



Voicing & Consonants

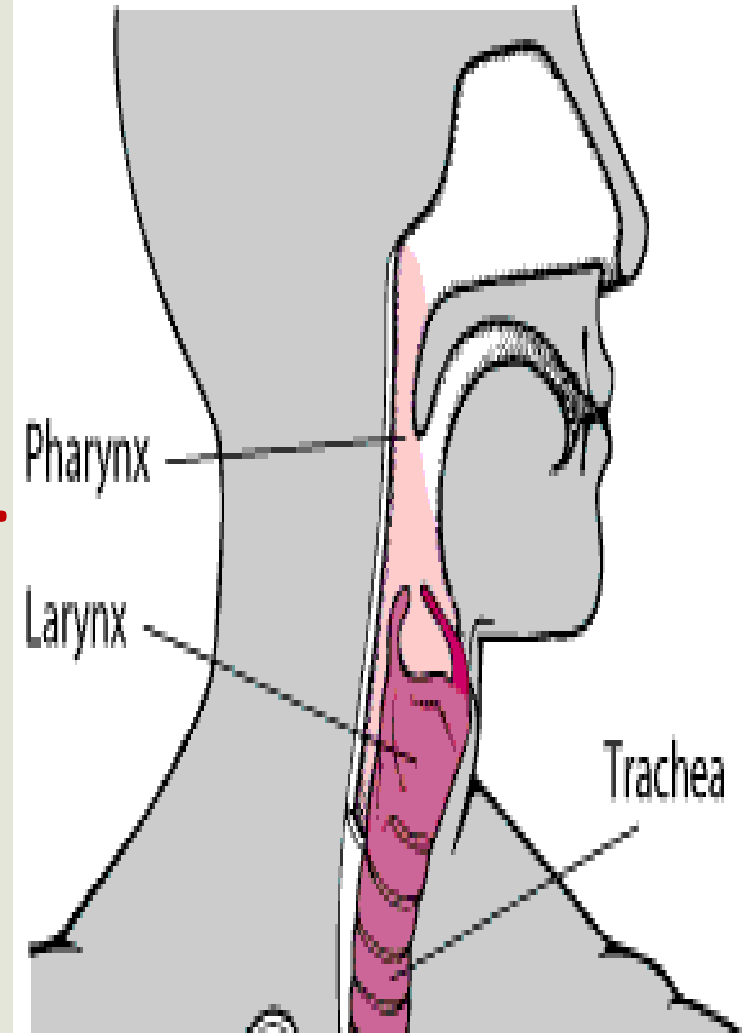
- The larynx
- Respiration and voicing
- Plosives

Voicing

- Sounds produced with vibrating vocal folds are said to be **voiced**, those produced without vocal cord vibration are **voiceless**.
- **Voiced consonants** are **consonant sounds that are made by vibrating the vocal cords**.

The larynx

- The larynx is in the neck and it has several parts.
- The larynx is made of cartilage (thyroid & Cricoid Cartilages).
- **Cartilage** is a material that is similar to bone but less hard.



