Journal of Education, Humaniora and Social Sciences (JEHSS) *ISSN 2622-3740 (Online)*
Vol 6, No. 1, Agustus 2023: 240 -250, DOI: 10.34007/jehss.v6i1.1837

Some Phonological Aspects of Vocoids and Contoids with Reference to English and Arabic Language

Sawsan A. Qasim
Mustansiriyah University - College of Arts-Iraq

Received: 23 June 2023; Reviewed: 27 June 2023; Accepted: 07 August 2023

*Coresponding Email: Sawsan.am@uomustansiriyah.edu.iq

Abstrak

This article investigates the most important dichotomy in phonology—the concept of vocoids and contoids. Pike (1943:66-78) proposed two separate distinctions, one strictly phonetic and the other based on function, or phonological criteria, as a possible solution to this terminology. Pike suggests the words vocoid and contoid for the phonetic distinction. The appropriateness of drawing a distinction based on the acoustics and articulation of sounds has been contested by a variety of linguists. In order to identify and analyze both the articulatory and acoustic aspects of a segment, most of phonologists claim that it is important to separate vocoids and contoids. In terms of acoustics and articulation, all sounds in the world's languages can be roughly divided into vocoids and contoids. This study also compares certain phonological aspects between English and standard Arabic related to the previous mentioned terms to show the similarities and differences between the two languages.

Key words: Vocoids; Contoids; Phonetics; Phonology; Consonants; Vowels

How to Cite: Qasim. S, A. (2023), Some Phonological Aspects of Vocoids and Contoids with Reference to English and Arabic Language. *Journal of Education, Humaniora and Social Sciences (JEHSS). 6 (1): 240 -250.*

INTRODUCTION

In some ways, the sounds of all the languages in the world are similar although immensely different; they can be grouped and classed due to shared qualities. Even though linguists have classified these sounds in many different subdivisions, the biggest problematic issue is the concept of vocoids and contoids, which is the most significant dichotomy in phonology. The appropriateness of drawing a distinction based on the acoustics and articulation of sounds has been contested by a variety of linguists. In order to identify and analyze both the articulatory and acoustic aspects of a segment, (Laver, 1994) claims that it is important to separate vocoids and contoids. However, does actually splitting these sounds into two large classification groups help with analyzing and understanding the individual sounds in a segment? Does this separation also help speakers understand how languages sound and how to create these sounds? In terms of acoustics and articulation, all sounds in the world's languages can be roughly divided into vocoids and contoids.

Acoustics. Language sound classification includes the use of acoustics. Although acoustics may be the most immediately apparent simple criterion by which the sounds of languages can be categorized, according to (Pike, 1943), the issue is with the "variable phonemic criteria" that various linguists use despite the fact that sounds are consistent because each person perceives sounds differently. In contrast, Laver asserts that developing a precise method of segmenting and dividing phonemes can be difficult due to the erratic pauses and stretches of speech, as well as the inconsistent acoustic nature and "state of constant potential change" of the "different elements of vocal performance" (Laver, 1994).

This indicates that the issue is not with the phonemic criteria Pike mentioned, but rather with the phonetic variation of individual speakers. Other linguists' attempts to distinguish between vocoids and contoids have run into both of these issues, as will be shown below.Additionally, different linguists have defined and distinguished between vocoids and contoids using widely different words, which has led to a number of problems.

Articulation. Another way to categorize the sounds of different languages is through articulation. Vowels and consonants have historically been characterized by linguists in terms of various tongue locations and mechanisms, as well as voicing and mouth shape. The cardinal vowel system, which (Ladefoged, 2001), claims is arbitrary by definition, as well as some issues with the articulatory and auditory criterion cause some variation even though this seems like a fairly definite criterion.

Linguists still do not fully understand the mechanisms of the tongue during vowel production, as (Ladefoged & Disner, 2012) suggest, 'it is difficult to say what the tongue is doing except in the case of a few vowels', which brings into question the traditional notion of the vowel quadrilateral. Is it really a good representation of the tongue movement during vowel production, or does it simply limit the linguist's understanding of how humans create vocalic sounds?

