ARABIC VOICED GLOTTAL STOP AND VOICED PHARYNGEAL FRICATIVE IN SUNDANESE SOUND SYSTEM

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Abstract

This article reveals how two Arabic consonants: voiced glottal stop and voiced pharyngeal fricative are pronounced by Sundanese when reading Alquran. The theory of phonetic articulatory is used to analyze the way the sound produced from the place, manner of articulation, its voicing and the involvement of speech organs. The data were taken from Alquran short surah recitation by Arab and Sundanese native speakers. The data are in the form of recorded sounds. After selecting those two consonants from the Alquran recitation, the researchers transcribe them using International Phonetic Alphabet (IPA) standardization. By using contrastive analysis method, the data are identified by labeling those two sounds based on the place, the manner of articulation with its voicing. The result shows that: 1. The Arabic voiced glottal stop consonant /ʔ/ followed by vowels /ʔʌ/, /ʔɪ/ and /ʔʊ/ are changed to be short vowels /ʌ/, /ɪ/ and /ʊ/ 2. Arabic voiced consonant pharyngeal fricative /ʕ/ followed by vowels /ʕʌ/, /ʕɪ/ and /ʕʊ/ are also changed to be nasal vowels /ã/, /ĩ/ and /ŭ/ by Sundanese people. 3. In case of voiced glottal stop in condition of *sukun*, it is pronounced in the same way. 4. In case of the voiced pharyngeal fricative in condition of *sukun* /ʕ/, the sound is changed to be voiced glottal stop in condition of *sukun*. In conclusion, those two Arabic consonants are changed to be vowels in Sundanese sound system with a few data that change the meaning as a result of the changes.

Keywords: *Sundanese, Arabic, pharyngeal, glottal, nasal vowel.*

INTRODUCTION

Researching on phonetics in Indonesia needs an extra care since it discusses a small part in linguistic with a multifaceted laboratory to be used. Even Indonesia has a limited universities to have linguistics as an independent study program for bachelor degree. Most of them place linguistics as a part of literature study program. As a result, those who want to be serious to study linguistics must be taken in postgraduate program.

As a part of literature program, linguistic section must be shared with other subject proportionally. As a part of linguistics also, the subject of phonetics/phonology has a limited allocation in a bachelor degree curriculum. Thus, the need of phonetic laboratory will be hardly consider to provide.

There are some facts that Indonesia need it so much. First, Indonesia has more than 700 languages as local languages. Second, Indonesia has Bahasa Indonesia as official national language. Beside, Indonesia also apply English as common foreign language taught in schools. Last but not least some of Indonesian Muslims also learn Arabic because at least they have to use it in their daily

prayer. Although not to communicate socially with others, it is more than that, it is used to communicate with their God. They show how rich Indonesia with thousand sounds around them. In this article the researchers emphasize the last statement, namely researching Arabic that used in daily prayer spoken by Sundanese people in their daily prayer. It is very common for some of Indonesia people to hear Arabic in various ocasions because for some of Indonesia people, Arabic has been considered as religion (Islamic) language since almost all of Islamic prayer activity cannot be separated by Arabic. The activity included *shalat, fasting, hajj* until *dhikr*. All of those activities used Arabic as the main language (Nur, 2018). Therefore some Muslims obliged their selves to be able to pronounce Arabic for at least to be used in daily prayers. They also encourage their children to learn Arabic in the same way. By doing so, some of the children learn their first foreign language, Arabic. They learn how to produce the Arabic sounds that differ from their native. Unconsciously they learn the place, manner of articulation and voicing of the sounds. In other words, for some, they learn linguistic, especially phonology even before they learn Bahasa Indonesia in the formal education.

In one side Indonesian people, including Sundanese has a potential to be multi literacy in term of multi sounds by having various sounds; local sound system, Arabic and Bahasa Indonesia. In contrast they have to face multi obstacles since Sundanese has 8 vowels and 18 consonants (Djajasudarma, 2010) while Arabic has 6 vowels and 28 consonants (Nasution, 2007). This research will focus on the complex consonant sounds produced by Sundanese when they read short surah of Alquran. These complex sounds are the consonants of voiced glottal stop sound /ʔ/ and voiced pharyngeal fricative sound /ʕ/.

It is said complex because of the following reason. Firstly, the voiced glottal stop sound /ʔ/ is produced at the bottom of the speech organ that is uncommon for non-native Semitic language, including Sundanese. Glottal placed near pharynx. It is located at the back of speech organ. The complexity lies in which it is almost hard to produce a sound without the presence of vowel. The sound of voiced glottal stop can be produced clearly along with a vowel.

