

Vowel Length Differences Before Voiced And Voiceless Constant

Miftahul Jannah

Universitas Islam Negeri Sumatera Utara

Email: miftaahull69@gmail.com

Siti Irna Fadillah

Universitas Islam Negeri Sumatera Utara

Email: sitiirnafadillah@gmail.com

Yani Lubis

Universitas Islam Negeri Sumatera Utara

Email: yanilubis@uinsu.ac.id

Alamat : Jl. William Iskandar Ps. V, Medan Estate, Kec. Percut Sei Tuan, Kabupaten Deli Serdang, Sumatera Utara 20371

Korespondensi penulis : miftaahull69@gmail.com

ABSTRACT. *In most languages, vowels before voiced consonants are longer than before unvoiced consonants. Attempts to explain this difference in vowel length with putative physical or physiological limitations in speech production have been generally unsuccessful. We propose the alternative hypothesis that speech communities deliberately vary vowel length to acoustically enhance the final duration of vowel distinctions. According to the principle of continuous contrast, a long vowel should make a short final interval of appear even shorter and therefore stronger, while a short vowel should make a long final interval appear longer and stronger. so stronger. Therefore stronger. so deaf To support this auditory hypothesis, we show that for jaba/-apa/ stimuli that vary in duration of medial occlusion and for square-wave stimuli that temporally mimic these speech stimuli, a longer initial segment evokes a change. reliable in both subjects. Restrictions on category labeling towards longer media slot durations. We also discuss other ways that language communities can use sharp contrasts to enhance phonological distinctiveness.*

Keywords: *Short Length, Voice, And Voca*

INTRODUCTION

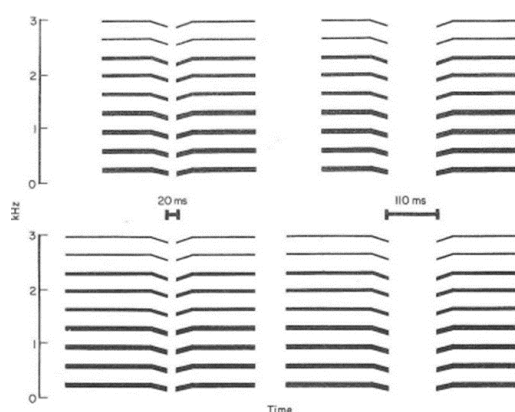
A well-tested finding, approaching true phonetic universality, is that voiced consonants tend to be preceded by longer vowels than voiceless consonants. This insight is well known in English (House & Fairbanks, 1953; Peterson & Lehiste, 1960; House, 1961) and has been reported in many other languages including French, Russian, Korean (Chen, 1970), German (Maack, 1953), Danish (Fischer-Jørgensen, 1964), Norway (Fitoft, 1961), Sweden (Eiert, 1964), Italy (Metz, 1914), Spain (Tomás Navarro, 1916), Hungary (Meyer & Gombocz, 1909), Netherlands (Siis & Cohen, 1969), Hindi (Maddieson & Gandour, 1975) and Persian (Ghadessy, 1986). In English at least, the difference in vowel length is also sufficient to indicate

a difference in phonological perception between voiced and voiceless consonants (Denes, 1955; Raphael, 1972; Port & Dalby, 1982).

Various explanations for the consonant effect have been proposed over the years. Although the concrete content of these descriptions varies widely, it can almost be described as production-oriented: VLE is said to be the result of physiological limitations in articulation, phonation, or a combination of the two. The strong bias against production-based explanations is no doubt due to its near-universal impact. Phoneticists tend to regard the special effects of language as "learned" and the universal effects of language as "physiological", the latter term clearly implying that the effects are of articulatory (or phonatory) origin (see for example, e.g. B. House, 1961).

METHOD

Speech stimuli are constructed in two series, from jaba/ to japaj. Variation of medial consonant ending intervals. The only difference between the two series is the duration of the first vocal part. Two sets of bids generated by digitally manipulating /what/ tokens generated by the male speaker (R.L.D.). The original first trailing interval and /p/ burst were removed and replaced with silence intervals from 20 to 110 ms in 10 ms increments. For the initial series of sounds it has been extended from its initial duration of 185 to 245 ms as measured from launchmhiding the beginning of the last interval, repeating each of the three adjacent notes twice. The point is near the center of the vowel. In another speech sequence, the initial vowel at 155 ms is classified by the intersection of three adjacent pitch points. The iteration and delivery cutoff point is at the zero point of the stimulus waveform, so there are no audible clicks. The duration of the last vocal section (from the last note to the voice-over) is 188 ms in both series. The maximum amplitude of the opening voices is the same for both series and is about 3 dB higher than that of the closing voice.



Using the waveform synthesis program, we also prepared two sets of non-speech stimuli, which mimic the temporal and maximum amplitude characteristics of long vowel and short vowel stimuli. The long sound excitation analogue includes the initial 245 ms square-wave segment and the last 188 ms square-wave segment separated by periods of silence of variable length corresponding to the final intervals of the speech stimulus. The short analog vowels are identical except for the initial square wave segment. 155ms long. Regardless of the rise and fall of the 10 ms interval, the amplitudes of the initial and last segments correspond to the maximum amplitudes of the two corresponding syllables of the speech stimulus. The baseline frequency of any non-speech stimulus is 256 Hz, except in the medial cleft area: it falls during the last 40 ms of the initial linear segment at 175 Hz, whereas this pattern reverses in the first 40 ms of the last segment.