Syllable. The distinction between syllabic and non-syllabic vocoids and contoids may be the most important consideration in deciding whether it is worthwhile to classify these sounds. Some philologists like: Pike, Laver, Abercrombie, Sommerstein, Roach and Ladefoged, all suggest that vocoids and contoids differ in terms of their phonological positioning as well as their contextual syllabic functions or positions (Laver, 1994) and (Pike, 1943). In this regard, (Abercrombie, 1968) claims that although "consonants" and "vowels" appear to be relatively simple notions, their phonological definitions are actually more complex than they initially appear to be due to their strong ties to the structure of the syllable.

The consonants are peripheral or marginal in the creation of a syllable, while the center is the vowel. A syllable's generalized formula is CVC: seas, did. but many. In several respects, this differs from other English syllables. All speech sounds are categorized using vowels and consonants. But it turns out that these concepts are quite vague. The terms "vowel" and "consonant" are described in terms of the segment's general phonetic shape. According to the phonetic definition, "vowels" are sounds that don't involve tongue or lip closure, friction, or contact. The remaining portions are referred to as "consonants."

When the same words are used to refer to the phonological function of syllable segments, there are problems because "vowel" is employed as a syllabic element and "consonant" is used for the peripheral regions. This isn't always the case, for the sounds [w, j, r]. They do not close or make

contact with the tongue, and there is barely any friction. They could be categorized as semi-vowels in this sense. They are never syllabic, though. They're known as vocoids. At the same time, consonants like [l, m, n] have a closure, but voice overrides noise in them, and when a consonant comes before them, they become syllabic. They are usually called semi- consonants, or contoids. Given that "vowel" is used as a syllabic element and "consonant" is used for the peripheral parts, there are issues when the same words are used to refer to the phonological function of segments in the syllable.

However, this is not always the case. Consider, for instance, the sounds [w, j, r]. They do not close or make contact with the tongue, and there is barely any friction. They could be categorized as semi-vowels in this sense. They are never syllabic, though. They are known as vocoids. At the same time, consonants like [l, m, n] have a closure, but voice overrides noise in them, and when a consonant comes before them, they become syllabic. https://studfile.net/preview/

Obstruction and Sonority. Although some linguists define vowels as unimpeded sound and consonants as the opposite, in reality the distinction is not clear. According to (Sommerstein, 1977), the traditional concept of "vocoid" and "contoid" can be questioned because some sounds that linguists would classify as consonants, like nasals, liquids, and some obstruents, like /w/ and /j/, can be regarded as vowels if they are placed in specific positions within a syllable. This idea is further complicated by the semivowel, which is defined as "a segment which by phonological function is a consonant element in a syllable pattern, but by phonetic form is a vowel" (Abercrombie, 1968). This means that a consonant can also have an unobstructed element. He believed that the additional criteria provided by Pike and Trubetzkoy—sonority and resonance—was another distinction between vocoids and contoids and might help clear up any confusion between the two.

Vowels are naturally more sonorous than consonants, according to Pike (Pike, 1943), and this sonority "regardless of its surroundings, is an acoustic (not a contextual criterion)", which is a criterion that is exempt from the context of syllables. Similarly, (Trubetzkoy, 1969) claimed that consonants and vowels are merely creations and disruptions of resonance.

Vocoids or Contoids? Due to the problems in actually segmenting sounds discussed above, it is necessary to revisit the decision of whether to split vocoids from contoids. According to (Pike, 1943), strict and deconstructive segmentation of these sounds can truly untangle the problems involving acoustic criteria and syllabic context. Separating vowels and consonants seems pointless and unworkable because, according to Ladefoged and Disner, the mind does not store acoustic information in tiny, rigid units but rather groups or organizes sounds into syllables.

Given that alphabets represent segments of speech, they give the appearance that they are distinct sounds, but in reality, they are just a clever visual way to artificially break down syllables (Ladefoged & Disner, 2012).

Perhaps the terms consonants and vowels are only used as a help for alphabetic writing systems. Therefore, even though it is impractical to separate vowels and consonants from words, knowing the difference between the two is essential to learning how to write and pronounce words. Nevertheless, Ladefoged and Disner contend that while teaching students to talk, there is no need to acoustically separate the two. He claims that speech problems show humans do not comprehend sound units as consonants or vowels, but rather as a combination of both.

Thus, distinguishing vowels from consonants is very helpful when learning the alphabet and the structure of words, but there is significant debate over whether vowels and consonants are truly distinct from one another in terms of acoustics. However, rather than using vowels and consonants to describe the sounds of the world's languages, linguists prefer to use the terms syllabic and non-syllabic.

