

# Phonetics as a branch of linguistics

Science



**ASSIGN  
BUSTER**

**GLOSSARY** Academic style – also scientific style, a style of speech used in lectures, scientific discussions, conferences, etc Accent – 1) type of pronunciation, that is the way sounds, stress, rhythm and intonation are used in the given language community. 2) see stress. Accommodation – modifications of consonants under the influence of the neighbouring vowels and vice versa. Acoustic Phonetics – science which deals with the physical property of sounds.

Affricates – noise consonants produced with a complete obstruction which is slowly released and the air stream escapes from the mouth with some friction. Allophones – variants of a phoneme, usually occur in different positions in the word, cannot contrast with each other and are not used to differentiate the meaning. Alveolar – sounds produced with the tip of the tongue against the upper teeth (alveolar) ridge. American English – the national variant of the English language spoken in the USA.

Amplitude – the distance to which the air particles are displaced from their position of rest by the application of some external force. Apical – sounds articulated with the tip of the tongue. Applied Phonetics – a branch of phonetics used for practical purposes in speech therapy and logopedia. Articulatory Phonetics – also Physiological Phonetics, a branch of phonetics which is concerned with the study of speech sounds as regards their production by the human speech organs. Ascending head – a type of head in which syllables form an ascending sequence.

Assimilation – The modification of a consonant by a neighbouring consonant in the speech chain. Auditory Phonetics – a branch of phonetics which is concerned with the way our auditory mechanism works to process speech

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

information, also Perceptual Phonetics. Back vowels - vowels formed with the tongue in the back part of the mouth. Back-advanced vowels - vowels formed with the tongue in the back-advanced position in the mouth. Back-lingual - see velar. BBC English - the accent used on BBC radio and TV channels, is considered a standard English spoken in Great Britain, also Received Pronunciation.

Bilabial - sounds produced when both lips are active. Bilingualism - the command of 2 different languages by a person. British English - the national variant of the English language spoken in Great Britain. Broad transcription - also phonemic transcription, provides special symbols for all the phonemes of a language. Broad variations - a subclass of the vertical positions of the tongue which in this case is placed slightly lower in the mouth cavity. Cacuminal - sounds articulated with the tip of the tongue curled back.

Central vowels - sounds articulated when the front part of the tongue is raised towards the back part of the hard palate. Checked vowels - short stressed vowels followed by strong voiceless consonants. Checkness - a vowel property which depends on the character of articulatory transition from a vowel to a consonant. Close vowels - sounds articulated when the tongue is raised high towards the hard palate. Closed syllable - a syllable which ends in a consonant. Coda - one or more phonemes that follow the syllabic phoneme.

Communicative centre - a word or a group of words which conveys the most important point of communication in the sentence or the utterance.

Commutation test - the procedure of substituting a sound for another sound in the same phonetic environment with the aim of establishing the phonemic

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

system of a language  
Comparative Phonetics – a branch of phonetics which studies the correlation between the phonetic systems of two or more languages  
Consonant – a sound made with air stream that meets an obstruction in the mouth or nasal cavities.

Conversational style – also conversational style, a style of speech used in everyday communication.  
Declamatory style – a style of speech used in stage speech, recitations, etc.  
Delimitation – segmentation of speech into phrases and intonation groups.  
Dental – sounds produced with the blade of the tongue against the upper teeth  
Descending head – a type of head in which syllables form an descending sequence  
Descriptive Phonetics – a branch of phonetics that studies the phonetic structure of one language only in its static form, synchronically.

Devoicing – a process that results in a voiced consonant being pronounced as voiceless.  
Dialect – a variety of language which differs from others in vocabulary, grammar and pronunciation.  
Diglossia – a phenomenon when an individual may speak RP in one situation a native local accent in other situations.  
Dynamic stress – force accent based mainly on the expiratory effect.  
Diphthong – a vowel which consists of two elements, strong (a nucleus) and weak – (a glide).

Diphthongoid – a vowel articulated when the change in the tongue position is fairly weak, in this case the articulated vowel is not pure, but it still consists of one element.  
Direct methods – methods of phonetic investigation which consist in observing the movements and positions of one's own or other people's organs of speech in pronouncing various speech sounds, as well as in analysing one's own kinaesthetic sensations during the articulation of  
<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

speech sounds and in comparing them with the resultant auditory impressions. Discourse - a larger context in which sentences occur.

Dorsal - sounds produced when the blade of the tongue is active. Duration - the quantity of time during which the same vibratory motion, the same patterns of vibration are maintained. Elision - complete loss of sounds, both vowels and consonants, often observed in spoken English. Enclitic - unstressed words or syllables which refer to the preceding stressed word or syllable. Estuary English - a variety of modified regional speech, a mixture of non-regional and local south-eastern English pronunciation and intonation. Estuary English speakers place themselves " between Cockney and the Queen".

Experimental Phonetics - a branch of phonetics which deals with research work carried out with the help of different technical devices for measurements and for instrumental analysis Extra-linguistic factors - non-linguistic factors, such as the purpose of utterance, participants and setting or scene of speaking, which result in phonostylistic varieties. Familiar style - see conversational style. Forelingual - sounds articulated with the front part of the tongue Fortis consonants - voiceless consonants pronounced with strong muscular tension and strong expiratory effect.

Free variants - variants of a single phoneme which occur in a language but the speakers are inconsistent in the way they use them, as for example in the case of the Russian words "??????/ ??????". Free vowel - a weak vowel followed by a weak (lenis) voiced consonant or by no consonant at all. Frequency - a number of vibrations per second. Fricative - constrictive noise consonants articulated when the air escapes with friction through the

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

narrowing formed by speech organs. Front vowels - vowels in the production of which the body of the tongue is in the front part of the mouth cavity and the front of the tongue is raised.

Front-retracted vowels - vowels produced with the body of the tongue in the front but retracted position in the mouth cavity. Functional Phonetics - see phonology. General American - the national standard of the English language spoken in the USA. General Phonetics - a branch of phonetics that studies all the sound-producing possibilities of the human speech apparatus and the ways they are used for purposes of human communication by means of language. Glide - the second weak element of English diphthongs. Glottal - sounds articulated in the glottis.

