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THE IDEATIONAL FACET OF PLOSIVES, FRICATIVES AND AFFRICATES

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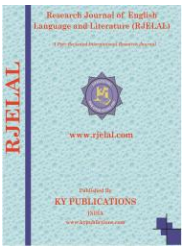

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Abstract
This research paper deals with the theoretical aspect of plosives, fricatives and affricates. This paper introduces these sounds in detail according to their manner and place of articulation along with their allophonic variations, the accepted phonetical representation of each in different situations with sufficient number of examples that illustrate their occurrence in the initial, medial and final positions. The paper will lend a helping hand to the learners who want to improve their pronunciation and also those who want to get into the deeper understanding of the sounds. The phonetic symbols used for the consonants are the same as those used in dictionaries such as English Pronouncing Dictionary by Daniel Jones (16th edition).
Keywords: Plosive, Fricative, Affricate, voiceless, voiced, allophone, articulation, aspirated

Introduction

Linguistics as we know is the scientific study of the language. Learning to speak a language with correct pronunciation is very beneficial and also leads to life time learning. If we talk about the consonant sounds according to British R.P they are 24 in number which are categorized as Plosives, Fricatives, Affricates, Lateral, Nasals and Frictionless continuant as per their place of articulation. In this paper Plosives, Fricatives and Affricates have been dealt in deeper detail so that the learners can get the in depth knowledge of the speech sounds according to their place and manner of articulation which they usually do not during their curriculum.

PLOSIVES -There are twenty-four distinctive consonants in English RP (Received Pronunciation) out of which six are plosives. A plosive also known as stop consonant is one that is produced with a stricture. The articulators are in firm contact for some time and then are separated suddenly. [1]

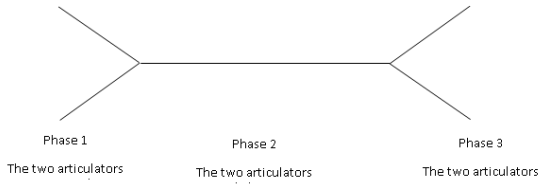
A plosive is a consonant articulation with the following characteristics:

- 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. This stricture is, then, total.
- After this stricture has been formed the air has been compressed behind it, it is released suddenly, that is, air is allowed to escape.
- 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. [2]

There are three phases in the production of a plosive consonant and they are:

- The closure phase- the two articulators come together and make a firm contact with each other.
- The closed or hold phase- the two articulators remain in contact for sometime.
- The release phase- the two articulators, separate and the air escapes with a slight explosive sound.

Following Abercrombie (1967) we may diagrammatically represent the articulation of a plosive consonant thus:



During the articulation of a voiced plosive, the vocal cords vibrate during all the three stages. During the articulation of a voiceless plosive, the vocal cords are wide apart during phases1 and 2. If the vocal cords start vibrating simultaneously with phase 3, the plosive is said to be *unaspirated.* If the vocal cords start vibrating a little after the phase 3 is completed, the plosive is said to be *aspirated*. [3]

The six plosives are / p, t, k, g, b, d /. The plosives have different places of articulation. The plosive / p / and / b / are bilabial since the lips are pressed together; / t / and / d / are alveolar since the tongue blade is pressed against the alveolar ridge. The plosives / k / and / g / are velar, the back of the tongue is pressed against the area where hard palate ends and the soft palate begins. The plosives / p, t, k / are voiceless whereas / b, d, g / are voiced plosives. All six plosives can occur at the beginning (initial position) of a word, between other sounds (medial position) and at the end of a word (final position).

/ p /

During the articulation of / p /, the soft palate is raised, thereby shutting off nasal passage of air. The two lips come into contact with each other and the tightly closed lips effect the oral closure. The vocal cords are kept wide apart and the lung air is compressed behind this closure. When the lips are separated suddenly, the air escapes with force. Thus / p / is a *voiceless bilabial plosive*.

