



## The Syllable as a Phonological Unit: A Contrastive Study in English and Arabic

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### Abstract

The present study is a contrastive study which shows the scientific description of the syllable as a phonological unit in English and Arabic. One of the main problems in learning a foreign language is developing a unique set of transfer-related first language behaviours. So, the current study attempts to: 1. give an overview of the syllable in Phonology as a branch of linguistics, 2. define the syllable in English and Arabic, 3. state the most prominent theories on which the syllable in English and Arabic is based, and 4. show the structures and functions of the syllable in English and Arabic. In light of comparisons between both English and Arabic languages in terms of similarities and differences, this kind of contrastive analysis aids in the prediction of the characteristics that would indicate difficulty or ease in learning English. In terms of such comparisons between both aforementioned languages, the researchers draw conclusions about all the issues mentioned above.

**Key Words:** syllables, theories, definitions, structures, functions

## المقطع كوحدة نظام صوتي: دراسة مقارنة باللغتين الإنكليزية والعربية

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### المستخلص

الدراسة الحالية هي دراسة مقارنة تبين الوصف العلمي للمقطع كوحدة نظام صوتي في اللغتين الإنكليزية والعربية. يعتبر تطوير مجموعة فريدة من سلوكيات اللغة الأولى المتعلقة بالتحويل إحدى المشكلات الرئيسية في تعلم اللغة الأجنبية. لذا تحاول الدراسة الحالية: ١. إعطاء لمحة عامة عن المقطع في النظام الصوتي كفرع من فروع علم اللغة، ٢. تعريف المقطع في اللغتين الإنكليزية والعربية، ٣. ذكر أبرز النظريات التي يركز عليها المقطع في اللغتين الإنكليزية والعربية. و ٤. إظهار تراكيب ووظائف (أهمية) المقطع باللغتين الإنكليزية والعربية. وفي ضوء المقارنات بين اللغة الإنكليزية و اللغة العربية من حيث أوجه التشابه والاختلاف، فإن هذا النوع من التحليل التقابلي يساعد في التنبؤ بالخصائص التي من شأنها أن تشير إلى صعوبة أو سهولة تعلم اللغة الإنكليزية. بناء على هذه المقارنات بين اللغتين المذكورتين أنفاً، يستخلص الباحثان استنتاجات حول جميع القضايا المذكورة أعلاه.

### 1. Introduction

Contrastive research was first started by Fries (1940s, cited in Khaled, 2003:12) who concentrated "on a detailed comparison between a scientific description of the language to be learnt and a description of the learner's native language". According to him, "the fundamental difficulties in learning a second language are mostly caused by the unique "set" of first language habits".

Contrastive hypothesis was later expanded by Lado in 1957, which claimed that by comparing two languages, it would be possible to forecast the characteristics that would indicate whether learning a second language would be difficult or simple.

According to the underlying presumption that the ease and difficulty of learning a second language is tied to the first language's already formed habits, the behaviourist

school of thought served as another lens through which to view the contrastive analysis. This paved the road to the appearance of additional theory known as "transfer", which was primarily predicated on the premise that habits or behaviours from the original language to the target learned one may be transmitted (Lee, 1968).

"Investigating linguistic characteristics of languages and identifying areas of similarity and difference between them is the fundamental goal of contrastive analysis (contrastive linguistics)" (Wardhaugh, 1970:127). Hence, linguistics by its stages is the only approach that can lead to a description of languages.

## **2. Contrastive Linguistics Assumptions**

Contrastive linguistics has based on the assumptions that:

- a. The learning of a foreign language and the acquisition of a native tongue are fundamentally different from one another, especially when the mother tongue is fully mastered before learning the FL.
- b. Each language has a distinctive structure. The transfer of similarities between the two languages won't be difficult (known as "positive transfer"), but the transfer of differences (known as "interference") will. So, the sum of the differences between the two languages can be thought of as the student's learning work.
- c. Both similarities and differences between the mother tongue and the FL to be learned will be revealed through a thorough comparison.
- d. The ability to predict or even rank learning obstacles and develop methods (teaching materials, teaching styles, etc.) for more successful foreign language learning will be possible on the basis of such a comparison (Whitman, 1970:25; and Yang, 1992:139-140)

### 3. Phonology at a Linguistic Level

The term "phonology" stems from the Ancient Greek words for "voice, sound", and the suffix "-logy" is derived from "the Greek word" for "speech", or "subject of discussion". Phonology "examines purposes, nature, and arrangement of sounds as linguistic constituents " (Lass,1984:34).