Glottal stop - a sound heard when the glottis opens suddenly and produces an explosion resembling a short cough. Glottis - the opening between the vocal cords, through which the air passes. Hard palate - the roof of the mouth. Head - part of the intonation group, contains stressed syllables preceding the nucleus with the intervening unstressed syllables. Hesitation pause - silent or filled pause mainly used in spontaneous speech to gain time to think over what to say next. Historical Phonetics - a branch of phonetics that studies the phonetic structure of a language in its historical development, diachronically.

Idiolect - individual speech of members of the same language community  
Informational style - a style of speech used by radio and television announcers conveying information or in various official situations.  
Instrumental methods - methods of phonetic investigation based upon registering or computing machines and technical devices  
Intensity - a  
<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

property of a sound produced by the amplitude of vibrations. Interdental - sounds articulated with the tip of the tongue projected between the teeth.

International Phonetic Alphabet - a set of symbols adopted by the

International Phonetic Association as a universal system for the transcription of speech sounds. Intonation - pitch (or melody) variations used to convey

meaning. See also prosody Intonation group - an actualized syntagm.

Intonation pattern - pitch movements together with loudness and the tempo of speech extending over an intonation group. Intonation style - a complex

of interrelated intonational means which is used in a social situation and serves a definite aim of communication. Intonogramme - the picture of the

sound wave of a syllable, word or an utterance received with the help of intonograph.

Intonograph - a technical device which gives pictures of sound waves of syllables, words and utterances. Kinetic - relating to motion. Labial - sounds

articulated by the lips. Labiodental - sounds articulated with the lower lip against the edge of the upper teeth Laryngoscope - a special device which

helps to observe the vocal cords, epiglottis and the glottis. Larynx - part of the vocal tract containing the vocal cords. Lateral - sounds produced when

the sides of the tongue are active. Lateral plosion - sudden release of air which escapes along the sides of the tongue.

Lax - historically short vowels in the articulation of which muscular tension of speech organs is weak. Lenis consonants - voiced consonants pronounced

with weak muscular tension. Lip rounding - a position of the lips when their corners are brought toward one another so that the mouth opening is

reduced. Loudness - the intensity of sound is produced by the amplitude of

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

vibrations. Manner of articulation - one of the principles of consonant classifications which is connected with the type of obstruction to the air stream.

Maximum onsets principle - Medio-lingual - sounds produced with the front part of the tongue raised high to the hard palate Minimal pair - a pair of words or morphemes which are differentiated by one sound only in the same position. Modifications of sounds - positional and combinatory changes of sounds in connected speech. Monophthong - a vowel articulated when the tongue position is stable, in this case the articulated vowel is pure, it consists of one element. Mouth cavity - the cavity between the teeth and the pharynx. Narrow transcription also phonetic transcription, provides special symbols for all the allophones of the same phoneme Narrow variations - a subclass of the vertical positions of the tongue which in this case is raised slightly higher in the mouth cavity Nasal consonants - sounds articulated when the soft palate is lowered and the air stream goes out through the nose. Nasal Cavity - the cavity inside the nose which is separated from the mouth cavity with the soft palate and the uvula. Nasal plosion - sudden release of air by lowering the soft palate so that the air escapes through the nose.

National variants - the language of a nation, the standard of its form, the language of its nation's literature. Neutral vowel - a mid central vowel, also schwa. Neutralisation - the loss of qualitative and quantitative characteristics of vowels in unstressed positions. Noise consonants - consonants in the production of which noise prevails over voice, the air stream passes through a narrowing and produces audible friction (compare with sonorants).



Normative Phonetics – see Practical Phonetics. Notation – another term for transcription.

Nuclear tone – a significant change of pitch direction on the last strongly accented syllable in an intonation pattern. In general nuclear tones may be falling, rising and level or a combination of these movements. Nucleus – 1) the last strongly accented syllable in an intonation pattern; 2) the most prominent part of a diphthong; 3) the centre of a syllable, usually a vowel.

Obstruceter mechanism – a group of speech organs which form obstructions during articulation of consonants, it includes tongue, lips, hard and soft palate and teeth.

Occlusive – sounds produced when a complete obstruction to the air stream is formed. Onset – sounds that precede the nucleus of a syllable. Open syllable – a syllable which ends in a vowel. Open vowels – vowels produced when the tongue is in the low part of the mouth cavity. Opposition – see phonetic oppositions. Oral consonants – sounds articulated when the soft palate is raised and the air stream goes out through the mouth. Organs of speech – the human organs which together with biological functions take part in sound production.

Palatal – sounds produced with the front part of the tongue raised high to the hard palate. Palatalisation – softening of consonants due to the raised position of the middle part of the tongue towards the hard palate. Palato-alveolar – sounds made with the tip or the blade of the tongue against the teeth ridge and the front part of the tongue raised towards the hard palate, thus having two places of articulation (two foci). Paralinguistics – a branch of

linguistics which is concerned with non-verbal means of communication.

Perceptual Phonetics - see Auditory Phonetics.

Pharynx - the part of the throat which connects the larynx to the upper part of the vocal tract. Phonation - voicing, the vibration of the vocal cords. Phone - a sound realised in speech and which bears some individual, stylistic and social characteristics of the speaker. Phoneme - the smallest further indivisible language unit that exists in the speech of all the members of a given language community as such speech sounds which are capable of distinguishing one word of the same language or one grammatical form of a word from another grammatical form of the same word.

Phonemic transcription - see broad transcription. Phonetic mistakes - pronunciation mistakes made when an allophone of some phoneme is replaced by an allophone of a different phoneme. Phonetic oppositions - comparison of sounds, words and morphemes in order to single out their minimal distinctive features. Phonetic transcription - see narrow transcription. Phonetics - a branch of linguistics which is concerned with the human noises by which the thought is actualized. Phonetics analyses the nature of these sounds, their combinations and their functions in relation to the meaning.