Vowel Length and Consonant Sounds

Explanation:

1. Vowel Length:

Vowel length refers to the duration or length of production of vowel sounds in a language. In phonetics, vowel length can be a significant difference in discerning the meaning of words. Languages, including Indonesian, often use differences in vowel length as a phonemic feature to distinguish words. For example, in Indonesian, the word "hot" with a short vowel /a/ has a different meaning than the word "long" with a long vowel /a/.

2. Consonant Sounds:

Consonant sounds are those sounds that are produced by the presence of obstructions or obstructions in the airflow from the vocal tract. Consonants can be distinguished on the basis of various features, such as voice (voiced or unvoiced), place of articulation (for example, lips, teeth, or palate), and manner of articulation (for example, pop, scrape, or blow). In Indonesian, there are various consonant sounds such as /p/, /t/, /k/, /b/, /d/, /g/, and others.

3. Vowel Length and Consonant Sounds:

In the context of vowel length and consonant sound, there are several phenomena that can be observed. One of them is the difference in the length of vowels before voiced and voiceless consonants. In general, vowels tend to have a longer duration before voiced consonants and a shorter duration before silent consonants. This can be seen in words like "hot" and "long" which were mentioned earlier.

The lengthening of vowels before a voiced consonant occurs due to the vibration of the vocal cords which lasts longer at the consonant. The vibration of the vocal cords pushes or "holds" the previous vowel, resulting in a longer duration. The shortening of vowels before voiceless consonants occurs due to the absence of vibration of the vocal cords in these consonants. The absence of vibration of the vocal cords allows the previous vowel to "move" to the next consonant more quickly, resulting in a shorter duration.

The difference in the length of the vowel before voiced and voiceless consonants can also affect the meaning of the word. In Indonesian, differences in vowel length can differentiate between words that have different meanings, such as the previously mentioned "hot" and "long".

The length of vowels and consonant sounds is an important aspect of the phonetics and phonology of language. Vowel length can affect the meaning of words and contribute to proper understanding in communication. The difference in vowel length between voiced and voiceless consonants is a phenomenon that can be observed in Indonesian. Lengthening of vowels before voiced consonants and shortening of vowels before voiceless consonants are phenomena that play a role in differentiating word meanings and influencing accurate pronunciation in Indonesian.

Difference between voiced and voiceless consonants

The difference between voiced and voiceless consonants lies in the presence or absence of vibrations in the vocal cords during sound production. In phonetics, consonants can be grouped into two categories based on the presence of vocal cord vibrations, namely voiced consonants and voiceless consonants. Here is a more detailed explanation of the difference between the two:

1. Voiced Consonants:

Voiced consonants involve the vibration of the vocal cords during sound production. In voiced consonants, the vocal cords vibrate periodically, producing the sound associated with that consonant sound. Examples of voiced consonants in Indonesian are /b/, /d/, /g/, /v/, /z/, and so on. When pronouncing voiced consonants, air is expelled through the vocal tract which causes the vocal cords to vibrate.

2. Voiceless Consonants:

Voiceless consonants are those that are produced without the vibration of the vocal cords. When pronouncing voiceless consonants, the vocal cords remain silent or do not vibrate.

Air is expelled through the vocal tract without any vibration of the vocal cords. Examples of voiceless consonants in Indonesian are /p/, /t/, /k/, /f/, /s/, and so on.

The main difference between voiced and voiceless consonants lies in the presence of vibrations of the vocal cords. Vocal cord vibrations in voiced consonants give the characteristic sound associated with those sounds, whereas voiceless consonants do not involve vocal cord vibrations.

This difference has consequences in the pronunciation and perception of sounds. Pronunciation of voiced consonants tends to be accompanied by a sound produced by the vibration of the vocal cords, while voiceless consonants do not have a sound associated with them. This can affect the characteristics and understanding of sounds in language, as well as differences in meaning in words.

In phonology, the difference between voiced and voiceless consonants has an important role. In certain languages, such as Indonesian, these differences can be used as phonemic characteristics that differentiate word meanings. For example, the difference between /b/ (voiced consonant) and /p/ (voiceless consonant) can differentiate between the words "ball" and "pattern".

The difference between voiced and voiceless consonants lies in the presence or absence of vibration of the vocal cords during sound production. This difference has consequences in the pronunciation, perception, and meaning of words in the language.

Vowel Length before Voiceless Consonants

In phonology, the length of a vowel before an unvoiced consonant is a phenomenon that can be observed in many languages, including Indonesian. This difference in vowel length can affect pronunciation and differentiate the meaning of words. Here is a complete explanation of the length of the vowel before the voiceless consonant:

1. Definition of Vowel Length:

Vowel length refers to the duration or length of production of vowel sounds in a language. Vowel length can be a phonemic feature that differentiates word meanings in some languages. For example, in Indonesian, differences in vowel length can distinguish between the word "clothing" with a short /a/ vowel, and the word "use" with a long /a/ vowel.