The Mechanisms of Sounds. Vocoids are described by (Abercrombie, 1968) as "carrying" the chest pulse, which is the air movement from the lungs that passes through the vocal tract unhindered or, more accurately, with no audible friction, whereas contoids are the marginal part, which is the beginning and ending of the air movement generated by "chest pulses,".

(Ladefoged & Disner, 2012) agree that ‘consonants are just ways of beginning and ending vowels,’ particularly referring to plosives.They also wrote that, however, that instead of thinking of consonants as gestures of the lips and tongue, it is easier to associate the consonant with the

target of the gesture, that is, the position of the vocal organs that create unique sounds (Ladefoged & Disner, 2012).

However, (Pike, 1943) asserts that there are several issues with using the friction criterion to classify consonants. He claims that the distinction between voiced and voiceless fricatives, which is the criterion used to separate consonants from vowels, is insufficient and does not adequately define how they are generated. Without first analyzing the type of friction and the cavity in which it occurs, grouping fricatives into one group and assuming that they are all consonants simply because of friction leads to inaccuracy and makes it more difficult to distinguish between the articulatory mechanisms of contoids and vocoids. Because the criterion that distinguishes the two is relatively difficult to match with the articulatory mechanism that separates vowels from consonants.

Previous Studies. Numerous earlier investigations on contoids and vocoids in several languages, including English, Moroccan Arabic, Mandarin Chinese, and different languages, these are a few studies related to the subject: An analysis of the acoustic characteristics of Mandarin Chinese and English contoids and vocoids by (Zhang et al., 2020) revealed parallels in the general patterns of vowel and consonant production in the two languages. According to a study by (Abdallah et al., 2018) that investigated the production and perception of English and Arabic vowels by bilingual speakers, several Arabic vowels were interpreted differently from their English equivalents. This result might reflect variances between the two languages' acoustic characteristics.

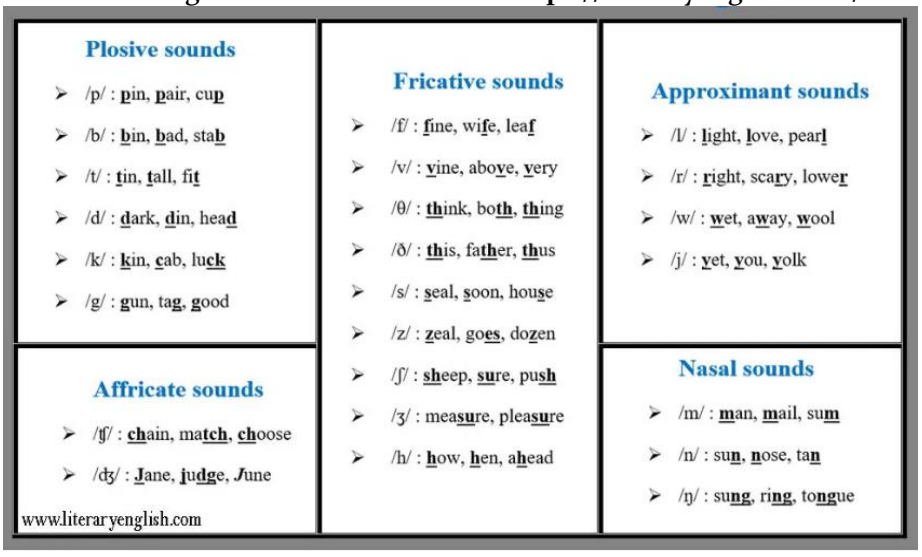
The distribution of consonants and vowels in Moroccan Arabic and English was examined by (Benmamoun et al., 2013). They discovered that the two languages had unique patterns that could be related to their different phonological frameworks. Despite some common trends in the utilization of speech sounds, (Seifart et al., 2018) study examined the distribution of consonants and vowels in 17 distinct languages from around the world and discovered significant cross-linguistic differences.

Analysis and Discussion

The main focus of this section is to compare certain phonological aspects of contoids and vocoids in English and Arabic. To discuss Standard Arabic contoids and vocoids classification and description. These terms are not frequently used in Arabic. The ideas they stand for are nevertheless still important in the study of Arabic phonetics and phonology that is why the researcher uses the "contoid" and "vocoid" terms instead of consonants and voewls in this study .