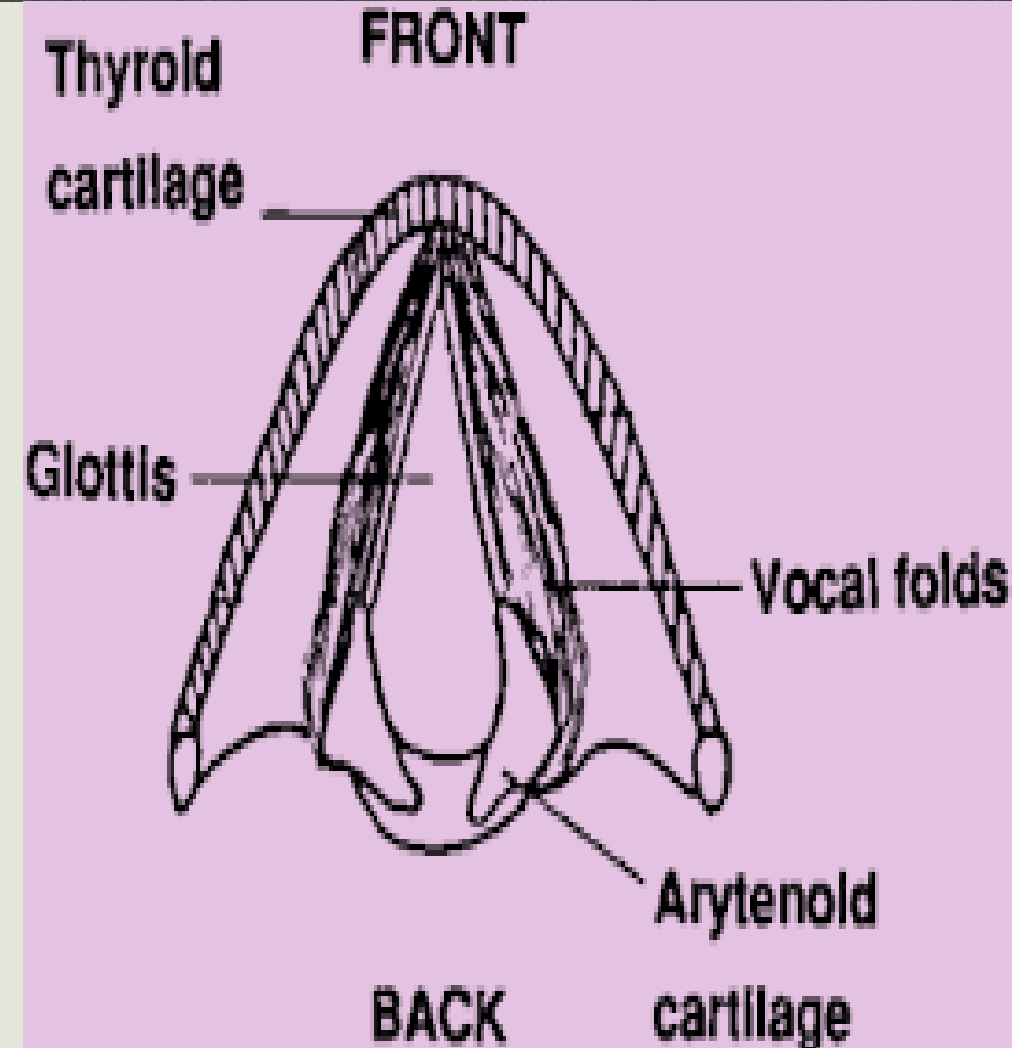
Adam's Apple

- The front of larynx has **Adam's Apple** which is quite prominent in slim adults.
- **Adam's apple** is in fact a box which contains **vocal folds** which are made up of these two cartilages.



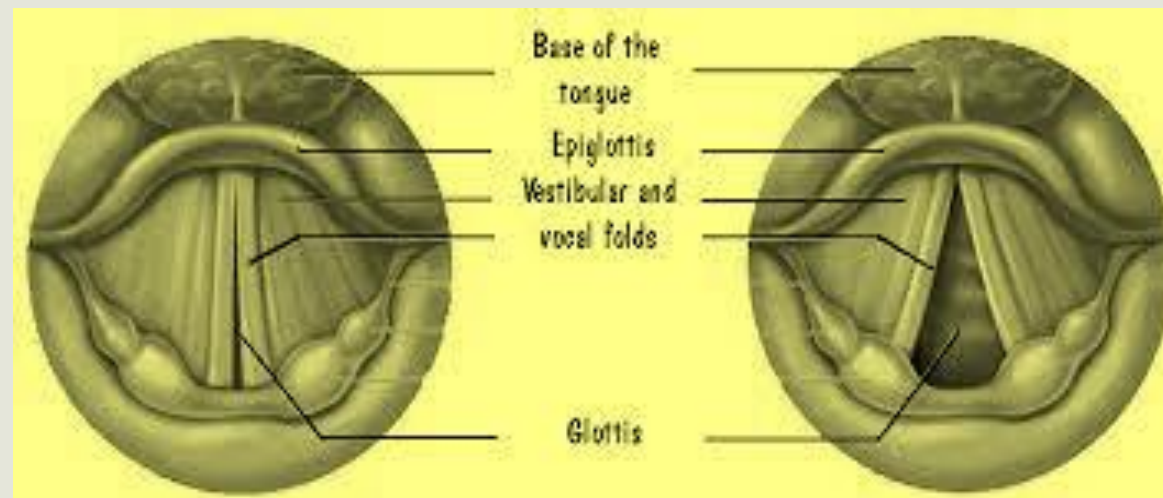
Vocal Folds

- **Vocal Folds:** These are two thick flaps of muscles rather like a pair of lips, the ex-name for these is vocal cords.
- At the front, the vocal folds are joined and fixed to the inside of the **thyroid cartilage**. At the back they are attached to a pair of small cartilages called the **Arytenoid Cartilages** so that if the arytenoid cartilages move the vocal folds move too.