Phonological analysis - analysis whose aim is to determine which differences of sounds are phonemic/non-phonemic and to find the inventory of the phonemes of this or that language. Phonological mistakes - pronunciation mistakes made when an allophone of the phoneme is replaced by another allophone of the same phoneme; in this case the meaning of the word is

affected. Phonology - also Functional Phonetics, a branch of phonetics that is concerned with the social functions of different phonetic phenomena.

Phonosemantics - a branch of psycholinguistics that studies the relations between the sound structure of a word and its meaning. Phonostylistics - a branch of phonetics that studies the way phonetic means of the language function in various oral realizations of the language. Phonotactics - the study of the possible phoneme combinations of a language. Physiological Phonetics - see Articulatory Phonetics. Pitch - the auditory characteristic of a sound, it corresponds to the fundamental frequency (the rate of vibrations of the vocal cords). Pitch level - a particular height of pitch.

Pitch range - the interval between two pitch levels or two differently pitched syllables or parts of a syllable. Place of articulation - the place in the vocal tract where the air stream is obstructed. Plosives - consonants produced when the air stream is completely stopped for a short time, also stops. Post-alveolar - sounds articulated with the tip or the blade of the tongue against the back part of the teeth ridge Power mechanism - a group of speech organs which supplies energy for sound production, it includes lungs, diaphragm, windpipe, bronchi.

Practical Phonetics - a branch of phonetics which teaches how to pronounce sounds correctly and what intonation to use to convey this or that meaning or emotion. It is called Normative Phonetics because teaches the "norm" of English pronunciation. Pragmalinguistics - a branch of linguistics that studies what linguistic means and ways of influence on a hearer to choose in order to bring about certain effects in the process of communication.

Pragmaphonetics - a branch of Pragmalinguistics whose domain is to analyse the functioning and speech effects of the sound system of a language.

Pre-head - the unstressed syllables which precede the first stressed syllable of the head. Primary stress - the strongest stress compared with the other stresses in a word. Principal allophone - allophones which do not undergo any significant changes in the chain of speech. Proclitic - unstressed words or syllables which refer to the following stressed word or syllable Prosody - a complex unity formed by significant variations of pitch, tempo, loudness and timbre. Psycholinguistics - a branch of linguistics which covers an extremely broad area, from acoustic phonetics to language pathology, and includes such problems as acquisition of language by children, memory, attention, speech perception, second-language acquisition and so on. Publicistic style - a style of speech used in public discussions on political, judicial or economic topics, sermons, parliamentary debates Qualitative - connected with the spectral characteristics of a sound. Quantitative - referring to the length of a sound. Received Pronunciation (RP) - the national standard of the English language spoken in Great Britain. Reduced vowel - a weakened vowel.

Reduction - weakening (either qualitative or quantitative) of vowels in unstressed positions. Resonator mechanism - a group of speech organs which can change their shape and volume, thus forming the spectral component of the sound, it includes nasal and mouth cavities. Rhyme Rhythm - recurrence of stressed syllables at more or less equal intervals of time in speech. Rhythmic group - a speech segment which contains a stressed syllable and a number of unstressed ones. The most frequent type of an English rhythmic group includes 2-4 syllables, one of which is stressed.

Rounded - a sound articulated with added lip rounding. Schwa - see neutral vowel. Scientific style - see academic style. Secondary allophones - allophones which undergo some predictable changes in different phonetic context. Secondary stress - a less strong stress than the primary one, usually precedes the primary stress in a word. Segmental Phonetics - a division of phonetics which is concerned with individual sounds ("segments" of speech) Segmentation - division of speech into phrases and intonation groups. Semantic centre - see communicative centre.

Sentence stress - the greater degree of prominence given to certain words in an utterance. Sociolinguistics - a branch of linguistics that studies the way the language interacts with society. Soft palate - the back, soft part of the hard palate. Sonorants - consonants in the production of which noise prevails over voice, the air stream passes through a narrowing and produces audible friction (compare with sonorants). Sonority - a degree of loudness relative to that of other sounds with the same length, stress and pitch.

Special Phonetics - a branch of phonetics which is concerned with the study of the phonetic structure of one language only. Spectrogram - a picture of the spectrum of sounds, their frequency, intensity and time. Spectrograph - a device which carries out the spectral analysis of speech. Stops - see plosives Stress - a greater degree of prominence which is caused by loudness, pitch, the length of a syllable and the vowel quality. Stress-timed languages - in these languages stressed syllables tend to occur at relatively regular intervals irrespectively of the number of unstressed syllables separating them.

Strong vowel - the full form of a vowel in the stressed position. Stylistic modifications - sound changes which happen under the influence of extra-linguistics factors. Subsidiary allophone - see secondary allophone. Suprasegmental Phonetics - a division of phonetics whose domain is larger units of connected speech: syllables, words, phrases and texts Syllable - a sound sequence, consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after this centre there will be greater obstruction to airflow and less loud sound.

Syllable-timed languages - in these languages all syllables, whether stressed or unstressed, tend to occur at regular time-intervals and the time between stressed syllables will be shorter or longer depending on the number of unstressed syllables separating them. Syntagm - a group of words which is semantically and syntactically complete. Tail - any syllables between the nucleus and the end of the utterance. Tamber - the same as timbre. Tempo - the rate of the utterance and pausation. Tense - historically long vowels in the articulation of which muscular tension of speech organs is great.

Terminal tone - the nucleus and the tail of the utterance. Tertiary stress - a less strong stress than the primary one, usually follows the primary stress in a word. Theoretical Phonetics - a branch of phonetics which is mainly concerned with the functioning of phonetic units in the language. It discusses the problems of phonetics in academic terms and gives a scientific approach to the phonetic theory. Timbre - voice quality. Tone languages - the meaning of words in these languages depends on the variations of voice pitch in relation to neighbouring syllables.

Tongue - the most movable and flexible speech organ. Transcription - the system of symbols to represent speech in written form. Unstressed - bearing no stress. Utterance - a spoken sentence or a phrase. Uvula - the end of the soft palate. Velar - consonants produced with the back part of the tongue raised towards the soft palate. Vibrator mechanism - a group of speech organs which vibrate while the air passes through, thus producing voice, it includes larynx, vocal cords, glottis. Vocal cords - two soft folds in the larynx which can be brought together and apart, thus producing voice.