In English, contoids are categorized by the organs that articulate them, depending on how they are articulated (see appendix 1), it is also possible to integrate vocal cord movement with the articulation of any consonant, making contoids sounds either voiced or voiceless. (Crystal, 2011). In general, 24 consonant phonemes, as shown in the following table:

Table 1 English Consonants Sounds https://literaryenglish.com/



It is not the same in Arabic, there are some English sounds such as *ph, gh,ch* those sounds that similar to diphthongs are created by combining two or more sounds into a single syllable; this is not possible in Arabic ,as shown in the following table:

Table 2 sounds not found in Arabic adopted from (Al-Zoubi, 2019)

Digraphs مجموعة الحروف	Pronunciation اللفظ	Example مثال	Meaning المعنى
dg	ج	judge	قاضي
du	ج	graduate	يتخرج
ph	ف	telephone	هاتف
gh	ف	laugh	يضحك
gh	غ	Ghana	غانا
sh	ش	shirt	قميص
ch	ش	machine	آلة
ci	ش	special	خاص
ch	ك	character	شخصية
ck	ك	clock	ساعة حائط
qu	ك	queen	ملكة
ch	إتش	child	طفل
tu	تش	nature	الطبيعة
tion	شن	national	وطني، قومي
sion	جن	vision	نظر، رؤية
th	ث	think	يفكر
th	ذ	there	هناك
wh	و	what	ماذا
kh	خ	Khalid	خالد

In most of languages, including Semitic ones like Arabic, have writing systems that correspond to their phonetic inventory, this condition is not widespread. The spelling in these languages closely matches the language's sounds, adhering to the "What You See Is What You Get" (WYSIWYG) principle. (Newman, 2002). There are 28 sounds in Arabic, and there are three case notations: nominative, accusative, and genitive. This produces 31 sounds, as shown in the following table:

Table 3 A List of Phonetic Symbols of the Arabic consonants adopted from (Sabir & Alsaeed, 2014)

S.No.	Phonetic symbol	Arabic letter	Three-term label	Example
1	b	ب	Voiced bilabial plosive	ḥʊb(love)
2	t	ت	Voiceless denti-alveolar plosive	tətabIq(match)
3	d	د	Voiced denti-alveolar plosive	daxIl(inner)
4	k	ك	Voiceless velar plosive	kita:b(book)
5	ʒ	ج	Voiced palate-alveolar affricate	ʒuç(hunger)
6	q	ق	Voiceless uvular plosive	qəmər(moon)
7	l	ل	Voiced alveolar lateral	la: (no)
8	m	م	Voiced bilabial nasal	mətər (rain)
9	n	ن	Voiced alveolar nasal	nu:r (light)
10	f	ف	Voiceless labio-dental fricative	fən (art)
11	θ	ث	Voiceless inter-dental fricative	θəlaθəh (three)
12	ð	ذ	Voiced inter-dental fricative	ðəki(intelligent)
13	s	س	Voiceless alveolar fricative	su:q (market)
14	Ṣ	ص	Voiceless velarised alveolar fricative	ṣəḥḥəh(health)
15	z	ز	Voiced alveolar fricative	ruz (rice)
16	ʃ	ش	Voiceless palate-alveolar fricative	ʃəms (sun)
17	x	خ	Semi-Voiced uvular fricative	xəsarəh (lose)
18	ɣ	غ	Voiced uvular fricative	ɣuba:r (dust)
19	ḥ	ح	Voiceless pharyngeal fricative	ḥima:r (donkey)
20	h	ه	Voiceless glottal fricative	hawa:ʔ (air)
21	r	ر	Voiced alveolar trill	rəb (lord)
22	ç	ع	Voiced pharyngeal frictionless continuant	çəql (mind)
23	j	ي	Voiced palatal semi-vowel	jəd(hand)
24	w	و	Voiced labio-velar semi-vowel	wahid (one)
25	t	ط	Voiceless velarised denti alveolar plosive	ti:n (soil)
26	d	ض	Voiced velarised denti-alveolar plosive	dəçi:f (weak)
27	∂	ظ	Voiced velarised alveolar fricative	∂ərf (envelope)
28	ʔ	أ	Voiceless epiglottal plosive	faʔr (rat)

Concerning vocoids there are 20 fundamental vowel phonemes make up Received Pronunciation (RP), the term used to describe standard British English. There are 8 diphthongs, 7 short vowels, and 5 long vowels in all. RP speakers employ four times as many vowel sounds as the five primary Latin vowel letters (a, e, i, o, u) (Sana, 2022) and (Crystal, 2011).