The systematic arrangement of sounds in languages is the focus of the linguistic branch known as phonology. It was formerly known as "phonemics" or "phonematics" since it studied how phonemes are organized in different languages. The mechanism for categorizing a language's sound patterns is known as its phonology. Besides, phonology analyzes how sounds swap out, or replace one another in various manifestations of the given morpheme "allomorphs", in addition to the smallest units that can be used to differentiate meaning—referred to as "phonemes"—as well as how they occur in different languages. Moreover, it encompasses topics such as suprasegmentals, "the study of syllables, stress, and intonation, as well as the phonological constraints on which sounds can appear in what positions in a given language" are known as "phonotactics" (Ladefoged, 2006:45-46).

### 4. What is a Syllable?

Under the special framework of language possesses, English and Arabic have their own ways of handling syllables. Ayub (1968), however, notes that both languages treat the syllable as:

- a. a building of sounds as a crucial part of the structure "for a set of speech sounds by segmenting such a set to strong and weak beats rhymes"(ibid:139).

b. a component affects features of prosody, stress distribution, and rhythm of a language.

The syllable "in English normally consists of a syllable nucleus, which is typically a vowel, and optional initial and final margins, which are typically consonants, as in the case of the word "sit" /sɪt/, which has a syllable nucleus of /ɪ/ and initial and final margins of /s/ and /t/". "The same is true for Arabic, where a syllable is described as a collection of sounds that form two bases and a peak in the middle" (ibid:140).

The syllables are typically defined phonetically as "having a centre that is relatively free of airflow obstructions and that sounds loud; the sounds before and after that centre will be less loud and more airflow-obstructing" (Roach, 2000:70). Roach adds that in a "monosyllabic", a one syllable word like the word "cat," the vowel / æ/ is the "centre," where little obstruction occurs, even though the airflow is completely obstructed by the nearby /k/ and /t/. Along with "disyllabic words", words of two syllables like the word "again" /ə'gen/, , and "trisyllabic words", words of three syllables like the word "banana" /bə'nɑ:nə/. Like the word "rhinoceros" /raɪ'nɒsərəs/ which has four syllables, "polysyllabic words" in English also exist.

## 5. Theories Relating to Syllables

Arabic does not produce any theories in the proper sense of the word. On the basis of the idea that "syllables are chest pulses throughout the speech", Hassan (1990:170) draws certain conclusions, while Al-Hamad (2000:201) offers a thorough analysis of the syllable from three perspectives, namely: "articulatory", "acoustically" and "functionally", and as follows:

- a. A syllable is " a series of sounds made in a single chest beat".
- b. The syllable is "a sonority peak between two bases acoustically".
- c. It is "a series of consonants and vowels that has a functional purpose".

According to Ladefoged(2006:237ff), there are two categories of theories that define syllables in English:

- a. Sonority (acoustic energy) and prominence are two sound properties that can be used to define syllables, a mix of pitch, length, stress, as well as sonority.
- b. Syllables as units in the organization of the sounds of an utterance are the basis of several theories.

Accordingly, there are three theories to define a syllable

### **5.1. The Expiratory (Chest Pulse) Theory**

According to this theory, a sound or a group of sounds that are produced within a single chest pulse and are accompanied by an increase in air pressure is referred to as a syllable. It means that a word has the same number of syllables as the number of chest pulses (expirations) that are produced when it is spoken. A vowel sound is uttered more forcefully (Stetson, 2014:193). As a result, vowels are always syllable. The boundaries between syllables occur where air pressure changes.

This notion, however, has been abandoned because we now know that when we talk, we take a new breath at the conclusion of a "syntagm"

/sɪntæm/, and that no increase in breath force is required for every syllable. Experiment results show that more than one syllable can be easily uttered during a single expiration.

## 5.2. The Prominence (Sonority) Theory

The prominence "Sonority" theory is a currently popular notion among foreign linguists. The term "sonority" has been introduced by the Danish phonetician Otto Jespersen as "the degree of perceptibility". It believes that sounds tend to organize themselves according to their sonority: "prominence, audibility or carrying power".