Allophones of / p /

- / p / is aspirated [p^h] when it occurs initially in an accented syllable as in *pot, pull, a'part, ap'ply, play, prove, pure.*
- / p / is unaspirated
  - when it occurs in an unaccented syllables as in *pre'vent, 'leper.*
  - it is preceded by / s / as in *spot, spool, spy* and
  - it occurs medially in a syllable as in *apt, lapse, helped.*
- / p / is inaudibly released. / p / is released without an explosion
  - when it occurs finally, i.e. before silence, as in *cup, sleep, type;* and
  - it occurs before another plosive or affricate as in *wept, captain, stop cheating.*
- / p / is nasally released when it is followed by / m / or / n / as in *help me, cheap meal, happen.*[4]

/ b /

/ b / is articulated exactly like / p /, except that during the articulation of / b / the vocal cords vibrate, producing voice. / b / is thus a *voiced bilabial plosive*.

Allophones of / b /

- / b / is partially devoiced when it occurs initially in a word, as in *bin, bark*.
- / b / is exploded through the nose when it is immediately followed by / m / as in *submit, submerge*.
- / b / is voiceless when it occurs finally in word, as in *rob, mob*.
- / b / is not released audibly when it is word-final or when it is followed by another plosive or affricate. For example,

club
rub } final / b /

robbed
obtain
Bob came
subject } / b / when followed by another plosive or affricate [5]

/ t /

During the articulation of / t /,the soft palate is raised and thus the nasal passage of air is closed. The tip or blade of the tongue makes a firm contact against the teeth ridge. When the tip or blade of the tongue is removed suddenly from the teeth ridge, the air that is compressed by pressure from the lungs escapes with an explosive sound. The vocal cords do not vibrate. / t / is thus a *voiceless alveolar plosive*.

Allophones of / t /

- / t / is aspirated [t^h] when it occurs initially in a stressed syllable as in *tin, attain, tub, potato*.
- / t / is unaspirated when it occurs in unaccented syllables as in *butter, daughter* and in accented syllables it is preceded by / s / as in *stain, stamp.*
- / t / is nasally released when it is immediately followed by / n / as in *mutton, chutney.*
- / t / is laterally released when it is immediately followed by / l / as in *cattle, metal, little*.
- / t / is not audibly released when it occurs finally in a word and when it is followed by another plosive or affricate. For example,

cut
pocket } final / t /

white turban
that church
great judge } / t / followed by another plosive or affricate

- / t / is dental if it is followed by / θ / as in *eighth*.
- / t / is post-alveolar if it is followed by / r / as in *try, trick, true, train.*

/ d /

/ d /is articulated exactly like / t / except that during its articulation the vocal cords vibrate, producing voice. / d / is thus a *voiced alveolar plosive.*

Allophones of / d /

- / d /is partially devoiced when it occurs initially in a word as in *dig, do, dry, dog.*

- / d /is nasally released when it is immediately followed by / n / as in *sudden, gladden, bad name.*
- / d /is laterally released when it is immediately followed by / l / as in *middle, saddle, bad light.*

good
made
} final / d /

bad taste
good car
good jam
} / d /followed by another plosive or affricate

- / d /is dental if it is followed by / ð / as in *add them, add this.*
- / d /is post-alveolar when the following sound is / r / as in *dry, drain.*

Pronunciation of the past tense marker -d or -ed

The past tense marker -d or -ed is pronounced in three different ways:

- It is pronounced / t / after voiceless consonants other than / t /.

  Examples:

  heaped / hi:pt /
  looked / lʊkt /
  laughed / lɑ:ft /

- It is pronounced / d / after voiced sounds other than / d /. (Voiced sounds means all vowels and voiced consonants).

  Examples:

  clubbed / klʌbd /
  tagged / tægd /
  lived / llvd /

- It is pronounced / ld / after / t, d /.

