

# The Phonetics of Arabic Alphabet<sup>1</sup>

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## Abstract

The current article provides a new hypothesis regarding the origin of the Arabic alphabet, contra the mainstream view that Arabic alphabets are borrowed from the letterforms of ancient languages such as Nabataean or Syriac (Senner 1991). It hypothesizes that the Arabic Alphabet (e.g. أ ب ت ث ج ح) are written and drawn based on the angle of the face, the movement of the lips, the position of the tongue as well as the participation of other articulators in their production (such as teeth, alveolar ridge, palate, velum among others). For instance, the Arabic letter ب /b/ is written as a boat with a lower dot (i.e. ب), representing the shape of the lower lip (i.e. a boat) and representing the downward movement of the lip (i.e. a lower dot). The letter ث /θ/ is also represented as a boat with three upper dots, following the shape of the lower lip (i.e. a boat) and following the participations of the two higher teeth and the tip of the tongue, yielding three dots. In other words, Arabic letters are phonetically drawn based on the shape of the mouth whereas the position of the dots follows the movement of the lip/tongue and the participation of other articulators. Although several Arabic letters may have less clear justifications, most of them seem to follow this hypothesis in mouth-writing or sound-symbol mapping. These findings highlight the ancient Arab's awareness of the phonetic articulation of Arabic letters, and provide pedagogical insight into the education of the Arabic alphabet in general.

تقدم المقالة الحالية فرضية جديدة فيما يتعلق بأصل الأبجدية العربية، على عكس الرأي السائد بأن الأبجدية العربية مستعارة من أشكال حروف اللغات القديمة مثل النبطية أو السريانية (Senner 1991). تفترض المقالة الحالية بأن الأبجدية العربية (على سبيل المثال: أ ب ت ث ج ح إلخ) مكتوبة ومرسومة بناءً على زاوية الوجه وحركة الشفاه وموضع اللسان وكذلك مشاركة النواطق الأخرى في إنتاجها (مثل الأسنان، والحنك، والشعب إلخ). على سبيل المثال، يُكتب الحرف العربي "ب" على شكل قارب بنقطة سفلية (=ب)، بناءً على شكل الشفة السفلية (=قارب) فيما تبرز الحركة الهبوطية للشفة موضع النقطة السفلية. وعلى نحو مشابه، يُرسم الحرف "ث" على شكل قارب وثلاث نقاط علوية اتباعاً لشكل الشفة السفلية (=قارب) واتباعاً لمشاركات الثنيتين العلوية مع طرف اللسان، مُنتجاً عن ذلك ثلاث نقاط. بمعنى آخر، يمكن القول بأن الحروف العربية قد رُسمت صوتياً بناءً على شكل الفم بينما تتبع مواضع النقاط حركة الشفة/اللسان ومشاركة النواطق الأخرى. وعلى الرغم من أن العديد من الحروف العربية قد يكون لها مبررات أقل وضوحاً، إلا أن معظمها يتبع هذه الفرضية في الكتابة الشفوية أو

<sup>1</sup> This article is still in progress and may require more revisions. It is still a draft that may contain typos and grammatical errors. Any comments or suggestions are welcomed and can be sent to [mutebalqarni@gmail.com](mailto:mutebalqarni@gmail.com) or [moteebalqarni@kku.edu.sa](mailto:moteebalqarni@kku.edu.sa)

مطابقة الرموز الصوتية. تسلط هذه النتائج الضوء على وعي العرب القدامى بالتعبير الصوتي للأحرف العربية، وتوفر نظرة تربوية في تعليم الأبجدية العربية بشكل عام.

## 1. Introduction

### A. General Info

- Arabic script is a letter-based writing system written from right to left.
- Arabic alphabet consists of 28 letters and every letter can take different forms based on whether it stands alone (e.g. ب /b/) or is adjoined with another letter (e.g. initial بـ /b/, medial ـبـ /b/, final ـب /b/).
- Consider Table 1 where all the 28 Arabic letters are presented with their IPA symbols. These letters are the ABCs of Arabic, i.e. the forms written in isolation. Adjoined forms are not included.

Table 1: Arabic Alphabet

1	أ	/a/	8	د	/d/	15	ض	/dˤ/	22	ك	/k/
2	ب	/b/	9	ذ	/ð/	16	ط	/tˤ/	23	ل	/l/
3	ت	/t/	10	ر	/r/	17	ظ	/ðˤ/	24	م	/m/
4	ث	/θ/	11	ز	/z/	18	ع	/ʕ/	25	ن	/n/
5	ج	/dʒ/	12	س	/s/	19	غ	/ɣ/	26	هـ	/h/
6	ح	/ħ/	13	ش	/ʃ/	20	ف	/f/	27	و	/w/
7	خ	/x/	14	ص	/sˤ/	21	ق	/q/	28	ي	/j/

- Adjoined forms of Arabic letters are 'generally' similar to the forms in isolation.
- To write an adjoined form, a connected dash (-) is used to link the preceding letter with the letter to follow.
- The linking process may require the removal of some lower parts of the Arabic letters. For instance, ج /ʒ/ becomes ـجـ /ʒ/ while ص /sˤ/ becomes ـصـ /sˤ/.
- Some letters cannot be linked from the left-hand side such as (ا /a/, و /w/, ر /r/, ز /z/, د /d/, and ð /ð/)
- Given that Arabic words are mostly written in an adjoined format, there are no capital letters in Arabic.

### B. New Hypothesis

- Similar to Egyptian hieroglyphs, Arabic letters seem to have many secrets to be revealed.

- The current article hypothesizes that the forms used in Table 1 are drawn as such, following their phonetic realizations and following the image of the person's mouth that produces them.
- In other words, Arabic letters are drawn as shown in Table 1 following the angle of the face, the movement of the lips, the position of the tongue and the participation of other articulators in their production such as teeth, alveolar ridge, palate, velum among others.
- This hypothesis indicates that the early Arabs who devise Arabic alphabet may have paid attention to the articulations of the Arabic letters/sounds before they represented them.
- Put differently, inventors of the Arabic script are among the early phoneticians in the world.
- The inventors of Arabic letters may have less knowledge of the anatomy and the size of the tongue and other articulators. However, they may have been able to play with their tongues and make intuitive descriptions of sound production.
- If the descriptive figures below are not convincing enough to the readership, it is advisable that they play the role of the Arabic letters inventors and imagine how those inventors sketched these letters. Sometimes, it is better for you to ignore the descriptive/illustrative figures below and observe your mouth and the movement of the tongue during the sound production.
- In conclusion, one may argue that Arabic letters are in fact phonetic symbols (introduced before the introduction of IPA symbols) given that they represent the sounds of the letters, not the letters themselves.

### *C. Caveats*

- Arabic script is a writing system written from right to left and it is the second most widely used writing system after the Latin and Chinese scripts (cf. Encyclopedia of Britannica).
- Arabic script is used in many languages such as Arabic, Persian, Malay, Kurdish, Punjabi, Somali among others.
- It should be noted that the current article does not concern itself with whether the forms of Arabic alphabets are independently devised by early Arabs or are borrowed from other ancient languages in the Middle East. However, it argues for the former position (i.e. independent invention).
- If the counter hypothesis proves to be true, the analysis provided here to Arabic letters can be carried over to the alphabet from which Arabic letters had emerged.
- The current argument among scholars is that Arabic letters emerged from the Nabataean alphabet (which descended from the Phoenician). Some others argue that Arabic letters were borrowed directly from Syriac (Senner 1991).

- Although some Arabic letters are similar to the alphabet of some ancient languages, this argument regarding the origin of Arabic letters is still a speculative hypothesis. There are many Arabic letters that have unclear connections with those from other languages as shown in the following table where Phoenician, Nabataean, Syriac, Arabic and Latin alphabets are compared (cf. Wikipedia).
- Table 2: Phoenician, Nabataean, Syriac, Arabic and Latin alphabets

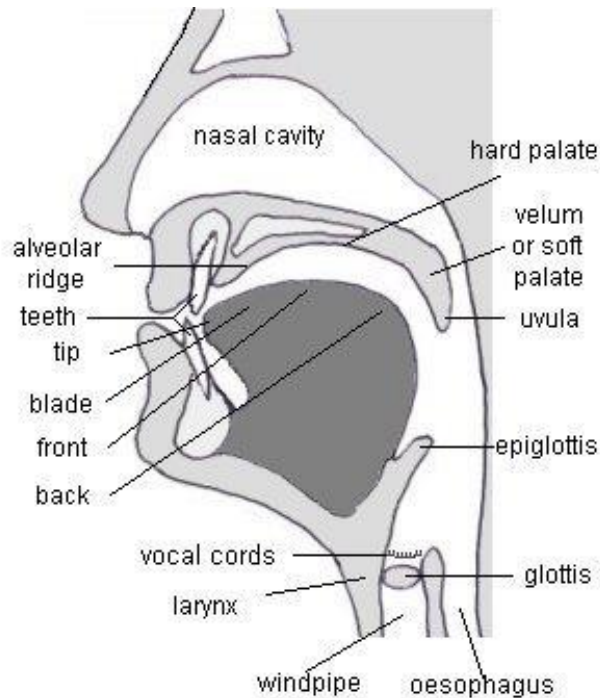
Phoenician		Nabataean	Syriac	Arabic	Latin
Image	Text				
	𐤀	𐤁 𐤂 𐤃	ܐ	ا	A
	𐤁	𐤄 𐤅	ܒ	ب	B
	𐤂	𐤆	ܓ	ج	C
	𐤃	𐤇	ܕ	د	D
	𐤄	𐤈 𐤉	ܚ	ه	E
	𐤅	𐤊 𐤋	ܘ	و	F
	𐤆	𐤌	ܙ	ز	Z
	𐤇	𐤍 𐤎	ܠ	ح	H
	𐤈	𐤏	ܡ	ط	—
	𐤉	𐤐 𐤑	ܢ	ی	I
	𐤊	𐤒 𐤓	ܟ	ك	K

𐤌	𐤍	ܚ ܝ	ܕ	ܝ	L
ܡ	ܡ	ܚ ܝ	ܡ	م	M
ܚ	ܚ	ܝ ܝ	ܢ	ن	N
𐤌	𐤍	ܚ	ܡ	—	—
ܐ	ܐ	ܝ	ܥ	ع	O
ܐ	ܐ	ܝ ܝ	ܦ	ف	P
ܚ	ܚ	ܝ ܝ	ܥ	ص	—
ܐ	ܐ	ܝ	ܡ	ق	Q
ܐ	ܐ	ܝ	ܝ	ر	R
ܡ	ܡ	ܝ	ܥ	س	S
ܡ	ܡ	ܝ ܝ	ܬ	ت	T

- According to Table 2 above, there are only 21 Arabic letters, and the relationships are less clear in most cases. The current number of the Arabic letters is 28.
- According to some narratives, Arabic letters are written with no points or dots until a later point of time in history. The article shows that there is a clear indication that positions of the dots follow the position of the tongue, or the movement of the lip as well as the participation of other articulators.
- In other words, if Arabic letters are not proven to be drawn according to the shape of the mouth or the face, the dots have clearer relationship with the position of the tongue/tip etc.

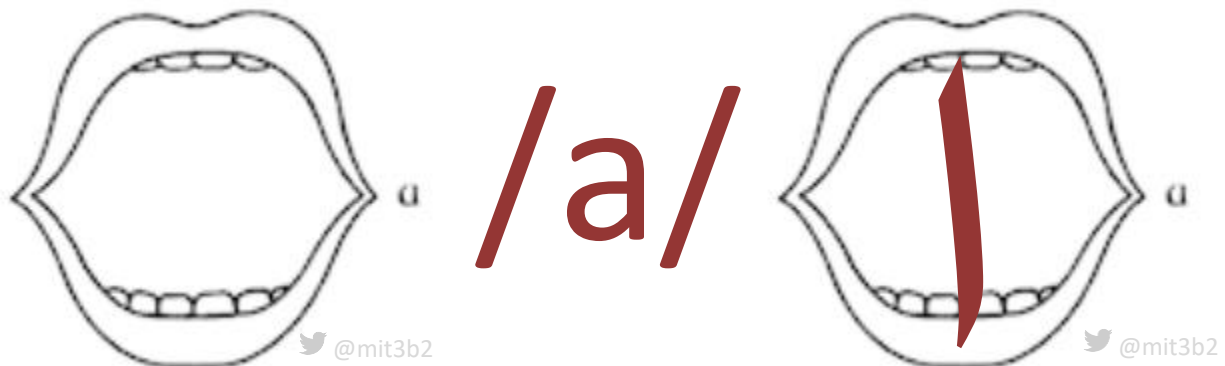
- Although the current hypothesis is speculative similar to other hypotheses, it seems to be more convincing. The current hypothesis seems to be “so good to be true”.

#### D. Vocal Tract



#### Cases of Mouth-Writing or Sound-Symbol Mapping

Beginning with the first letter in the Arabic alphabet, i.e. ا /a/, the current article hypothesizes that it is written as // (like number 1) following the opening mouth required for it to be produced. Given that this letter is a simple vowel /a/ produced without tongue or lip movement, it takes the shape (|) following the mouth being wide open as shown below.





