

English and Arabic Sonorant's : A Contrastive Study

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ABSTRACT

The present study gives distinguishing features of Arabic and English sonorant consonants. It shows their articulatory and binary characteristics. The study also lists their variations and discusses metathesis, epenthesis, assimilation, elision and other phonological processes. Moreover, the four sonorant consonants namely /m/, /n/, /l/, /r/, exist in all Semitic languages (Abdul Tawwab, 1985: 226).

This study falls into five sections. Section one serves as an introduction to the whole work. The introduction gives a brief account of the distinguishing features of the four sounds in Arabic and English.

Section two is devoted to presenting a detailed account of the articulatory and binary features of sonorant consonants in English and Arabic.

Section three provides variations of the sounds /l/ and /r/. Section four is devoted to clarify some of the phonological processes such as metathesis, gliding, deletion and assimilation. Finally, section five presents the conclusions of the study.

Arabic Vowels

		Front	Central	Back
High	Short	i		u
	Long	i:		u:
Low	Short		a	
	Long		a:	

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Arabic Consonants

Manner of Articulation		Bilabials	Labiodentals	Interdentals	Alveolars	Alveo-palatals	Velars	Uvulars	Pharyngeals	Glottals
Stops	VL				t ṭ		k	q		ʔ
	VD	B			d					
Fricatives	VL		f	θ	s ṣ	ś		x	ħ	h
	VD			ð	z			ġ	ç	
Affricates						J				
Nasals		m			n					
Laterals					l					
Trills					r					
Semivowels		w				y				

1. Introduction

Crystal (1994: 354) denotes that sonorants form the major class features of sounds which shows variations in manner of articulation. In this respect, he adds that sonorant sounds "are defined articulatorily as those produced with a relatively free air flow and a vocal cord position such that spontaneous voicing is possible, as in vowels, liquids, nasals and laterals."

Fromkin and Rodman (1983: 44-5) mention reasons about sonorant consonants. They say that nasal stops are sonorants because although the air is blocked in the mouth, it continues to resonate and move through the nose. Liquids (l, r) are also sonorants

, although there is some obstruction of the airstream in the mouth, but not enough to make friction.

1.1 Arabic Sonorant Consonants

Arabic sonorants have some recognizable characteristics on the basis of the point of articulation ‘apical’ or roughly liquids: /n/, /l/, and /r/ or labial /m/, on one hand, and the basis of the manner of articulation and distinctive features on the other:

- (i) bayniyyah’. sonorants (literally, medial all four.
- (ii) non-emphatic (low): all four (but mostly /l/ , /r/.
- (iii) mukarrarah (trilled) /r/
- (iv) gunnah, (nasal) /m/ and /n/
- (v) xafifah , (lax or light): /m/, /n/, and /l/.
- (vi) θaqeelah, (tense) (heavy): /r/
- (vii) majhurah, voiced: all four
- (viii) muraqqaqa (lightened) (bright, clear, light) : /m/ and /n/
- (x) mufaxxamah, (thickened: emphatic) (dark, heavy): /l/ and /r/.

1.2 English Sonorant Consonants

Roach (1991: 56) denotes that one of the basic characteristics of nasal consonants is that air escapes through the nose. For this to happen, the soft palate is lowered to block the mouth cavity. At this point, there are three closures: bilabial (lips), alveolar (tongue blade against alveolar ridge and velar (back of the tongue against the soft palate. In this set of places three nasal consonants are produced, /m, n, ŋ/ which correspond to the three places of articulation of the plosives /pb, td, kg/.

Besides, in the production of the lateral /l/, there is a complete closure between the centre of the tongue and the part of the roof of the mouth. As a result, air escapes along the sides of the tongue.

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(i) /l/ is dark in final position and when it precedes a consonant for example, eel /i:l/, eels /i:lz/.

/l/ is clear in initial position and when it precedes a vowel. For example lea/li:/.

(ii) /r/ is a type of consonants which have an articulation in which the articulators approach each other but do not get close to each other to produce a complete closure (the tip of the tongue approaches the alveolar area but never makes contact with any part of the roof of the mouth) (ibid).

