

# THE PHONETICS OF ARABIC

**The pages below are extracts from a book that is being prepared for publication. As a result, not every category of sound is presented with the same detail, while illustrations, exercises, etc. have been excluded.**

**Nevertheless, in conjunction with the phonetics-related pages on the same site, the information presented here constitutes a solid introduction to the classification and production of the sounds of Arabic.**

**The general overview of the sound segments is followed by a more in-depth look at each manner of articulation and the sounds connected with it.**

## GENERAL

Standard British English (also known as ‘Received Pronunciation’) has 24 consonant phonemes and 20 basic vowel phonemes (7 short vowels, 5 long vowels and 8 diphthongs). So, while there are only **five** main vowel **letters** – **a, e, i, o** and **u** (a legacy from Latin) – RP speakers use four times as many **vowel sounds**. However, this situation is far from the norm, and there are many languages (in fact the majority of the world’s languages) which may be said to operate along the WYSIWYG (‘What you see is what you get’) principle in that their spelling systems accurately represent their *phonemic* inventories, i.e. the sounds used in them. This is the case, for instance, in all Semitic languages like Arabic, as well as many African languages.

Arabic has 30 phonetically distinct consonant segments, and 6 vowels (all oral). If we compare the English and Arabic inventories against the representatives of the world’s languages as included in UCLA (University of California) Phonological Segment Inventory Database – commonly known as UPSID – and reported by I. Maddieson (1984), the following comments can be made. In terms of the number of consonants, Arabic is situated within the average range of 20 and 37 segments (though most languages tend towards 20 to 27 sounds). However, if we added the 24 Arabic geminates, the total number of consonant segments in Arabic goes up to 53, i.e. 2.3 times the mean for the world’s languages. When it comes to the number of distinct vowel qualities, Arabic is also exceptional in that it is well *below* that of the

mean (8.7%), with only 5.4% of languages in UPSID having three vowel qualities. It is therefore hardly surprising that the vowel-consonant ratio (the number of vowels divided by the number of consonants) is also quite uncommon in Arabic, with 0.1 being more than three times lower than the UPSID average of 0.36.

The table below lists the full Classical Arabic sound inventory.

	Bilabial	Labio-dental	Dental	Dento-alveolar	Post-alveolar	Palatal	Velar	Labial-velar	Uvular	Pharyngeal	Glottal
Plosive	b		t d	.			k		q		ʔ
	b:		t: d:				k:		q:		ʔ:
Nasal	m			n							
	m:			n:							
Trill				r							
Fricative		f	θ ð	s z	ʃ				χ ʁ	ħ ʕ	h
		f:	θ: ð:	s: z:	ʃ:				χ: ʁ:	ħ: ʕ:	h:
Affricate					dʒ						
					dʒ:						
Approximant						j		w			
						j:		w:			
Lateral approx.				l							
				l:							

Pharyngealized consonants :

tˤ dˤ sˤ ðˤ

tˤ: dˤ: sˤ: ðˤ: lˤ (in Classical Arabic only in /**alˤlˤa:h**/)

## DETAILED CONSONANT DESCRIPTIONS

### I. PLOSIVES

**Plosive consonants** are formed by completely stopping the flow of air at some point in the vocal tract. Air accumulates under pressure behind the stoppage, and when the stoppage is released, the air escapes with a noise called **plosion**. There are three phases:

- i. the **closure/occlusion** (also known as **approach** or **closing**) phase; the articulators move to form the obstruction;
- ii. the **hold** (or **compression**) phase; the blockage is maintained, resulting in a compression of the air;
- iii. the **release** (or **explosion**) phase: the articulators move apart to allow the air to escape.

It is worth noting that in the voiced plosives, the voicing is already there during the closure, whereas they have a longer duration than their voiceless counterparts.

Arabic has six plosive consonants; two voiced, and four voiceless.

**/b/**

**Voiced**  
**Bilabial**  
**Plosive**

- vibration of the vocal folds
- total occlusion of the flow of air ; the two lips are pressed
- the velum is up, thus blocking access to the nasal cavity.
- The pressure builds up behind the blockage caused by the two lips.
- The lips come apart the air escapes through the mouth in a burst.