Secondly, the voiced pharyngeal fricative sound is placed at pharynx in which Sundanese does not have the sound produced in this place. Besides vibrating the vocal fold, the manner of this sound also must be fricative. It can be said that producing a fricative sound at pharynx by vibrating the vocal folds is not an easy one for those who is not habituated by its way.

The are two phenomena regarding Arabic to bahasa Indonesia, including Sunda. First, sound (vocabualry) adaptation and second, learn Arabic sound system. The first means that all Arabic sounds and its vocabulary adapated, fit to local language tongue. The second mean that all Arabic sound must be taught to be native-like. This writing focus on the second one.

Many research have been conducted toward the adaptation of Arabic vocabularies (Syamsul, et. al. 2003; Muhyiddin, 2013; Putradi, 2016; Adriana, 2017). Even Pedoman Umum Ejaan Bahasa Indonesia has released the official adaptation, including these two consonants: voiced glottal stop and voiced pharyngeal fricative. It is stated that: *a (Arab, bunyi pendek atau bunyi panjang) menjadi a (bukan o); i (Arab, bunyi pendek atau bunyi panjang) menjadi i; dan u (Arab, bunyi pendek atau bunyi panjang) menjadi u* and *'ain* (ع Arab) pada awal suku kata menjadi *a, i, u* (Kemendikbud, 2016). It means that the voiced glottal stop followed by vowel in the beginning whether short or long becomes vowel and voiced pharyngeal fricative followed by vowel becomes vowel as well.

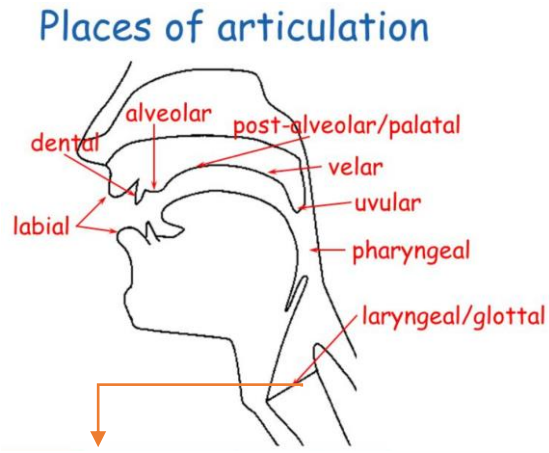
Same as bahasa Indonesia, Sundanese adapt the vowels like what has been stated by Kemendikbud; the short and the long vowel are adapted to be short ones. As Al-Ani (1970) argued that Almost all vowels, when recorded, are initiated with a glottal stop. Such an initial glottal articulation seems reasonable since all words in Arabic begin with a consonant. Also, those words

in Arabic which are normally considered to begin with a vowel usually are initiated with a glottal stop before the vowel. In other words it can be said that what is adapted as vowel is not always a vowel in Arabic, especially when it goes to the initial sound of the word.

Voiced Glottal Stop

Arabic has voiced glottal stop /ʔ/. This is one of Arabic distinct consonants. Arabic has this sound along with the orthographic symbol to be used for the writing system. This symbol (ء) is used for the writing and this symbol (ʔ) is used to represent the sound as stated in International Phonetic Alphabet. To produce this sound it needs to obstruct the airstream in the vocal tract through glottis. Consequently the obstruction of the airstream in the glottis will vibrate. By the manner of plosive (stop), the consonant of glottal stop voiced then will be produced. Figure 1.1 below shows the place of articulation of glottal stop voiced. To ensure the place and the sound, it can be also accessed here.

Figure 1 Position of Glottal

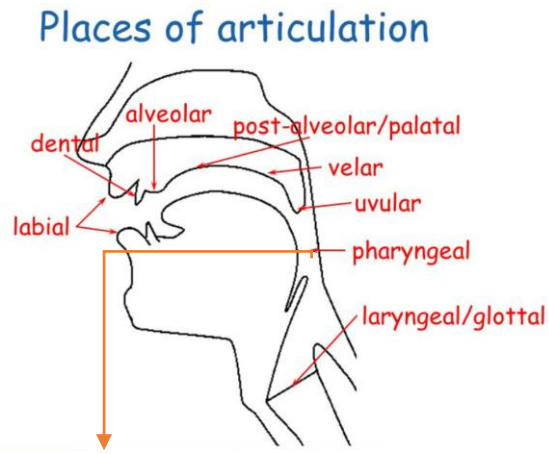


The distinct sound of this glottal stop has been mentioned by Maddieson (2009) by saying that glottal stops have been omitted since this segment type differs from other stops in several ways. It means that this sound is not common to non-Semitic language, as Al-Ani (1970) investigated almost all vowel in Arabic pronounced preceded by this glottal stop sound. Glottal stop voiced can be attached by short and long vowels /ʌ/, /a:/, /ɪ/, /i:/, /ʊ/ and /u:/. They are /ʔʌ/, /ʔa:/, /ʔɪ/, /ʔi:/, /ʔʊ/, and /ʔu:/. In some cases it can be also without vowel (*sukun*).