  Examples:

- / d /is voiceless when it ends a word as in *bad, load.*
- / d /is not released audibly when it is word-final and when it is followed by another plosive or affricate. For example,

hated / 'heltld /
batted / 'bætld /
headed / 'hedld / [6]

/ k /

During the articulation of / k /, the back of the tongue makes a firm contact with the soft palate. The soft palate is raised, thereby shutting off the nasal passage of air. The lung air is compressed behind the closure, during which stage the vocal cords are wide apart. When the closure is released, the compressed air escapes with force. / k / is thus a *voiceless velar plosive.*

Allophones of / k /

- / k / is aspirated [k^h] when it occurs initially in a stressed syllable as in *cap, occur, captain, kit.*
- / k / is unaspirated when it occurs in an unaccented syllable and when it is preceded by / s / in an accented syllable. For example,

uncle
particle } / k / in an unaccented syllable

skin
scale } / k / preceded by / s /

- / k / is articulated further forward in the mouth when it is followed by a front vowel as in *keel, kit, keen*.
- / k / is articulated further back in the mouth when it is followed by a back vowel as in *cool, caught, cart, call*.
- / k / is released inaudibly when it is word-final and when it is followed by another plosive or affricate. For example,

back
sack } word-final / k /

blocked
black bird } / k / followed by another plosive or affricate

/ g /

/ g / is articulated exactly like / k / except that during the articulation of / g / the vocal cords vibrate, producing voice. / g / is thus a *voiced velar plosive.*

Allophones of / g /

- / g / is partially devoiced when it occurs initially in a word as in *good, girl, game*.
- / g / is voiceless when it occurs finally in a word as in *bag, big, tug*.
- / g / is not released audibly when it ends a word or when it is followed by another plosive or affricate. For example,

bag
bug } final / g /

bagged
rugby
bagpipe } / g / followed by another plosive or affricate

- / g / is articulated further forward in the mouth when it is followed by a front vowel as in *geese, get, gander*.
- / g / is articulated further backward in the mouth when it is followed by a back vowel as in *goose, good, gone*.

Position of lips during the articulation of the Plosives

The position of the lips during the articulation of the plosives depends upon the lip-position required for the articulation of the vowel that immediately follows them. Any plosive is pronounced with spread lips if the vowel that follows it, is an unrounded one. There will be anticipatory lip-rounding during the articulation of a plosive if the vowel that follows it is a rounded one. Some examples are given below:

Plosive	Lip-spread variety	Lip-rounded variety
/ p /	*peel*	*pool*
/ b /	*bean*	*boon*
/ t /	*teak*	*talk*
/ d /	*deal*	*do*
/ k /	*keel*	*cool*
/ g /	*geese*	*goose* [7]

FRICATIVES

English has quiet a complex system of fricative phonemes. They are shown in the table below:

	Place of articulation				
	Labio-dental	Dental	Alveolar	Post-alveolar	Glottal
Fortis ("voiceless")	F	θ	s	ʃ	H
Lenis ("voiced")	v	ð	z	ʒ	

With the exception of glottal, each place of articulation has a pair of phonemes, one fortis and one lenis. The fortis fricatives are said to be articulated with the greater force than the lenis, and their friction noise is louder. The lenis fricatives have very little or no voicing in initial and final positions, but may be voiced when they occur between voiced sounds. The fortis fricatives have the effect of shortening a preceding vowel. Since there is only one fricative with glottal place of articulation, it would be rather misleading to call it fortis or lenis. [8]

As for the position of the lips, some RP speakers use slight lip-rounding for / ʃ, ʒ / in all positions; for other speakers the lip position is determined by the nature of the adjacent vowel, as it is, for all speakers, in the case of the other fricatives / f, v, θ, ð, s, z, h /. In the articulation of these fricatives, the lips are spread if the adjacent vowel is produced with spread lips; otherwise they will be rounded. Examples of the above fricatives with spread lips are *feed, leaf; veal, leave; think, sheath; this, with; see, hiss; zebra, fees; heat*; examples with rounded lips are *food, roof; voice,move; thought, broth; smooth*; *sue, loose; zoo, ooze; who*. [9]

/ f /

During the articulation of / f /, the soft palate is raised, shutting off the nasal passage of air. The lower lip is brought very near to the upper front teeth so that the gap between them is extremely narrow. The lung-air escapes through this narrow gap with audible friction. The vocal cords are held wide apart and they do not vibrate. / f / is thus a *voiceless labio-dental fricative.*

Allophones of / f /

No important allophonic variants of / f / occur except those involving lip-rounding.