Table 4 English vowels https://literaryenglish.com/

Vowel Sounds (20)		
Monophthong Sounds (12)		Diphthong Sounds (8)
Short Vowel (7)	Long Vowel (5)	
/ɪ/ pit	/i/ bean	/ɪə/ peer
/e/ pet	/ɑ/ barn	/eə/ pair
/æ/ pat	/ɔ/ born	/ʊə/ poor
/ʌ/ putt	/u/ boon	/eɪ/ bay
/ɒ/ pot	/ɜ/ burn	/aɪ/ buy
/ʊ/ put		/ɔɪ/ boy
/ə/ another		/əʊ/ no
		/aʊ/ now

www.literaryenglish.com

As for Arabic vowel sounds, short vowels الحَرَكَات القَصِيْرَة are not represented by sounds but rather by diacritical marks that are positioned above or below typical consonant letters. The Dhammah لضَمَّة kasrah الكَسْرَة, the, and the fatHah الفَتْحَة are three examples of short vowels. Additionally, the sukuun السُّكُون and the shaddah الشَّدَّة are two other crucial markers. The tanween التَّنْوِيْن diacritical mark is a less frequent one (Ibnulyemen, 2018), as shown in the following table:

Table 5 A List of Phonetic Symbols of the Arabic Vowels (Ibnulyemen, 2018)

Diacritical Marks التَّشْكِيْل				
Tanween with *Shaddah*	*Tanween* تَنْوِيْن	Short vowels with *Shaddah* شَدَّة	Short vowels	
ـًّ	ـً	ـَّ	ـَ	*fatHah* فَتْحَة
ـٍّ	ـٍ	ـِّ	ـِ	*kasrah* كَسْرَة
ـٌّ	ـٌ	ـُّ	ـُ	*DHammah* ضَمَّة
		ـْ	ـْ	*sukuun* سُكُون

A variety of alternative vowel lengths are present in Arabic in addition to the standard vocoids. Short vowels are indicated by diacritical markings above or below the letters, and long vowels are conveyed by doubling the vowel character. In contrast to "my book," كتابي which has a long vowel in the final syllable, the word "books" (kitb) كُتُب has short vowels throughout.

Through the number of sounds in the two languages is different. Arabic has more sounds, and the number of letter forms in Arabic is more than the number of letter forms in English. In English, there are sounds consisting of two or more sounds like diphthongs. In Arabic, there are sounds that are not present in English, including (Al-Ain العين Al-Ghainالغين - Al-H الحاءand Al-Kha الخاء) (Al-Zoubi, 2019).

Arabic contoids are further categorized based on where the obstruction is located in the vocal tract, or the site of articulation. The Arabic contoids and their articulation points are listed in the examples below:

- The bilabial sound (/p/ and /b/) is produced by drawing the two lips together.
- The labiodental sounds (/f/ and /v/) are produced by pressing the lower lip to the upper teeth.
- The dental sounds /t/ and /d/ are produced when the tongue touches the teeth.

The lsound /k/ and /g/ are velar sounds made by pressing the back of the tongue on the soft palate (Qadori, 2008).

The Arabic letter /d/ is pronounced dentally, whereas the English letter /d/ is alveolar. In English, the letter /h/ only appears in the starting and middle places; examples include horse and behalf. Finally, in Arabic, the letter 'h' appears, as in the word 'denote',/dəlaləh/ (Sabir & Alsaeed, 2014).

The sound /ʒ/ as in measure ['mɛʒɚ], which is not found in standard classical Arabic. Concerning English sounds /f/ & /v/, Arabic has only one phoneme for the consonants /f/ and /v/.

In addition, Arabic has also features of pharyngeal and uvular contoids, which are created by pharyngeal or tongue-back constriction, respectively.

Pharyngeal: These sounds are produced by the back of the tongue and the pharynx, and include words like "engine"/ḥ/ محرك /m ʊ ḥərrIk/, and /ç/ عنزة /çnzəb/ (Qadori, 2008).

There are lots of Arabic, uvular, pharyngeal, and pharyngealized ("emphatic") sounds. Arabic is unique in that it has emphatic sounds, which are typically represented by the letters /ṣ/ص/, /đ/ض/, /ŧ/ط, and /ẓ/ظ. The variety of uvular, pharyngeal, and pharyngealized ("emphatic") sounds in Arabic are ("emphatic") sounds.