Voiced Pharyngeal Fricative

Beside voiced glottal stop, Arabic has another distinct consonant, namely voiced pharyngeal fricative. This symbol (ع) is used for the writing and this symbol (ʕ) is used to represent the sound as stated International Phonetic Alphabet. For non-Semitic language, including Sundanese, it needs a hard effort to produce this sound. To produce this sound, it needs involving pharynx. It means before the airstream flows from the lung to the mouth, the pharynx must be narrowed to still pass the air (being fricative) with the vocal fold vibrate. Figure 1.2 below shows the place of articulation of pharyngeal fricative voiced. To ensure the place and the sound, it can be accessed here.

Figure 2 Position of Pharynx



Pharynx

Al-Ani (1970) categorized this sound into back consonant. Although this is hard to investigate since this is not easy accessible, he said that this sound appears a burst—duration 40-50 msec—followed by a random noise. The burst appears first as a vertical line followed by noise, the amount of which varies from one example to another. This noise, most of the time, appears as a "voiced noise".

Arabic has some diverse back consonants. It varied velar, uvular, pharyngeal and glottal consonants sounds. Pharyngeal fricative voiced sound lies at the back of the speech organ before glottal. It can be attached by short and long vowels /ʌ/, /a:/, /ɪ/, /i:/, /ʊ/ and /u:/. They are /ʕʌ/, /ʕa:/, /ʕɪ/, /ʕi:/, /ʕʊ/, and /ʕu:/. In some cases it can be also without vowel (*sukun*).

Nasal vowel

There are two main terms here. The first is nasalized vowel and the second is nasal vowel. Nasalized vowel (Robin, 1983) refers the vowel that is nasalized because of the environment consonant. He gave the example below.

Table 1 Sundanese nasalized vowel

No	Gloss	IPA	Meaning
1	maro	/mãro/	to halve
2	maneh	/mãnêh/	you
3	mandi	/mãndɪ/	to bath
4	nyiar	/ɲĩãr/	to seek
5	nyaian	/ɲãĩãn/	to wet

All of these /a/ sounds are produced along with nasal, to be /ã/. These vowel sounds are changed because of the environment consonant sound. The first three sound are preceded by bilabial nasal voiced sound /m/ and the second two sounds are preceded by palatal nasal voiced sound /ɲ/. In

other words it can be said that the vowel sound are pronounced by nasal because of the preceded nasal sounds. So these sounds are categorized into nasalized vowel.

In this writing, the researchers use the second term, namely nasal vowel. Nasal vowel is a vowel that is produced by nasal as in independent vowel. It can be pronounced in isolation. Djajasudarma, et al (2010) has categorized Sundanese vowel into 8 sounds including nasal vowel. They give examples of each as stated in the table below.

Table 2 Sundanese Vowels

Vowels	Gloss	IPA	Meaning
/ɪ/	*incu*	/ɪncʊ/	*Grandchild*
/ə/	Embung	/əmbʊŋ/	No
/ʌ/	Abdi	/ʌbdɪ/	I
/e/	Eyang	/ɛjʌŋ/	Grandfather
/ʊ/	Untung	/ʊntʊŋ/	benefit
/o/	orok	/orok/	baby
/ɜ:/	eureun	/ɜ:rɜ:n/	stop
/ã/	a’	/ã/	put into mouth

The last category of vowel is nasal vowel. It is understandable because Sundanese nasal vowel for /ã/ has the minimal pair with the front open vowel /ʌ/. As stated, the sound of /ã/ refers to an imperative word of “a’”. It means ‘to put into mouth’. In contrast, when it is pronounced without nasal the word sound of ‘A’ /ʌ/ refer to name an older brother in a Sundanese family or to name to a unrecognized boy. Djajasudarma, et. al. (2010) give another example of this nasal sound. The word “oa’” /ôã/ that refers to the sound of baby’s cry. Still in Sundanese vocabulary, this sound also has the minimal pair. In Sundanese the sound ‘oa’ /ɔʌ/ has a meaning. It refers to a monkey-like animal whose fur is grey with a black face. By doing so, it can be stated that vowel with and without nasal differentiate meaning. It is a different phoneme without any consonant environment.