A syllable has one sonorous peak, as in the word "popular" which contains three peaks, which explains why it has three syllables "(pop-u-lar)". However, this idea is disputed since it does not explain the mechanism of syllable generation and syllable division. Although this theory does not make a significant contribution to the study of syllable division, Roca and Johnson (1990:102) contend that "the syllable can be viewed as a prosodic component made up of segments abstractly related in sonority clusters".

## 5.3. The Muscular Tension Theory (The Articulatory Effort Theory)

A syllable, according to this theory, is defined by differences in muscular tension. The energy of articulation increases at the beginning of a syllable, peaks with the vowel, and then declines towards the end of the syllable (Blevins and Goldsmith,1995:217). As a result, a syllable is a type of muscular tension. The presence of reduced articulatory energy determines the boundaries between syllables.

## 6. Structures of Syllables

Syllables are structured hierarchically rather than linearly, according to the bulk of present phonological theories. For descriptive reasons, many linguists including Katamba (1989:154), Roach (2000:73), and Ladefoged (2006:242) contend that the onset and rhyme of the syllable may be separated; the nucleus (also known as the peak) and coda can be found within the rhyme. Not all syllables contain all of the components; the smallest syllable imaginable like err /ɜ: /, simply has the nucleus, which is nearly always a vowel. There are two types of syllables: open, which ends with a vowel (CV), (**MAFTUH**) in Arabic, and closed which ends with a consonant (CVC), (**MUQFAL**) in Arabic (Al-Ani:1983, Hassan:1990, Anis:1995). As a result, a CV syllable has a core with no codas, whereas a CVC one has a core with a V peak and a C coda.

The way a word is broken down into syllables varies by language. Sonority, for example, influences the structure of English syllables, for example. Vowels are more sonorant than consonants. As a result, vowels are the nuclei of syllables, whereas surrounding consonants are the borders. According to Lass (1984:260), "the syllable plays a crucial role in the rules governing stress assignment".

The list below includes closed and open groups for patterns of English syllables with examples for each:



**(A). Closed syllables**

VC	is	['iz]
VCC	end	['end]
VCCC	ants	['ænts]
CCVCCCC	prompts	[ prompts ]
CVC	moon	[m'u:n]
CVCC	jump	[dʒ ʌ mp]
CVCCC	hands	[h'ændz]
CVCCCC	sixths	[s'ɪksθs]
CCVCCC	plants	[ pl'ænts]
CCVCCC	twelfths	[twelf θ]
CCCVC	strong	[ str'ʊŋ]
CCCVCC	springs	[spr'ɪŋz]
CCCVCCC	splints	[spl'ɪnts]

**(B.) Open syllables**

V	or	['ɔ:]
CV	sea	[s'i:]
CCV	through	[θr'u:]
CCCV	screw	[skr'u:]

In the opinion of the Arabic linguist Al-Ani (1983:86), "Arabic has three short vowels and three long vowels that always serve as the bases of syllables". According to Hassan (1990:173), "the number of vowels and syllables in an Arabic sentence are equal". Anis (1995:164) argues that "The initiation is always a single consonant, but the termination can be one, two, or zero consonants. " So, the Arabic syllables are classified

into five categories, represented by the characters (C) for consonants and (V) for vowels and seen in the following ordered sequence:

**a. CV** بَ، بِ، بُ

**b. CVV** با

**c. CVC** رِب

**d. CVVC** جاب

**f. CVCC** ضرب

The first syllable, "CV بَ، بِ، بُ", is when there is a consonant and then a vowel. Arabic only has three (short) vowels, hence the only way to have syllable type 1 is to have a consonant followed by a vowel. As a result, the three instances, " بَ، بِ، بُ " include all potential ways to have syllable type 1 in Arabic.

The second syllable, "CVV با" is a consonant followed by a long vowel. In Arabic, there are three short vowels and three long ones. The latter lengthens the short vowels, therefore Aleph lengthens the Fatha sound, Waw lengthens the Damma sound, and Yaa lengthens the Kasra sound. In addition, syllables in Arabic can never begin with short or

long vowels. Because of this, we are unable to create syllables by combining a long vowel with a consonant.

The third syllable type, "CVC زَب" is composed of a C and a V, as in the first types , "CV بُ ، بَ ، بْ" , and followed by another consonant, just like the English word "hit," and we can add more consonants following the vowel, like the "ts" in the word "hits,". However, we can NEVER have more than two successive consonants in a single syllable in Arabic, and it is quite rare.