According to geminated and ungeminated segments, the term "gemination," which is frequently used to describe the lengthening process, is sometimes misused to denote the doubling of a letter. In contrast, the distinction between geminated and ungeminated segments in phonetic terms is based on the fact that the hold phase in the creation of a plosive sound is stretched to around double the duration of an ungeminated plosive. It is significant to remember that Arabic never has geminated segments at the beginning of a word. For instance, in words like "cat," the conventional /t/ is pronounced as an emphatic cat قطّة , duck بطّة and goose وَزّة.

Geminates can be portrayed in a variety of ways, including by multiplying the symbol by two or by including the common lengthening diacritic (ː). In this course, the later representation will be used (e.g., Egypt, Tunisia), which uses the extending diacritic as in the following table:

Table 6 the common lengthening diacritic adopted from (Newman, 2002) https://www.kau.edu.sa/Files/

	Initial	Medial	Final
/b/	bajt	ʕabd	baːb
/t/	tarjama	χatama	buħt
/d/	darb	izdijaːd	ʃuruːd
/k/	kam	maskuːn	sikak
/q/	qumtu	baqqɑl	ðalq
/ʔ/	ʔan	jaʔs	bariːʔ
/bː/	-	qabbala	dubb
/tː/	-	qɑttala	batt
/dː/	-	qaddama	madd
/kː/	-	taʃakkur	ʃakk
/qː/	-	ħaqqɑqɑ	ħaqq
/ʔː/	-	saʔʔal	-

Depending on their phonetic surroundings, various contoids in Arabic can be pronounced with or without a voiceless or voiced quality. For instance, depending on the sounds around it, the consonant /s/ can be sounded as either a voiceless [s] or a voiced [z] alveolar fricative.

The sound [ʕ] stands for the glottal stop consonant in Arabic, denoted by the sound hamzah ء , are spoken in the larynx and produced when the glottis is open. The latter sound the pharynx that produsd at the back of the tongue to produce pharyngeal sounds. They are represented by the symbols/ḥ/ح ,and /ˋ/ع , and appear in the words "'addad' عداد,"hddad " حداد.

These sounds are created by cutting off the airstream by closing the vocal cords, like in the middle of the exclamation "oh no!" or when saying "bottle" as "bol" in Cockney English (Oudah, 2022).

The phoneme /p/ does not appear in Arabic. Arabic speakers typically find difficulty with English contrasts like /paen/ pan, /bn/ ban, and /kp/cap and /kb/ kab. Sounds such as /t/ and /d/ are alveolar in English but dental in Arabic.

Pharyngealization, a peculiar property of the Arabic language, is the process of giving some sounds a pharyngeal constriction. An harakat or hamza, a raised diacritical mark, is used to denote this characteristic. Pharyngealized sounds are crucial for distinguishing between various sounds in Arabic since they are often harsher and more guttural than their non-pharyngealized equivalents.

Nasal stops are frequently referred to as nasals. English has three nasal consonants, including /m/, /n/, and /ŋ /, although Arabic only has two nasals, /m/ (bilabial) and /n/ (alveolar), as in /mlk/ ملكfor "king" and /naIm/ناعم for "soft".

Arabic features a set of diphthongs, which are combinations of two vowel sounds that make up a single syllable, in addition to the normal vocoids. Diphthongs in Arabic include the letters /aj/, /aw/, and /ij/. The pronunciation of diphthongs in Arabic can change depending on the phonetic context in which they appear, just like other sounds Britannica.

The complicated system of consonants in Arabic is distinguished according to the location and style of articulation. For instance, the tongue is used to pronounce six coronal consonants that are close to or against the teeth or alveolar ridge. These include the letters "t," "d," "s," "z," "n," and "l." In addition, there are three glottal consonants, six pharyngeal consonants, and six velar consonants.