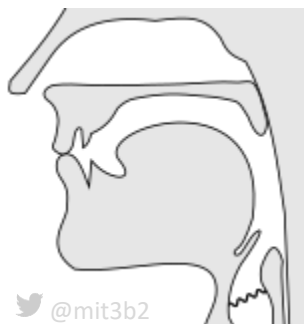
- See other letters corresponding to the Arabic letter ا /a/: Phoenician (𐤀), Nabataean (𐤁 𐤂 𐤃), Syriac (ܐ), Latin (A), Adyghe (I), Hebrew (א), Ingush (Ӏ) and Javanese (ꦲꦶ).

### 1. Boat Shape Letters (ي، ن، ث، ت، ب)

- All the letters (ي، ن، ث، ت، ب) take a boat shape representing the lower lip of the mouth. The dots used in these letters represent the participation of the tongue or the teeth. These cases should be looked at from the front of the face as shown below.



**The letter ب /b/** is the second letter in the Arabic alphabet, and it is a voiced bilabial plosive/stop. It is produced by both lips where the lower lip moves downwards after the production is complete. See the image below.



- The letter ب /b/ is written as ب (a boat with a lower dot) following the shape of the lower lip (i.e. a boat) which moves downwards. The downward movement is represented by a lower dot as shown below.



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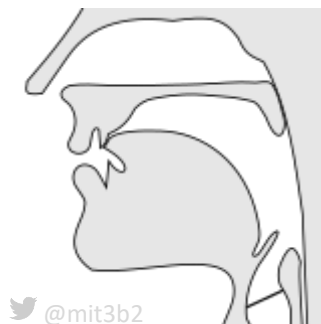
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ب

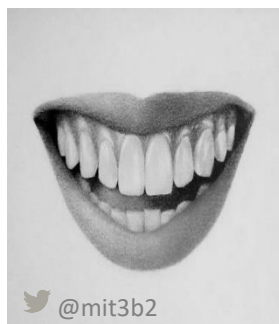
/b/

- 
- See other letters corresponding to the Arabic letter ب /b/: Phoenician (𐤁), Nabataean (𐤁), Syriac (ܒ), Latin (B), Adyghe (б), Armenian (բ), Bengali (ব), Chinese-Wu (皮), Greek (μ), Gujarati (બ), Nepali (ब), Thai (บ), and Yi (𐩧).

**The letter ت /t/** is the third letter in the Arabic alphabet, and it is voiceless alveolar stop where the tip of the tongue touches the alveolar ridge with a slight touch to the upper two teeth as shown in the images below.



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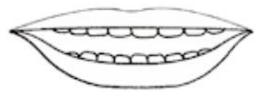


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- The letter ت /t/** is written as ت (a boat) following the shape of the lower lip (i.e. a boat). The two upper dots are more likely to be associated with the two upper teeth which the tongue slightly touches as represented below.



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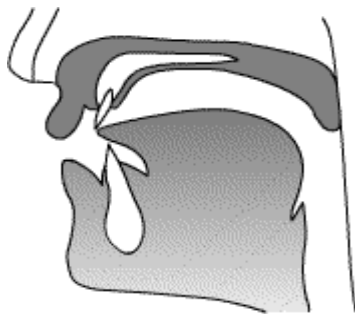
ت

/t/

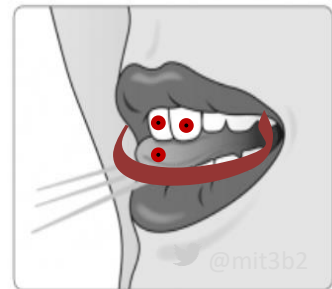
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- See other letters corresponding to the letter ت /t/: Khmer (ត្រ), Phoenician (𐤕), Nabataean (𐩦 𐩧), Syriac (ܬ), Latin (T), Bengali (ত), Hebrew (ת), Hindustani (ती), Malayalam (ത), Odia (ଡ), Russian (т) and Thai (ต).

**The letter ت /t/** is the fourth letter of the Arabic alphabet, and it is a voiceless interdental fricative where the tip of the tongue moves between the teeth as shown in the image below. During this process, the airflow is not obstructed, but it moves with frication (i.e. /t/ is fricative).



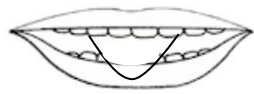
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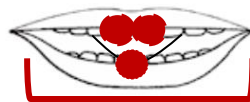
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- **The letter ت /t/** is written as ت (a boat) following the shape of the lower lip (i.e. a boat). The three upper dots are likely to be associated with the two upper teeth plus the tip of the tongue.





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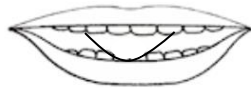
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ث

/ θ /

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- Another hypothesis is that these three dots represent the airflow that passes through the mouth without constriction.



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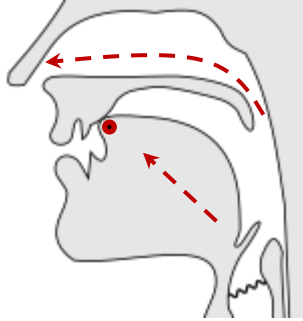
ث

/ θ /

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- The second hypothesis is more likely to be true because the letter ش /ʃ/ in the Arabic alphabet is the only letter, besides ث /θ/, that has three dots and it is a fricative sound as well. See the discussion of the letter ش /ʃ/ below.
- See other letters corresponding to the Arabic letter ث /θ/: Bashkir (θ), Berber (ⵜ), Burmese (ထုံ), Icelandic (þ), Saanich (Ṯ), and Venetian (ç). There are no letters corresponding to this letter from Phoenician, Nabataean, Syriac, and Latin.

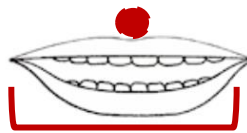
**The letter ن /n/** is the 25<sup>th</sup> letter of the Arabic alphabet and it is a voiced alveolar nasal where the tip of the tongue makes a contact with the alveolar ridge. During this process, the airflow is not obstructed but it goes through the nasal cavity as shown below.



**The letter ن /n/** is written as ن (a boat) following the shape of the lower lip (i.e. a boat). The upper dot is more likely to be associated with the tip of the tongue touching the alveolar ridge as shown above.



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ن

/n/

- It could be also argued that this dot represents the nose from where the airflow passes.



ن



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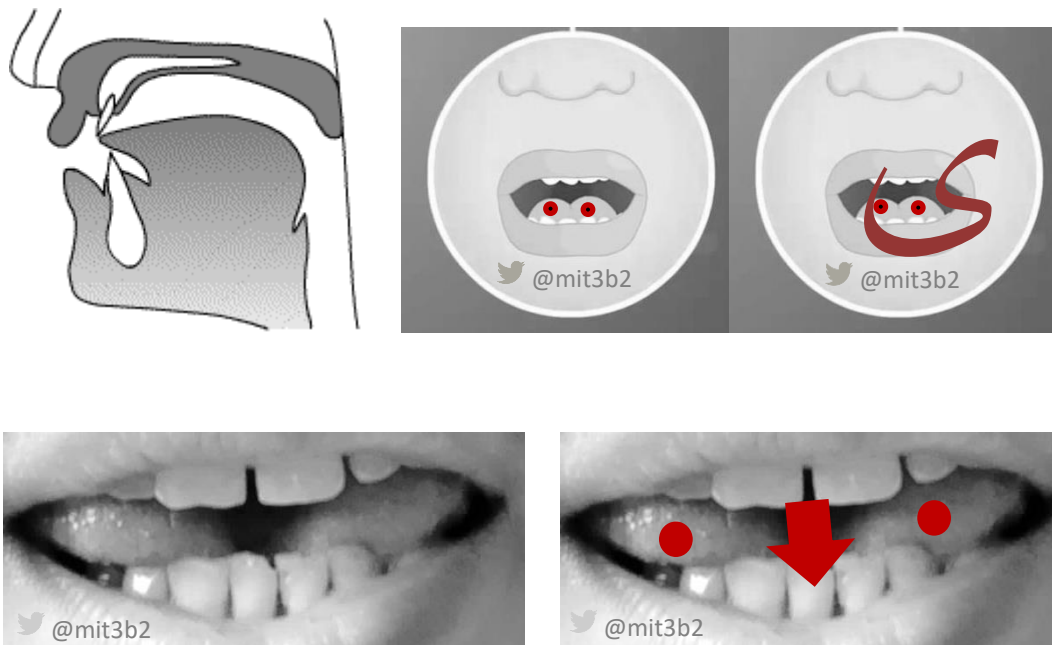
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/n/

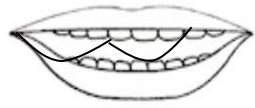
- See other letters corresponding to the Arabic letter ن /n/: Phoenician (𐤍), Nabataean (𐤍), Syriac (ܢ), Latin (N), Adyghe (н), Chinese (難), Georgian

(ب), English (n/N), Hebrew (נ), Japanese (ン), Malayalam (ന), Odia (ନ), Punjabi (ਨ) and Thai (น).

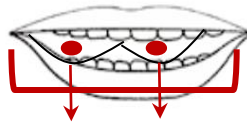
**The letter ي /j/** is the 28<sup>th</sup> (i.e. last) letter of the Arabic alphabet and it is a voiced palatal approximant where the tip of the tongue makes a contact with the lower teeth or gum. The two dots represent the two parts of the tongue that appear when the tongue gets lowered against the lower teeth or the lower gum (this representation appears at the beginning of the /j/ production; try it and see your mouth in the mirror when you produces the sound /j/). Given this lower movement, the two dots are written below the letter ي /j/ to differentiate it from the letter ت /t/. The head of the letter ي may refer to the slight movement that occurs at the side of the mouth when the /j/ is finally pronounced.



- **The letter ي /j/** is written as ي (a semi-boat with two lower dots) following the shape of the lower lip (i.e. a boat). The two lower dots are more likely to be associated with the two parts of the tongue at the beginning of the production of the sound /j/. See the last section for another possibility.



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ي

/j/

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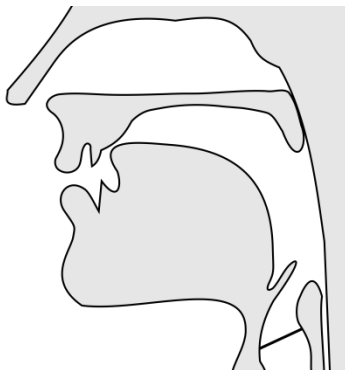
- Consider other letters corresponding to the letter ي /j/: English (Y/y), Kabardian & Bulgarian (ӡ), and Khmer (ញ៉), Adyghe (ӡ), Bengali (ঞ), Odia (ଞ) and Ukrainian (ї). There are no letters corresponding to this letter from Phoenician, Nabataean, Syriac, and Latin.

#### 1. Rake Shape Letters (س، ش)

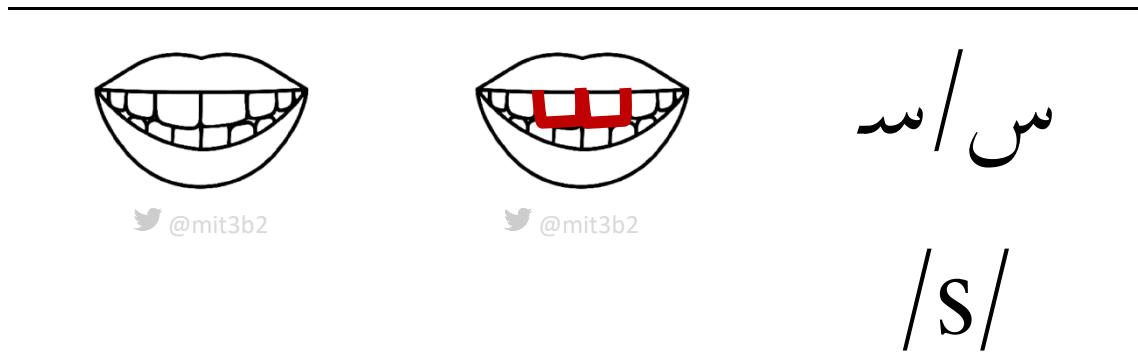
- The two letters س /s/ and ش /ʃ/ take a rake shape (سـ شـ) representing the teeth of the mouth given that the teeth seem to play a role in producing these sounds. These cases should be looked at from the front of the face as shown below:



**The letter س /s/** is the 12<sup>th</sup> letter of the Arabic alphabet and it is a voiceless alveolar fricative where the tip/blade of the tongue makes a 'very' slight contact with the alveolar ridge as shown in the image below.