Vocal Folds

- The **arytenoid cartilages** are attached to the top of the **Cricoid cartilage** , but they can move so as to move the vocal folds apart or together.
- We use the word glottis to refer to the opening between the vocal folds.
- If the vocal folds are **apart** we say that the glottis is **open**, if they are **pressed** together we say that the glottis is **closed**.



Different positions of Vocal Folds

- **Wide Apart:** The vocal folds are wide apart for normal breathing and usually during voiceless consonants like p, f, s.
- **Narrow Glottis:** If air is passed through the glottis when it is narrowed, the result is a fricative sound for which the symbol is /h/. The sound is not very different from a whispered vowel. It is called a **voiceless Glottal Fricative**.

Different positions of Vocal Folds

- **Position for vocal fold vibration:** when the edges of vocal folds are touching each other or are nearly touching, air passing through the glottis will usually cause vibration. Air is pressed up from the lungs and this air pushes the vocal folds apart so that the little air escapes. As the air flows swiftly past the edges of the vocal folds the folds are brought together again. This opening and closing happens very rapidly and is repeated regularly between two and three hundred times per second in woman's voice and about half that rate in an adult man's voice.
- **Vocal folds tightly closed:** the vocal folds can be firmly pressed together so that air cannot pass between them. We call this position a glottal stop or glottal plosive, and for this we use the symbol /h/.it can be practiced by coughing gently ; then practise the sequence ahahahah.

Respiration and Voicing

- When air is moved out of the lungs we say there is an **egressive pulmonic air stream**.
- All speech sounds are made with some movements of air.
- The lungs are like **sponges** that can be filled with air and they are contained within the **rib cage**.
- If The **rib cage** is lifted **upper** and **outwards** there is more space in the chest for the lungs and they expand with the result they take in more air.

Respiration and Voicing

- We obstruct the air flow by **articulators**. We form strictures in the **vocal tracts**.
- If the vocal folds are **apart** there will be **no** vibration, thus **no voicing** will take place. But if the vocal folds are **touching** there will be **voicing and vibration**.

Different variations in the vocal folds for different voicing

- **Variations in intensity:** We produce voicing with high intensity for shouting, for example, and with low intensity for speaking quietly.
- **Variations in Frequency:** If the vocal folds vibrate rapidly, the voicing is at high frequency; if there are fewer vibrations per second the frequency is lower.
- **Variations in Quality:** We can produce different sounding voice qualities, such as those we might call harsh, breathy, murmured, or creaky.

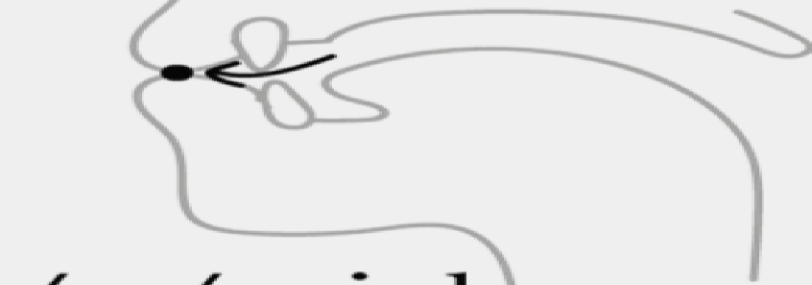
Plosives

- Plosive consonants are made by **completely blocking the flow of air as it leaves the body**, normally followed by releasing the air. English pronunciation contains 6 plosive phonemes:

