



# A Comparative Analysis of Phonemes and Syllable Structure in English and Chinese Languages

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**ABSTRACT**

The article discusses the importance of mastering correct pronunciation while learning a foreign language, especially the phonetic aspect. The article highlights the challenges of mastering the articulation skills of Chinese as compared to English due to the unusual set of vowels and consonants as well as the presence of a melodious variation of sound height when pronouncing syllables (tones). The article also emphasizes the need for teaching phonetics to foreign students due to the increasing international cooperation between China and European countries. The article provides a contrastive analysis of Chinese and English syllables and uses descriptive-analytical, classification, linguistic-cultural, and quantitative analysis as research methods. The article concludes with the main results and general conclusions of the research.

**Keywords:**

Chinese and English Syllable; Tones, Syllable-forming sonorants, Non-syllable sonorants; Phonemes

**Introduction**

Giving due attention to the phonetic aspect is crucial in learning any foreign language as mastering correct pronunciation enables the acquisition of characteristic articulation skills. Though articulation in native languages is innate and does not require conscious control, mastering the articulation of a foreign language entails automating it with minimal conscious control. One of the challenges in mastering articulation skills in Chinese compared to English languages is the presence of a melodious variation of sound height when pronouncing syllables, known as tones. This research aims to conduct a contrastive analysis of Chinese and English syllables. It is prompted by the importance of phonetic skills in language learning and the increased interest of Chinese scholars in teaching phonetics to foreign students due to growing international

cooperation with European countries. This article involves studying sound units of phonemic and syllabic languages, analyzing their peculiarities and common features, employing descriptive-analytical, classification, linguistic-cultural, and quantitative analysis.

**Phonemic and Syllabic Languages and Their Sound Units**

The sound material of language is the basis of its existence, the foundation through which people communicate through language. Speech does not exist and cannot exist outside of sound material. The invention of writing by humanity was motivated by the need to preserve oral speech in time and space, therefore the written form of language is a kind of graphic-orthographic "clothing of language".

At the same time, the units of language that make up its sound material, unlike other units

such as morphemes, words, phrases, and sentences, do not have independent meaning. However, despite not having independent meaning, sound units serve to form other language units, both grammatical and lexical, which have their own semantics [Bernstein, 1975].

General phonetics studies the general conditions of sound formation, based on the possibilities of the human speech apparatus. For example, consonants are classified by the place of articulation depending on which speech organs form the obstacle - movable or both movable and immovable. Consonants can be divided into three groups by the movable speech organ: labial, lingual, and laryngeal. Depending on the way the noise is formed, which arises when the obstacle is overcome, consonants are divided into explosive, affricate, fricative, and sonorant. General phonetics constructs universal classifications of sounds (vowels and consonants) based on articulatory and acoustic characteristics, studies regularities of sound combinations and the interaction of neighboring sounds with each other (different types of accommodation or assimilation), co-articulation, phonetic nature of the syllable and syllable division, phonetic organization of words, in particular stress. It studied the means of articulating speech flow and combining its parts into syntagms, phrases, phonetic paragraphs, and the like [Trakhterov, 1956].

In the phonetics of a particular language, all of the above issues are considered in connection with a specific language through the prism of functions that a particular phonetic phenomenon or unit may have. Phonetic (substantial) and phonological (functional) aspects form a single whole in phonetics, as all sound units are indirectly distinguished through semantic units existing in that language.

Phonetic means of the language are divided into phonetic units and phonetic features (properties).

Phonetic units are linear objects (meaning they can be distinguished linearly, as they can follow one another). They are divided into segmental and suprasegmental units. Segmental units are the minimum linear units of the sound system, which include sound and phoneme.

Suprasegmental units (or prosodic units) consist of segmental units. These include syllable, phonetic word, phrase, and phonetic paragraph [Novikov, 2003].

Phonetic features are also divided into segmental and suprasegmental. Segmental features (such as voicing, hardness/softness, etc.) characterize sounds and phonemes, while suprasegmental features (including stress and intonation) organize segmental units into larger complexes - suprasegmental units. An important property of all features is that they cannot exist in isolation, without a specific carrier - these carriers are phonetic units; moreover, features are not linear entities, i.e. they do not follow one after another, but form integral complexes [Knyazev, Pozharitskaya, 2003].