Voice quality - timbre. Voiced consonants - sounds produced when the vocal cords are brought together and vibrate. Voiceless consonants - sounds produced when the vocal cords are brought together and vibrate. Vowel - a sound in the production of which no obstructions are made. Weak form - the unstressed form of a sound or a word. Windpipe - trachea or air passage.

Word stress - a greater degree of prominence on one of the syllables in a word.

## I. PHONETICS AS A BRANCH OF LINGUISTICS. BRANCHES OF PHONETICS. METHODS OF INVESTIGATION 1. 1 Introduction

Knowledge of the structure of sound system and its articulatory and acoustic characteristics is very important in teaching and learning foreign languages. The teacher has to know the starting point from which to begin teaching; he must be able to point out the differences between the pupil's mother tongue and the language to be learnt. He should be able to choose adequate training exercises. That's why it is vital to know, at least, the basic principles of this science. The term "phonetics" comes from the Greek words meaning "sound or matters pertaining to voice". What does phonetics study?

It is concerned with the human noises by which the thought is actualized (that is the oral aspect of speech communication). However phonetics takes the content level into consideration too. Only meaningful sound sequences are regarded as speech and phonetics is concerned only with such sounds which are carriers of organized information of a language. Phonetics analyses the nature of these sounds, their combinations and their functions in relation to the meaning. No kind of linguistic study can be carried out without constant consideration of the material on the expression level.

Consequently, phonetics is important in the study of a language. An understanding of it is a basis for any adequate understanding of the structure or functioning of a language. It follows from this that phonetics is a basic branch - many would say the most fundamental branch of linguistics, because it gives a language a definite form. The vocabulary and grammar of a language can function only when the language has a phonetic form. So grammar and vocabulary depend on phonetics, they cannot exist outside of phonetics, because all lexical and grammar phenomena are expressed phonetically.

Neither linguistic theory nor linguistic description can do without phonetics and is complete without it. Phonetics, being a branch of linguistics, occupies a peculiar position. On the one hand it serves as a means of expressing grammatical and lexical phenomena. On the other hand it has laws of its own which are independent of grammar and vocabulary. Besides it is closely connected with a number of other sciences, such as physics, biology, physiology, psychology etc. The more phonetics develops the more various branches of science become involved in the field of phonetic investigation.



Phonetics is not a new science. It was known to the ancient Greeks and to the ancient Hindus. The scientists of that time were concerned with speech sounds only. It may be said that the orthography of all written languages which use alphabets developed in the course of a very detailed phonetic analysis. Nevertheless, phonetics as an independent science began to develop only in the 19th century, before that it used to be a part of grammar. There has been considerable progress and growth in the 20th century. New concepts, methods of investigation, new theories and schools have been developed.

Not only has the sphere of investigation in phonetics become wider, but several new branches of phonetics have also arisen. So our further point will be made on the branches and divisions of phonetics.

### 1. 2 Branches and Divisions of Phonetics

Everyone who starts learning a foreign language first of all is introduced into practical or normative phonetics. It studies the material form of phonetic phenomena in relation to meaning. It teaches how to pronounce sounds correctly and what intonation to use to convey this or that meaning or emotion. It is called normative because we are to teach the "norm" of English pronunciation.

Theoretical phonetics is mainly concerned with the functioning of phonetic units in the language. It discusses the problems of phonetics in academic terms and gives a scientific approach to the phonetic theory. Other two important branches of phonetics are special and general phonetics. Special phonetics may be subdivided into descriptive and historical. Special descriptive phonetics is concerned with the study of the phonetic structure of one language only in its static form, synchronically and the domain of special

historical phonetics is the phonetic structure of a language in its historical development, diachronically.

Historical phonetics is part of the history of a language. Its aim is to trace and establish the successive changes in the phonetic system of a given language at different stages of its historical development. It is very important for the study of the modern phonetic system because without a historical approach it is impossible to understand how this modern phonetic system has developed and what further changes it is likely to undergo.

General phonetics studies all the sound-producing possibilities of the human speech apparatus and the ways they are used for purposes of human communication by means of language, it finds out what types of speech sounds exist in various languages of the world, how they are produced and what role they play in forming and expressing thoughts; it also determines the nature, types and role of other phonetic means, such as word stress and intonation.

General phonetics is based on the material which the special phonetics of a great number of languages provides; it also uses data of other sciences: physics, biology, psychology, speech pathology, etc. So it makes a number of general conclusions concerning the complex nature of speech sounds, analyses phonetic phenomena from different points of view and formulates phonetic theories. On the one hand general phonetics is based on the data of special phonetics; on the other hand it provides valuable theoretical material which enables us to understand and to interpret correctly different phonetic phenomena of concrete languages.

Another important division is into phonology and phonetics. According to the conception of the Prague Linguistic School phonetics and phonology are two independent branches of science, phonetics is a biological science which is concerned with the physical and physiological characteristics of speech sounds, and phonology is a linguistic science which is concerned with the social functions of different phonetic phenomena. Another term for this branch is functional phonetics. The father of Phonology is Prince Nicholas Trubetskoï.

His work " Fundamentals of Phonology" separates phonetics and phonology, saying that they are not related and that phonetics is not part of linguistics, but a biological science that deals only with the physiological aspect of speech sounds. Nevertheless it doesn't seem logical to separate function from phonetic forms, thus excluding phonetics from the linguistic sciences. So nowadays most phoneticians consider both phonetics and phonology part of linguistics. Phonetics itself is subdivided into 3 sub branches, each dealing with special aspects of sounds, their production by a speaker and perception by a listener.

Phonetic processing starts on a neurophonetic level, in the brain of a speaker, where the formation of the concept takes place. The human brain controls the behaviour of the articulatory (or speech) organs and makes them move in a particular way. The branch of phonetics which is concerned with the study of speech sounds as regards their production by the human speech organs is called articulatory (physiological) phonetics. In other words it deals with the way human organs join to produce sounds.

