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Phonotactic phenomenon in the English language and its linguistic nature

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Abstract: The article is devoted to the analysis of phonotactic rules observed in the structure of syllables in English words. Phonotactic restrictions are usually found in syllable onsets and codas.
Key words: phonotactic rules, consonant clusters, onset, coda, syllable, syllabic nucleus, syllable formation, syllable division, junction of words.

It is well known that languages do not make use of all possible sequences of sounds. Within a particular language, sound sequences are constrained in well-defined ways. These phonotactic constraints — restrictions on the environments in which sounds appear — are part of what defines the phonology of English. Phonotactics is a branch of phonology that deals with restrictions in a language on the permissible combinations of phonemes. Phonotactics defines permissible syllable structure, consonant clusters, and vowel sequences by means of phonotactical constraints, the set of allowed arrangements or sequences of speech sounds in a given language, the area of phonology concerned with the analysis and description of the permitted sound sequences of a language.

We know that phonotactic rules are usually observed in the structure of syllables. Syllables are units of phonological organization. They group vowels and consonants into units. They form the basis of meter and various poetic devices such as rhyme, alliteration, assonance, and consonance. It is relatively easy to count the number of syllables in words or larger linguistic units. It is somewhat more difficult to identify just where each syllable begins and ends. And to date, no proposed definition of the syllable has gained universal acceptance. Phonotactic constraints may be observed in the internal structure of syllable - within the onset and the coda.

The most extreme phonotactic constraints are in the onset. The phonotactic restrictions in the coda in English are often (but not always) a mirror-image of those in the onset. For example, English allows /pl/ in the onset ('play') and /lp/ in the coda

('help'). But there are also many permissible coda sequences that are allowed whose mirror-image is disallowed in the onset (e.g. /mp/ as in 'lamp', but no /pm/ in the onset).

Phonotactic constraints are language specific. For example, in Japanese, consonant clusters like /st/ do not occur. Similarly, the sounds /kn/ and /gn/ are not permitted at the beginning of a word in Modern English but are in German and Dutch, and were permitted in Old and Middle English.

Although it is clear that sound sequences are subject to phonotactic constraints, and that these constraints are encoded by the language processing system, it is not precisely clear how these constraints are encoded. When discussing the possible positions of sounds in a language, we need to refer to word initial, medial, and final positions, as well as other positions, such as syllable initial, or other factors, such as the occurrence of a sound in monosyllabic or polysyllabic words. In the previous chapter, we considered in passing some of the constraints on the positions of sounds in English.

In describing the phonotactics (patterning of phonemes) of English syllables, linguists have focused on absolute restrictions concerning which phonemes may occupy which slots of the syllable.

Linguists have often observed absolute restrictions in the patterning of phonemes in syllables. For example, it is often noted that /h/ can occur only at the start of an English syllable and that /ŋ/ can occur only at the end. By the same token, certain combinations of phonemes occur in the language, whereas others do not. In English, however, it is not so obvious that the end of the syllable has many more restrictions than the beginning. As a result, there has been some debate as to whether there is enough imbalance in phonotactic constraints to suggest internal syllable structure.

We know that a statistical study of syllable phonotactics can bring light to the issue of syllable structure. Although the theoretical concept of linguistic structure is hard to pin down, many would agree that a structure is the natural domain for a

constraint or process. If, for example, different types of consonants may appear before the vowel than after it, then that suggests that those are not undifferentiated consonant slots, but rather that those two elements belong to different structures.

All syllables in all languages are variants on the framework. Every syllable has a nucleus. Typically a syllable nucleus consists of a vowel, but may under certain circumstances consist of a syllabic consonant. For example, the English indefinite article *a* is a word consisting of a single syllable which consists of just a vowel, but *on* in *button* is often pronounced without a vowel between the [t] and the [n], that is as a syllabic [n]. Similarly, *le* of *bottle* may be pronounced without a vowel between the [t] and the [l]; [l] then becomes syllabic.

All languages allow at least one consonant to occur before the syllabic nucleus. For example, the English definite article *the* consists of the consonant [ð] and the vowel [ə]. The consonants occurring before the nucleus of a syllable are called the syllable's onset.

Many languages allow consonants to occur after the nucleus, as in the English word *own* [oun]. A consonant or consonants that follow the nucleus are called the coda of the syllable. Languages that allow codas also allow onsets. The English word *strict* [strikt] consists of the single syllable whose nucleus is [i], whose onset is [str], and whose coda is [kt].

