tonic accent**' (marked with an asterisk) to create the pitch peak in an intonational phrase.
16. Similarly, a formal category of intonational phrase is also sometimes recognized (an utterance span dominated by **boundary tones**).
17. As the part of **suprasegmental** phonology, intonation refers to the distinctive use of patterns of pitch, or melody.
18. In some approaches, pitch patterns are described as contours and analyzed in terms of levels of pitch as pitch **phonemes and morphemes**; in others, the patterns are described as tone units or tone groups, analyzed further as contrasts of nuclear **tone**, tonicity, etc.
19. This is important to note that intonation performs several functions in a language - the most important function is as a **signal** of grammatical structure, where it performs a role **similar** to punctuation in writing.
20. The marking of sentence, **clause** and other boundaries, and the contrast between some **grammatical** structures, such as questions and statements, may be made using **intonation**.
21. For example, the change in meaning illustrated by 'Are you asking me or telling me?' is **regularly** signaled by a contrast between '**rising** and '**falling**' pitch, e.g., 'He's going, isn't he?' (= I'm asking you) opposed to 'He's going, isn't he!' (= I'm telling you).

22. A **second** important role of intonation is in the communication of personal attitude (e.g., sarcasm, puzzlement, anger, etc.) which can all be signaled by contrasts in pitch along with other **prosodic** and **paralinguistic** features.
23. Other roles of **intonation** in language have been suggested (e.g., as one of the ways of **signaling** social background).
24. Although **'tone'** as a word has a very wide range of meanings and uses in **ordinary** languages, its meaning in **phonetics and phonology** is quite restricted.
25. It refers to an **identifiable** movement or level of pitch that is used in a linguistically contrastive way. In typical **'tone'** languages, the linguistic function of tone is to change the meaning of a word.
26. For example, in **Mandarin (Chinese)**, /ma/ said with high pitch means 'mother' while /ˈma/ spoken on a low rising tone means 'hemp'.
27. In other **(non-tonal) languages**, tone forms the central part of intonation, and the difference between, for example, a rising and a falling tone on a particular word may cause a different interpretation of the sentence in which it occurs.
28. In the case of tone languages, it is usual to identify tones as being a property of **individual** syllables, whereas an **intonational** tone may be spread over many syllables.
29. Similarly, in the analysis of English intonation, tone refers to one of the **pitch** possibilities for the **tonic** (or nuclear) **syllable**, a set usually including fall, rise, fall-rise and rise-fall, though others are also suggested by various experts.
30. In some approaches, the pitch patterns are described as contours and are further analyzed in terms of levels of **pitch as pitch** phonemes and morphemes.
31. In others, the patterns are described as tone **units** or tone groups, analyzed further as **contrasts** of **nuclear** tone, tonicity, etc.
32. The three variables **(1) pitch range, (2) height and (3) direction** are generally distinguished.
33. Some approaches (especially within **pragmatics**), operate with a much broader notion than that of the tone unit (i.e., intonational phrasing is a structured hierarchy of the intonational constituents in conversation).
34. A formal category of intonational phrase is also sometimes recognized (i.e., an utterance **span** dominated by **boundary** tones).
35. One of the most recently developed methods is called the **'tone and break indices' (ToBI)**.
36. This method is used for the description of **intonation** (H/L) representing pitch changes and showing pitch accent – phrase accent and boundary by showing tone and break indices.
37. This is based on describing **High** (H) and **Low** (L) pitches in a sentence representing pitch changes and showing pitch **accent – phrase** accent and boundary (of the phrase).