Articulatory basis of a language is a set of articulation tendencies characteristic for a particular language community, so articulatory gesturing is culturally specific and not universal. Different articulations produce different acoustic effects, or different speech sounds. Consequently, speech sounds have a second aspect, a physical or, more exactly, an acoustic one, which constitutes the domain of acoustic phonetics. Acoustic phonetics involves knowledge of physics as it deals with the physical property of sounds. Any sound is a pressure disturbance transmitted through an elastic medium.

When articulatory gesturing starts it causes disturbance (a sound wave) in the medium, which is transmitted from one particle of the medium to another and is reproduced as a sound wave travels from the source to the listener. Perceptual or auditory phonetics is concerned with the way our auditory mechanism works to process speech information. There is a boundary line between reception (which doesn't involve understanding) and perception (which involves decoding and understanding). Phonetic perception is a product of sensation and interpretation of speech elements which take place in a human brain.

Phonetics is also divided into two major components: segmental phonetics, which is concerned with individual sounds ("segments" of speech) and suprasegmental phonetics whose domain is larger units of connected speech: syllables, words, phrases and texts. There are a number of other divisions of phonetics. We may speak about comparative phonetics whose aims are to study the correlation between the phonetic systems of two or

more languages and find out the correspondences between speech sounds and intonation structures.

Its data are extremely useful in teaching and learning a foreign language as they show differences and similarities of the phonetic systems of two or more languages and predict possible difficulties for the learners. It should be mentioned that the most difficult phonetic phenomena are those absent in the mother tongue. For example, the sounds [ʃ -ʒ ] cause a lot of difficulties for the Russian students of English, as there are no sounds with similar articulations in the Russian language.

On the other hand the most stable and persistent pronunciation mistakes are made in those phenomena which are similar in the two languages but not exactly the same. For example, falling intonation. In English it goes to the very bottom of the voice, while in Russian it is not so steep and it does not reach the same low note as in English. The data of applied phonetics are essential for practical purposes in speech therapy and logopedia. It helps to correct speech defects and to teach deaf-mutes (or people who do not speak as a result of an accident or some disease) to speak.

Experimental phonetics deals with research work which is carried out with the help of different technical devices, machines for measurements and for instrumental analysis. Phonetics as a whole and all of its branches have not come into being all at once: they developed gradually, and their development was closely connected with and determined by the development of other branches of linguistics and other sciences. 1. 3. Phonetics and Social Sciences So our further point should be made in

connection with the relationship between phonetics and social sciences. Language is not an isolated phenomenon; it is a part of society.

No branch of linguistics can be studied without taking into consideration at least the study of other aspects of society. In the past two decades we have seen the development of quite distinct interdisciplinary subjects, such as sociolinguistics (and sociophonetics correspondingly), psycholinguistics, mathematical linguistics and others. As their titles suggest, they are studied from two points of view and thus require knowledge of both. Sociophonetics studies the ways in which pronunciation functions in society. It is interested in the ways in which phonetic structures vary in response to different social functions.

Society here is used in its broadest sense, it includes such phenomena as nationality, regional and social groups, age, gender, different situations of speaking - talking to equals, superiors, on the "job", when we are trying to persuade, inform, agree and so on. The aim of sociophonetics is to correlate phonetic variations with situational factors. It's obvious that these data are vital for language learners who are to observe social norms and to accommodate to different situations they find themselves in. One more example of interdisciplinary overlap is the relation of linguistics to psychology.

Psycholinguistics covers an extremely broad area, from acoustic phonetics to language pathology, and includes such problems as acquisition of language by children, memory, attention, speech perception, second-language acquisition and so on. Phonosemantics studies the relations between the sound structure of a word and its meaning. There is some data proving that

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

the sounds that constitute a word have their own “ inner” meaning, which causes certain associations in the listener’s mind. For example, close vowels produce the effect of “ smallness”, and voiceless consonants sound more “ unpleasant” and “ rude” than their voiced counterparts, etc.

Some sounds are associated with certain colours. These data may be helpful in teaching, for example, “ tying” together the sound structure of a word and its meaning, thus facilitating the process of memorising new words. Scientists have always been interested how children acquire their own language without being taught. They hope that these data might be useful in teaching grown-up people a foreign language, too. Pragmalinguistics is a comparatively new science, which studies what linguistic means and ways of influence on a hearer to choose in order to bring about certain effects in the process of communication.

Correspondently the domain of pragmaphonetics is to analyse the functioning and speech effects of the sound system of a language. Phonetics is closely connected with a number of other sciences such as physics (or rather acoustics), mathematics, biology, physiology and others. The more phonetics develops the more various branches of science become involved in the field of phonetic investigation. Phonetics has become important in a number of technological fields connected with communication.

Phoneticians work alongside the communication engineers in devising and perfecting machines that can understand, that is respond to human speech, or machines for reading aloud the printed page and vice versa, converting speech directly into printed words on paper. Although scientists are still dissatisfied with the quality of synthesized speech, these data are applied in

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

security systems, answering machines and for other technical purposes. 1. 4. Methods of Phonetic Investigation Methods applied in investigating the sound matter of the language have changed greatly with the development of technology and computer science.

From the beginning of phonetics the phonetician has relied mainly on what he could feel of his own speech and on what he could hear both of his own and the informant's speech. Such methods are called direct and consist in observing the movements and positions of one's own or other people's organs of speech in pronouncing various speech sounds, as well as in analysing one's own kinaesthetic sensations (muscle tense) during the articulation of speech sounds and in comparing them with the resultant auditory impressions.

Investigation by means of this method can be effective only if the persons employing it have been specially trained and have acquired considerable skills in associating the qualities of the perceived sound with the nature of the articulations producing it. Instrumental methods were introduced into phonetics in the last century to supplement the impressions deriving from the human senses. These methods are based upon registering or computing machines and technical devices, such as spectrograph, intonograph, x-ray photography and cinematography, laryngoscope and some others.

The introduction of machines for measurements and for instrumental analysis into phonetics has resulted in their use for detailed study of many of the phenomena which are present in the sound wave or in the articulatory process at any given moment. These techniques can be very useful both for discovering in detail how English speakers produce their speech sounds, and

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>



for demonstrating to learners of English their pronunciation. Computers can provide additional pronunciation training, displaying useful information on the screen and being a powerful visual aid for effective phonetic practice.