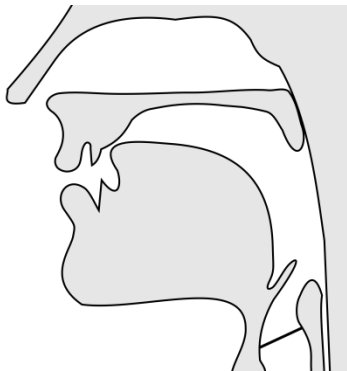


**The letter س /s/** is written as س (a rake with three tines) following the shape of the teeth as shown below. Even the word ‘tooth’ in Arabic is written using the letter س /s/, namely سن /sin/ ‘tooth’.



- See other letters corresponding to the Arabic letter س /s/: Bashkir, Bulgarian, Ukrainian, and Macedonian (ш); Hebrew (ש); Phoenician (𐤍), Nabataean (𐩦), Syriac (ܫ) and Latin (S).

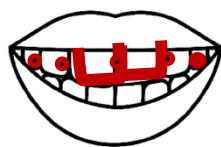
**The letter ش /ʃ/** is the 13<sup>th</sup> letter of the Arabic alphabet and it is a voiceless alveo-palatal fricative where the blade of the tongue makes a slight contact with the alveolar ridge as well as the palate as shown in the image below. During this process, the airflow is going through the teeth without obstruction.



- The letter ش /ʃ/** is written as ش (a rake with three tines) following the shape of the teeth as shown below. As for the three dots, it seems that Arabic represents the full passages of airflow through the mouth with three dots as is the case with ش /ʃ/ and ث /θ/ which are both fricatives and which both have three dots.



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ش / شـ

/ʃ/

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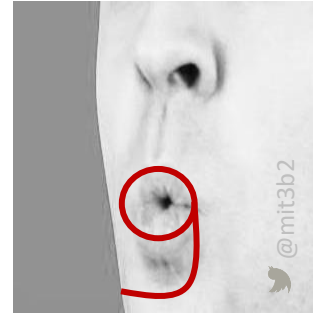
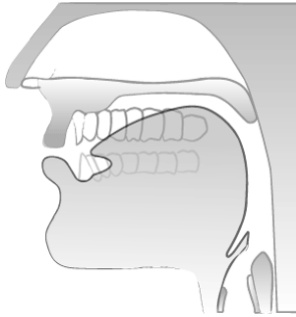
- See other letters corresponding to the Arabic letter ش /ʃ/: Chuvash & Adyghe (ш) and Georgian (ჭ). There are no letters corresponding to this letter from Phoenician, Nabataean, Syriac and Latin.
- See the difference between the sound /s/ and /ʃ/ in some languages where the difference is marked using diacritics/dots: Finnish, Czech, Lithuanian (s, š), Esperanto (s, ŝ), Romanian, Turkish, Yoruba (s, ṣ),

## 2. Circle Shape Letters (م، و، ف)

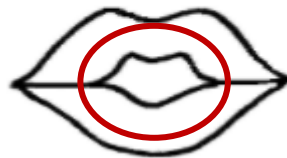
The three letters م or هـ /m/, و /w/ and ف /f/ take a circle shape representing the round lips used to produce these sounds. These cases should be looked at from the front of the face as shown below.



**The letter و /w/** is the 27<sup>th</sup> letter of the Arabic alphabet, and it is a voiced round labial approximant where the two lips take a round shape during its production. **The letter و /w/** is written as و (a circle) following the shape of a round mouth as shown below.



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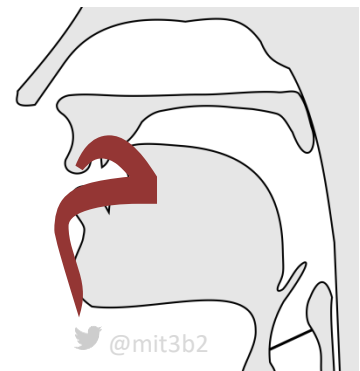
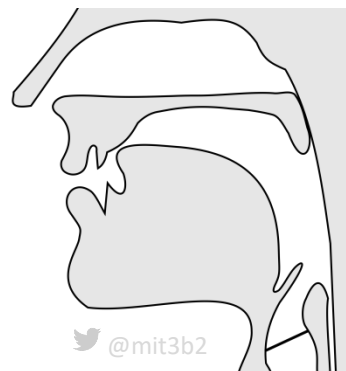
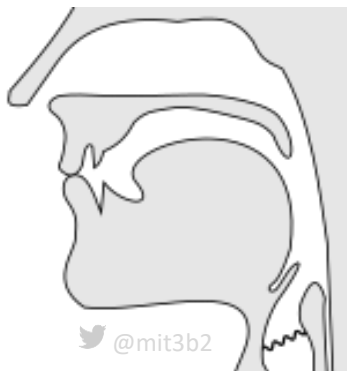
twitter @mit3b2

و

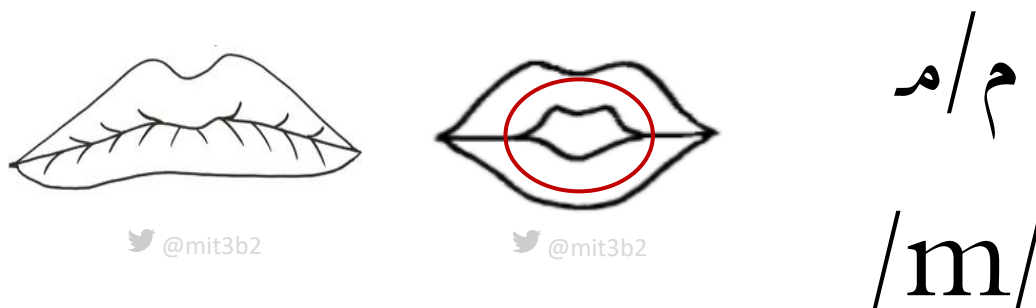
/w/

- See other letters corresponding to the Arabic letter و /w/: Bashkir, Bulgarian, Ukrainian, and Macedonian (o), Phoenician (𐤨), Nabataean (𐩦) and Syriac (ܐ).

**The letter م /m/** is the 24<sup>th</sup> letter of the Arabic alphabet and it is a voiced bilabial nasal where the two lips are put together and are then open as shown in the image below. It seems that the lower part of this letter م /m/ refers to the downward movement of the lower lip/jaw.

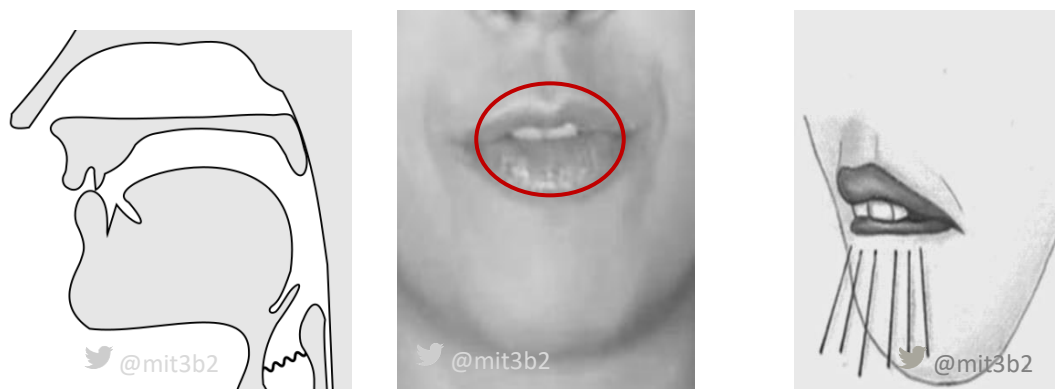


**The letter م /m/** is written as م in isolation or م in an adjoined form (a circle or a semi-circle) because the /m/ sound is produced by the two lips taking a round shape.



- See other letters corresponding to the Arabic letter م or م /m/:  
 Phoenician (𐤌), Nabataean (𐩣 𐩥) Syriac (ܡ), Latin (M); Cherokee (Ꮝ),  
 Georgian (მ), Hebrew (מ), Khmer (ម), Malayalam (മ), Sanskrit  
 (म) and Yi (𐩺). Most of these letters take a circle shape.

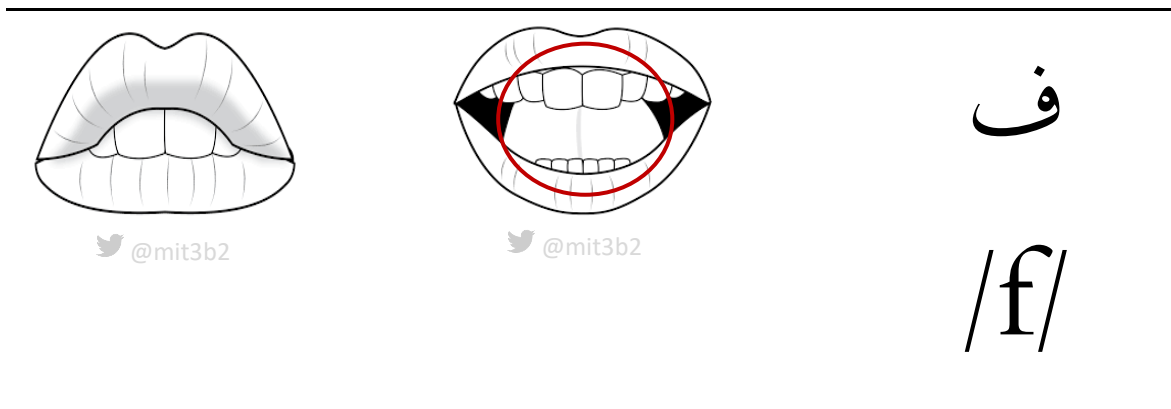
**The letter ف /f/** is the 20<sup>th</sup> letter of the Arabic alphabet, and it is a voiceless labiodental fricative where the lower lip is raised against the upper teeth with the airflow passing without obstruction as shown in the image below.



**The letter ف /f/** is written as ف (a circle) given that the /f/ sound uses the lips in a semi-round shape. It seems that the airflow (related to this fricative sound) going through the



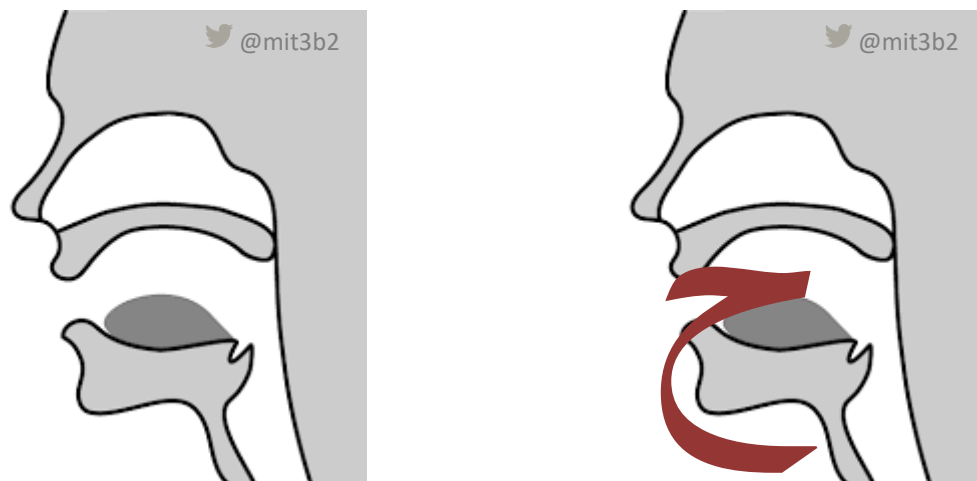
mouth without obstruction justifies the upper dot. It also seems that the air passing through the upper teeth justifies the position of the dot.



- See other letters corresponding to the Arabic letter ف /f/: Abkhaz & Adyghe (ϕ), Armenian (Փ), Coptic (ϣ), Greek (φ), Malayalam (ഫ), Ukrainian (Ф). There are no letters corresponding to this letter from Phoenician, Nabataean, Syriac and Latin.

### 3. Sickle Shape Letters (ح، خ، ج): Part A

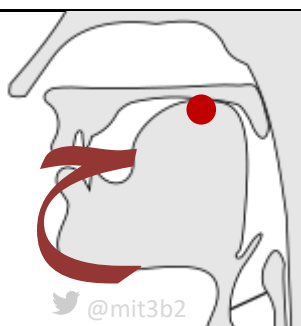
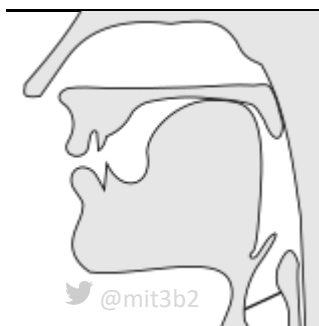
The three letters ح /ħ/, خ /x/ and ج /ʒ/ are all fricatives and they take a sickle shape representing the mouth shape and the jaw that participate in their productions. These cases should be looked at from the side of the face as shown below.





- Note that the upper part of the letter م /m/ looks roughly similar to the upper part of ح, خ, ج indicating the shape of the mouth from a side angle.

**The letter ح /x/** is the 7<sup>th</sup> letter of the Arabic alphabet and it is a voiceless velar fricative where the back of the tongue is raised against the velum (a back area of the mouth ceiling). The position where the back of the tongue is raised against the velum represents the upper dot as shown below.