Harris (1994: 257) proposes that rhythmic **r** in rhotic accents of English outside Scotland is considered a member of nucleus rather than the coda.

1.3The rhotic [r] : The class includes several variants which are different both in articulatory terms and in auditory effect.

a. The RP [r] is a frictionless continuant, articulated very much like a fricative, but friction does not accompany the production of the sound. The tip of the tongue slightly touches the back of the alveolar ridge.

b. A flapped [r] is used by many speakers of English, especially when it occurs at the beginning of unstressed syllables. The tongue rapidly touches the alveolar ridge with a tap.

c. A rolled [r] is common in northern dialects in Scotland. It is produced by a quick succession of flaps. The tongue repeatedly and rapidly touches the alveolar ridge and vibrates against it.

2. English vs Arabic Sonorant Consonants Articulatory Features

It is best to test the nature of the production of these four sounds. To begin with the four phonetic segments are presented in minimal pairs from the dialect of Iraqi Arabic:

Initially:

/m/	mas	‘diamond’
/n/	nas	‘people’
/l/	las	‘escape’
/r/	ras	‘head’

Medially:

/m/	ʃamʊ	‘wax’
/n/	ʃanʊ	‘scandalize’
/l/	ʃalʊ	‘run away’
/r/	ʃarʊ	‘legislation’

Finally:

/m/	ʃam	‘moles’
/n/	ʃan	‘turned bad’
/l/	ʃal	‘picked up’
/r/	ʃar	‘advice gave consultation’

Ferguson (1959: 335) mentions that language dialect phonology is the basic system and the divergent features of modern standard Arabic and classical Arabic phonology. Dialect often have sounds that do not occur in modern standard Arabic such as / ڭ / (ڭ) , and they often lack sounds that occur in modern standard Arabic. This is especially true in cases such as using /z/ in a dialect

for / ð / of modern standard Arabic as in (hijazi) and Egyptian dialects, such as /ts/ for /k/ in Iraqi dialect.

In this regard, Ingham (1971) hints at the non-occurrence of /θ / and / ð/ in the Makkan dialect say 'laziz' for the modern standard Arabic from 'laðið' 'delicious'. Moreover, modern standard Arabic and classical Arabic both have the four sonorant consonants in their phonetic systems. By contrasting the four consonants in the above list of minimal pairs, in terms of voice, place of articulation, and manner of articulation, the sounds can be identified as:

/m/ a voiced bilabial nasal.

/n/ a voiced apico-alveolar nasal.

/l/ a voiced apico-alveolar lateral.

/r/ a voiced apico-alveolar trill.

There are no differences between the English sonorant sounds and their counterparts in Arabic: [m], for example, is bilabial, voiced, lenis, nasal, stop in both English and Arabic. As in the case of all nasal sonorants, when we articulate this sound, the velum is lowered, blocking the oral cavity and letting the air escape through the nose. [m] is distributed all basic positions (initial, medial and final) make, remote, dim. [n] is an alveolar, voiced, lenis nasal stop. The air is released and not through the nose and not through the mouth. It is also distributed in all three basic positions initial, medial, final,: name, renown, can. The lateral [l] and the rhotic [r] also have the same occurrence. The main variants of [l] ('clear' [l] and a 'dark' [l]) are distributed in prevocalic positions. When this sound is articulated, the tip of the tongue touches the alveolar ridge and the air released on both sides of the active articulator. For example lake [leɪk], flute [flu:t], plot [plɒt], glu [glu:], lake [leɪk], flute [flu:t].

The dark [ɫ] is distributed in word-final position before consonants. As in the case of the clear [l], the tip of the tongue touches the alveolar ridge and the air is released laterally, but it is the body of the tongue that raised against the soft palate, modifying the resonance of the sound. Words like kill [kil] , rule [ru:l] , silk [silk], illustrate the distribution of the sound either at the end of the word (syllabic) or before consonants.

The [r] sound, in postvocalic words or syllable-final position is not pronounced in standard English as in, 'car' , 'party'.