One more advantage of the modern experimental study of speech is the enormous amount of varied spoken speech data stored on computers. It facilitates the process of looking for cross-language differences and similarities. The data obtained from instrumental analysis supplement and verify those obtained by means of direct observation, thus making the research results more detailed and precise.

## II. THE ARTICULATORY CHARACTERISTIC OF THE ENGLISH SPEECH SOUNDS

### 2. 1. The Anatomomechanical Aspect of Sound Production

Speech is impossible without the speech mechanism.

So now our attention will be focused on the articulatory aspect of speech sounds. Speech sounds are acoustic effects of the articulatory movements and positions of the human speech organs. The immediate source of speech sounds is the human speech mechanism developed and perfected in the process of the historical development of man. The organs of speech are the object of linguistic investigation mainly from the point of view of the functions they perform in speech production. So before analysing the linguistic function of phonetic units we need to know how the speech mechanism acts in producing oral speech.

According to their main sound-producing functions the speech organs can be roughly divided into the following four groups: the power mechanism (lungs, diaphragm, windpipe, bronchi), the vibrator mechanism (larynx, vocal cords, glottis), the resonator mechanism (nasal and mouth cavities) and the

<https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

obstructor mechanism (tongue, lips, hard and soft palate, teeth). From the lungs through the wind-pipe the air-stream passes to the larynx, containing the vocal cords. The opening between the vocal cords, through which the air passes, is called the glottis. The linguistic function of the vocal cords consists in providing the source of energy necessary for speech production. When the vocal cords are kept wide apart (i. e. the glottis is open) the air passes between the cords and the result is non-phonetic breath. Then the vocal cords may be drawn together tightly, so that air cannot pass between them. The sudden opening of the glottis produces an explosion resembling a short cough; this sound is called the glottal stop. It often occurs in English when it reinforces or even replaces the sounds [p], [t], [k] or even when it precedes the energetic articulation of vowel sounds.

The most important role of the vocal cords is their participation in the production of voice. The effect of voice is achieved when the vocal cords are brought loosely together, creating an obstacle to the air stream; when the air pressure becomes very strong the air forces its way between the vocal cords thus making them vibrate. When, as is usual, these vibrations are regular, they produce vocal tone, or voice, whose pitch depends on the frequency of vibrations. We are able to vary the speed of vibration of our vocal cords and thus to change the pitch.

Conscious variations of pitch are responsible for intonation. We are also able to modify the size of the puff of the air which escapes at each vibration, thus changing the amplitude of the vibration, which corresponds to the loudness of the sound heard by a listener. The air-stream, having passed through the vocal cords, is now subject to further modification, according to the shape of

the pharynx, mouth and nasal cavities. The direction in which the air-stream will follow from the pharynx depends on the position of the soft palate.

When it is lowered, the pharynx opens into the nasal cavity. When it is risen, the air-stream comes to the mouth cavity. As in the mouth cavity a lot of movable speech organs are situated it can easily change its shape, thus forming the majority of speech sounds. The movable (or active) speech organs, situated in the mouth cavity are: the tongue, the soft palate with the uvula, the lips and the lower jaw. Of all the movable organs within the mouth cavity the tongue is the most flexible and active.

For convenience, the surface of the tongue is divided into several parts: the most flexible part of the tongue, which normally lies opposite the teeth ridge, is called the blade, the tip of the tongue being its extreme point. The part of the tongue next to the blade is called the front of the tongue. Then come the back and the root of the tongue. The tongue being the most active speech organ in the mouth cavity, the main principles of the majority of articulatory classifications of vowels are based on the movements and positions of the tongue.

## 2. 2. The system of English Vowels

The movements of the body of the tongue provide a convenient articulatory basis for classifying vowels according to two principles: 1) horizontal and 2) vertical movements of the tongue. According to the horizontal movement five classes of English vowels are distinguished. They are: 1) front [i:], [e], [eə], [æ], [ɪ] 2) front-retracted [ɛ], [ɛ:] 3) central [ɜ], [ɜ:], [ɝ], [ɝ:], [a], [a:] 4) back [ɔ], [ɔ:], [u:], [a:], [ɔ:] 5) back-advanced [ɪ], [ɪ:] Not all phoneticians single out the classes of front-retracted and back-advanced vowels. So both [i:] and [ɪ] vowels are classed as front, and both [u:] and [ɔ:]

- as back. The point is that the vowels in these two pairs differ in quality which is partially due to the raised part of the tongue. So in this case a more detailed classification seems to be a more precise one, since it adequately reflects the articulatory distinctions actually present in the language. Now let's view another articulatory characteristic of vowels, which is based on the vertical movement of the tongue. The way phoneticians of different schools approach this aspect is also slightly different.

Some scholars distinguish three classes of vowels: high (or close), mid and low (or open) vowels. But to mark all significant changes in vowel quality it is not enough to single out these three groups of vowels. For instance, both English vowels [i:] and [ɪ] belong to the group of close vowels, but when the vowel [ɪ] is articulated the front of the tongue is not so high in the mouth as it is in the case of the vowel [i:]. Russian phoneticians made the classification more detailed distinguishing two subclasses in each class: broad and narrow variations of the 3 vertical positions of the tongue.

Thus the following 6 groups of vowels are distinguished: 1) close a) narrow [i:], [u:] b) broad [ɪ], [ʊ], [ɪʊ], [ʊɪ] 2) mid a) narrow [e], [ɛ:], [ɛ], [eɛ], [ɛɛ] b) broad [ɛ], [ɛ] 3) open a) narrow [ɔ:], [ɔ] b) broad [ɔ], [aɔ], [aɔ], [ɔ], [a:]. In addition to the above-mentioned principle of the classification of vowels phoneticians suggest five other criteria: 1) stability of articulation 2) lip position 3) character of the vowel end 4) length 5) tenseness The stability of articulation specifies the actual position of the articulating organ in the process of the articulation.