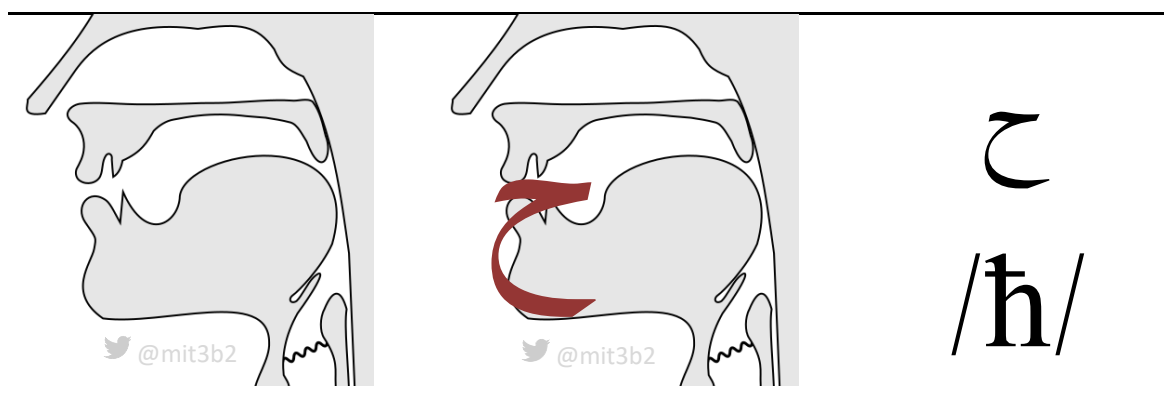


ح

/x/

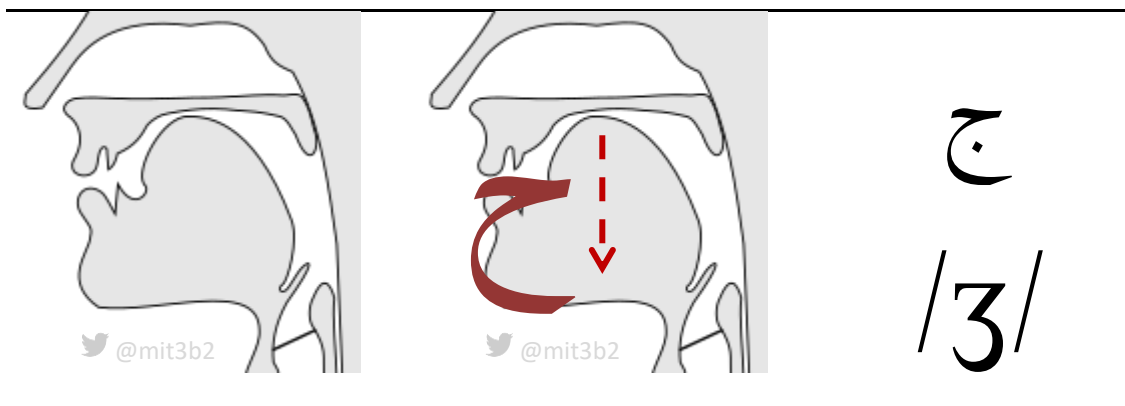
- See other letters corresponding to the Arabic letter /x/ خ: Assamese (স), Basque (j), Georgian (ბ), Hebrew (ך). There are no letters corresponding to this letter from Phoenician, Nabataean and Syriac.

**The letter ح /ħ/** is the 6<sup>th</sup> letter of the Arabic alphabet and it is a voiceless pharyngeal fricative where the tongue root is moved against the back of the throat (the pharynx). Given that the tip, blade or back/dorsum of the tongue is not moved either upwards or downwards during the production of the sound /ħ/, there is no dot required for this letter as shown below.



- See other letters corresponding to the letter Arabic ح /ħ/: Phoenician (𐤇), Nabataean (𐩇 𐩈) Syriac (ܚ), Hebrew (ח), kabyle (ⵃ), and Nuuchah-nulth (h) and Kurdish (ȟ).

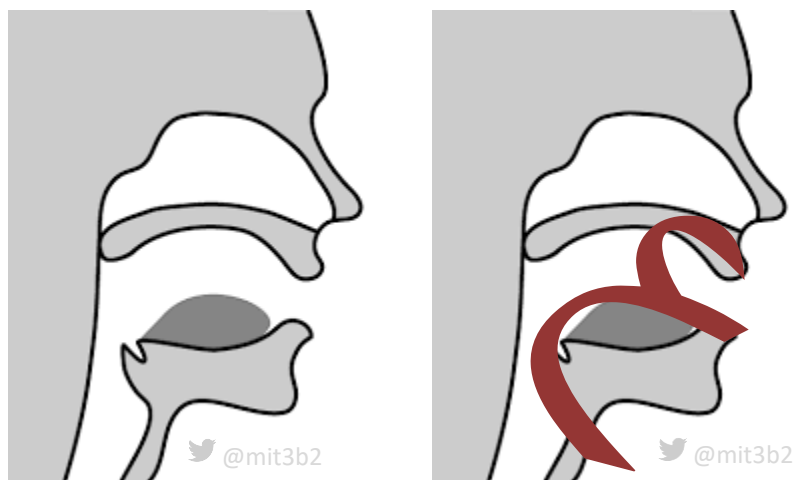
**The letter ج /ʒ/** is the 5<sup>th</sup> letter of the Arabic alphabet and it is a voiced alveo-palatal fricative where the middle of the tongue is raised against the alveolar and the palate at the same time and goes down (try this by yourself). To differentiate between the /x/ letter (خ) with an upper dot, and the /ħ/ sound (ح) with no dots, it is likely that the lower dot is the only option available to represent the downward movement of the tongue after the production as shown in the image below.



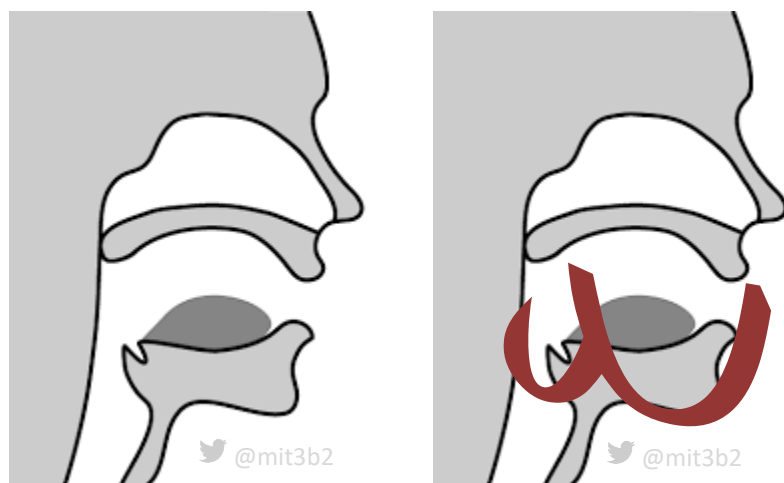
- See other letters corresponding to the Arabic letter ح /ħ/: IPA (ħ), Phoenician (𐤇), Nabataean (𐤇), Syriac (ܚ), Latin (C), Eastern Armenian (ժ), Hebrew (ח), Amharic (ረ), Coptic (ϣ), English (J/j, G/g), Maltese (ġ), Ojibwe (ᑭ), and Bosnian (h).

#### 4. Sickle Shape Letters (ع, غ): Part B

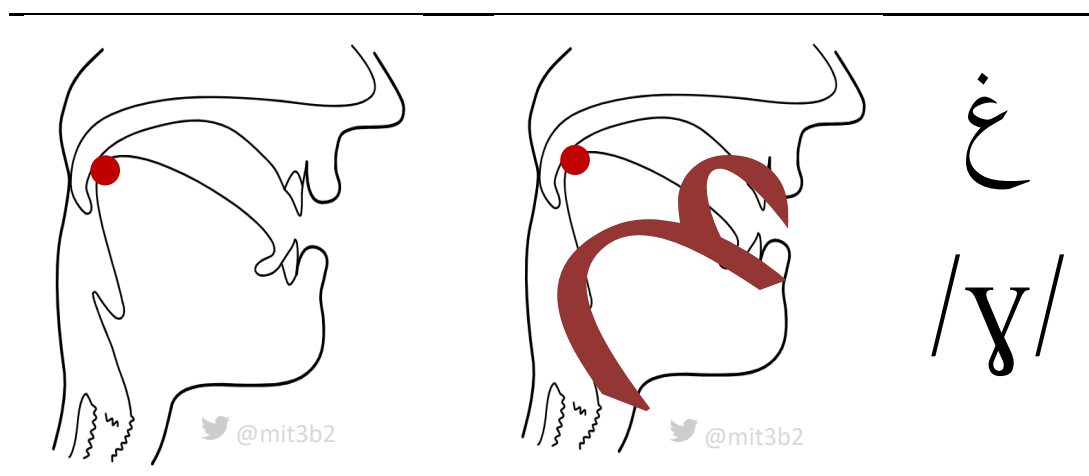
Similar to the letters ح /ħ/, خ /x/ and ج /ǧ/, the two letters ع /ʕ/ and غ /ɢ/ are also fricatives taking a sickle shape representing the mouth shape and the participation of the throat in their productions. These cases should be looked at from the side of the face. There are two possibilities to represent these two letters. In the first representation, the head of the letter ع /ʕ/ or غ /ɢ/ represents the shape of the lips/mouth whereas the lower part represents the place of articulation from which these sounds are produced, i.e. the throat.



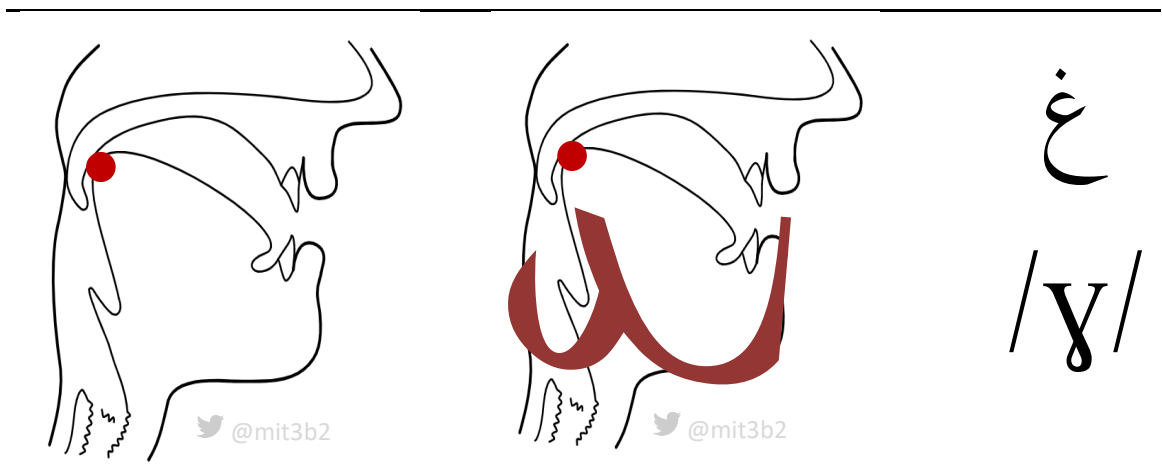
In the second representation, the head of the letter ع /ʕ/ or غ /ɣ/ represents the place of articulation from which these sounds are produced, i.e. the throat, whereas the lower part represents the jaw as shown below.



**The letter غ /ɣ/** is the 18<sup>th</sup> letter of the Arabic alphabet and it is a voiced velar/uvular fricative where the back of the tongue is moved against the velum/uvula (the /ɣ/ place of articulation is controversial among Arabic phonologists). Given that the dot is written above غ /ɣ/, the upper dot represents the high-back point (velum/uvula) where the back of the tongue is moved as shown below.