3. The Binary Features of Sonorant Consonants

The phonetic classification matrix in table (1) is built according to the theory developed by Chomsky and Halle (1968). The plus sign indicates that the sound in the vertical column has features in the horizontal row category (Al-Qatani, 1982: 39).

Binary Features of Sonorant Consonants

Table (1)

	m	n	L	R
Consonantal	+	+	+	+
Sonorant	+	+	+	+
Anterior	+	+	+	+
Coronal	—	+	+	+
Continuant	+	+	—	—
Voice	+	+	+	+
Strident	—	—	—	—
Nasal	+	+	—	—

The features in table (1) indicates that the four sounds share five common features as summarized in table (2) below:

Common features of sonorant consonants **m, n, l, r**

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Table (2)

+ consonant
+ sonorant
+ anterior
+ voice
_ strident

Thus, sonorant form a natural class in the sense that they are the only sounds in Arabic bearing the features: [+ consonant] + [sonorant].

Ladeforged (1982: 253) says that sonorants are sounds produced with a vocal tract cavity configuration in which spontaneous voicing is possible. Obstruents are produced with a cavity configuration that makes spontaneous is impossible.

The sound /r/ is usually formed in English by curling the tip of the tongue back behind the alveolar ridge. It is called trills or vibrants because it is articulated by either the tip of the tongue or the uvular. The trills belong to the **r** family of sounds. There are two types of /r/ in terms of the articulatory organ: the front or apical /r/ and the back or uvular /r/ (Malmberge, 1963: 30)

3.1 The Trill /r/

The sound /r/ sound in Arabic, in most occurrences is a trill and in few other a flap. The Arabic /r/ is of more trilling nature in its occurrence in dialects modern standard Arabic.

Daccas (1982: 84) denotes many rules about this phenomenon:

- i) If it is followed by a back rounded vowel /u/ for example grün 'horn'
- ii) If it is followed by a low vowel /a/ and /a:/

karam 'hospitality'

maram 'suitability'

iii) If it is followed by a short back vowel /u/ and followed by a consonant:

murgam 'to be forced'

iv) If it is preceded by the short vowel /ɪ/ and /a/ and followed by a consonant:

?arhab 'frightened, terrorized'

v) When /r/ is geminated, the trilling becomes prominent with the articulator making lengthening trills:

barra 'outside'

3.2 Variations of sounds:

The lateral /l/ and the trill /r/ are pronounced in two varieties or allophones for each. The two phonemes of /l/ are not contrastive and the same holds, for the two phonemes of /r/. In other words, this variation doesn't change the meaning. They are in complementary distribution. The same applies for /r/.

3.3 The Lateral /l/

Arabic has light, bright or clear [l] "muraqqaqah" and dark or heavy [ɫ] "mufaxxamah". As far as the point of articulation is concerned, the light or clear [l] is interdental whereas the dark [ɫ] is alveolar. It is produced with a concave slope in the middle of the tongue. The two allophones occur not only in the Standard Arabic but in dialects as well. For example:

ġalth ط 'he made a mistake'

ġalt ض 'he became thick'

3.4 Sonorant and Voice

A sound is described as [-voice] when the vocal cords do not vibrate during its articulation. If the vocal cords do vibrate, the sound is considered [+ voice]. The [$\pm$ voice] opposition is mainly useful for the classification of consonants. Because all vowels are [+ voice], it is considered a redundant feature for vowels that can be captured by a redundancy rule. In English, the phonemes /tʃ/, /s/, /p/, /k/, /f/, /ʃ/, /t/, /θ/, and /h/ are [-voice]. Other phonemes are [+voice].

The non-nasal stops, the fricatives, and the affricates form a major class of sounds technically termed obstruents. Nasals, on the other hand, form a class of sounds called sonorants.

When the passage of air is blocked or constricted in the mouth, and air passes out through the nose, the sound is [+ sonorant]. When, by way of contrast, the air cannot escape through the nose, the sound is [- sonorant]. Fricatives are constituent obstruents because (a) the air is constricted in the mouth, and (b) the air cannot escape through the nose. Obstruents, are therefore, [-sonorant]. Notice that the feature [+ sonorant] is a redundant feature for [+ nasal] sounds:

[+ Nasal] ----- [+ Sonorant]

[+ Sonorant] ----- [-strident]

4. Phonological Processes

In connected speech, the usual aim is for ease of communication rather than complete accuracy. Therefore, speakers unconsciously draw on a number of phonological processes to aid that ease of communication.

