



SPEECH SOUNDS
SYSTEM
of
ENGLISH



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Definition of a Speech Sound

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Definition

Speech Sound is a *human
patterned noise,
noise with organization .*

It's organized

articulatory,

acoustically,

auditory

functionally



Sound producing mechanisms

From the articulatory aspect the following mechanisms are often distinguished:

- power mechanism
 - vibrator mechanism
 - resonator mechanism
 - obstructive mechanism
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Power mechanism

includes mainly *the lungs*.

The **function** of the power mechanism is to supply the sound producing organs with **energy** in the form of the air stream / **air pressure** coming from the lungs



Vibrator mechanism

is mainly the **Larynx** (the upper part of the windpipe) with the **vocal cords** and the glottis situated in it.

V.M. is both **articulatory** & **acoustic** mechanism, its main *function* – to produce different types of **vibrations**:

regular / periodic

& *irregular / non-periodic*

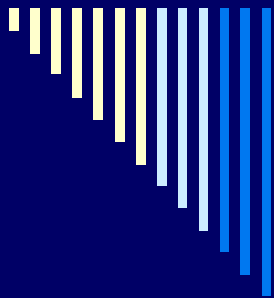


regular / periodic vibrations
give rise to *voice*;

irregular / non-periodic vibrations give
rise to *noise*.

As physical / acoustic phenomenon
vibrations can be measured by

frequency (in hertz),
intensity (in decibels),
duration (in seconds)



Acoustically

Auditory

frequency is acquired as *height of voice / tone*
intensity as *loudness*
duration as *length*

The greater number of vibrations are produced the higher voice (tone) is obtained



RESONATOR MECHANISM

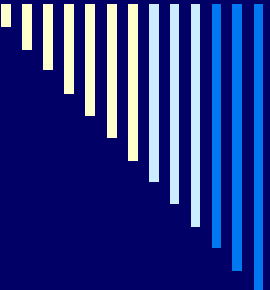
Cavities: *pharynx*,

mouth cavity,

nasal cavity .

The function of the *mouth cavity* –
to give rise to **VOWELS**
(to define their qualities)

by changing the *size, shape & volume*
of the mouth resonator.



The size, shape & volume of the mouth cavity is modified by the **tongue** & the **lips**.

Vowels are classified according to:

- position of the tongue
 - position of the lips
 - historical length & final phase of articulation
 - stability
-



Positions of the tongue

horizontal & vertical

□ **horizontal**

front: [i:], [e], [æ]

front-retracted: [ɪ]

central / mixed: [ɜ:], [ə] ^

back-advanced [ʊ], [ɑ:]

back [ɔ], [u:], [ɔ:]



vertical

high [i:], [ɪ:], [u:]
[ɪ]

mid [e] [ɜ:],
[ə], [ʌ],

low [æ], [a:], [ɔ:], [ɒ]

broad & narrow variations
of each group



Historical length & *final phase of articulation*:

- According to the historical length –
Vowels are historically **long & short**
- According to the *final phase of articulation*:
Free & Checked

Free (*historically long Vs*) are those in the production of which there is some **decrease** in *the force of articulation*;

Checked (*historically short Vs*) are those in the production of which there **no decrease** in the force of articulation.

They are always checked by a following consonant



Stability

- according to their stability V-s are :
monophthongs – **stable** sounds &
diphthongs – **non-stable** sounds;

diphthongs:

centring / ingliding : [ɪə],[ʊə],[eə];

& **upgliding**: [eɪ],[əʊ] [aɪ], [aʊ], [ɔɪ].



OBSTRUCTIVE MECHANISM

- The main **function** of this mechanism is **to produce consonants** - speech sounds with the obstructions.

 - The tongue & the lips fulfill the role of obstructors.
 - The quality of the consonants is defined by the **manner of articulation**, i.e.
 - a) the **type** of obstruction -complete or incomplete,
(Cs: occlusive, constrictive, occlusive –
constrictive);
 - b) the **manner of producing noise** –
plosives, fricatives, sonants ;
-



• active organs of speech & place of articulation

o according to the **active organs** of speech: **labial, lingual, pharyngeal.**

Labial : bilabial, labio – dental;

Lingual : forelingual, medio – lingual,
back – lingual;

Pharyngeal (glottal)



- **place of articulation:**

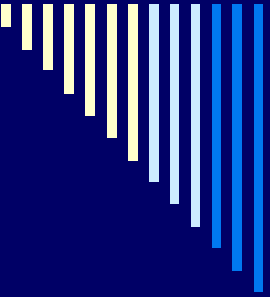
dental, alveolar, post-alveolar, palato –
alveolar,
palatal, velar;

- the **kind of noise:** voiced & voiceless;
 - their **intensity:**
forties – voiceless, lenis – voiced.
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ASSIMILATION

- Process of influencing of one sound upon the other.
 - **Direction:**
 - progressive: bags [g z], that's [ts];
 - regressive – on the ([n] is dental here;
 - reciprocal – at once [t] [w]:
 - [t] becomes rounded,
 - [w] – devoiced.
-



Degrees of assimilation: complete,
incomplete (partial), intermediate

- complete: horse-shoe [h ʃ : ə u:],
 - incomplete: at the; in this ;
 - intermediate: English - [n] ← [g]
[n] → [ŋ] → [ŋ g]
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