In this kind of syllable, there is no vowel after the consonant at the end of the syllable. As a result, there are no Fatha, Kasra, or Damma above or below it. This can be demonstrated by drawing a little circle on top of the letter Al-Sukoon, and the letter is named Al-Saakin, which means without a vowel which stands for "without any vowel."

It is also worth noting that the Al-Saakin letter always represents the end of a syllable, and a syllable can never begin with Al-Sukoon.

e.g. the word غُرْبَةٌ which has three syllables

Furthermore, there is a peculiar instance with the third syllable type, "CVC زَب" where a syllable terminates in a particular consonant and the very following one (regardless of length) starts with that same mentioned consonant.

e.g. the third type ends with the Al Jeem, and first one begins with the Al Jeem حَجَّجْ

Any time this happens, the letter Jeem is written only once and a symbol called "Al-Shadda" is placed on top of it. e.g. حَجَّجْ

Thus, it is concluded that

1. Al-Shadda symbol indicates the start of a new syllable and the conclusion of a type 3-syllable.
2. It is always found between two syllables and is never detected in the middle of a syllable.
3. There are two of a particular letter if it has Al- Shadda at the top.
4. Such a letter contains both Al-Shadda and a short vowel Al- (Fatha, Damma, or Kasra).
5. Such a letter contains both a Shadda and a short vowel Al- (Fatha, Damma, or Kasra).
6. There will never be a letter that contains either AL- Shadda or Al- Shadda plus Al-Sukoon. e.g. **بُدَا جَبَارًا نَرَاجَةً**

However, there are instances when the last consonant of a syllable in Syllable Type 3 is followed by a different consonant in the following syllable: e.g. **ط حِطُّتْ** and **ت** (Idgham in Arabic). Thus, it is to combine the two letters and make them sound the same.

The remaining of the syllable types are rare because they are usually used at the end of a word, and they may include two consecutive consonants in one syllable which is not highly used in Arabic. e.g. **عِطْرٌ** CVVC **اباب** CVCC

## 7. Syllables' Functions

The core of phonological representations is the syllable, which serves as the organizational unit for phonological systems. It serves as a phonological element. According to Katamba (1989:164), " the syllable can operate as the basic phonotactic unit since it determines the operation process", how the phonological hierarchy's lower-level elements, in forms of consonants and vowels, are joined. According to Lass (1984;103), there are order restrictions on the amount and segments' types are combined to generate larger units in terms of syllables and words. Lass adds that in English, for example, when a word starts with an /s/ sound, the second one is any one of the three sounds /p, t, k/, and the third is either a liquid or a glide among the following liquids and glides respectively /l, r/ or /w, y/. Katamba(1989:166) argues that " the syllable plays an important role in prosodic phenomena like stress, assimilation, intonation, etc. in which, in order to ascertain if a particular rule is relevant, it is crucial to count the syllables in a word."

Umer(1976:81-83) postulates that "because Arabic speakers must group their phonemes into syllables in order to pronounce them, a syllable serves as a conceptual unit because individual sounds are meaningless". Furthermore, syllables are the primary unit of study for stress, tempo, and intonation because they help clarify the ambiguity that some phonetic groups share. Additionally, in Arabic, even though a syllable is short in length such as the letter "Waw," it still serves a purpose because it can be used to express "coordination" like the phrase "the pen and the book" or to "swear" **والله القسم** "By God".

Hassan (1990:68-71) describes consonant and vowel functions in Arabic syllables in detail. Let's begin with consonants:

a. They are the root and backbone of the Arabic word.

- b. When they are geminated, they can allude to multiple syllables, as in "fah" in "fahham" "فَهْم" "understood", or to a break on the geminated sound, as with "bb" of "Yarabb" "يَرْب" "O Allah"
- c. They are the first letter of the syllable.

Vowels, on the other hand, will:

- a. establish the syllable's centre and the cornerstone of sonority, becoming a key component of stress and intonation.
- b. be an indication of morphological origin from the same stem, as in "دُرِس", " **duris**" which means "was studied", and "دَرَس", "**daras**" which means "studied", both of which are derived from the same stem d-r-s, and
- c. be key indicators in interpreting.