NOTE: The most common dialectal forms of this phoneme in Arabic are

1. the glottal stop (/?/), a typical characteristic of the urban dialects of the Near East (such as Lower Egypt, Syria, and Lebanon), أغاني/'aġani [ʔaˈɣaːniː] 'songs' See Arabic phonology, Hamza. https://en.wikipedia.org/wiki/Glottal_stop
2. /g/ the typical realization in many rural vernaculars as well as Bedouin dialects of the Arabian Gulf, Egypt and Tunisia). , although /q/ is often silent, it could be realized as /g/ in the following examples: "cow," bagra , "They told me "gal¯ u l ¯ ¯ı “," "I told you," gutlak ". (Albdairat, 2021).
3. /ð/ ذ is not pronounced in certain vernaculars as well as Bedouin dialects of the Arabian countries like Egypt or Jordanian dialect . The variable / ð/ can also be represented as [z]. (Albdairat, 2021). The pronunciations ذوق zawq in rural and zw in urban. When employing demonstrative pronouns, the [z] is most frequently used in rural dialects.

CONCLUSION

Although there still remains some fundamental problems and ambiguity in determining whether contoids and vocoids are different in terms of acoustics and articulation, to a moderate extent they should be separated due to beneficial reasons. It can be concluded that it is better to t separate contoids and vocoids in acoustics because some sounds regarded as consonants are actually hybrids in order to understand these sounds better, but in articulation it is the opposite because it aids linguists in understanding the mechanisms of sound production better. As for the differences and similarities between English and Arabic, the study has showed that both languages have phonological systems. There are some sounds that pronounced differently in each language depending on place and manner articulations, and there are some sounds that are not found in English language and vice versa.

APPENDIX

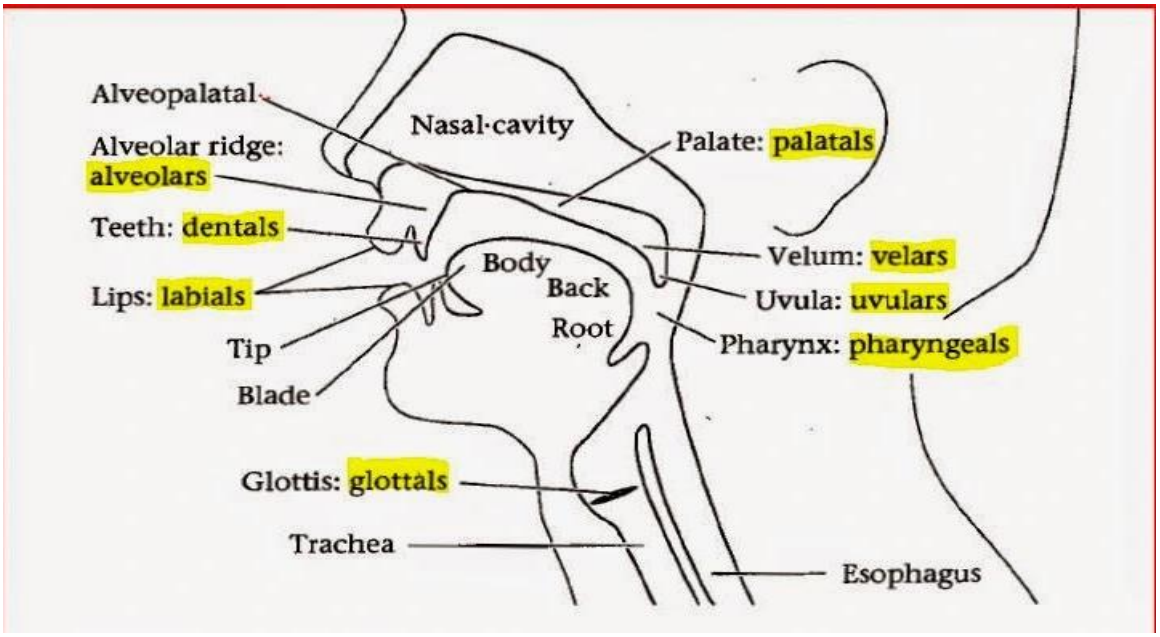


Diagram 1 Articulators in English (Roach, 2009)