In linguistics, the syllable is mostly viewed as the smallest pronounceable unit devoid of any linguistic functions. However, the syllable is primarily a unit of live speech, and studying it precisely in speech allows us to clarify the true speech, and therefore linguistic nature of this unit, because language and speech are an inseparable dialectical unity. The speech process unites the listener and the speaker not only as the subjects who generate it, but also as those who understand each other in communication. Thus, speech is the object that has advantages over other forms of language existence (such as writing), since it is always a physiological and neurophysiological process, in which speech and thought structures are united and coexist.

The smallest unit of speech - the syllable, taking into account its articulatory characteristics, represents an impulse as such, which can be experimentally verified [Kodzasov, 2001]. Each syllable is a unity of qualitative and modal features. In inflected languages, the most homogeneous impulses of syllables with voiced consonants are in terms of modal features.

The syllable is the smallest segment of a word in phonology as an expression and then as a component of a phrase.

### **Future of the Chinese Syllable**

Chinese language (hereinafter referred to as CL) is the most widely spoken language in the world

and the most common language in terms of number of native speakers. One of the commonly recognized productive approaches to language learning is comparison of languages. It is important to consider not only the overall levels of languages, but also their components, i.e., certain language units (morphemes, phonemes, words, syllables, etc.). A syllable is the smallest unit in which the components of the accent-rhythmic structure are realized, i.e., word stress.

When it comes to the question of whether Chinese words should be written together or separately, it is important to refer to the Chinese phonetic alphabet (hereinafter referred to as CPA) - Pinyin, the most common standardization of Chinese in Latin script. It was developed in the late 1950s by Chinese scholars and officially adopted in the mainland of China in 1979. Currently, there are many dictionaries in China that are considered normative and that a sinologist can use to determine the boundaries of words.

When writing words together, there is often a problem with identifying syllables, especially in cases where the previous syllable ends with a consonant and the next one starts with a vowel. Pinyin uses an apostrophe as a syllable differentiating sign. It is added to multi-syllable words in which there may be difficulties in identifying syllables. Additionally, an apostrophe is used between two vowels, or if the previous syllable contains -n or -ng, and the next one starts with a vowel.

Chinese syllables are the most natural structural units in speech. In the Chinese language, a Chinese character typically represents a syllable. Each syllable consists of two parts: an initial and a final (rhyme).

Initials and finals are a distinctive feature common to all Chinese-Tibetan languages.

Syllable	Initial	Final
wo	w	o
heng	h	eng
xuan	x	uan

Initials, consonants used before finals, mainly consist of consonants. They form a strong syllable together with finals.

Modern Standard Mandarin (literally "universal language") is an actively developing normative Chinese language. The pronunciation basis of Mandarin is the Beijing dialect, northern dialects are taken as a basis, and grammatical norms are oriented towards the living modern Chinese language and works of new Chinese literary art. The literary language is based on northern dialects. Mandarin is actively spreading in all spheres of life in the PRC, primarily in the education system and mass media [Timofeeva, 2011].

A syllable in Chinese can be defined as a phonemic unit with two interconnected aspects: a specific organization of segmental phonemes, on the one hand, and suprasegmental phonemes of various types, on the other. The latter refers to tone and stress, while the former pertains to the organization of consonants and vowels [Korovina].

The presence of tones multiplies this number, but it would be wrong to assume that each syllable can be pronounced with four tones, forming corresponding morphemes. Not every syllable is represented in all four tones. Only about half of the total number of syllables (174) have four tonal variants; a slightly smaller number of syllables (148) have three tonal variants; 57 syllables are presented in two tones; 25 syllables exist in only one tone [Zadoenko, Huang Shuin, 1993].

### Future of the English Syllable

In the English language, the discrepancy between the sound and letter composition of words is very significant, especially compared to the Russian language. This is because English orthography has not changed for a very long time, while the sound form of the language has undergone significant changes. The discrepancy between pronunciation and spelling in the English language is also explained by the fact that there are 44 sounds in English, but the Latin alphabet used in the language has only 26 letters. Therefore, the same letter in different positions can be pronounced as several different sounds. In order to accurately determine the sound composition of a word and thus facilitate the acquisition of foreign language pronunciation, a so-called phonetic transcription is used. This is

a system of symbolic graphic designations in which each sound corresponds to a specific symbol.

It is known that there are 6 vowel letters in the English alphabet and 20 vowel sounds. We read the vowel letter according to certain rules depending on the type of stressed syllable.

English consists of a mandatory syllabic element. The syllable in English is divided into the onset and the rhyme. The onset is any consonants preceding the vowel. The rhyme is the vowel and any subsequent consonants [Jonathan Harrington, Robert Mannell, 2009].