METHODS

This study employed contrastive analysis (CA). Contrastive analysis is the comparison of the linguistic system of two languages, for example the sound system or the grammatical system (Di Pietro, 1970; Richards, 1989; Nur, 2018). So there are two main step in doing the research: 1. describing the consonants of voiced glottal stop and voiced pharyngeal fricative produced by Arabic and Sundanese; 2. comparing those two sounds based on articulatory phonetic. Firstly, the analysis will see the speech organ involvement in producing each sound done by Arabic and Sundanese. Secondly, the analysis will see the function of the sound whether it changes the meaning by having the minimal pair of the sounds. In analyzing the difference between Arabic and Sundanese sound system, the researchers use International Phonetic Alphabet (IPA) standardization. It means that the Arabic and the Sundanese sound system will be represented by IPA symbols.

In this research, the researchers focus on listening, comparing and analyzing the potential word sounds consisting those two consonants. The researchers took the original data by downloading those surahs then cropping the sounds containing the voiced glottal stop and voiced pharyngeal fricative sounds. In term of analysis, the researchers analyze 8 sounds that represent the consonants

each followed by three vowels and in one in the condition of *sukun*. The source of the data were taken from official Alquran murrotal. It is to be done since is suitable since the research is about Arabic sound related to Quranic recitation on the two consonants. The sound of Sundanese were taken by recording the same sound from the same short surahs.

1. Procedure

a. The researcher downloaded the full short surahs recited by as-Sudais.
b. The researchers selected the voiced glottal stop and voiced pharyngeal fricative sounds by cropping the sounds
c. The researchers describe them by using articulatory phonetic
d. The researchers narrate the sounds by words
e. The researcher recorded short surahs recited by native Sunda.
f. The researchers selected the pharyngeal fricative voiced and glottal stop voiced sounds
g. The researchers describe them based on International Phonetic Alphabet
h. The researchers narrate the sounds by words
i. Then the researchers compare the different sound produced by native Arab and Sunda.

FINDINGS AND DISCUSSION

The following is the explanation of the two Arabic consonants sound.

1. Voiced glottal stop

Voiced glottal stop is one of Arabic productive consonant that distributes in all position. Since this is categorized into a consonant, there is an obstruction in producing this sound. To produce this sound, the air stream from the lung through to the oral cavity though glottis along with the vibration of the vocal tract.

The following table is the description between Arabic voiced glottal stop sounds followed by vowels /ʔʌ/, /ʔɪ/ and /ʔʊ/ and *sukun* (ʔ) and Sundanese one.

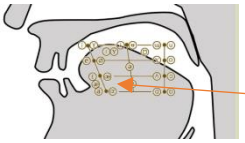
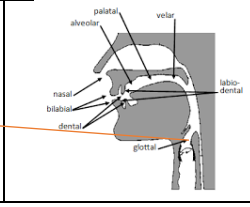
Table 4 Arabic & Sundanese comparison

No	System	Arab	Sunda
1	Phonetic	/ʔʌrrʌħmaːn/	/ʌrrʌhmaːn/
	Written	ٱلرَّحۡمَٰنِ	Ar-rahmaan
2	Phonetic	/ʔɪjjaːkʌ/	/ɪjjaːkʌ/
	Written	إِيَّاكَ	Iyyaka
3	Phonetic	/jʊroːʔuːnʌ/	/jʊro: uːnʌ/
	Written	يُرَآءُونَ	Yuro'uun
4	Phonetic	/mʌʔkuːl/	/mʌʔkuːl/
	Written	مَّأۡكُولٖ	Ma'kuul

Data number 1 is the sound of /ʔʌrrʌħmaːn/. This sound is begun by the consonant of voiced glottal stop /ʔ/ followed by the vowel /ʌ/ becomes /ʔʌ/. It means that in producing this word sound the native Arab will automatically begin with the movement of the airstream from the lung through glottis along with the vibration of the vocal tract followed by the short vowel /ʌ/ from the oral cavity. Different from Sundanese sound system, data number 1 shows that the sound is beginning from the short vowel /ʌ/. It is also actualized in the transliteration from Arabic to Sundanese. The

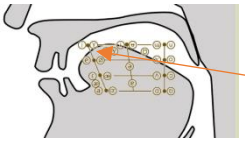
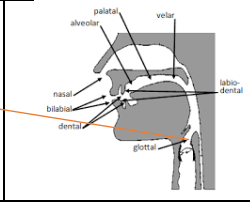
voiced glottal stop that followed by the short vowel /ʔʌ/ remains pronounced by /ʌ/ as seen in the Sundanese writing system in the table.