There are two possible variants: a) the tongue position is stable, in this case the articulated vowel is pure, it consists of one element and is called a

monophthong; and b) the tongue position changes, in this case a vowel consists of two elements, the first one is strong, it is a nucleus, the second element is very weak – it is a glide. There exists a third variety, when the change in the tongue position is fairly weak, in this case the articulated vowel is not pure, but it still consists of one element, such vowels are called diphthongoids.

So according to this principle the English vowels are subdivided into: a) monophthongs [ɪ], [e], [æ], [ɜ:], [ʊ], [ɔ:], [ɔ:], [ɔ:], [ɔ:], [a:] b) diphthongs [eɪ], [eɪ], [eɪ], [eɪ], [eɪ], [eɪ], [eɪ], [eɪ], [eɪ] c) diphthongoids [i:], [u:] Some phoneticians, however, do not share this way of thinking and do not distinguish diphthongoids. But for the learners of English it is important to know this differentiation as it is useful for teaching purposes. Besides in modern English the tendency for diphthongization is becoming gradually stronger. Another feature of English vowels is lip rounding.

Traditionally three lip positions are distinguished: spread, neutral and rounded. In English lip rounding is not relevant phonologically (it means that no two words can be distinguished on its basis). Our next point should be made about another characteristic of English vowels. It's checkness. The quality of all English monophthongs in the stressed position is strongly affected by the following consonant. If a stressed vowel is followed by a strong (fortis) voiceless consonant it is cut off by it. In this case the end of the vowel is strong and the vowel is called checked.

If a vowel is followed by a weak (lenis) voiced consonant or by no consonant at all the end of it is weak. In this case the vowel is called free. Now it should be useful to consider another articulatory characteristic of English vowels,

that is their length or quantity. The English monophthongs are traditionally divided into short [ɪ], [e], [ʌ], [ʊ], [ɔ], [ʌ], [ʌ] and long ones [i:], [a:], [ɔ:], [ɔ:], [u:]. It should be noted that vowel length or quantity has for a long time been the point of disagreement among phoneticians. The problem is whether variations in quantity are meaningful (relevant) or not.

Let's look at the pairs of words: [bɪd - bi:d], [sɪt - si:t]. Are they distinguished from one another by the opposition of different length (that's the approach of D. Jones, an outstanding British phonetician) or is the difference in quality (or in other words the position of the active organ of speech) decisive here? Most Russian phoneticians are in favour of the second conception. They state that a feature can be systemic if it does not depend on the context. As to the length of English vowels, it varies and depends on a lot of factors, the first being phonetic context.

The shortest are vowels followed by voiceless consonants and the longest are in free position. For example in "meat" [i:] is half as long as the [i:] in "me", but may approximately have the same duration as the [ɪ] in "mid". But still these words "mid" and "meat" are perceived as different words because the vowels are different in quality. So no matter what time is required for the articulation of these vowels, the main distinctive feature is quality, not quantity. As for tenseness we shall only mention that special instrumental analysis shows that historically long vowels are tense, and historically short ones are lax.

To sum it up we may conclude that among all the articulatory features of English vowels only two are relevant: the stability of articulation and tongue position. 2. 3. The System of English Consonants Before passing on to the <https://assignbuster.com/phonetics-as-a-branch-of-linguistics/>

classification of English consonants the difference between consonants and vowels should be considered. Acoustically consonants are noises, not musical tones like vowels. From the articulatory point of view the difference is due to the work of speech organs. In case of consonants various obstructions are made. As to the classification of English consonants there are few ways of seeing the situation.

One of them is the classification according to the type of obstacle. On this ground two large classes of consonants are distinguished: 1) occlusive, which are produced when a complete obstruction is formed: [t, d, p, b, k, g], [m, n, ŋ]; 2) constrictive, which are produced when an incomplete obstruction is formed: [s, z, f, v, θ, ð, ʃ, ʒ, h], [w, r, l, j]. Each of the 2 classes is subdivided into noise consonants (these are those in the production of which noise prevails over tone) and sonorants (in the production of which tone component prevails).

Noise occlusive consonants are called stops because the air stream is completely stopped at some point of articulation and then released with an explosion, that is why they are also called plosives: [t, d, p, b, k, g]. Constrictive noise consonants are called fricatives, because the air escapes through the narrowing with friction: [s, z, f, v, θ, ð, ʃ, ʒ, h]. Occlusive-constrictive consonants or affricates are noise consonants produced with a complete obstruction which is slowly released and the air stream escapes from the mouth with some friction. There are only two affricates in English: [tʃ, dʒ]. Other phoneticians suggest that the first and basic principle of classification should be the degree of noise. So consonants are divided first into noise consonants and sonorants and then each group is divided into

smaller groups. Another very important principle is the place of articulation. According to this principle English consonants are classed into labial, lingual and glottal. I. Labial consonants in their turn are subdivided into a) bilabial (produced when both lips are active) [w, m, p, b]; b) labio-dental (articulated with the lower lip against the edge of the upper teeth) [f, v]. II.

Among the class of lingual consonants three subclasses are distinguished: a) forelingual; b) medio-lingual; c) back-lingual. Forelingual consonants are also of three kinds: 1) apical (articulated with the tip of the tongue) [t, d, s, z, θ, ð, ʃ, ʒ, n, l]. 2) dorsal (produced when the blade of the tongue is active). There are no dorsal consonants in English. In Russian these are the sounds [ʁ, ʁ̄, ʁ̄̄, ʁ̄̄̄, ʁ̄̄̄̄, ʁ̄̄̄̄̄, ʁ̄̄̄̄̄̄]. 3) cacuminal (articulated with the tip of the tongue curled back). There is only one cacuminal consonant in English - [r]. According to the place of obstruction forelingual consonants may be: - interdental, articulated with the tip of the tongue projected between the teeth: [θ, ð]; - dental, produced with the blade of the tongue against the upper teeth: the Russian [ʁ, ʁ̄, ʁ̄̄, ʁ̄̄̄, ʁ̄̄̄̄, ʁ̄̄̄̄̄]; - alveolar, produced with the tip of the tongue against the upper teeth ridge: [t, d, s, z, n, l]; - post-alveolar, articulated with the tip or the blade of the tongue against the back part of the teeth ridge: [r]; - palato-alveolar, made with the tip or the blade of the tongue against the teeth ridge and the front part of the tongue raised towards the hard palate, thus having two places of articulation (two foci): [ʃ, ʒ, ʃ̄, ʒ̄]. b) mediolingual consonants are produced with the front part of the tongue raised high to the hard palate, so they are always palatal: [j]. c) backlingual consonants are also called velar, because they are produced with the back part of the tongue raised towards the soft palate: [k, g, ŋ]. III.