### Lesson-18

#### Airstream Mechanisms

- 1) All human speech sounds are produced by making the air move (in **oral and nasal** cavity) thus creating the **airstream**.
- 2) Now the study of how and what type of air move is involved is called the **airstream** mechanism.
- 3) Most commonly, the air is moved outwards from the body (creating an **egressive** airstream) but more rarely, speech sounds are also made by drawing air inward (into the body – an **ingressive** airstream).
- 4) In other words, **'airstream'** is a term used in phonetics for a **physiological** process which provides a source of energy capable of being used in speech sound production.
- 5) There are various forms and mechanisms for initiating the air move.
- 6) The most common is when the air is moved inwards or outwards by initiating air movement involving 'lungs' (the **pulmonic** airstream), which is used for producing the majority of human speech sounds. The **'glottalic'** airstream mechanism, as its name suggests, uses the movement of the glottis - the **aperture**

## ENG507 (Notes for {Grand Quiz})

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- between the vocal folds as the source of energy. The third one is the 'velaric' airstream mechanism which involves an airflow produced by a movement of the back of the tongue against the velum.
- 7) **Pulmonic** airstream mechanism is the most commonly used mechanism for speech production by human beings.
  - 8) Almost all the sounds we produce in speaking are created with the help of air compressed by the **lungs**.
  - 9) The adjective used for this lung-created airstream is 'pulmonic': the pulmonic airstream may be **ingressive** (as in breathing in) but for speaking practically, it is always **egressive** (speech sounds are produced while pushing the air out).
  - 10) In order to understand this mechanism, we'll have to analyze the human **respiratory** system. Under this system, the **respiratory** muscles set the air in motion.
  - 11) Lungs – the sponge like tissues – contained within air cage called the **diaphragm** – contract and enlarge lung cavity thus creating the **egressive – ingressive** actions.
  - 12) This mechanism set an air flow for speech production and human beings produce speech sounds while pushing the air out.
  - 13) This mechanism involves 'glottis' as the adjective could be used to refer to anything pertaining to the glottis.
  - 14) A **glottalic** airstream is produced by making a tight closure of the vocal folds and then moving the larynx up or down thus raising of the **larynx** pushes the air outwards causing an egressive glottalic airstream.
  - 15) Similarly, while lowering, the larynx pulls air into the vocal tract and it is called an **ingressive** glottalic airstream.
  - 16) Sounds of this type found in human language are called **ejective or implosive** respectively.
  - 17) **Glottalization** as a process is used for any articulation involving a simultaneous **glottal** constriction (e.g., a glottal stop).
  - 18) In English, glottal stops are often used in this way to reinforce a **voiceless** plosive at the end of a word as in what.
  - 19) Such sounds, made while the **glottis** is closed, are produced without the **direct** involvement of air from the lungs.
  - 20) Air is compressed in the mouth or **pharynx** above the glottal closure, and released while the breath is still held thus the resultant sounds produced in this glottalic airstream mechanism are known as **ejective** sounds. They are also called 'glottalic' or **glottalized** sounds (though the latter term is often restricted to sounds where the glottal feature is a **secondary** articulation).
  - 21) In languages like **Quechua and Hausa** ejective consonants are used as **phonemes**.
  - 22) A further category of sounds involving a **glottalic** airstream mechanism is known as implosive.
  - 23) to **pulmonic and glottalic** airstream mechanisms, there is a third possibility involving **velum**.
  - 24) Under this mechanism, **speech** sounds are made by sucking the air (see airstream).
  - 25) This sucking mechanism is used first by babies for feeding and by adult humans in later stages of life for such things as sucking liquid through a straw or drawing smoke from a cigarette (using the **back** of the tongue against the velum).
  - 26) The **basic** mechanism for this is the air-tight closure between the back of the tongue and the **soft** palate, just as if the tongue is then retracted, and the pressure in the **oral cavity** is lowered and suction takes place.
  - 27) Consonants produced with this mechanism are called **clicks**. These sounds have a distinctive role in some languages such as **Zulu**.
  - 28) In English, they may be heard in the 'tut tut' (or tsk tsk) sounds, and in a few other contexts.
  - 29) There are three possible mechanisms involved in human speech production.
  - 30) The most common one is the moving of air by compression of the lungs so that the air is **expelled** through the vocal tract (this is called a **pulmonic** airstream - usually an egressive pulmonic one, but occasionally speech is produced while breathing in).
  - 31) The **second** one is the glottalic (produced by the larynx with closed vocal folds)

- 32) it is moved up and down like the **plunger** of a bicycle pump) and the last one is called **velaric** (where the back of the tongue is pressed against the **soft palate** or velum
- 33) making an air-tight seal, and then drawn backwards or forwards to produce an airstream).
- 34) The **ingressive** glottalic consonants (often called implosives) and **egressive** ones (ejectives) are found in many non-European languages.
- 35) On the other hand, **click sounds** (ingressive velaric) are much rarer, but occur in a number of southern African languages such as Nàmá, Xhosa (or Hausa) and Zulu.
- 36) Speakers of other languages including English use click sounds for non-linguistic communication as in the case of the **“tut-tut”** (equal to the American “tsktsk”) known as the sounds of disapproval.