## **8. Words' Last Syllables**

In English, words' last syllables are often English words with consonant clusters consisting of a maximum of four consonants can occur at the final position of each word, and they are described in depth by Roach (2000:71–72). The first consonant, or the last consonant if there is just one, can include any consonant apart from "h, r, w, and j". One of the following can apply when a word has two consonant final clusters:

- a. a word of a /m, n, l, or s/ sound as the pre-last consonant sound, followed by a last one in a word as in the following examples: "bump" / bʌmp /, "bent" /bent/, "belt" /belt/, or "ask" /a:sk/
- b. a word of a /s, z, t, d, or θ / sound as the last consonant sound of a word as in the following examples: "bets" /bets/," beds" /bedz/, "backed" /bækt/ and "eighth" /eitθ/.

These "post-last consonants" are regarded by Roach (ibid:71) as independent morphemes since they are used among the subsequent circumstances, viz: 1. "Plurality, 2. adding the past form morpheme or and 3. using ordinal numbers". When four consonant clusters are considered, it is determined that they are made up of a last consonant sound preceded by a pre-last and followed by post-last 1 and post-last 2, as in "twelfths" /twelfθs/, where /l/ takes the pre-last position, /f/ the last position, and /θ/ and /s/ post-last 1 and post-last 2. A different method is forced here by a limited number of examples consisting of a last consonant sound with no pre-last but three post-lasts, as in "sixths" /siksθs/ /, where /k/ is the last consonant sound and the cluster /sθs/ stands for post-last 1, post-last 2, and post-last 3.

There are five types of last words' syllables in Arabic, according to the majority of linguists, including Hassan (1990:176):

1. CV such as " sa" in "darasa" " دَرَسَ " which means "studied"
2. CVC such as "til" in "yuqa:til", " يُقَاتِلُ " which means "to fight"
3. CVV as in "nu:" in " nu:di:na", " نُودِينَا " which means "we were called"

4. CVVC , when there is a nasal on the final part of the syllable such as "li:n" in "da:li:n", "ضَالِّين" which means "lost".
5. When a geminated sound, such the letter "bb" in the word " شَاب " (which signifies "a young man"), is stopped, the word is said in CVCC.

Therefore, unlike in English, where the last syllables of words are independent morphemes associated with polarity or something else, the last syllables of Arabic words appear to be a part of the word's original structure.

## 9. Conclusions

At the end of our scientific journey, it is concluded that:

1. The syllable is recognized as the fundamental form of organization for a series of spoken sounds in English and Arabic.
2. Phonetically, Arabic syllables, are represented by chest pulses, but English syllables are phonetically characterized as having an airflow-resistance-free core that is preceded and/or followed by a significant barrier.
3. Each language has its own consonant and vowel sequences, as well as other characteristics such as "length", "stress", as well as "intonation".
4. Concerning the syllables theories, in both languages, they are as follows: a. the syllable was the subject of two different categories of theories in English: those that focused on the



syllable's acoustic properties, such as "sonority" or "prominence," and those that used it an element used to organize the sounds of a speech.

b. Arab linguists record things under the assumption that syllables can be examined, including: a) "articulatory" as a series of sounds emerging from one chest beat, b) "acoustically" as the greatest point of the sonority between two bases, and c) "functionally" as a set or a group of consonants and vowels. However, no theories are established in the literal sense of the word theory in Arabic.

5. In English, the syllable might start with a consonant or a vowel, however, in Arabic, the syllable always starts with a consonant.

6. Vowel-ending syllables in the English language are labelled as "open syllables" while those that end in a consonant are named "closed syllables". In Arabic, the former is known as "MUTAHARRIC" or "MAFTUH" whereas the latter is known as "SAKIN" or "MUQFAL".

7. In English, syllables operate as the fundamental phonotactic components since they govern how lower-level units can join. Arabic syllables serve primarily as semantic units because Arabic sounds are not meaningful individually. Nevertheless, the analysis of "stress," "tempo," and " intonation" in both languages must take the syllable into consideration.

8. Last words' syllables in English typically consist of consonant clusters of up to four consonants. However, in Arabic, last words' syllables are determined by C and V combinations.

9. The last syllable of a word in English may refer to "plurality," "adding the past form morpheme," or "using ordinal numbers," while it is a crucial component of the fundamental term in Arabic.

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