/ v /

/ v / is articulated exactly like / f /, except that in the articulation of / v / the vocal cords vibrate. / v / is thus a *voiced labio-dental fricative.*

Allophones of / v /

- / v / is partially voiced when it occurs initially as in *vain, vine.*
- / v / may be completely devoiced when it occurs finally as in *leave, prove, calve.*

As in the case of / f / the lip position of / v / will depend upon the adjacent vowel, example spread lips for / v / in *veal, vain* and somewhat rounded in *move, prove.*

/ θ /

During the articulation of / θ /, the soft palate is raised, thereby shutting off the nasal passage of air. The tip of the tongue makes a light contact with the edge of the upper front teeth. The lung air escapes through the narrow gap between the tip of the tongue and upper front teeth, causing audible friction. The vocal cords are wide apart. / θ / is thus a *voiceless dental fricative.*

Allophones of / θ /

No important allophonic variants of / θ / occur except in the respect of the lip position, which depends upon the lip position required by an adjacent vowel.

/ ð /

/ ð / is articulated exactly like / θ /, except that during the articulation of / ð / the vocal cords vibrate, producing voice. / ð / is thus a *voiced dental fricative.*

Allophones of / ð /

- / ð / is partially voiced when it occurs initially as in *therefore, then, though.*
- / ð / may be completely devoiced when in occurs finally as in *bathe, wreathe.*

As in the case of / θ /, the lip position for / ð / will depend upon the adjacent vowel.

/ s /

During the articulation of / s /, the soft palate is raised to shut off the nasal passage of air. The tip and the blade of the tongue are brought near the teeth ridge in such a way that the space between them is very narrow. The lung air escapes through this narrow gap with audible friction. The vocal cords are wide apart. / s / is thus a *voiceless alveolar fricative.*

Allophones of / s /

There are no allophonic variants of / s / other than the ones involving lip-rounding.

/ z /

/ z / is articulated in the same way as / s /, except that for / z / the vocal cords vibrate. / z / is thus a *voiced alveolar fricative.*

Allophones of / z /

- / z / is only partially voiced when it occurs initially as in *zinc, zebra, zoo.*
- / z / may be completely devoiced when it occurs finally as in *boys, lose, airlines.*

The Pronunciation of the suffixes -(e)s, 's, s'

The suffixes -s and -es used in the plural formation of nouns or the third person singular present-tense formation of verbs, and the suffixes 's and s' for the possessive-formation of nouns are pronounced in three different ways depending upon the ending of the stem.

- The suffix -s or -es is pronounced / s / if the root ends in a voiceless consonant other than / s, ʃ, ʧ/.

Examples:

books	*walks*	*priests'*
taps	*laughs*	*chief's*

- The suffix -s or -es is pronounced / z / if the root ends in a voiced sound other than / z, ʒ, ʤ /.

Examples:

boys	*goes*	*man's*
girls	*stands*	*men's*
bags	*loves*	*boys'*
airlines	*shines*	*boy's*

- The suffix -s or -es is pronounced / Iz / if the root ends in / s, z, ʃ, ʒ, ʧ, ʤ /.

Examples:

horses	*crosses*	*lass's*
roses	*chooses*	*Dicken's*
bushes	*rushes*	*witch's*
garages	*messages*	*witches'*

/ ʃ /

During the articulation of / ʃ /, the soft palate is raised so as to shut off the nasal passage of air. The tip and the blade of the tongue are brought very close to the teeth ridge. At the same time, the front of the tongue is raised in the direction of the hard palate. The lung air escapes through the narrow passage between the tip, blade and front of the tongue and the teeth ridge and the hard palate, with audible friction. The vocal cords are wide apart. / ʃ / is thus a *voiceless palato-alveolar fricative.*

Allophones of / ʃ /

There are no allophonic variants of / ʃ / other than the ones involving lip-rounding.