The figure below shows the change from the position of glottal /ʔʌ/ to be short vowel /ʌ/.

Fig. 2a Vowel /ʌ/	Fig.2b Glottal stop /ʔʌ/
	

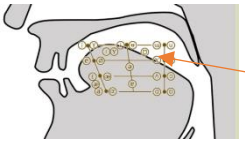
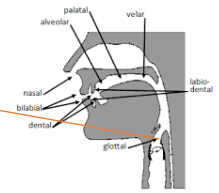
Data number 2 is the sound of /ʔɪjja:kʌ/. This sound is begun by the consonant of voiced glottal stop /ʔ/ followed by the vowel /ɪ/ becomes /ʔɪ/. It means that in producing this word sound the native Arab will automatically begin with the movement of the airstream from the lung through glottis along with the vibration of the vocal tract followed by the short vowel /ɪ/ from the oral cavity. Different from Sundanese sound system, data number 2 shows that the sound is beginning from the short vowel /ɪ/. It is also actualized in the transliteration from Arabic to Sundanese. The voiced glottal stop that followed by the short vowel /ʔɪ/ remains pronounced by /ɪ/ as seen in the Sundanese writing system in the table.

The figure below shows the change from the position of glottal /ʔɪ/ to be short vowel /ɪ/.

Fig. 3a Vowel /ɪ/	Fig. 3b Glottal stop /ʔɪ/
	

Data number 3 is the sound of /jʊroːʔuːnʌ/. In the middle of the sound, it has the consonant of voiced glottal stop /ʔ/ followed by the long vowel /u:/ becomes /ʔu:/. It means that at first in producing this word sound the native Arab will automatically having the movement of the airstream from the lung through glottis along with the vibration of the vocal tract followed by the long vowel /u:/ from the oral cavity. Different from Sundanese sound system, data number 3 shows that the voiced glottal stop in the middle is not clearly sounded. It is directly pronounced by the long vowel /u:/. It is also actualized in the transliteration from Arabic to Sundanese. The voiced glottal stop that followed by the long vowel /ʔu:/ pronounced by /u:/ as seen in the Sundanese writing system in the table.

The figure below shows the change from the position of glottal /ʔu:/ to be long vowel /u:/.

Fig. 4a Vowel /u:/	Fig. 4b Glottal stop /ʔu:/
	

Data number 4 is different from the previous analyses. The sound of /mʌʔku:l/ has the voiced glottal stop in the position of *sukun*. In Arabic term it is called by *sukun*. It means that the consonant is without vowel. In producing this sound, both Arabic and Sundanese has the same way. The movement of speech organ both Arabic and Sundanese in producing this sound is similar. It makes sense because in fact Sundanese has a potential vocabularies containing voiced glottal stop in the condition of *sukun*. Most of these Sundanese vocabularies occur in-between vowels. They occur in the middle of double /ʌ/, double /ɪ/, double /ʊ/, double /ɛ/, double /o/ and double /ɜ:/ like shown in the table below.

Table 5 Sundanese voiced glottal

No	Gloss	IPA	Meaning
1	Waas	/wʌʔʌs/	Gloomy
2	Tiis	/tɪʔɪs/	Cool
3	Suung	/sʊʔʊŋ/	Mushroom
4	Leeh	/lɛʔɛh/	Melting
5	Nyoo	/ɲoʔo/	Playing toys
6	Seueur	/sɜ:ʔɜ:r/	Many

The data in table 1.5 show that Sundanese has the sound of voiced glottal stop in the middle of the word sound. Data number is the orthography of "waas". For non-native Sunda, this word will be a potential problem to pronounce. For some, this double "a" will be pronounced as long /a:/ whereas Sundanese does not have long /a:/ as a phoneme. There is a voiced glottal stop within the word. It is pronounced by /wʌʔʌs/. Sundanese people will automatically pronounced it by /wʌʔʌs/ although there is no linguistic mark to show the voiced glottal stop between those double /ʌ/.

It is the same with data number 1. The word is *tiis.* It is also not pronounced by long vowel /i:/ to be /ti:s/. This double vowel does not mean long vowel. This Sundanese word is pronounced by having the voiced glottal stop in-between the double "i", namely /tɪʔɪs/. Although it does not have the minimal pair, Sundanese does not recognize the sound of /tɪs/ or /ti:s/. This is only when pronounced by /tɪʔɪs/, it has a meaning as stated in the table.