There are 6 plosives sounds

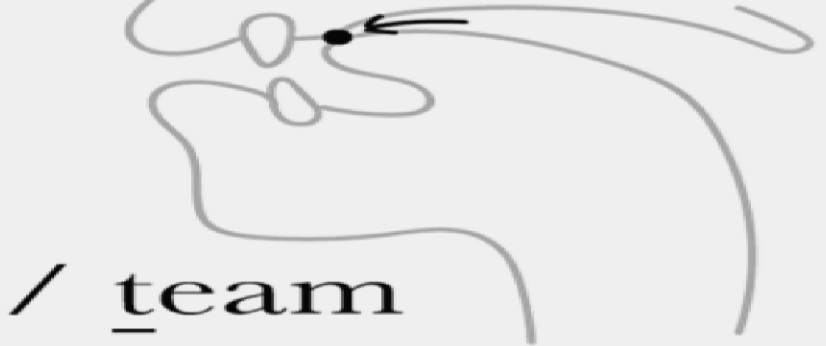
Unvoiced (voiceless)	voiced
/p/	/b/
/t/	/d/
/k/	/g/

bilabial
both lips



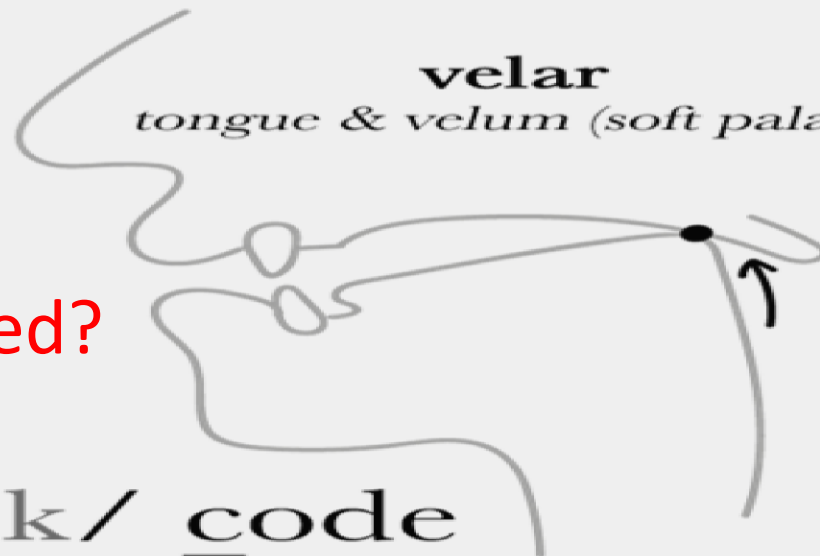
/p/ pick
/b/ bed

alveolar
tongue & alveolar ridge



/t/ team
/d/ dine

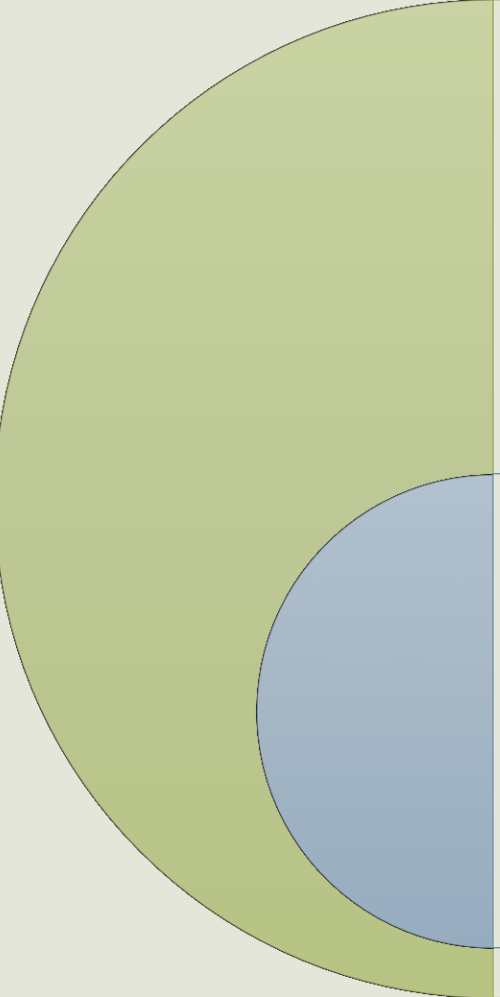
velar
tongue & velum (soft palate)



/k/ kode
/g/ get

How are plosives formed?