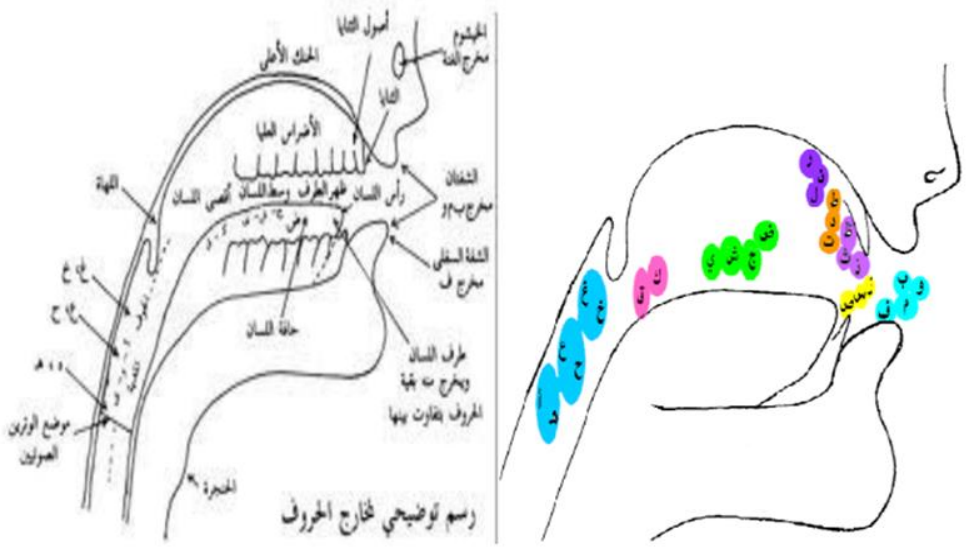


Diagram 2 Organs of speech in Arabic https://ar.wikipedia.org

REFERENCES

Abdallah, M., Alzahrani, M., & Aljuaid, N. (2018). Production and perception of English and Arabic vowels by Arabic-English bilinguals. *Jornal of Phonetics, 66, 146-161*.

Abercrombie, D. (1968). Paralanguage. *British Journal of Disorders of Communication*, *3*(1), 55–59.

Al-Zoubi, D. S. M. (2019). The Speech Sounds of Arabic Language and their Effect on Learning English Pronunciation : A Contrastive Analysis. *International Journal of Humanities and Social Science*, *9*(1), 15–27. https://doi.org/10.30845/ijhss.v9n1p2

Albdairat, I. S. (2021). *Sociolinguistic Study of Phonological Variation in Jordanian Arabic in Al-Karak*. Indiana University.

Benmamoun, E., Montrul, S., & Polinsky, M. (2013). Heritage languages and their speakers: Opportunities and challenges for linguistics. *Theoretical Linguistics*, *39*(3–4), 129–181.

Crystal, D. (2011). *A dictionary of linguistics and phonetics*. John Wiley & Sons.

Ibnulyemen. (2018). *Basic Arabic: Diacritical Marks*. https://blogs.transparent.com/arabic/basic-arabic-diacritical-marks/

Ladefoged, P. (2001). Vowels and consonants. *Phonetica*, *58*(3), 211–212.

Ladefoged, P., & Disner, S. F. (2012). *Vowels and consonants*. John Wiley & Sons.

Laver, J. (1994). *Principles of phonetics*. Cambridge university press.
Newman, D. (2002). *Arabic Phonetics : Sound Descriptions. THE PHONETICS OF ARABIC. Organs of speech in Arabic.*
Oudah, T. (2022). *Consonants in English and Arabic.* https://cdnx.uobabylon.edu.iq/undergrad_projs/wXD5KwN7U0CXrbwmNvf6Q.pdf
Pike, K. L. (1943). Taxemes and immediate constituents. *Language*, 65–82.
Qadori, A. (2008). *Basics of Linguistics* (3rd d.). Dar Al-Fiker.
Roach, P. (2009). *English phonetics and phonology paperback with audio CDs (2): A practical course*. Cambridge university press.
Sabir, I., & Alsaeed, N. (2014). A brief description of consonants in modern standard Arabic. *Linguistics and Literature Studies*, *2*(7), 185–189.
Sana. (2022). *Introduction to Vowel Sounds*. English Vowels. https://literaryenglish.com/introduction-to-vowel-sounds-english-vowels/
Seifart, F., Chasaide, A. N., & Docherty, G. J. (2018). The sounds of the world's languages. *Wiley Interdisciplinary Reviews: Cognitive Science*, *9*(1), e1462.
Sommerstein, A. H. (1977). Modern phonology. *(No Title)*.
Trubetzkoy, N. S. (1969). *Principles of phonology.*
Zhang, L., Xie, S., Li, Y., Shu, H., & Zhang, Y. (2020). Perception of musical melody and rhythm as influenced by native language experience. *The Journal of the Acoustical Society of America*, *147*(5), EL385–EL390.
Vocoids and contoids. https://studfile.net/preview/7653496/page:22/