The glottal consonant [h] is articulated in the glottis. There are no glottal consonants in Russian. One more articulatory characteristic which should be mentioned is the position of the soft palate.

According to this principle consonants may be oral and nasal. There are only three nasal consonants in English, which require the lowered position of the soft palate: [m, n, ŋ]. The rest of the consonants are oral because in their production the soft palate is raised and the air escapes through the mouth. Our next point will be made in connection with another sound property, that is voice-voiceless characteristic. When the vocal cords are brought together and vibrate we hear voice and the consonants are voiced: [b, d, g, v, z, ʒ, ʒ, ʒ, ʒ]. When the vocal cords are apart and do not vibrate we hear only noise and the consonants are voiceless: [p, t, k, f, s, θ, ʃ, ʃ, ʃ, ʃ]. It should be noted that the difference between such pairs as [p, b], [t, d] and so on is based not only on the absence or presence of the voice component, as voiced consonants are not fully voiced in all word positions, in word final position, for example, they are partially devoiced. There's also energy difference. All voiced consonants are weak or lenis and all voiceless consonants are strong or fortis.

Summing it up, it should be mentioned that the most important articulatory features, which could serve as a criterion for grouping consonants into functionally similar classes, are: type of obstruction; place of articulation and the active organ of speech; force of articulation. The rest of the characteristics are considered to be irrelevant, as they are of no importance from the phonological point of view, but they provide necessary and useful

information for teaching purposes. It is for this reason that they are normally included into the classification. III.

#### THE ACOUSTIC AND AUDITORY ASPECTS OF THE ENGLISH SPEECH SOUNDS

The auditory aspect of any sound is inseparable from its acoustic aspect and acoustic phonetics is closely connected with auditory phonetics and both may, therefore, be considered together. Objectively sound is a physical phenomenon, a kind of moving energy generated by some vibrating body. Subjectively sound is our perception of the vibrations of the air next to our ear-drum. People can perceive not all vibrations of the air but only when they occur at the rate of sixteen to twenty thousand times per second.

Sounds may be periodical and non-periodical. If the vibrations of a physical body (vocal cords in our case) are rhythmical, the sound waves are periodical. The auditory impression of such periodical waves is a musical tone or a speech tone. If the wave is non-periodical, it is perceived as noise. Sound has a number of physical properties which all exist and manifest themselves simultaneously. They can be singled out from the others only for purposes of analysis. The first of these properties is frequency which is a number of vibrations per second.

Our perception of the frequency is the pitch of the sound. The greater the frequency, the higher the pitch and vice versa. The frequency depends on certain physical properties of the vibrator, such as its mass, length and tension. The greater the mass of the vibrator, the slower its vibrations and the lower the pitch. The longer the vibrator, the slower the vibrations and the lower the frequency and the pitch. Here the difference between men and women and adults and children voices lies. Men's and adults' voices are

lower than women's and children's are, because their vocal cords are thicker and longer.

Tension depends on the elasticity of the vocal cords. The vocal cords of elderly people are not as elastic as the vocal cords of younger people, children especially, so their voices sound rather low. As the tension increases - the frequency increases and the pitch rises. The second physical property of sound is intensity, changes in which are perceived as variations in the loudness of sound. The intensity of sound is produced by the amplitude of vibrations (that is by the distance to which the air particles are displaced from their position of rest by the application of some external force).

Intensity is measured in decibels. The intensity and frequency of sound are closely interdependent. The same amount of energy will produce either greater amplitude with a lower frequency or a higher frequency with smaller amplitude. Therefore if you increase the frequency without increasing the amount of energy you will shorten the amplitude and therefore reduce the intensity, that is produce a less loud sound. People are able to produce vowel sounds of various qualities or timbres. This is achieved through the action of the resonator mechanism.

So the production and differentiation of vowels is based on the acoustic phenomenon that is called resonance. Sounds coming from different resonators travel different lengths (distances) or have different carrying power. The distance is proportional to the volume of the resonator and the size of its orifice. Any sound has a certain duration or length. In other words it can exist and move only in time. The duration or length of a sound is the quantity of time during which the same vibratory motion, the same patterns

of vibration are maintained. For this reason, the duration of a sound is often referred to as its quantity.

The duration is measured in milliseconds. We perceive the variations in duration as tempo or speed of utterance. In speech there are not definite boundaries between different speech sounds. So it's very difficult to measure the length of separate sounds. In addition it should be mentioned that along with various articulatory classifications of speech sounds, there exist acoustic descriptions and classifications. The chief drawback of articulatory classifications is that they don't describe and define all shades of typologically identical speech sounds, especially vowels.

Besides, one and the same speech sound can be pronounced by different people with slightly different positions and movements of their speech organs. Acoustic classifications seem to overcome these difficulties as they are more detailed and accurate. The first acoustic classification was based on spectrographic analysis. It was worked out by Roman Jakobson, C. G. M. Fant and M. Halle. However, acoustic classification, though more precise, are not practically applied in teaching. The acoustic features of speech sounds can not be seen directly or felt.

But there are some other fields of the application of acoustic phonetics: speech synthesis, healthservice, security systems, etc. IV. THE FUNCTIONAL ASPECT OF SPEECH SOUNDS 4. 1 Phoneme and Allophones Phoneticians not only describe and classify the material form of phonetic units. They are also interested in the way in which sound phenomena function in a particular language and what part they play in communication. The branch of

phonetics that studies the linguistic function of consonant and vowel sounds, syllabic structures, word accent and prosodic features is called phonology.

Unlike phonetics itself, whose domain is articulatory and acoustic features, phono