Data number 3, 4, 5 and 6 do occur in the same way. The word *suung, leeh, nyoo, and seueur* also have the voiced glottal stop in the middle of the sound. It is pronounce by /sʊʔʊŋ/, /lɛʔɛh/, /ɲoʔo/ and /sɜ:ʔɜ:r/. By doing so, data number 4 in table 1.4 is similar to Sundanese sound in table 1.5. They have the similar sounds that is voiced glottal stop in the condition of *sukun*. Although Sundanese does not have the symbol of the writing system for the voiced glottal stop, but in fact they appear in some word sounds as mentioned in table 1.5. In other words it can be said that there is no change between Arabic and Sundanese voiced glottal stop in *sukun* condition.

The change of the consonant voiced glottal stop sound to be short vowel obviously influenced by the movement of the speech organ inside. Firstly, the change from the consonant becomes vowel categorized into a unique one. It is to say because elements of producing sound, included speech organ involvement is very different. Primarily, consonant is produced with the obstruction of organ speech while vowel produced without any obstruction. Fortunately, as Arabic sound system does not recognize vowel in the beginning of the word sound, the change from Arabic consonant to be vowel in Sundanese does not impact the meaning.

2. Voiced pharyngeal fricative

Beside voiced glottal stop, Arabic has also another unique consonant, namely voiced pharyngeal fricative. Similar to voiced glottal stop, voiced pharyngeal fricative can be produced in the place of articulation of pharynx. As stated before that glottal lies at the very back of speech organ, pharynx lies after glottal. Different from the previous consonant that must be stop, this sound is made by fricative manner. It means that the air stream must be exhale along with the sound produced at pharynx with the vibration of the vocal tract.

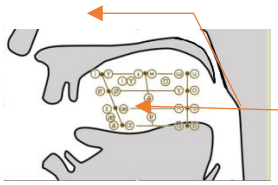
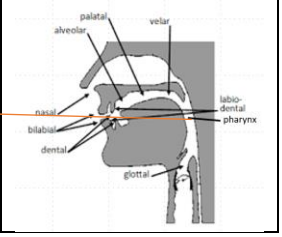
The following table is the description between Arabic voiced pharyngeal fricative sounds followed by vowels /ʕʌ/, /ʕɪ/, /ʕʊ/ and in the condition of sukun /ʕ/ followed by and Sundanese transcription.

Table 6 Arabic & Sundanese comparison

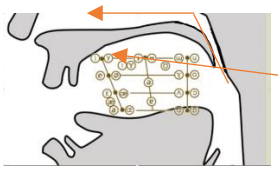
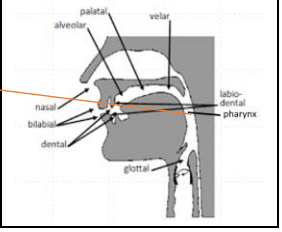
No	System	Arab	Sunda
1	Phonetic	/ʔʌn**ʕʌ**mtʌ/	/ãnãmtʌ/
	Written	أَنْعَمْتَ	An'amta
2	Phonetic	/**ʕɪ**lmʌ/	/**ĩ**lmʌ/
	Written	عِلْمَ	'ilma
3	Phonetic	/**ʕʊ**qod/	/**ŭ**kod/
	Written	ٱلْعُقَدِ	'ukod
4	Phonetic	/ʔʌ**ʕ**ṭojnʌkʌ/	/ʌʔṭojnʌkʌ/
	Written	أَعْطَيْنَاكَ	A'toinaka

Data number 1 is pharyngeal fricative voiced sounds followed by the short vowel /ʌ/ that locate in the middle of the sound of /ʔʌn**ʕʌ**mtʌ/. It means that in producing this word sound the native Arab will automatically have the voiced pharyngeal fricative followed by the vowel with the movement of the airstream from the lung through pharynx along with the vibration of the vocal tract followed by the short vowel /ʌ/ in the oral cavity and nasal cavity. This sound then involves three places of articulation, first pharynx, second oral cavity and executed in nasal cavity. Since the first place before followed by vowel, lies at pharynx, this consonant called by pharyngeal fricative.

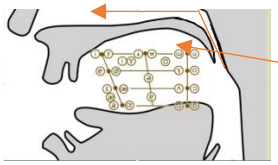
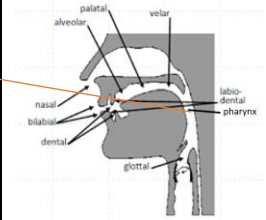
Different from Sundanese sound system, data number 1 shows that the sound is changed to be nasal vowel /ã/. It is also actualized in the transliteration from Arabic to Sundanese. The voiced pharyngeal fricative that followed by the short vowel /**ʕ**ʌ/ is pronounced by /ã/ as seen in the Sundanese writing system in the table. The figure below shows the change from the position of glottal /ʕʌ/ to be nasal vowel /ã/.