2. Vowel Length before Voiceless Consonants:

In many languages, including Indonesian, there is a tendency for vowel lengths to become shorter before voiceless consonants. This means that vowels have a shorter duration before voiceless consonants than before voiced consonants. Examples in Indonesian are the word "write" (/tu.lis/) with a short vowel /u/, and the word "sincere" (/tu.lus/) with a long vowel /u/.

3. Causes of Difference in Vowel Length:

Differences in the length of vowels before voiceless consonants are usually due to physiological differences in sound production. Voiceless consonants, such as /p/, /t/, /k/, and so on, involve stopping the flow of air through the vocal tract by a barrier or barrier placed at the appropriate site of articulation. This resistance causes the previous vowel to "cut" or "pause" more quickly, resulting in a shorter duration.

4. Implications in the Meaning of Words:

The difference in the length of the vowel before the voiceless consonant can have implications in the meaning of the word. In Indonesian, vowel length can distinguish between words that have different meanings. For example, the difference between the short vowel /a/ in "write" and the long vowel /a/ in "sincere" conveys a different meaning. This phenomenon indicates that the length of the vowel before the voiceless consonant can act as a phonemic characteristic that distinguishes Indonesian words.

In phonology, the difference in the length of a vowel before a voiceless consonant is often the object of research and analyses

Implications in English Phonetics and Phonology

The phenomenon of vowel length differences before voiced and voiceless consonants has significant implications in English phonetics and phonology. It affects the pronunciation, perception, and phonological processes in the English language. Here is a detailed explanation of the implications:

1. Phonetic Realization:

Vowel length differences before voiced and voiceless consonants play a crucial role in the phonetic realization of English vowels. Vowels preceding voiced consonants tend to be longer in duration, while vowels before voiceless consonants tend to be shorter. This

distinction affects the overall timing and duration of vowels, leading to differences in vowel quality and pronunciation.

2. Perceptual Contrast:

The distinction in vowel length before voiced and voiceless consonants contributes to the perceptual contrast in English. Native speakers are sensitive to these differences and perceive them as meaningful distinctions. The variation in vowel length helps listeners identify and distinguish words that have similar consonantal patterns but differ in vowel quality. It enhances the clarity and intelligibility of spoken English.

3. Phonological Processes:

Vowel length differences before voiced and voiceless consonants also influence various phonological processes in English. For example, vowel length can affect vowel reduction, where vowels become shorter and undergo qualitative changes in unstressed syllables. The presence of a voiceless consonant in the following syllable can trigger vowel reduction, resulting in shorter and more centralized vowels.

4. Minimal Pair Contrasts:

The vowel length differences before voiced and voiceless consonants can create minimal pair contrasts in English, where a change in vowel length leads to a change in word meaning. For instance, in words like "beat" and "bet," the length difference of the vowel /i:/ versus /ɛ/ before the voiced /t/ versus voiceless /t^h/ consonant creates a distinction between the words.

5. Lexical and Phonemic Representations:

Vowel length distinctions before voiced and voiceless consonants are reflected in the lexical and phonemic representations of English words. Differentiating vowel length before voiced and voiceless consonants is essential for accurate word recognition, lexical access, and word production. It contributes to the mental storage and processing of vocabulary in English phonology.

In conclusion, the implications of vowel length differences before voiced and voiceless consonants in English are multifaceted. They affect the phonetic realization of vowels, contribute to perceptual contrasts, influence phonological processes, create minimal pair

distinctions, and play a role in lexical and phonemic representations. Understanding these implications is vital for mastering the pronunciation and phonological patterns of English.

Conclusion:

From the explanation above, it can be concluded that the difference in vowel length before voiced and voiceless consonants has significant implications in the phonetics and phonology of language. In the Indonesian context, vowels tend to be shorter before voiceless consonants, while vowels tend to be longer before voiced consonants. The implications of this difference are:

1. Influence on the pronunciation and perception of sounds: The length of the vowel before voiced and voiceless consonants affects the duration and pronunciation characteristics of vowel sounds. This can affect the recognition and understanding of words in the language.
2. Differences in word meanings: Differences in the length of vowels before voiced and unvoiced consonants can result in different meanings in words. In several languages, including Indonesian, differences in vowel length can be a phonemic feature that distinguishes the meanings of words that are parallel in terms of consonants.
3. Functions in the phonological system: The difference in the length of vowels before voiced and unvoiced consonants can play a role in phonological processes, such as reduction of vowels or changes in the quality of vowels in an unstressed position.
4. Minimal contrast of word pairs: The difference in the length of vowels before voiced and unvoiced consonants can create minimal contrast in language. That is, changes in vowel length can change the meaning of words. This has important implications for word recognition and comprehension in language.

Understanding the difference in vowel length before voiced and voiceless consonants is important in learning and mastering the sound system of a language. Understanding the phonetic and phonological implications of these differences helps in accurate pronunciation, understanding word meanings, and recognition of words in the language.

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