For example, the word flounce / flaʊns / consists of the following syllabic elements:

- initial / f /.
- rhyme / aʊns /.
- core / aʊ /.
- final / ns /.

In English, a syllable can be formed by:

1) Any loud sound (monophthong or diphthong) separately or in combination with one or more consonant sounds: / a: / are, / hi: / he, / mæn / man.

2) A sonorous consonant (lateral or nasal), which occupies the final position in the word and is preceded by a noisy consonant: / 'teɪbl / table, / 'rɪðm / rhythm, / 'ga: dn / garden.

If sonorant consonants occupy a final position in a word, they are not syllable-forming if they are preceded by a vowel sound:

Syllable-forming sonorants	Non-syllable sonorants
/ 'sædn / sadden	/ sænd / sand
/ 'dʌznt / doesn't	/ dʒʌnt / don't

The English sonorant consonants /w/ and /j/ can never be syllable-forming because they always occupy the initial position in a syllable. The syllable-forming sounds most commonly found in English words are the sonorant consonants /n/ and /l/.

There are a small number of words in English from syllable-forming /m/, and syllable-forming /ŋ/ occurs only as a result of progressive assimilation of the front-lingual consonant /n/ with the back-lingual consonant /k/, or /g/ preceding it, e.g. / 'beɪkən / - / 'beɪkŋ / bacon, etc.

Sonorant consonants can often lose their syllable-forming character when they are in the middle of the word and before the vowel sound, are part of the suffix, for example: / 'lis-nɪg / listening, but / 'li-sn /.

Each syllable in English has a center, or vertex - a vowel or consonant sound. The center may be preceded by one or more non-syllabic elements that form the beginning of the syllable; the center may be followed by one or more non-syllabic elements that form the beginning of the syllable.

center may be followed by one or more non-syllabic elements that form an auslaut.

Depending on the type of sound on which the syllable ends, distinguish:

- 1) Open syllable ends with a vowel sound: /aɪ/ I, /hi:/ he, /ðeɪ/ they, /'raɪtə/ writer;
- 2) The closed syllable ends with a consonant sound: /ɪt/ it, /mæn/ man.

Depending on the type of sound with which the syllable begins, distinguish:

- 1) A covered syllable that begins with a consonant sound: /tal/ tie;
- 2) Uncovered syllable, which begins with a vowel sound: /ɪn/ in.

The syllable in English as a phonological unit performs three functions: constructive, distinctive and recognitive.

1) Constructive function: syllables form words, phrases and sentences by combining their prosodic properties: volume - accent, tone - intonation, duration - length and tempo. Syllables can be stressed, unstressed, high, low, ascending, descending, long and short. All these prosodic properties form a pattern of word stress, tonal and rhythmic structure of the utterance, help to carry out excellent fluctuations of the syllabic level.

2) Distinctive function: if we compare the words lightening and lightning, it can be seen that their division into syllables is the only minimal distinguishing feature: / 'laɪtəniŋ / compared to / 'laɪtnɪŋ /. Other examples would be: I scream and ice-cream, an aim and a name.

3) The recognitive function is due to the speaker's pronunciation.

The listener can understand the exact meaning of the statement only if he distinguishes the

correct syllable boundaries: pea stalks - peace talks, ma train - might rain [Burya, 2006].

### Summary

Phonetics is a branch of linguistics that studies the sound units of language based on the capabilities of the human speech apparatus, the regularities of sound combinations, and the interaction of neighboring sounds. The sound means of language are divided into phonetic units and phonetic signs. In linguistics, a syllable is generally considered the smallest pronunciation unit. A syllable is the minimum chain of sounds with certain co-articulation rules and distribution characteristics. The syllable has its syntactic significance in the word as a unit. As a syntactic structure, the syllable also performs its own constructive function in the material objective sense as the smallest segment of melodic contours of a syntagma. The syllable is a structured component that constructs the syntagma in various typical ways. In Chinese, a syllable consists of two parts: initials and finals. An initial is a consonant that is the beginning of a syllable. A final is a vowel that is the end of a syllable. In Chinese, there is a retroflex final – erhua. A Chinese syllable can be strong or weak. Chinese has four tones, grouped into two larger sections. The tone of a syllable is a distinctive feature of its meaning. In English, a syllable as a phonological unit performs three functions: constructive, distinctive, and recognitive. In English, a syllable can be formed with a loud sound or a sonorous consonant. Depending on the type of sound that a syllable ends with, an open syllable and a closed syllable are distinguished. Depending on the type of sound that a syllable begins with, a covered syllable and an uncovered syllable are distinguished.

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