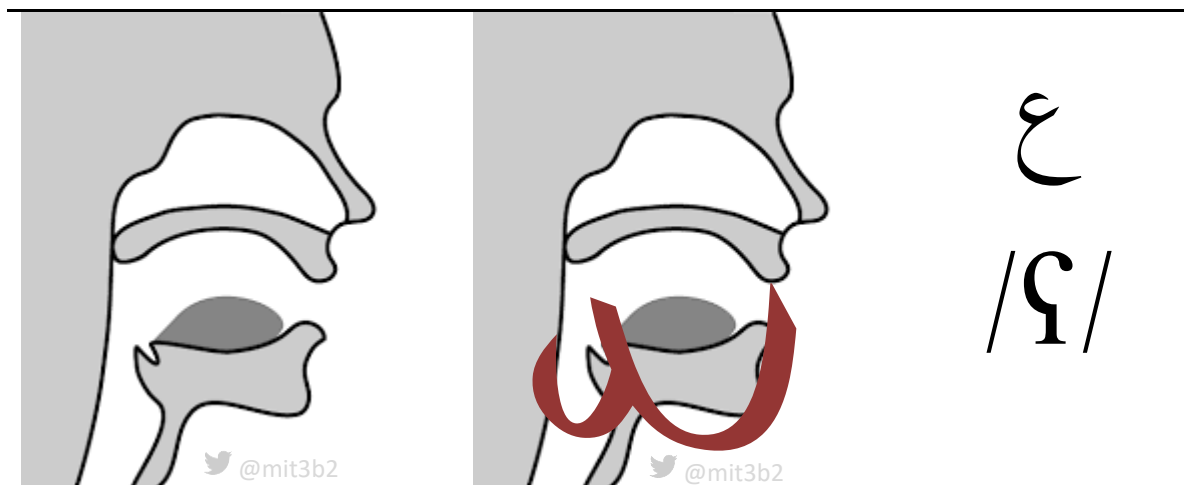


OR

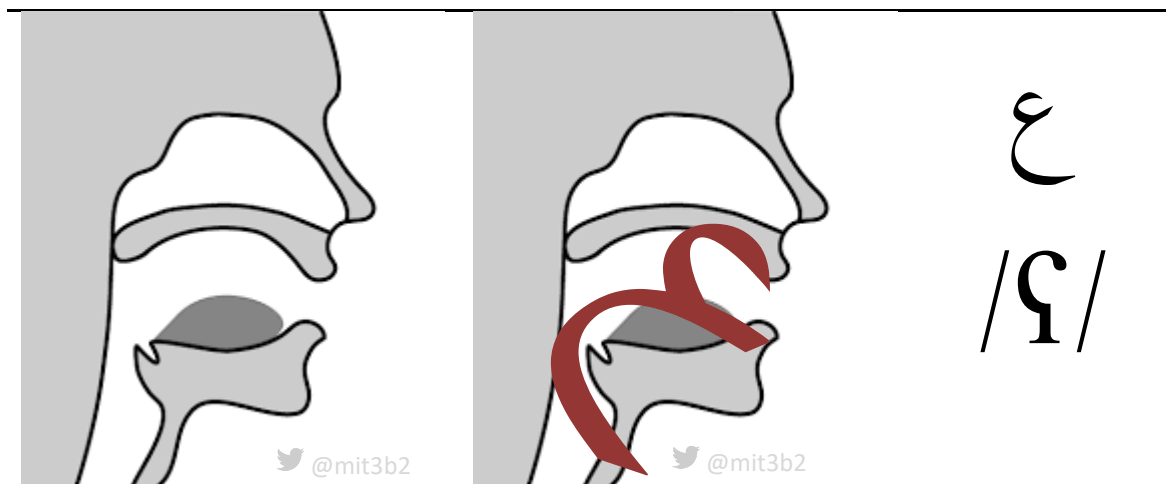


- See other letters corresponding to the Arabic letter غ /ɣ/: Abaza (Გ), Azerbaijani (ğ), Dinka or IPA (ɣ), georgian (ლ), Gujarati (ઁ), Hebrew (א), Berova (в), Bukovo (п), Haitian Creole (r), Malay (r) and Russian (г). There are no letters corresponding to this letter from Phoenician, Nabataean and Syriac.

**The letter غ /ɣ/** is the 17<sup>th</sup> letter of the Arabic alphabet and it is a voiced pharyngeal fricative where the tongue root is moved against the back of the throat (the pharynx). Given that the tip, blade or dorsum/back of the tongue is not moved during the production of the sound غ /ɣ/, there is no dot required as shown in the image below.

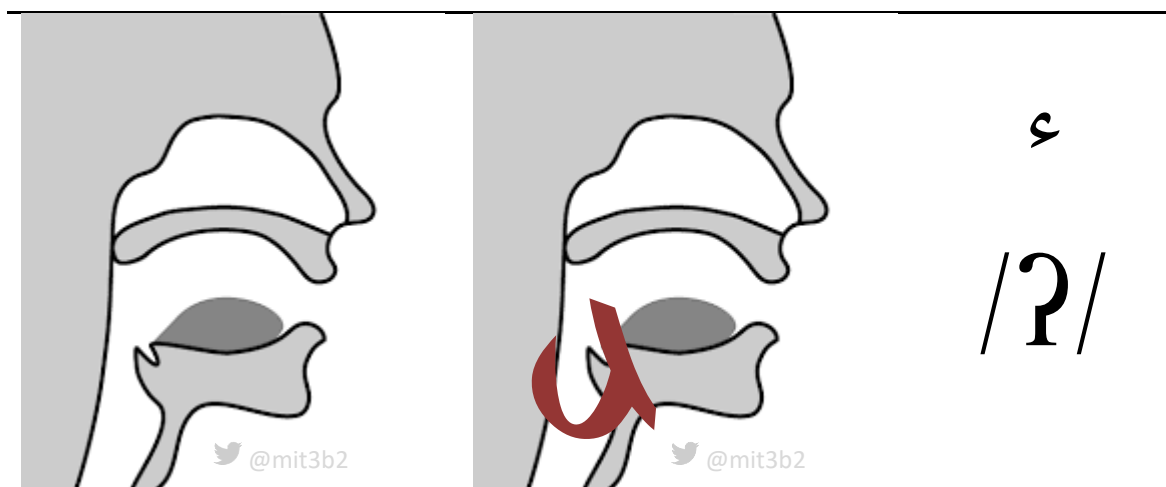


OR

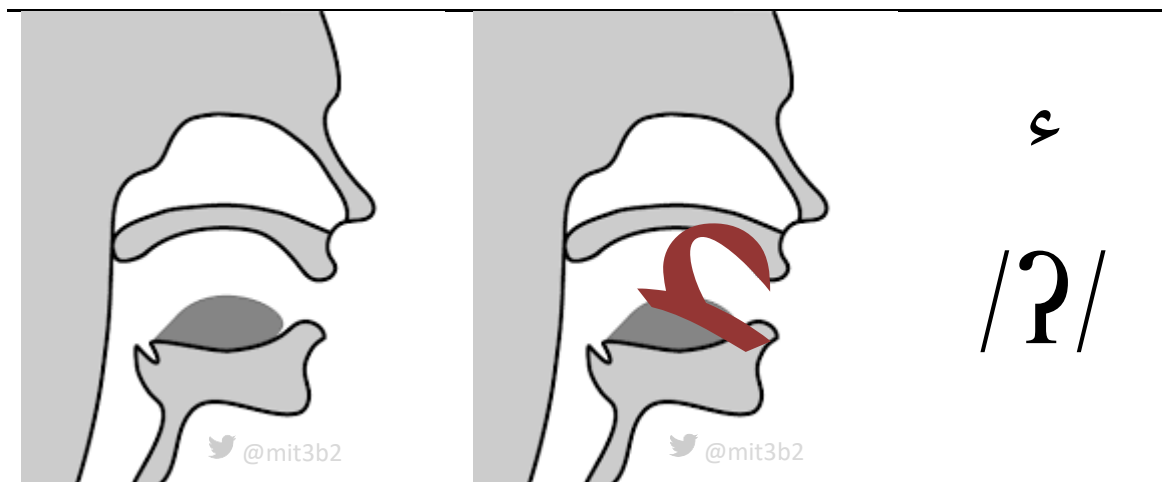


- See other letters corresponding to the Arabic letter ع /ʕ/: Phoenician (O), Nabataean (ʾ), Syriac (ܐ), Latin (O), Hebrew (א), Dutch or Danish (r), and Coeur d'alene or IPA (ʕ).

In the Arabic alphabet, the first letter ا can take a hamza (ء) which is a diacritic produced as a glottal stop /ʔ/. This hamza ء /ʔ/ is in fact similar to the upper head of the letter ع /ʕ/; it is a shortened form of ع /ʕ/. It is sometimes written above ا as in أ (produced as /ʔa/) and it is sometimes written below ا as in إ (produced as /ʔi/). Given that both the hamza ء /ʔ/ and the letter ع /ʕ/ are produced from the throat, they take the same shape. The representation of the hamza ع /ʔ/ will therefore be as follows.



OR



- See other letters corresponding to the Arabic hamza ء /ʔ/: Phoenician (𐤀), Nabataean (𐩣 𐩥 𐩦), Syriac (ܐ), Latin (A), IPA or Nez Perce (ʔ), Adyghe (I), Hebrew (א), Khasi (y) and Thai (๑).

#### 5. Curve Shape Letters (ر، ز، ل، د، ذ)

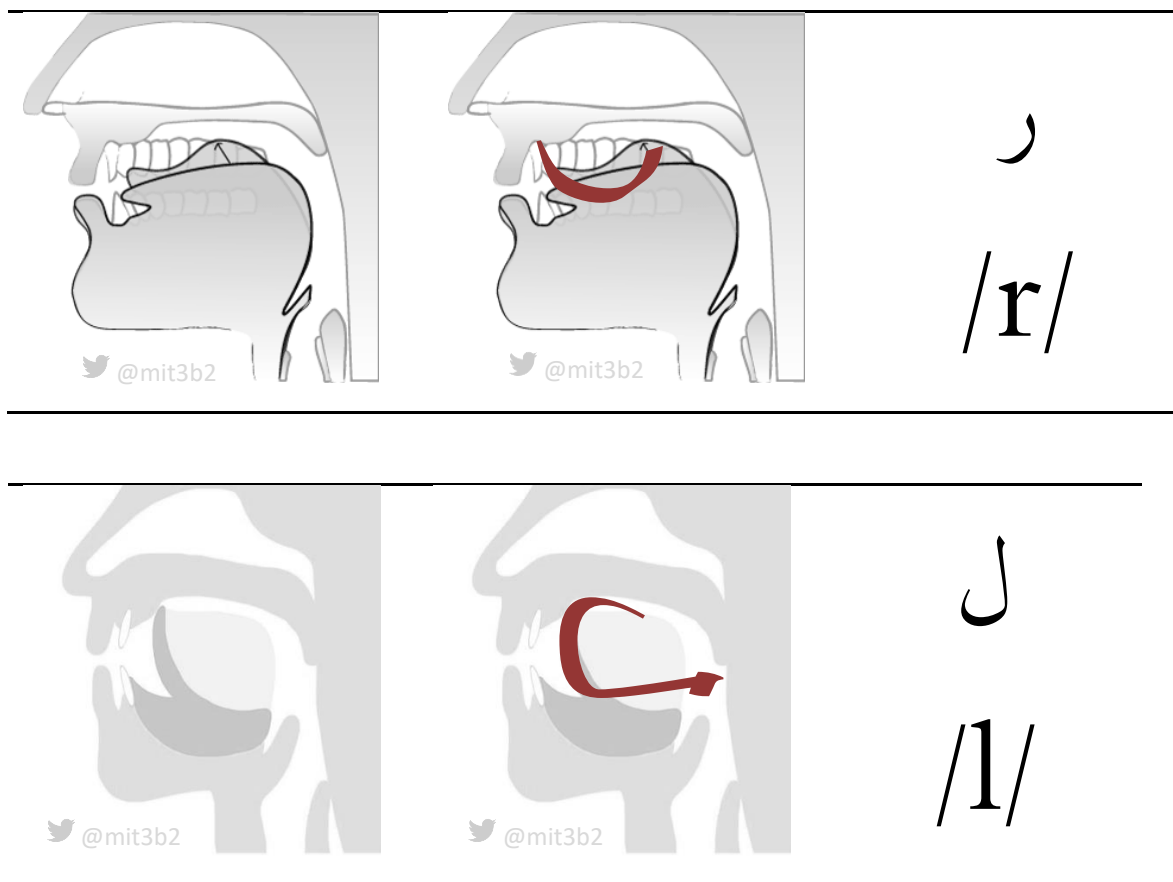
The letters ر /r/, ل /l/, ز /z/, د /d/ and ذ /ð/ take a curve shape representing the shape of the tongue used in their production. These cases should be looked at from the side of the face as shown below.



The letters ر /r/ and ل /l/ are liquids/approximants. The sound ر /r/ is the 10<sup>th</sup> letter of the Arabic alphabet and it is a voiced alveolar retroflex produced by the tip of the tongue touching the alveolar ridge, whereas the letter ل /l/ is the 23<sup>rd</sup> of the Arabic alphabet and it is a voiced post-alveolar lateral produced by the tip of the tongue touching the post-alveolar ridge. Both the letters ر /r/ and ل /l/ are similar in shape, and they represent the shape of the tongue being raised in a curvy way. However, given that the tip of the tongue is raised against the post area of alveolar shape, this makes the letter ل /l/ much



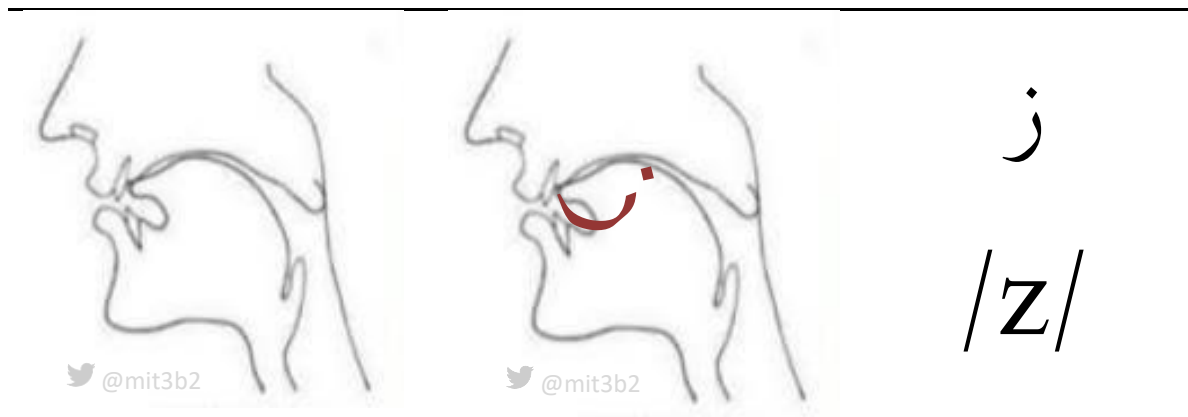
curvier. The ر /r/ and ل /l/ sound are represented following the shape of the tongue as shown below.