Fig 5a Nasal Vowel /ã/	Fig 5b Pharyngeal fricative /ʕʌ /
	

Data number 2 is pharyngeal fricative voiced sounds followed by the short vowel /ɪ/ that locate in the middle of the sound of /**ʕɪ**lmʌ/. Different from data number 1 that exist in the middle of the word sound, this pharyngeal fricative voiced sounds is produced in the beginning. It means that in producing this word sound the native Arab will automatically have the voiced pharyngeal fricative followed by the vowel with the movement of the airstream from the lung through pharynx along with the vibration of the vocal tract followed by the short vowel /ɪ/ in the oral cavity and nasal cavity. This sound then involve three places of articulation, first pharynx, second oral cavity and executed in nasal cavity. Different from Sundanese sound system, data number 2 shows that the sound is changed to be nasal vowel /ĩ/. It is also actualized in the transliteration from Arabic to Sundanese. The voiced pharyngeal fricative that followed by the short vowel /ʕĩ/ is pronounced by /ĩ/ as seen in the Sundanese writing system in the table. The figure below shows the change from the position of glottal /ʕɪ/ to be nasal vowel /ĩ/.

Fig 6a Nasal Vowel /ĩ/	Fig 6b Pharyngeal fricative /ʕɪ/
	

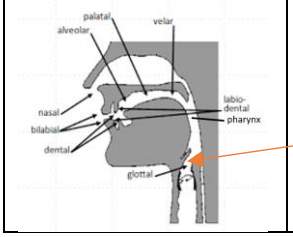
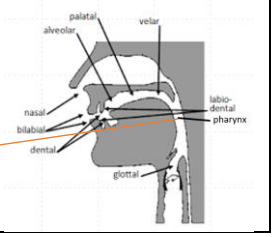
Data number 3 is pharyngeal fricative voiced sounds followed by the short vowel /ʊ/ that locate in the beginning of the sound /**ʕʊ**qod/. This position is same as data number 2 that exist in the beginning of the word sound. It means that in producing this word sound the native Arab will automatically have the voiced pharyngeal fricative followed by the vowel with the movement of the airstream from the lung through pharynx along with the vibration of the vocal tract followed by the short vowel /ʊ/ in the oral cavity and nasal cavity. This sound then involves three places of articulation, first pharynx, second oral cavity and executed in nasal cavity. Different from Sundanese sound system, data number 3 shows that the sound is changed to be nasal vowel /ŭ/. It is also actualized in the transliteration from Arabic to Sundanese. The voiced pharyngeal fricative that followed by the short vowel /ʕʊ/ is pronounced by /ŭ/ as seen in the Sundanese writing system in the table. The figure below shows the change from the position of glottal /ʕʊ/ to be nasal vowel /ŭ/.

Fig. 7a Nasal Vowel /ŭ/	Fig. 7b Pharyngeal fricative /ʕʊ/
	

Data number 4 is different from the previous analyses. The sound of /ʔʌʕṭojnʌkʌ/ is very complex. This sound is begun with what has been discussed, namely voiced glottal stop, and followed by short vowel /ʌ/. Since it is fricative sound, it must be pronounced in *sukun*. In other words it can be said that the sound must be stop when the fricative air is streaming. This sound process occurs from glottal to pharyngeal, from the bottom through pharynx to oral and nasal cavity.

Different from the way Arabic produce the voiced pharyngeal fricative sound, Sundanese produce this sound by shifting to be voiced glottal stop as has been discussed above. In term of stopping the airstream, both pharyngeal and glottal must be stopped when it is *sukun*. But the position when to stop the sound is different. Arabic sound of voiced pharyngeal fricative *sukun* stops the sound at pharynx while Sundanese does it in glottal.

The figure below shows the change from the position of voiced pharyngeal fricative /ʕ/ to be voiced glottal stop /ʔ/ in the condition of *sukun*.

Fig. 8a glottal stop /ʔ/	Fig 8b Pharyngeal fricative /ʕ/
	

It is to note that voiced pharyngeal fricative and voiced glottal stop is a different phoneme. Although it is produce similarly at the bottom of the speech organ, these two Arabic consonant has a potential minimal pair in differentiating the meaning. The following table is the minimal pair of Arabic voiced pharyngeal fricative sounds and voiced glottal stop sounds.

