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A Generative Phonology: Syllable Structure of Hajji Yemeni Arabic

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ABSTRACT

This study deals with the syllable structure of Hajji Yemeni Arabic (HYA) in the light of Generative Phonology. Hajji Yemeni Arabic is a variation of Arabic spoken in the northwestern part of Yemen, which tries to elaborate and discuss the elements of syllable structure and possibilities of patterns of syllables in a term of consonants and vowels. The main aim of this study is to investigate the syllabification patterns of Hajji Yemeni Arabic, hereafter referred to as (HYA). Through qualitative phenomenology, this study analyzed the different syllabification patterns attested in Hajji Yemeni Arabic and a comprehensive analysis of the syllable shape within the framework of Generative Phonology. The findings of the study; Hajji Yemeni Arabic has five patterns of syllables: (monosyllabic, disyllabic, trisyllabic, tetrasyllabic and pentasyllabic). Hajji Yemeni Arabic prohibits initial consonant clusters, but consonant clusters are permitted in the coda position, and the maximum number of permitted consonants is two only. No vowel occurs word-initially, and every syllable must begin with one and only one consonant sound (simple onset). Hajji Yemeni Arabic has two kinds of syllables: open syllables, as in the syllable shapes /CV/ and /CV:/, while closed syllables, as in the syllable shapes /CVC/, /CV:CC/, /CV:C/ and /CVCC/.

Keywords: *Generative Phonology (GP); Hajji Yemeni Arabic (HYA); Syllable Structure.*

INTRODUCTION

The main aim of this study is to investigate the syllabification patterns of Hajji Yemeni Arabic, hereafter referred to as (HYA). The dialect is spoken in the city of Hajjah in the north-western part of Yemen, and to provide a comprehensive analysis of the syllable shape within the framework of Generative Phonology (GP). Syllable Structure has been a subject of numerous research by many scholars and researchers in linguistics who apply different approaches and theories to conduct their studies. Among these approaches, Generative Phonology Chomsky and Halle (1968), hereafter GP, is a recent grammatical framework and is one of the most potent methodologies throughout linguistics in general, though mainly in phonology. Generative Phonology (GP) was first introduced by Chomsky and Halle (1968) in their book "Sound Pattern of English." Later, the theory was discussed and expanded by many other scholars, such as; Hyman (1975), Halle and Clements (2011), Goldsmith (1995), Clark (2007), Oyebade (2008), Ogunsiji and Sunday (2011). Generative Phonology is a theory of the sound structure of language. There are three levels in the structure of Generative

Phonology; First, the input phonemic representation (underlying form) for derivation. Secondly, the output phonetic representation (surface form) is derived from phonemic representation. Thirdly, phonological rules (intermediated level) between the two levels are phonetic and phonemic representations Goldsmith (1995).

Consider the following diagram for more clarification about the structure of Generative Phonology.