**/t/**

**Voiceless**  
**Dental**  
**Plosive**

- no vibration of the vocal folds
- the primary obstruction is caused by the tongue tip and blade moving against the upper teeth, while the rims of the tongue are in contact with the upper and lower side teeth (canines, premolars, and molars).
- The mouth is slightly open.
- the velum is up, thus blocking access to the nasal cavity.
- The pressure builds up behind the blockage caused by the tongue tip/blade and upper teeth.
- The tongue drops and the air escapes through the mouth in a burst.

- Lips are unrounded out of context (in context : cf. adjacent vowel)

/d/

**Voiced  
Dental  
Plosive**

= /t/ but with **vibration** of the vocal folds

/k/

**Voiceless  
Velar  
Plosive**

- no vibration of the vocal folds
- total occlusion of the flow of air formed by the back of the tongue which is expanded and raised against the soft palate
- The mouth is slightly open.
- lips are unrounded
- the velum is up, thus blocking access to the nasal cavity.
- The tip of the tongue is bent towards the floor of the mouth, while the rims are in contact with the back upper molars.
- The pressure builds up behind the blockage caused by the back of the tongue and the soft palate.
- The tongue drops and the air escapes through the mouth in a burst.

/q/

**Voiceless  
Uvular  
Plosive**

- no vibration of the vocal folds
- total occlusion of the flow of air formed by the back of the tongue being raised against the uvula
- The mouth is slightly open.
- the lips are unrounded
- the velum is up, thus blocking access to the nasal cavity.
- The pressure builds up behind the blockage caused by the back of the tongue and the uvula.
- The tongue drops and the air escapes through the mouth in a burst.

**TIP** : make sure that you bunch the backmost part of the tongue sufficiently ; do not simply raise the back of the tongue upwards as this will result in the velar sound /k/. You will also feel considerable tension in the tonsillar arches and pharynx.

**MAIN DIALECTAL VARIANTS** : This phoneme has a number of variants in the Arabic dialects : the main two are the glottal stop (/ʔ/), a typical feature of the urban dialects of the Near East (e.g. Lower Egypt, Syria, Lebanon), and /g/, the typical realization in the bedouin dialects of the Arabian Gulf as well as in many rural vernaculars (e.g. Egypt, Tunisia).

/ʔ/

**Voiceless  
Glottal  
Plosive**

- no vibration of the vocal folds
- total occlusion of the flow of air formed by the vocal folds being pressed together
- The mouth is slightly open.
- the velum is up, thus blocking access to the nasal cavity.
- The pressure builds up behind the blockage caused by the two vocal folds.
- The vocal folds are unlocked and the air escapes through the mouth in a burst.

**TIP:** This sound is also heard in a number of languages (e.g. French) before word-initial stressed vowels, or in an exclamation of hurt like 'ouch!'

## Incomplete Plosion or Zero Release

In a group of two stops (two plosives or a plosive followed by an affricate), either within a word or at word boundaries, the first plosive has no audible **release**: e.g. *katabtu*. In other words, the second sound is articulated without there being a release of the plosive. In a narrow transcription this is indicated by the diacritic sign [ˀ], which is placed after the symbol: e.g. [katabˀtu].

## Geminates

As mentioned above, all the above plosives can be lengthened, which brings the total number of plosive phonemes in Arabic to twelve. The lengthening process is sometimes referred to by the rather inadequate term of 'gemination', which is also used for the doubling of a letter. In phonetic terms, however, the distinction between the geminated and ungeminated segments is predicated on the fact that the hold phase in the production of the plosive is lengthened to approximately double the length of the ungeminated plosive.

At a phonological level, it is important to note that in Arabic the geminated segments can never occur word-initially.

Geminates are variously represented through a doubling of the symbol and the addition of the standard lengthening diacritic (:). In this course, it is the latter representation that will be used.

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	<b>Initial</b>	<b>Medial</b>	<b>Final</b>
/b/	bajt	ʕabd	ba:b
/t/	tarjama	ḡatama	buḥt
/d/	darb	izdija:d	ʃuru:d
/k/	kam	masku:n	sikak
/q/	qumtu	baqqal	ḡalq
/ʔ/	ʔan	jaʔs	bari:ʔ
/b:/	-	qabbala	dubb
/t:/	-	qattala	batt
/d:/	-	qaddama	madd
/k:/	-	taʃakkur	ʃakk
/q:/	-	ḥaqqaqqa	ḥaqq
/ʔ:/	-	saʔʔal	-