- See other letters corresponding to the Arabic letter ر /r/: Phoenician (𐤓), Nabataean (𐩨), Syriac (ܪ), Latin (r, R), Greek (ρ), Hindustani (र), Japanese (ラ) and Gokana (l).
- See other letters corresponding to the Arabic letter ل /l/: Phoenician (𐤌), Nabataean (𐩩), Syriac (ܠ), Latin (L), Bulgarian (л), Classical Armenian (լ), English (l) and Polish (ł).

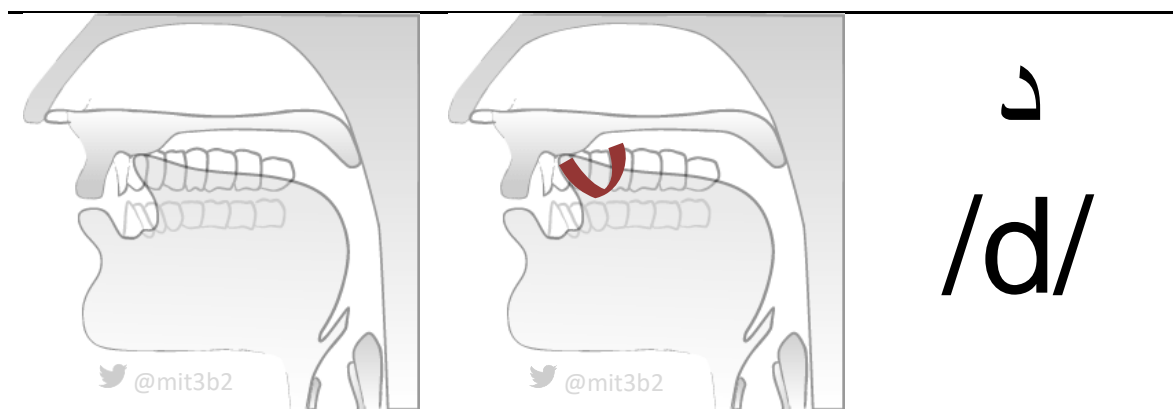
As for the letter ز /z/ (the 11<sup>th</sup> letter of the Arabic alphabet; a voiced alveolar fricative), it looks like the letter ر /r/ but it has an upper dot. This may be attributed to the fact that the sound ر /r/ and ز /z/ are similar in the place of the articulation (i.e. alveolar) where both are articulated with the tip of the tongue being raised against the alveolar ridge. Given that the letter ز /z/ is a fricative (i.e. the airflow moves without obstruction), it has an upper dot to be different from the approximant sound ر /r/. The upper dot may refer

to the upward movement of the tongue blade as shown below, in comparison to the /r/ sound which has no blade raising (see the image above).



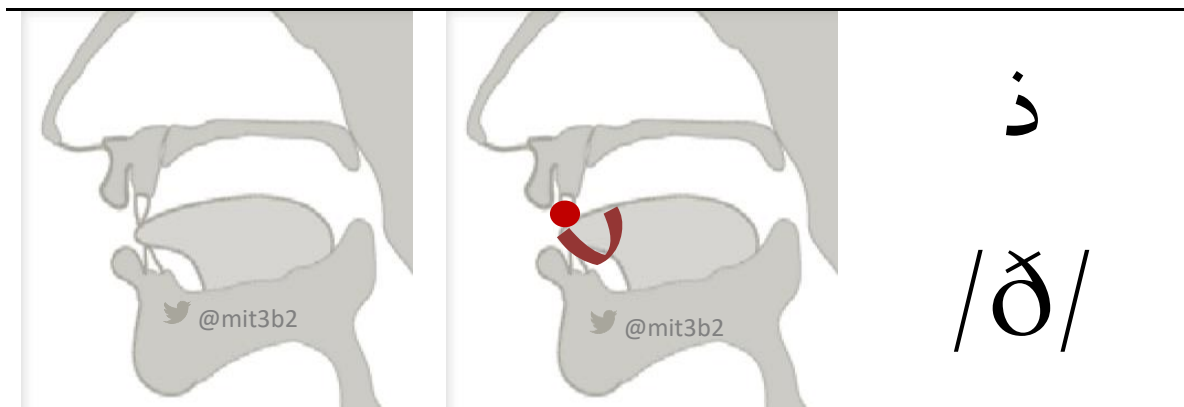
- See other letters corresponding to the Arabic letter ز /z/: Phoenician (𐤆), Nabataean (𐤆), Syriac (ܐ), Latin (z), Adyghe (з), Greek (ζ), Marathi (ज), Spanish (s), Yi (Ꞥ) and Hebrew (ר).

The letters د /d/ and ذ /ð/ are similar in shape, and they both represent the shape of the tongue. Given that the letter ر /r/ and د /d/ are similar in the production in that they are both alveolar sounds, and given that the /d/ is a stop touching the alveolar ridge in a clearer way, it is represented with a sharp curve as shown in below. The letter د /d/ is the 8<sup>th</sup> letter of the Arabic alphabet and it is a voiced alveolar stop. It should be noted that the blade of the tongue is a little bit lower in the production of the letter د /d/ than in the production of the letter ر /r/ (compare the two images). This may have influenced the differences between the two letters.



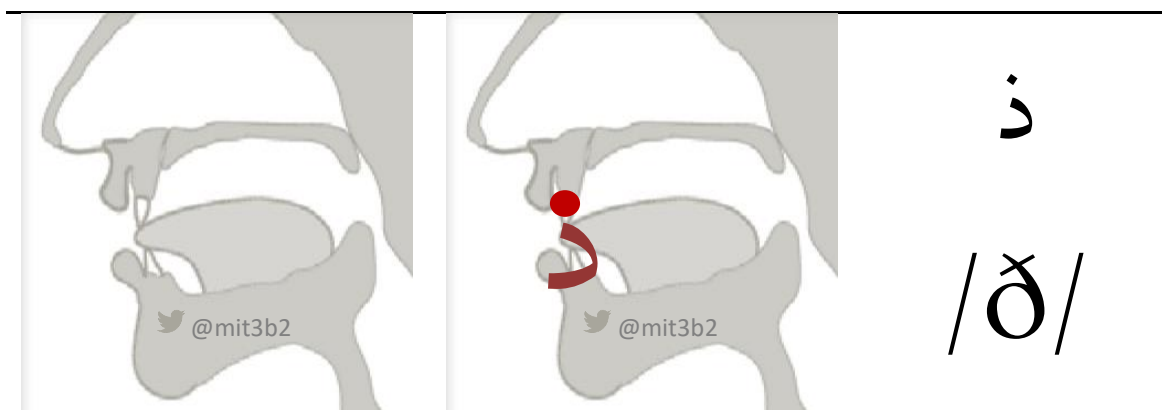
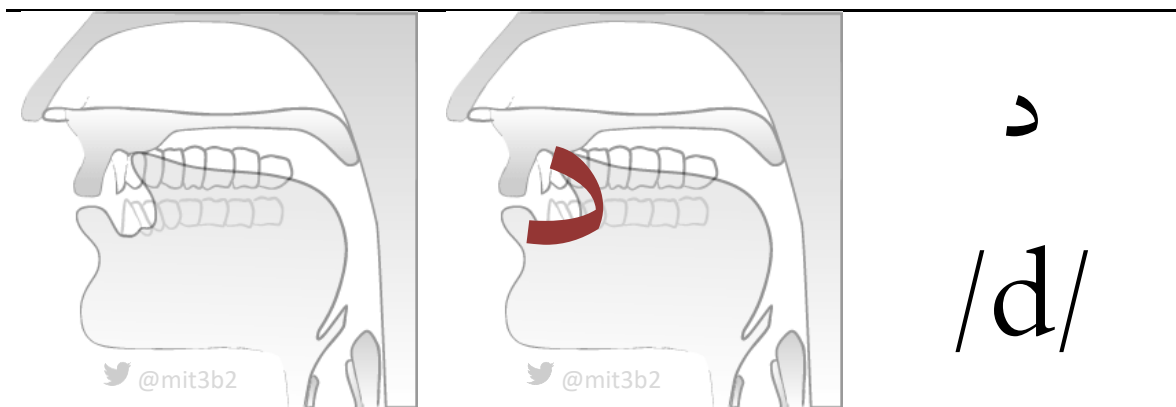
- See other letters corresponding to the Arabic letter د /d/: Phoenician (𐤃), Nabataean (𐩪), Syriac (ܕ), Latin (D), Hebrew (ד), Armenian (դ), Bashkir (д), Georgian (დ), Odia (ଦ), Greek (δ) and Thai (ด).

As for the letter ذ /ð/, it is the 9<sup>th</sup> letter of the Arabic letter and it is a voiced labiodental fricative. Given that ذ /ð/ is similar to د /d/, it may have taken the upper dot for being associated with the tip of the tongue or the upper teeth.



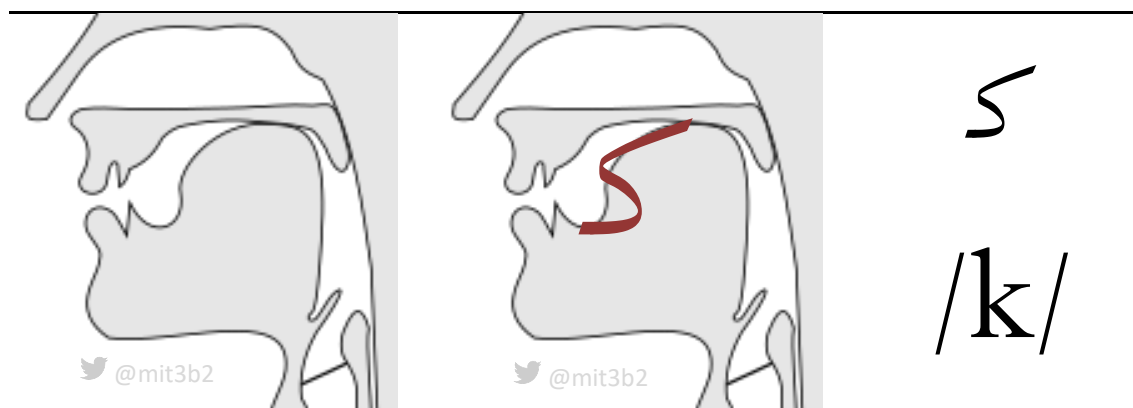
- See other letters corresponding to the Arabic letter ذ /ð/: IPA or Elfdalian (ð), Asturian (z), Burmese (သ္ဃ), Greek (δ), Kabyle (ǧ) and Scottish Gaelic (r). There are no letters corresponding to this letter from Phoenician, Nabataean, & Syriac.

Another possibility to represent the two similar letters د /d/ and ذ /ð/ is to hypothesize that the upper head of the letter د represents the tip of the tongue touching the alveolar ridge whereas the lower part represent the lower lip as shown below. The upper dot on the letter ذ can therefore be taken as a representation of the higher teeth.

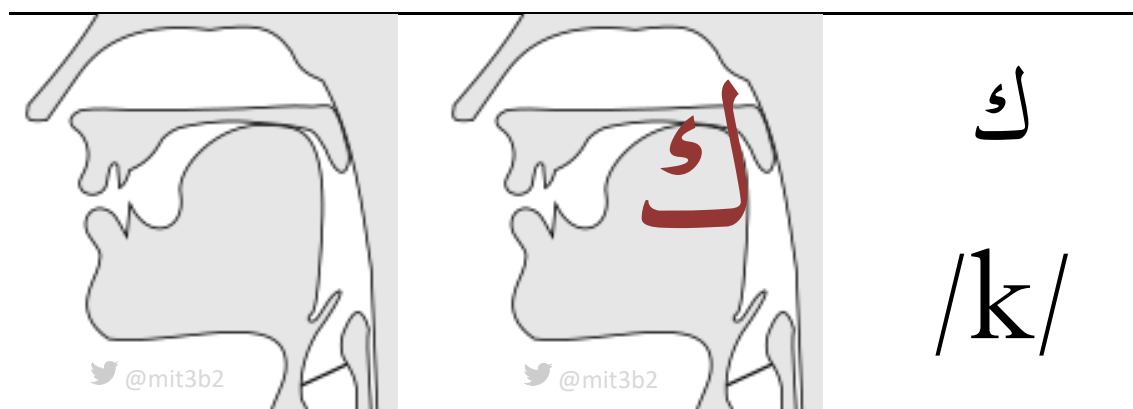


## 6. Other sounds (هـ، ي، كـ)

The letter ﻙ /k/ is the 22<sup>th</sup> of the Arabic letter and it is a voiceless velar stop. It is represented as ﻙ perhaps due to the movement of the tongue dorsum/back against the velum. The upper head of the letter ﻙ /k/ represents the back of the tongue touching the velum as shown below.