### Lesson-19

#### Phonation

1. The position of **larynx** (also known as sound box) and the vocal folds inside larynx are very important in the description of speech sounds.
2. **‘Phonation’** is a technical term used for describing the forms of vibration of the vocal folds (or vocal cords) and the process is more commonly known as voicing.
3. The glottis (which is defined as the space between the vocal folds) can assume a number **of shapes** (such as **voiced, voiceless, murmuring and creaky positions**).
4. The most common positions of vocal folds are used to describe the two possible features of consonant sounds by considering sounds to be either voiceless with the vocal folds apart (such as **/p/ and /t/**) or **voiced** with the folds nearly together so that they will vibrate when air passes between them (such as **/b/ and /g/**).
5. These glottal states are important in the description of speech sounds in particular languages and in the description of pathological voices.
6. The process of phonation is also known as **‘voicing’** and laryngeal activity.
7. **‘Phonation’** is a general term used in phonetics to refer to any vocal activity in the larynx (i.e., sound box).
8. The possibilities of various kinds of **vocal-fold** vibration (voicing or phonation) are the main **phonatory** activities, and the study of phonation types is aimed at accounting for the various **laryngeal** possibilities (such as **voiced, voiceless, breathy and creaky** voice).
9. Some phoneticians also include the modifications in phonation under this heading which stem from variations in length, thickness and tension of the vocal folds as displayed in the various **registers** of speech.
10. Actually during the **phonation** process, what happens is that the air passes between the **vocal folds** and **modification** to the air passage takes place in the laryngeal area thus creating variation in intensity, **frequency and quality** of the sound. This has an important role in speech including the voicing of sounds and murmuring.
11. As discussed earlier, the space between the **vocal folds** (glottis - inside the larynx) can assume a number of positions thus modifying the form of speech sounds and changing the features of it.
12. When brought into light this contact of vocal folds with each other, the shape of vibration (of **air passage**) is forced to produce **phonation or voicing**.
13. So, based on the possibilities of the nature of vibration, the states of glottis are determined thus the vibration can be made to vary in many ways, resulting in differences in such things as pitch, loudness and voice quality.
14. If a narrow opening is made between the vocal folds, friction noise can result and this is found in whispering and in the **glottal fricative** /h/.
15. A more widely open glottis is found in most **voiceless consonants**
16. In order to further explain the nature of the **phonation** as a process, we need to know the possible phonation types and its **description**.

There are mainly four possible glottis/larynx settings or types of phonation:

17. **Voiceless** – when the folds are open apart and the air passing through the glottis freely (/t/ or /p/).
18. **Voiced** – when the folds are tight together and there is vibration during the air passage though the glottis (e.g., /b/ or /d/).
19. **Creaky voice** – when there is a slight opening in the front and the arytenoid cartilages are tight together, so that the vocal folds can vibrate only at the anterior end (the small opening at the top).
20. **Breathy or murmuring sound** – when the vocal folds are apart but still they are vibrating - a breathy voice is like a whisper except voice.
21. **Voicing** is an important feature of speech sounds which is used not only as a feature but also as a distinction for describing sounds.
22. There are sounds (such as vowels, nasals and **approximants** i.e., sonorants) which are usually **voiced** (though in particular contexts the voicing may be weak or absent).
23. On the other hand, there are sounds which may be voiced or voiceless such as **fricatives** and **plosives** (together called obstruents).
24. **Obstruents** are the most frequently found sounds that have both **voicing and voicelessness**.
25. Remember that voiced and voiceless can make a **phonemic** distinction (in languages such as English) thus the meaning of a word can change if one uses a voiceless sound instead of a voiced sound.
26. A **glottal stop** is only an allophonic variation and is used in RP before /p, t, k/.
27. In some dialects these three can even be replaced by a glottal stop altogether. The symbol for a glottal stop is like a question mark [ʔ].