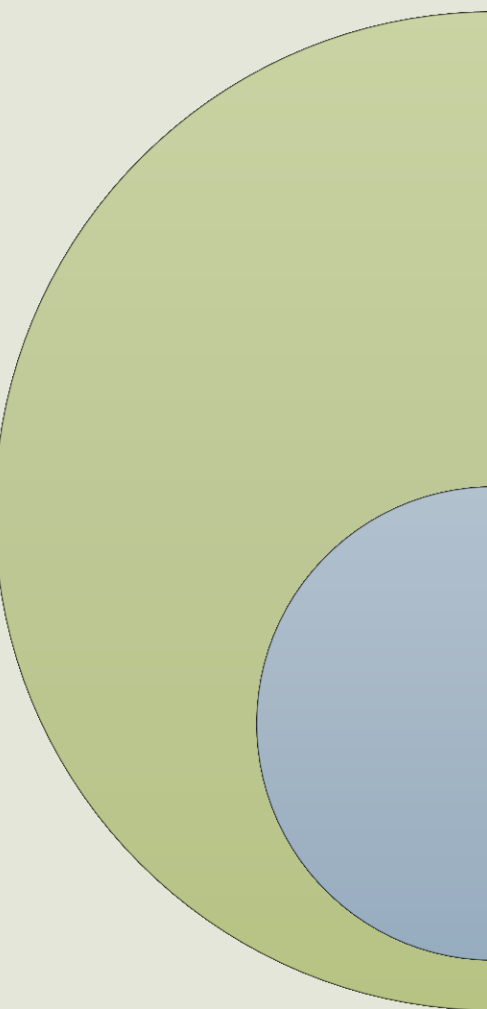
Plosives



One articulator is moved against another, or two articulators are moved against each other, so as to form a stricture that allows no air to escape from the vocal tract. The stricture is, then, total.

After this stricture has been formed and air has been compressed behind it, it is **released** - that is, air is allowed to escape.

Plosives



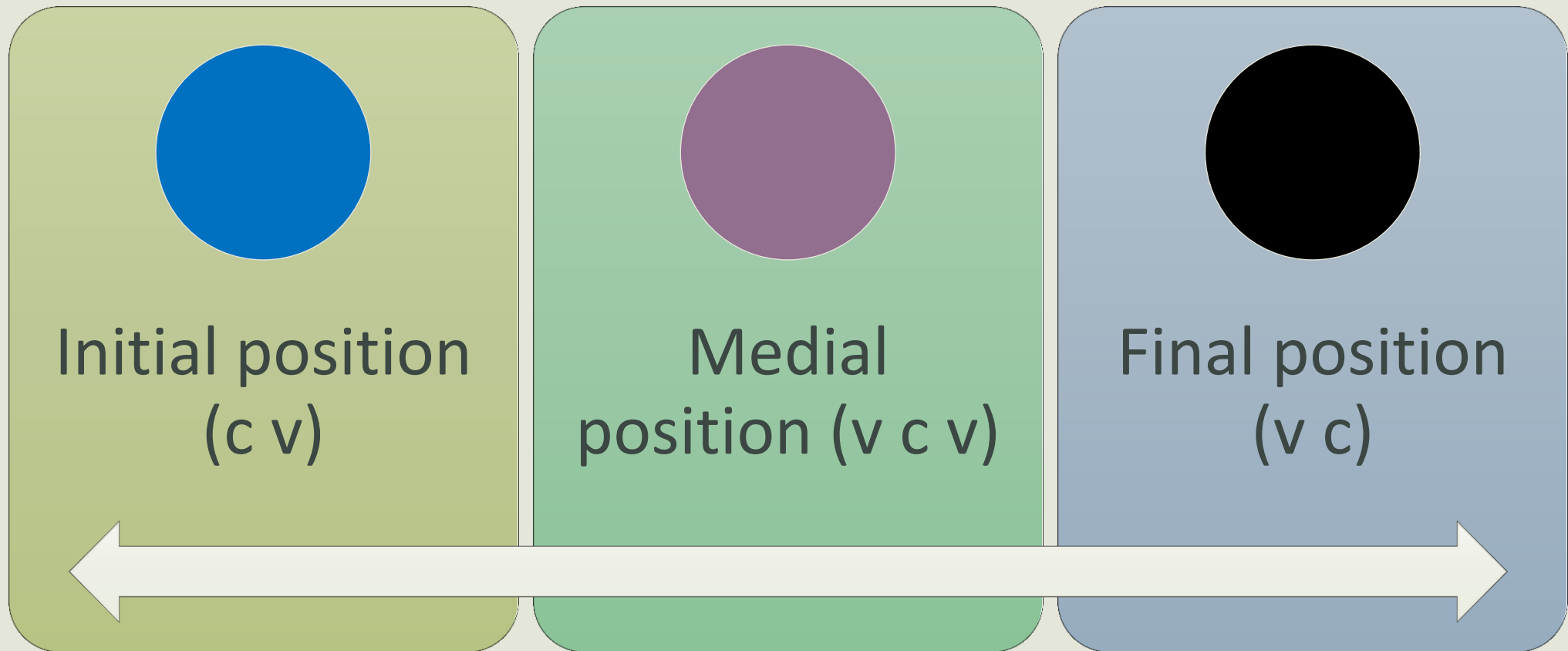
If the air behind the stricture is still under pressure when the plosive is released, it is probable that the escape of air will produce noise loud enough to be heard. This noise is called **plosion**.