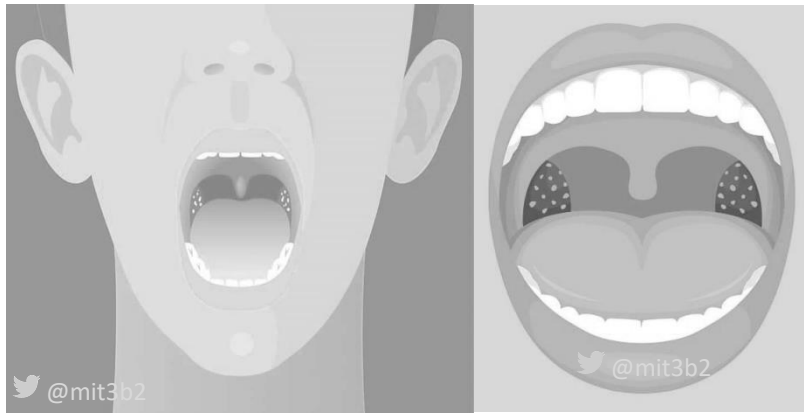


It should be noted that the letter ك /k/ is written as ك in isolation but as a ك in a connected form. The basic form ك looks like the letter ل /l/ but with a small ك inside it: ك. This small diacritic ك inside ك is mistakenly thought of as a hamza ء among many Arab students, but it is a small ك /k/. It is not clear how to represent ك but it may appear as shown below:

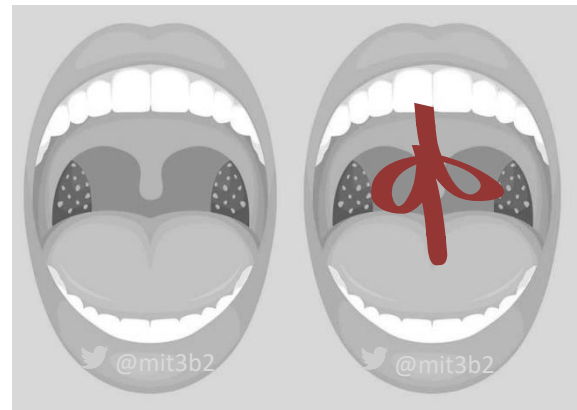
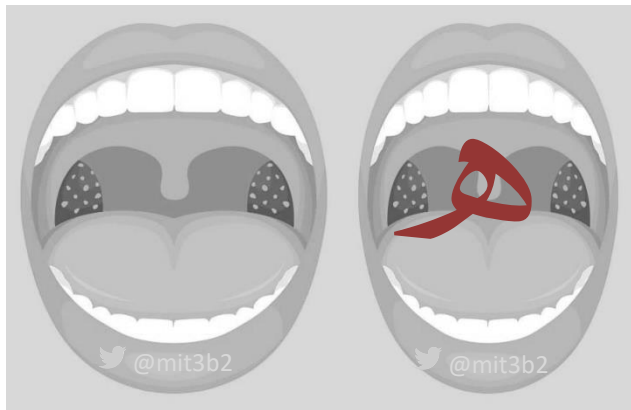


- See other letters corresponding to the Arabic letter ك /k/: Phoenician / 𐤊/, Nabataean / 𐤊 𐤊/, Syriac / ܟ /, Latin /k/, Abkhaz (к), Armenian (ք), Assamese (ক), Catalan (c), Georgian (კ), Gujarati (ક) Hebrew (כ), Marathi (क), Odia (କ), Thai (ก) and Yi (ꐕ ).

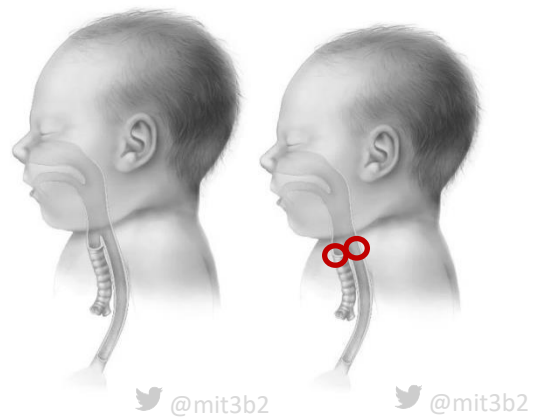
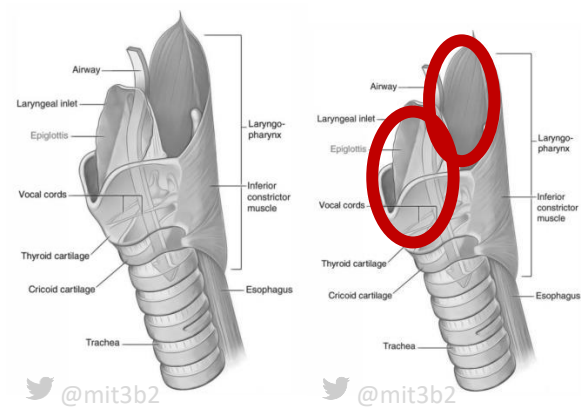
As for the letter ه or ه /h/, it is the 26<sup>th</sup> letter of the Arabic letter and it is a voiceless glottal fricative. This letter is represented in Arabic with two knots in isolation or in an initial position (i.e. ه /h/) or in a connected form (i.e. ه /h/), but it is sometimes represented with one knot in a final position (i.e. ه /h/). Given that the sound /h/ is pronounced from the throat (i.e. a glottal fricative), these two knots may represent the shape of the throat itself.



/h/ ھ/ه

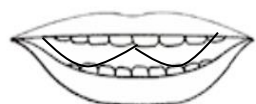


The two knots may be related to the throat where two tubes are found for both the lung passage (trachea/windpipe) and the food passage (esophagus). Ancient Arabs may have the chance to see the anatomy of the throat (through animals, or dissection after wars etc).

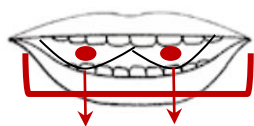


- See other letters corresponding to the Arabic letter هـ/هـ /h/: Phoenician (𐤅 or 𐤆), Nabataean (𐩣 𐩤), Syriac (ܚ) Latin (h), Adyghe (х), Asturian (h), Bengali (হা), Georgian (ჰ), Hebrew (ה), Hindi (ह), Lao (ຮ), and Yi (𐩺).

For the last letter (the 28<sup>th</sup> letter of the Arabic alphabet), ي /j/, it was proposed in the first section that it is written as ي following the two parts of the lip and the shape of the tongue that moves downwards.



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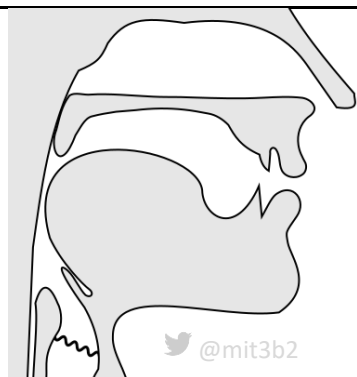


@mit3b2

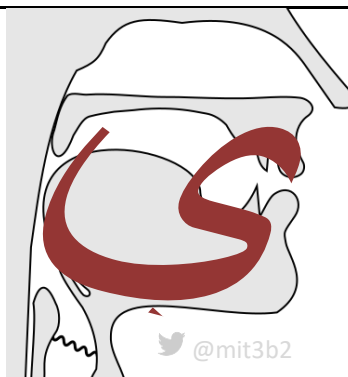
ي

/j/

However, another account for this voiced palatal sound /j/ ي is to represent it from the side of the face as shown below where the middle curve represents the movement of the tongue downwards after the production.



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@mit3b2

ي

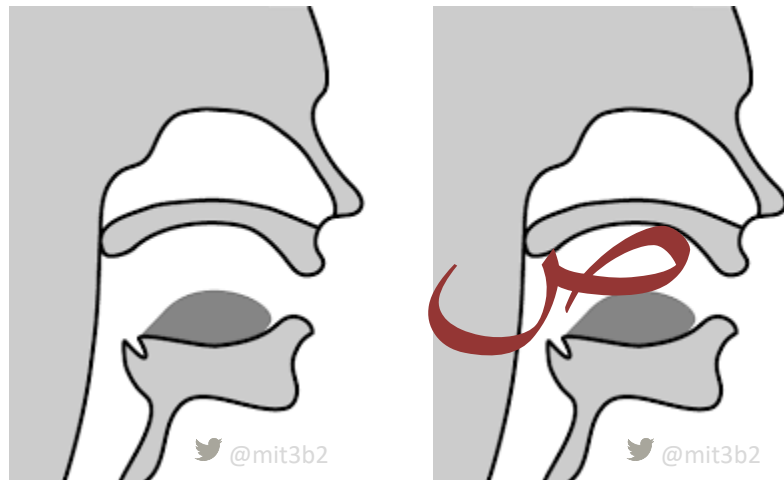
/j/

## Unclear Cases of Arabic Letters

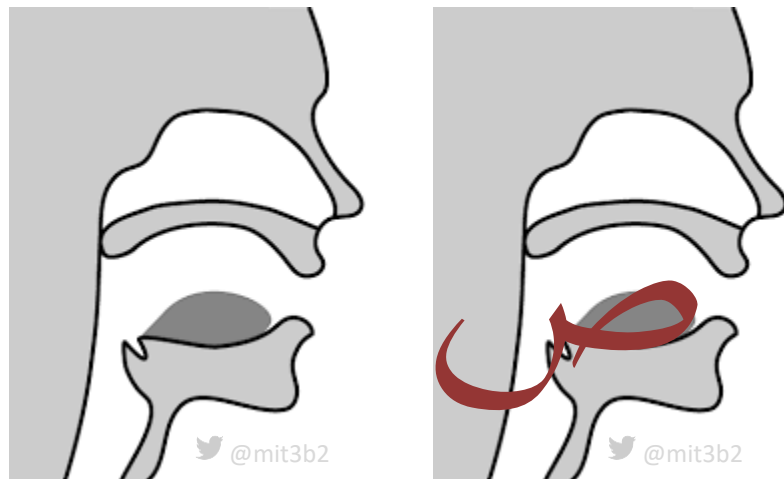
In this section, we will discuss cases which have less clear representations. These cases are the emphatic sounds ق, ظ, ط, ض, ص.

### 7. Drop Shape Letters (ق, ظ, ط, ض, ص) & ق

The letters ص /s<sup>ʕ</sup>/ and ض /d<sup>ʕ</sup>/ vs. ط /t<sup>ʕ</sup>/ and ظ /ð<sup>ʕ</sup>/ take a drop shape (such as **ـ**). This drop may represent the airflow blocked in the mouth during their production given that these sounds are emphatic sounds involving a glottal stop /ʔ/ (some scholars argue that they are velarized). The drop may represent the stopped airflow during their production as shown below.