Within a syllable, the nucleus and the coda constitute a unit called the rhyme. English allows a very wide range of syllable types. Every English vowel can function as the nucleus of a syllable. Most English vowels may function as complete syllables. A few vowels require a coda of at least one consonant. These vowels are [i, e, æ, u, ʌ, ɔ], the lax vowels in monosyllabic words such as *in*, *end*, *at*, *good*, *up*, *on*.

With perhaps only one exception, every English consonant may function as the onset of a syllable. The exception is [ŋ], although the consonant [ʒ] is very rare as a syllable onset in a monosyllabic word. It occurs in that position in a few relatively recent borrowings from French, such as *genre* (which may be pronounced with [ʤ]

as its onset too). Every English consonant except [h] can constitute the coda of a syllable.

English allows up to three consonants in the onset of a monosyllabic word. However, when the onset consists of more than one consonant, there are restrictions on just which consonants can occur together. If the first consonant is [s], the second may be a voiceless stop [p, t, k], [f], or [m, n, w, l], as in *spill* [spil], *still* [stil], *skill* [skil], *svelte* [svelt], *sphinx* [sfiŋks], *smear* [smiər], sneer [sniər], swill [swil], *slick* [slik].

When two consonants occur as the onset of an English syllable, the first must be a stop or a fricative and the second must be a liquid [l, r] or a glide [j, w]. For example, *flip* [flip], *fry* [frai], *fuse* [fjuz], *quest* [kwest], *cute* [kjut], *brain* [brein], *muse* [mjuz].

English three consonant onsets are even more constrained than two consonant ones. The first consonant must be [s], the second may be one of the voiceless stops [p, t, k], and the third may be either a liquid [l, r], or a glide [j, w]. In fact, even this is too permissive. The sequence [tl] may not occur (even as a two consonant onset). For the most part, the codas of English syllables are approximately mirror images of English syllabic onsets.

Three consonant codas are quite restricted and must begin with a nasal or a liquid which must be followed by a pair of voiceless consonants, one of which must be [t] or [s]:

The linguistic importance of syllable division in different languages is in finding typology of syllables and syllabic structure of meaningful units of a language, that is morphemes and words. It is the syllable division that determines the syllabic structure of the language, its syllabic typology.

Syllabic structure of a language like its phonemic structure is patterned, which means that the sounds of language can be grouped into syllables according to certain rules. Phonotactic possibilities of a language determine the rules of syllable division.

A most general rule claims that division of words into syllables in writing is passed on the morphological principle which demands that the part of a word which

is separated should be either a prefix, or a suffix or a root (morphograph), *e.g. picture* ['pik-ʧə]. Compound words can be divided according to their meaning: *hot-dog; spot-light.* It is not possible to divide a word within a phonetic syllable:

- a suffix of two syllables such as *-able, -ably, -fully* cannot be divided in writing, e.g. *reli-able, lov-ably, beauti-fully.* If there are two or three consonants before *-ng,* these consonants may be separated in writing: *grasping, puz-zling.*

- with the exception of *-ly,* a word cannot be divided so that an ending of two letters such > *-ed, -er, -1c* begins the next line, e.g. *worked, teacher, hectic,* but: *cold-ly, bold-ly.*

- a word of one phonetic syllable, a word of less than five letters cannot be divided into syllabographgs, e.g. *piece* [pi:s], *time* [taim].

Syllable formation and syllable division rules appear to be a matter of great practical value to the language learner. They are especially important when it is necessary to know the number of syllables for the purpose of picturing a word or a sentence on the staves, or for finding a convenient place to put a stress mark in phonetic transcription. One must know the rules to define the syllable boundaries to make correct syllable division at the junction of words, as wrong syllabic division may cause misunderstanding, e.g.:

an aim   —   a name
mice kill   —   my skill
an ice house —   a nice   house
peace talks —   Pea stalks
plate rack   —   play track

Sometimes the difference in syllabic division might be the basic ground for differentiation sentences in such minimal pairs as:

I saw her eyes. — I saw her rise.
I saw the meat. — I saw them eat.

Having analyzed the nature of the syllable we may conclude that it is the smallest unit of utterance in the language which is made up of a vowel with or without one or more consonant sounds. So the syllable is one or more speech sounds forming a single uninterrupted unit of utterance which may be a commonly recognized subdivision of a word or the whole of a word. Being the smallest pronounceable units, the syllables form language units of greater magnitude, that is morphemes, words and phrases. Each of these units is characterized by a certain syllabic structure. Consequently we might say that a meaningful language unit has two aspects: syllable formation and syllable division which form a dialectical unity.

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