/ 3 /

/ 3 / is articulated exactly like / ʃ /, except that during the articulation of / 3 / the vocal cords vibrate. / 3 / is thus a *voiced palato-alveolar fricative.*

Allophones of / 3 /

- / 3 / may be devoiced when it occurs finally as in *prestige, barrage, beige.*

/ h /

During the articulation of / h /, the air from the lungs escapes through a narrow glottis with audible friction. The soft palate is raised. As for the position of the tongue and the lips, they are determined by the vowel following / h /. Thus for the articulation of / h / in he / hi: /, the front of the tongue is raised to the close position of vowels and the lips are spread. As against this, for the articulation of the / h / in who / hu: /, the back of the tongue is raised to the close position and the lips are rounded. / h / is however, the passage of a strong, voiceless, air stream through the open glottis. / h / is therefore referred to as a *voiceless glottal fricative.*

Allophones of / h /

Voiced / h / between voiced sounds, / h / is realized as a voiced glottal fricative as in *behind, behave, aha*. [10]

AFFRICATES

The production of an affricate is similar to that of a plosive; there is a closing stage, a compression stage, and a release stage. An affricate is produced with a complete closure, but the articulators are separated slowly so that some friction is heard. It should be remembered, however, that the friction that occurs as a result of the slow separation of the articulators that form a stricture of complete closure is less and of a shorter duration than the friction that we hear during the articulation of fricative consonant. In English, there are two affricates / ʧ / and / ʤ /. Both are *palato-alveolar*.

/ tʃ /

During the articulation of / ʧ /, the soft palate is raised so as to shut off the nasal passage of air. The tip and the blade of the tongue make a firm contact with the alveolar ridge, thereby blocking the oral passage of air. At the same time, the front of the tongue is raised in the direction of the hard palate. The tip and blade of the tongue are removed slowly from the teeth ridge and the air escapes with friction between the tip and blade of the tongue and the teeth ridge and also between the front of the tongue and hard palate. The vocal cords are wide apart. Thus / ʧ / is a *voiceless palato-alveolar affricate.*

During the articulation of the affricate, there is a certain amount of protrusion and rounding of lips irrespective of the nature of the following vowel. However, the protrusion is greater if the following vowel is a rounded one as in *choose.*

Allophones of / ʧ /

No important allophonic variants of / ʧ / occur except in the degree of lip-protrusion and rounding. / ʧ / occurs in all the three positions in a word.

/ ʤ /

/ ʤ / is articulated in the same way as / ʧ /, except for the state of vocal cords: whereas for / ʧ / the vocal cords are wide apart, for / ʤ / they vibrate. Thus / ʤ / is a *voiced palato-alveolar affricate.* As in the case of / ʧ /, there is a certain amount of protrusion and rounding of lips in the articulation of / ʤ /.

Allophones of / ʤ /

No important allophonic variants of / ʤ / occur except in the degree of lip-protrusion used during their articulation. Nevertheless, in the matter of voicing the following three allophones of / ʤ / occur:

- / ʤ / is partially devoiced when it occurs initially in a word as in *jam, gin, joke.*
- / ʤ / is voiceless when it occurs finally in a word as in *large, age, huge.*
- / ʤ / is fully voiced when it occurs inter-vocalically or only between voiced sounds as in *adjust, margin, major.*

Conclusion

The theoretical aspect of plosives, fricatives and affricates discussed in this paper with sufficient number of examples will help the learners to improve their pronunciation and fluency in English. This will also improve the confidence of the learners because learning to speak the correct English is always beneficial. Plosives, fricatives and affricates have been discussed in detail according to their manner and place of articulation along with their allophonic variations, the accepted phonetical representation of each in different situations with sufficient number of examples that illustrate their occurrence in the initial, medial and final positions.

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