

CLASSIFICATION OF VOWEL SOUNDS

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Abstract. This article examines the classification of vowel sounds in phonetics, focusing on articulatory and acoustic features. It discusses the main criteria used in vowel classification, including tongue position, lip rounding, vowel height, length, and nasalization. The study also highlights the distinction between monophthongs and diphthongs and explains the theoretical importance of vowel classification in linguistic analysis and language teaching.

Keywords: vowel sounds, phonetics, articulation, vowel height, front/back vowels, diphthongs, monophthongs, classification

Annotatsiya. Ushbu maqolada fonetikada unli tovushlarning tasnifi artikulyatsion va akustik xususiyatlar asosida o'rganiladi. Unlilarni tasniflash mezonlari sifatida tilning holati, lablarning ishtiroki, tovush balandligi, cho'zilish darajasi va nazallik tahlil qilinadi. Shuningdek, monoftong va diftonglar o'rtasidagi farqlar yoritiladi.

Kalit so'zlar: unli tovushlar, fonetika, artikulyatsiya, til holati, diftong, monoftong, tasnif

Аннотация. В данной статье рассматривается классификация гласных звуков в фонетике с акцентом на артикуляционные и акустические характеристики. Описываются основные критерии классификации гласных: положение языка, округление губ, высота подъема языка, долгота и назализация. Также рассматриваются различия между монофтонгами и дифтонгами.

Ключевые слова: гласные звуки, фонетика, артикуляция, высота гласных, передние/задние гласные, дифтонги, монофтонги

Introduction

Phonetics, as a branch of linguistics, studies the physical properties of speech sounds, including their production, transmission, and perception. Vowel sounds represent one of the two fundamental categories of speech sounds, alongside consonants. Unlike consonants, vowels are produced with a relatively open vocal tract and without significant obstruction to airflow.

The classification of vowel sounds is essential for understanding pronunciation systems, phonological patterns, and language teaching methodologies. It provides a structured way to describe how vowels differ from each other based on articulatory and acoustic properties. This article aims to present a comprehensive overview of vowel classification, focusing on key parameters such as tongue position, lip rounding, vowel length, and phonetic quality.

Main Part

Nature of Vowel Sounds

Vowels are speech sounds produced with an open vocal tract, allowing air to flow freely through the mouth. They are typically voiced and function as the nucleus of syllables. The differences between vowels arise not from obstruction, but from variations in the shape and position of the vocal organs, particularly the tongue and lips

Classification Based on Tongue Height (Vertical Movement)

One of the primary criteria for vowel classification is the height of the tongue in the mouth. This refers to how close the tongue is to the roof of the mouth.

High (Close) vowels: The tongue is raised close to the palate (e.g., /i/, /u/)

Mid vowels: The tongue is positioned midway between high and low (e.g., /e/, /o/)

Low (Open) vowels: The tongue is lowered, and the mouth is more open (e.g., /a/)

High vowels require less jaw opening, while low vowels involve a wider mouth opening .

Classification Based on Tongue Position (Front–Back Dimension)

Another important parameter is the horizontal position of the tongue.

Front vowels: The tongue is positioned toward the front of the mouth (e.g., /i/, /e/)

Central vowels: The tongue is in a neutral central position (e.g., /ə/)

Back vowels: The tongue is positioned toward the back (e.g., /u/, /o/)

This dimension contributes significantly to vowel quality and acoustic differences

Classification Based on Lip Rounding

Vowels are also categorized according to the shape of the lips:

Rounded vowels: Lips are rounded or protruded (e.g., /u/, /o/)

Unrounded vowels: Lips are spread or neutral (e.g., /i/, /e/)

Lip rounding affects the resonance of the vocal tract and helps distinguish vowel sounds .

Classification Based on Length (Duration)

Vowels may differ in duration:

Short vowels: Produced with shorter duration (e.g., /ɪ/, /ʊ/)

Long vowels: Produced with longer duration (e.g., /i:/, /u:/)

In some languages, vowel length is phonemic, meaning it can change the meaning of words.

Monophthongs and Diphthongs

Vowels are divided into:

Monophthongs: Pure vowels with a stable articulation (e.g., /e/, /i/)

Diphthongs: Complex vowels involving a glide from one position to another (e.g., /aɪ/, /ou/)

Diphthongs are dynamic, whereas monophthongs are steady-state sounds.

Additional Features of Vowel Classification

Tense vs Lax Vowels

Tense vowels: Produced with greater muscular effort and longer duration

Lax vowels: Produced with less tension and shorter duration

Nasalization

Some vowels are produced with air passing through the nose due to a lowered soft palate. These are called nasal vowels.

Cardinal Vowels

Phoneticians use a system of cardinal vowels as reference points for describing vowel quality. These serve as a universal standard for comparison across languages .

Vowel Diagram (Vowel Quadrangle)

The classification of vowels is often represented visually in a vowel quadrangle or triangle. This diagram maps vowels according to tongue height and front-back position, helping linguists analyze vowel systems systematically.

Conclusion

The classification of vowel sounds is a fundamental aspect of phonetics that enables linguists and language learners to understand how speech sounds are organized and produced. By analyzing vowels based on tongue position, lip rounding, length, and other articulatory features, it becomes possible to describe and compare vowel systems across languages.

Moreover, vowel classification plays a crucial role in language teaching, pronunciation training, and speech technology. A clear understanding of vowel categories helps learners achieve accurate pronunciation and improves overall communication skills.

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