There may be voicing during part or all of the plosive articulation.

Four phases of articulation



Positions of plosives



Initial position (c v)

- Closing phase **P, t, k** (No voicing takes place)
b, d, g (No voicing takes place)
- Compression phase: **P, t, k** (No voicing takes place)
b, d, g (little voicing takes place during the entire compression phase)

Initial position (c v)

Release phase: **p , t , k** (Release of p,t,k is followed by an audible plosion)

b , d , g (Release of b,d,g is followed by a weak plosion)

Post-release phase: **p , t , k** (Air escapes through vocal folds, making a sound like h. "aspiration")

b, d ,g (there is no aspiration and voicing continues)

Difference in the initial positions of p, t, k & b, d, g

Aspiration

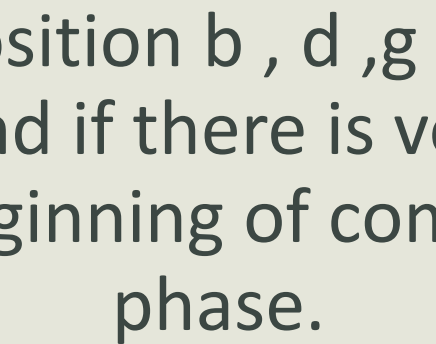
initial position b , d ,g cannot be preceded by any consonant

In initial position p , t ,k can be preceded by s and in such a situation p , t ,k will be un aspirated (spy, store, ski)

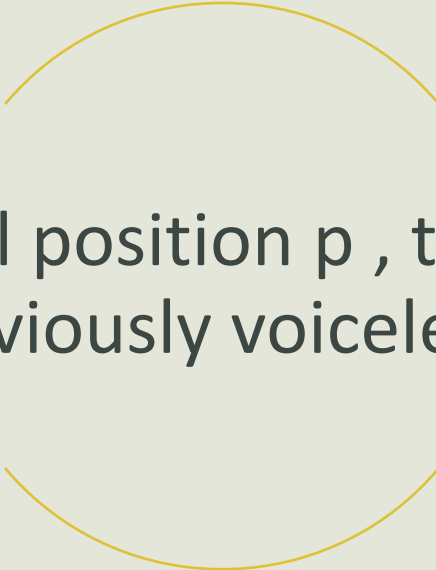
Medial position

- A medial plosive may have the characteristics either of final or of initial plosives.

Final position (v c)



In final position b , d ,g have little voicing and if there is voicing it is at the beginning of compression phase.



In final position p , t , k are obviously voiceless.

Final position (v c)

In final positions the plosion following the release of p,t,k & b,d,g is very weak and often not audible.

In final positions the vowels preceding p,t,k are much shorter. The shortening effect of p, t, k is most noticeable when the vowel is a long vowel or a diphthong.

No questions, please

Thank you