### Lesson-20

#### Voice Onset Time (VOT)

- 1) All **human** languages distinguish between voiced and voiceless consonants, and **plosives** (stops) are the most common consonants to be distinguished using the **voicing** feature.
- 2) However, this is not a simple matter of a plosive being either completely voiced or **completely** voiceless. The timing of the voicing in relation to the consonant **articulation** is also very important.
- 3) In one particular case this is so noticeable that it has for a long time been given its own name: **aspiration**, in which the beginning of full **voicing** does not happen until for some time after the release of the plosive (usually **voiceless**).
- 4) This **delay** (or **lag**), has been the subject of much experimental investigation which has led to the development of a scientific measure of voice timing called **voice onset time** (or **VOT**).
- 5) In simple words, the onset of voicing in a plosive may lag behind the plosive release, or it may precede (“lead”) contrarily, resulting in a fully or partially **voiced** plosive.
- 6) Both can be represented on the VOT scale, one case having positive values and the other **negative** values (and the third possibility is zero VOT).
- 7) **Voice Onset Time (VOT)** is a term used in phonetics referring to the point in time at which vocal fold vibration starts in relation to the release of a **closure** (during the production of plosive sounds).
- 8) In order to understand **VOT**, the three types of plosive sounds are to be explained – voiced, voiceless and a voiceless aspirated sound.
- 9) For example, during the production of a fully **voiced** plosive (e.g., /b/ or /g/),
- 10) the vocal folds vibrate throughout; in a voiceless **unaspirated** plosive (such as /p/ or /t/),
- 11) there is a delay (or lag) before voicing starts; and, in a **voiceless** aspirated plosive (e.g., /p<sup>h</sup>/ or /t<sup>h</sup>/), the delay is much longer, depending on the amount of aspiration.
- 12) The amount of this delay is called **Voice Onset Time (VOT)** which in relation to the types of plosive varies from language to language.

- 13) **VOT** is an important feature in experimental phonology and it is used in order to analyze the nature of different languages and their **stop** sounds.
- 14) Languages vary in terms of **VOT and the delay (lag or VOT)** is an important feature to be explored for the comparison of languages.
- 15) It also provides an important insight regarding the perception of **VOT** by **bilingual** learners. Language specific VOT values are further important to be considered by language experts. The VOT values can also provide information regarding the phonemic contrast of appropriate sound production by the learners.
- 16) Moreover, it also gives an insight regarding the three different possibilities (**types of VOTs**).
- 17) **VOT** is calculated through a specific methodology and important contrastive features are to be taken into account.
- 18) Remember that different languages choose different points along the VOT **continuum** in forming oppositions among **stop** consonants.
- 19) **Different** possibilities that occur in different languages are shown with reference to a scale going from most aspirated (largest positive VOT) at the top to most voiced (largest negative VOT) at the bottom.
- 20) The **Navajo** aspirated stops have a very large VOT value that is quite exceptional (**150 MS**).
- 21) On the other hand, the normal value for the VOT of English stressed initial /p/ would be between **50 and 60 MS**.
- 22) There are three possible types of **VOT** based on the nature of stop sounds.
- 23) Firstly, simple **unaspirated** voiceless stops have a voice onset time at or near zero. This means that the voicing of a following vowel begins at or near to when the stop is released.
- 24) The second possibility is when aspirated stops are followed by a vowel: voice onset time is greater than zero called a positive **VOT**.
- 25) The length of the VOT in such cases is based on the practical measure of aspiration – the longer the VOT, the stronger the aspiration (Navajo, for example, has strongly aspirated stops where, the aspiration (and therefore the VOT) lasts twice as long as that of English - **150ms**).
- 26) The third possibility is when voiced stops have a VOT noticeably less than **zero** called "**negative VOT**".
- 27) This would simply mean that the vocal cords start vibrating before the **stop** is released.