4.1 Assimilation

Many phoneticians use the term assimilation to refer to cases in which one sound affects the sound that appears on its left side. Generally speaking, there are three types of assimilation that can be identified:

4.1.1 Assimilation of the Place which can be demonstrated by *ratbag* (that is, [ræpbæg]) where the /t/ sound is replaced by a /p/ sound. This is because the alveolar plosive /t/ is simplified into the /p/ sound which is closer to the bilabial plosive /b/.

4.1.2 Assimilation of Manner in which two different manners of articulation influence each other to form a different type of manner of articulation. Examples of this are the pronunciation of [Indian] as [Indʒən]. This is because the plosive /d/ combines with approximant /j/ to form the affricate /dʒ/.

4.1.3 Assimilation of Voice. It is illustrated by the pronunciation of “have to” with /f/ sound rather than the /v/ sound (i.e. [haftə] and the voiced fricative is followed by a voiceless consonant.

The reason for assimilation is because (a) the tongue cannot always move quickly enough to get from one position to another in order to articulate the next sound, or because (b) the mouth is too busy anticipating the following sound.

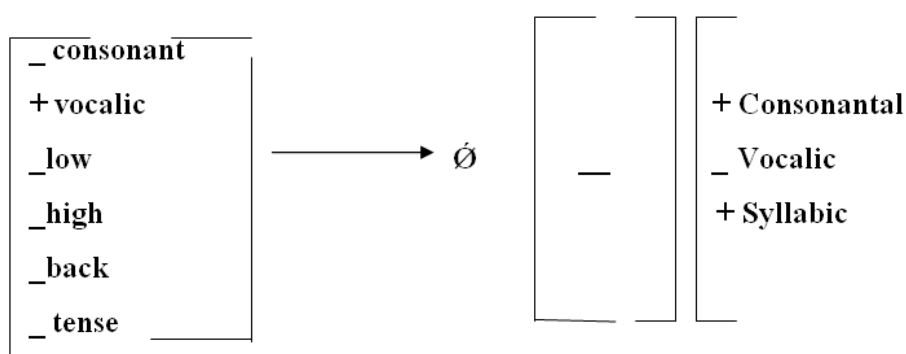
4.2 Elision

It refers to when a sound or syllable is lost or omitted. It particularly affects:

(a) consonant clusters (b) weakly stressed syllables that are not especially missed, and (c) words that end in an alveolar consonant and that are immediately followed by a word beginning with a

consonant. The sounds that are elided are those sounds that are so weakly articulated that they no longer have any auditory signification.

Another cause of elision is when a weak vowel is elided before the syllabic consonant /l/, /m/, n/ and sometimes /r/. The pronunciation of the word **seven** [sevn] demonstrates the loss of the schwa between the /n/ sound.



Some elisions are just by convention or to speed up or simplify the way we speak. For example in the phrase **horse shoe**.

The /s/ sound is usually elided to make the pronunciation of the phrase easier, hence, [hɔ:ʃu:]. In other words, the /ʃ/ sound affects any /s/ or /z/ sounds that come before it. For example:

This shoe [ðɪ ʃu:]

For those shoes [fə ðəʊ ʃu:z]

4.3 Gliding

When we articulate a glide, the articulatory organs start by producing a vowel like sound, but they immediately change their position to produce another sound. Because of their ambiguous nature they are also called semivowels or semi-consonants. Unlike vowels, they cannot occur in syllable-final position, can never

precede a consonant and are always followed by a genuine vocalic sound.

For example: write the sound is no longer pronounced.

Win /wɪn/, work /wɜ:k/

4.4 Flapping and Syllabification

Syllable boundaries are not part of the acoustic signal, which makes them more abstract in nature than stress placement or phone quality. English speakers do not have intuitions about where the boundary fall (Zamuner and Ohala, 1999: 753).