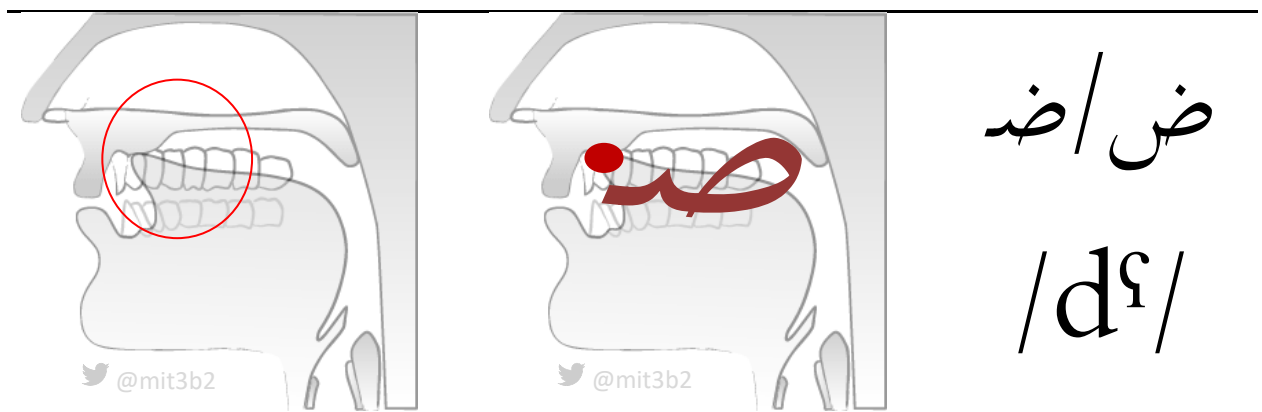
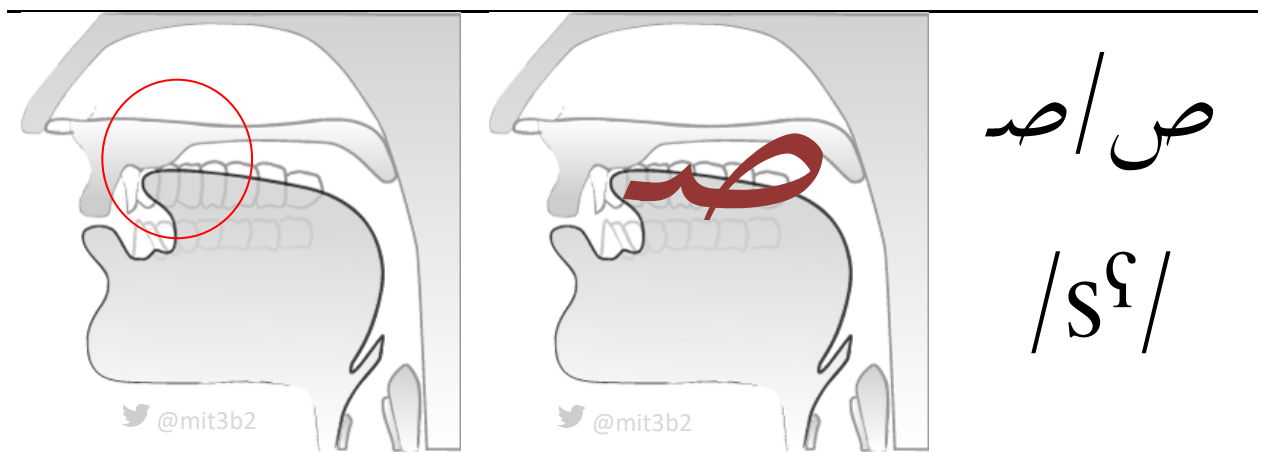


As an alternative, this drop may represent the shape of the tongue as shown below.



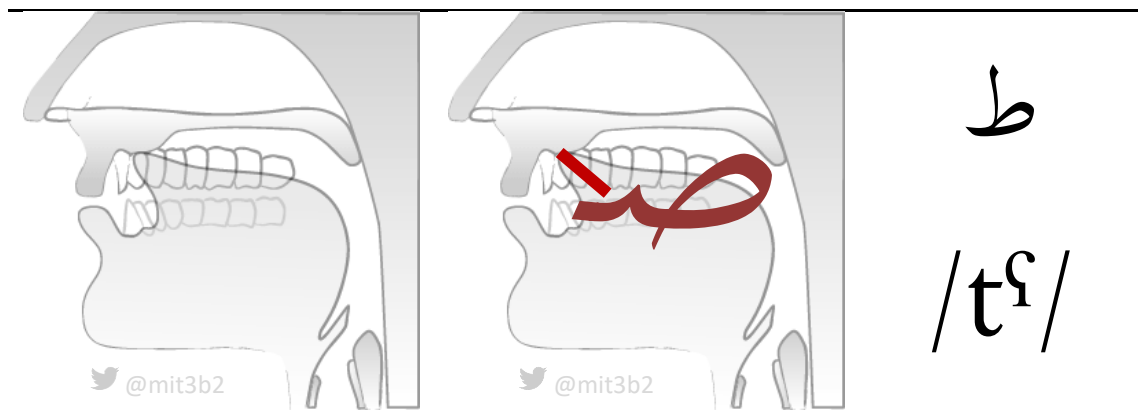
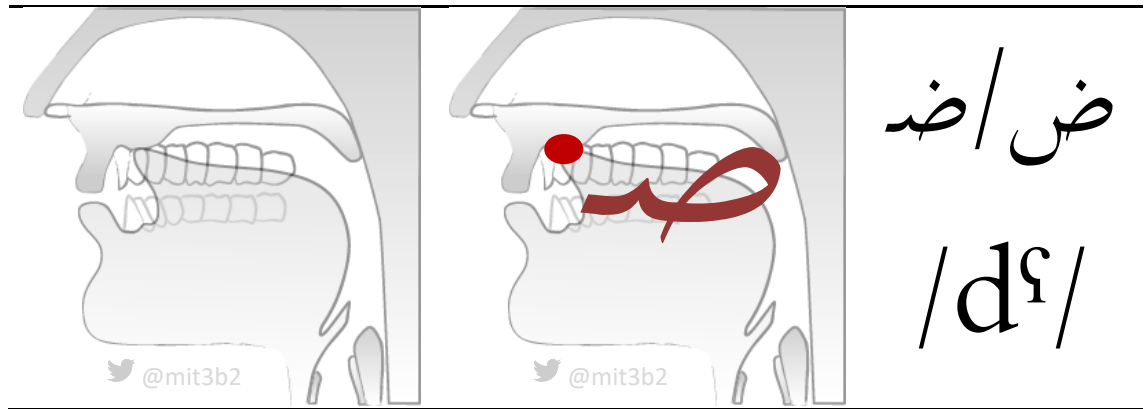
The letter ص /s<sup>ʕ</sup>/ and ض /d<sup>ʕ</sup>/ (14<sup>th</sup> and 15<sup>th</sup> letters of the Arabic alphabet) are not quite different in shape given that they take the same drop shape; the only difference follows from the dot given to the sound ض /d<sup>ʕ</sup>/. This dot may be given to the letter ض /d<sup>ʕ</sup>/ (which is a glottalized alveolar stop) because the tip of the tongue during the production of the stop ض /d<sup>ʕ</sup>/ touches the alveolar ridge more conspicuously than during the production of the fricative ص /s<sup>ʕ</sup>/ (which is a glottalized alveolar fricative). This touching may require the letter ض /d<sup>ʕ</sup>/ to be marked with an upper dot as shown below.





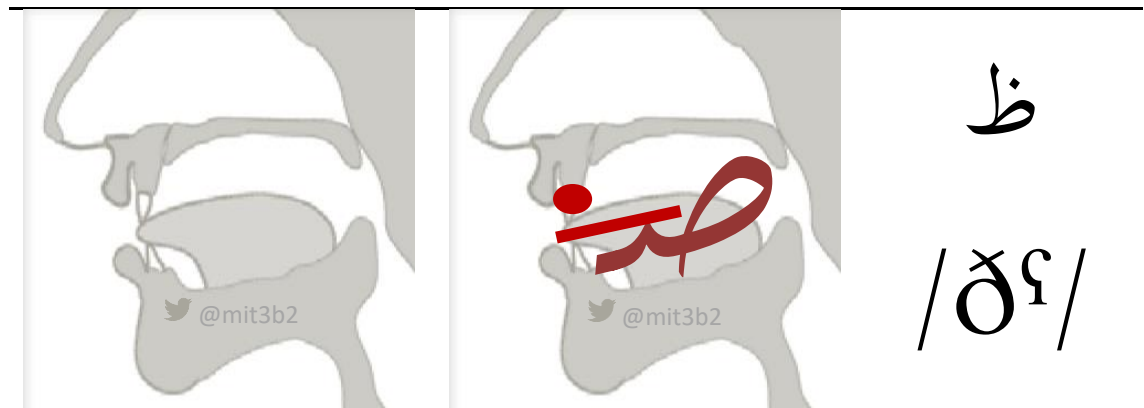
- See other letters corresponding to the Arabic letter ص /sʕ/: Phoenician (𐤍), Nabataean (𐩦 𐩧) and Syriac (ܣ)

The letters ط /tʕ/ and ظ /ðʕ/ (16<sup>th</sup> and 17<sup>th</sup> letters of the Arabic alphabet) also look alike in that they take the same drop shape, plus an upper line (ل). To differentiate the letter ط /tʕ/ (which is a glottalized alveolar stop) which noticeably touches the alveolar ridge from the ص /sʕ/ sound which slightly does, a line (ل) is drawn above the drop shape. This line is required given that a dot is not an option any more given that it has already been taken by the letter ض /dʕ/. Note here that the letter ط /tʕ/ and ض /dʕ/ are similar in that they are emphatic alveolar stops (/t/ and /d/ but glottalized); however, the former takes a line to represent the tongue touching of the alveolar ridge whereas the latter takes a dot as shown below:

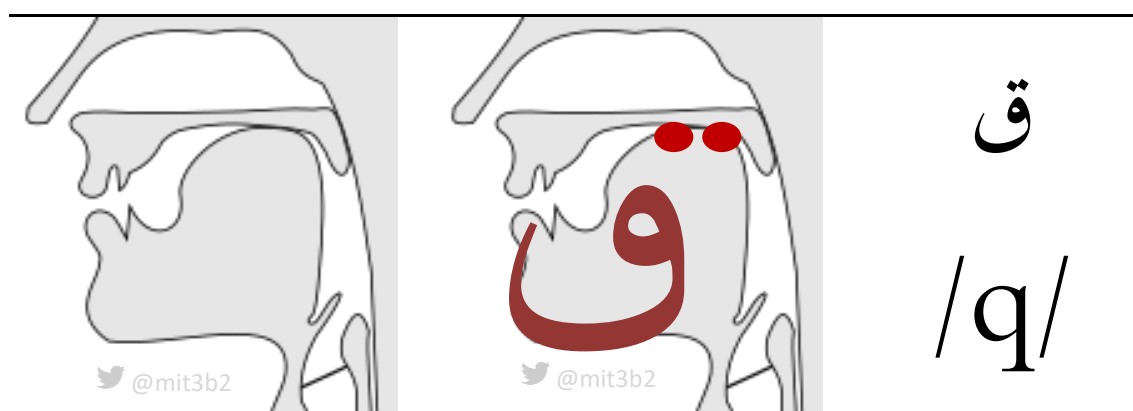


- See other letters corresponding to the Arabic letter ط /tʕ/: Phoenician (⊗), Nabataean (𐤕), Syriac (ܬ)

The only option to represent the letter ظ /ðʕ/ (which is a glottalized interdental fricative) is to use both a line and a dot at the same time, generating the letter ظ /ðʕ/. The tip of the tongue going out between the teeth may be represented by a line, whereas the upper teeth may be represented by a dot. Given that ط /tʕ/ is a stop whereas ظ /ðʕ/ is a fricative, the dot is used to represent the airflow linked to the friction (see the many dots linked to the fricatives such as ث /θ/ and ش /ʃ/).



As for the sound ق /q/, it is the 21<sup>st</sup> letter of the Arabic alphabet and it is a glottalized velar stop. The letter ق /q/ is among the emphatic letters in Arabic that is produced with a glottalized effect; however, it takes a circle shape (i.e. ق /q/) whereas the other emphatic sounds take a drop shape (i.e. ط, ظ, ض, ص). The letter ق /q/ is written as such perhaps representing the airflow being blocked inside the mouth, similar to other emphatic sounds. As for the two dots above ق /q/, they may have something to do with the back of the tongue being raised against the dorsum. Note that one dot is not enough to represent the ق /q/ sound because one dot is already used for a similar sound, namely ف /f/ or ض /d<sup>ʕ</sup>/.



- See other letters corresponding the Arabic letter ق /q/: Phoenician /𐤒/, Nabataean /𐩦/, Syriac /ܩ/, Latin /q/Q/, Abaza (хъ), Aleut (ḱ), Hebrew (ק), Kabyle (ⵓ), Kazakh (Қ), and Malto (𑂑).

Another possibility for the representation of ص /s/, ض /d<sup>ʕ</sup>/, ط /t<sup>ʕ</sup>/, ظ /ð<sup>ʕ</sup>/ is that they are drawn following the shape of the mouth from the front side as shown in the images below. For /s<sup>ʕ</sup>/ ص, see the image below where the lips are tilted to the side. As for /d<sup>ʕ</sup>/ ض and ط /t<sup>ʕ</sup>/, the dot (in ض /d<sup>ʕ</sup>/) and the line (in ط /t<sup>ʕ</sup>/) represent the tip of the tongue touching the alveolar ridge. As for the letter ظ /ð<sup>ʕ</sup>/, the tip of the tongue moving between the teeth and the upper teeth will represent both the dot and the line.



As for the letter /q/ ق (a circle shape, not a drop shape as ص with two dots), it may have been written as such because this sound ق /q/ take a round shape as shown below, where the two dots represent the movement of the tongue dorsum/back against the velum.



/q/ ق



## Conclusion

- Although there are many Arabic letters which have clear connection with the shape/movement of the mouth/face/tongue/teeth etc, some others such as emphatic sounds may still require better justification.
- Similar to other hypotheses, this hypothesis may require further evidence as it is based on speculations.
- “At best, this hypothesis sounds too good to be true”.