Table 7 Arabic Minimal Pair

No	Gloss	Meaning	Gloss	Meaning
1	/ʔʌli:m/	Know	/ʕʌli:m/	Suffer
	أليم		عليم	

2	/wʌʔʌdʌ/ وَأَدَ	To burry	/wʌʕʌdʌ/ وَعَدَ	Promise
3	/d͡ʒaːʔʌ/ جَاءَ	Come	/d͡ʒaːʕʌ/ جَاعَ	Hungry
4	/tʌʔlʌmuːn/ تالمون	You know	/tʌʕlʌmuːn/ تَعْلَمُونَ	You are suffer

Data number 1 is the sound containing voiced glottal stop, /**ʔʌ**liːm/, which has meaning "know", while the voiced pharyngeal fricative /**ʕʌ**liːm/ which has a meaning of "suffer". It is the same with data number 2, the word sound of /wʌ**ʔʌ**dʌ/ must be pronounced by voiced glottal stop to mean "to burry", because if it is pronounced by voiced pharyngeal fricative, /wʌ**ʕʌ**dʌ/, the meaning will change to be "promise". Data number 3 is the word sound of /d͡ʒaː**ʔʌ**/ that is pronounced by voiced glottal stop which means "come". If the sound is changed to be voiced pharyngeal fricative, the meaning will be changed to be "hungry".

Data number 4 is different. It is voiced glottal stop and voiced pharyngeal fricative in the position of *sukun*. As discussed previously that Arabic voiced pharyngeal fricative is changed to be voiced glottal stop by Sundanese people. This is one of the sensitive sound that can change the meaning. The word sound /tʌ**ʕ**lʌmuːn/ when changed to be /tʌ**ʔ**lʌmuːn/ the meaning also change from "you know" becomes "you are suffering".

As stated before, Arabic voiced pharyngeal fricative is changed to be nasal vowel in Sundanese sound system. It occurs because of two main reasons. First Sundanese does not have the consonant of voiced pharyngeal fricative. Second, it will naturally change to produce the sound by the nearest sound Sundanese has; it is nasal vowel. So, the change from voiced pharyngeal fricative to be nasal vowel does not affect the meaning. The change from /**ʕʊ**qod/ to be /**ŭ**kod/ or from /**ʕɪ**lmʌ/ to be /**ĩ**lmʌ/ does not affect the meaning since Arabic sound system do not recognize the nasal vowel in the word sound /**ŭ**kod/ and /**ĩ**lmʌ/. From the perspective of sound, it will be the same like the Sundanese sound of /ɜː/ and /ə/. These two sounds in Sundanese are phonemes. They have their minimal pairs. But for some sounds, Sundanese does not recognize the sounds if mispronounced. It will be meaningless (mark by asterisk). The following table is the example of Sundanese word sound.

Table 8 Sundanese /ɜː/ and /ə/

No	Gloss	Meaning	Gloss	Meaning
1	/bɜːrɜːm/ Beureum	Red	/bərəm/ Berem	*
2	/sɜːʔɜːr/ Seueur	Many	/səʔər/ Seer	*
3	/hɪdɜːŋ/ Hideung	Black	/hɪdəŋ/ Hideng	Kind

Data number 1 is the word sound /bɜ:rɜ:m/ means "red" when non-native Sunda pronounce it by /bərəm/, there is a change from /ɜ:/ to be /ə/, Sundanese people does not recognize the sound /bərəm/, it is meaningless. Data number 2 is also same. The Sundanese word is *seueur*, pronounced by /sɜ:ʔɜ:r/. When non-native Sunda pronounce this word by /səʔər/ it is unrecognized sound for Sundanese people.

Data number 3 is different. Sundanese recognize the word "hideung" /hıdɜ:ŋ/and "hideng" /hıdəŋ/. Sundanese has these two sounds. The first pronounced by /ɜ:/ means "black" and the second pronounced by /ə/ means "kind". For this case, data number 3 of table 1.8 and data 4 in table 1.7 categorized into sensitive sound change because each language has its minimal pair which has different meaning.

CONCLUSION

Based on the discussion above, it can be concluded that there are two Arabic consonants are changed to be vowel in Sundanese sound system. Arabic voiced glottal stop consonant /ʔ/ followed by vowels /ʔʌ/, /ʔɪ/ and /ʔʊ/ are changed to be short vowels /ʌ/, /ɪ/ and /ʊ/ 2. Arabic voiced consonant pharyngeal fricative /ʕ/ followed by vowels /ʕʌ/, /ʕɪ/ and /ʕʊ/ are also changed to be nasal vowels /ã/, /ĩ/ and /ŭ/. 3. Voiced glottal stop in the condition of *sukun* is pronounced in the same way. 4. Voiced pharyngeal fricative in the condition of *sukun* /ʕ/ is changed to be glottal voiced stop voiced *sukun* and 5. A few data shows changes the meaning as a result of the change.

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