Researchers have discussed a number of factors that may influence syllabification:

4.4.1 The Onset Maximization Principle

The Onset Maximization Principle It states that a medial consonant belongs to the same syllable as the vowel which it precedes. When more than one consonant intervene between vowels, they also grouped together with the following vowels (Pulgram, 1970; Khan, 1980)

4.4.2 The Sonority Principle

The Sonority Principle It plays a role in that syllable divisions should be made so that the last element of a syllable is more sonorants than the first element of the following syllable (Murry and Vennemann, 1983: 59).

5.3 Legality Principle

Consonant sequences allow word initially or word finally guide syllabification of word, medial clusters.

5.4 Stress Principle

There is preference for the stressed syllables in English to be heavy. This means that a stressed lax vowel should be followed a consonant in the same syllable, this can also be seen as an extension for the legality principle: since English words cannot end in a stressed lax vowel, syllable may not either (Anderson and Jones, 1974: 26).

4.5 Flap Consonant

In phonetics, a flap or tap is a type of consonant sound, which is produced with a single contraction of the muscles so that one articulator (such as the tongue is thrown against another.)

4.5.1 Flaps and Trills

The main difference between a flap and a stop consonant is that in a flap, there is no buildup of air pressure behind the place of articulation, and consequently no release burst. Otherwise a flap is similar to a brief stop.

Flaps also contrast with trills, where the air stream causes the articulator to vibrate. Trills may be realized as a single contact, like a flap, but are variable, whereas a flap is limited to a single contact.

4.5.2 Tap vs. Flap

Many linguists use the term tap and flap indiscriminately. Peter Ladefoged proposes that it might be useful to distinguish between them. A tap strikes its point of contact directly, as a very brief plosive, whereas a flap strikes the point of contact tangentially:

“Flaps are most typically made by retracting the tongue tip behind alveolar ridge and moving it forward so that it strikes the ridge in passing.” The coronal tap is transcribed as a fish-hook or , [ɾ],

while the flap is transcribed as a small capital dee , [D] which is not recognized by the IPA (Ladeforged, 1996: 42-5).

4.6 Metathesis

The four sonorants undergo many sound changes in a number of phonological processes. Metathesis is chosen as an example of these phonological processes. This process refers to the alternation in the sequence of sounds within a word. It is generally known in Arabic as ‘qalb’ or ‘iqlab’, and precisely ‘al-qalb ?al-makani’, changing places. This involves redistribution of consonants. In other words, it is a change of the linear order of segments by permutations of one type or another. Below two segments reverse positions:

1. laxbat ---- xalbat
2. (nl---ln) banalti----- balanti (penalty)

5. Conclusions

Throughout the paper, the researcher arrives at the following conclusions:

1. Although the syllables appear to be real for English speakers, the use of syllables in describing flapping is problematic in two ways:
 - First, researchers do not agree on what part of the syllable flaps occur.
 - Second: it appears that the sweeping claims about where a syllable boundary falls.
2. The level of sonority being higher in the case of sonorants (the vowels themselves will hold the highest on a sonority scale) they will consequently be vowels or vowel-like sounds.
3. In English, all sonorants are voiced, while obstruents may be voiced or voiceless.

4. Voicing is not the only parameter that can be used to classify consonants and other criteria are used to classify this class of sounds.
5. It was found that most, if not all, particles in Arabic are formed with one or more of sonorant or bilabial consonants. For example, min can li bi muḏḏ nahu qabla hawl .
6. There is no restriction on the occurrence of certain combinations and clusters of sonorant consonants, along with vowels necessary to make up syllables.
7. The lateral /l/ and the trill /r/ are produced in two varieties or allophones for each. The two phones of /l/ are not contrastive, and the same hold for the two phones of /r/. In other words this variation does not change the meaning. They are in complementary distribution.
8. Metathesis refers to the alteration in the sequence of sounds within a word. It is generally known in Arabic as 'qalb', or 'ʔiqlab', and precisely 'ʔal-qalb ʔal-makani, changing places.

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