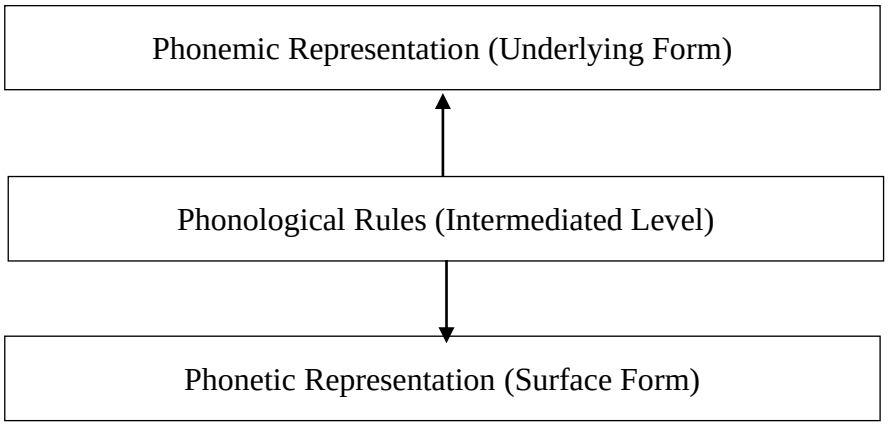


Figure 1. Structure of generative phonology

The syllable is generally considered a unit that must be recognized in the intermediate position between word and phoneme. Hockett (1955) calls it the "smallest unit in the structure of an utterance." Many properties are specific only to the syllable structure of Hajji Yemeni Arabic and which differ from the dialects spoken in the other Yemeni cities and which sometimes differ even from the properties of the syllable structure of some dialects spoken in the surrounding areas to the city of Hajjah. This study is limited to the syllable structure only in Hajji Yemeni Arabic (HYA). The number of informants was only three. At the same time, the number of words analyzed was limited. The main problem in this study lies in syllable divisions (syllable boundary). Researchers had to face many difficulties in syllable divisions when words consist of multisyllabic words and how we decide on the division between syllables (Roach, 2002:77).

Consider the word in Hajji Yemeni Arabic /ʔasraħ/ 'I go' is multisyllabic with the structure /CVCCVC/. The problem lies when we decide to syllabify between syllables; it is syllabified as in /ʔas.raħ/, /ʔa.sraħ/ or /ʔasr.aħ/. According to the word /ʔas.raħ/, the syllable boundary lies between two heavy syllables /ʔas/ and /raħ/. In contrast, in the word /ʔa.sraħ/, the syllable boundary lies between the light syllable /ʔa/ and the super-heavy syllable /sraħ/. Whereas in the last word /ʔasr.aħ/, the syllable boundary lies between the super-heavy syllable, which ends with complex consonants /ʔa**sr**/ and the light syllable, which begins without onset /aħ/.

Another example is the word /gambir/ 'sit' is multisyllabic with the structure /CVCCVC/ and syllabified as /gam.bir/, and not as either /ga.mbir / or /gamb.ir/. The problem lies when we decide to syllabify between syllables; it is syllabified as in /gam.bir/, /ga.mbir/ or /gamb.ir/ .According to the word /gam.bir/, the syllable

boundary lies between two heavy syllables /gam/ and /bir/. In comparison, in the word /ga.mbir/, the boundary lies between the light syllable /ga/ and the super-heavy syllable /mbir/. In the last word /gamb.ir/, the syllable boundary lies between the super-heavy syllable, which ends with complex consonants /ga**mb**/ and the light syllable, which begins without onset /**i**r/.

Sonority

There is a general agreement that sonority has a direct relationship with syllables. It is generally observed that among different sounds in a syllable, sonority rises until it reaches the peak or the nucleus, and then, sonority falls from the peak. This observation is the Sonority Sequencing Generalization (henceforth SSG) Clements (1990). Sonority Sequencing Generalization (SSG). For over a century, it has been known that SSG guides the construction of complex onsets and codas. Phonologists like Clements postulate a sonority scale to notice the SSG across languages. Adapting Jespersen's (1904) model:

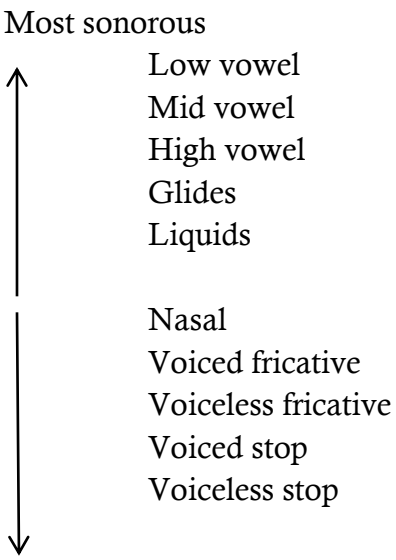


Figure 2. Sonority scale

Blevins has given a working universal sonority scale with distinctive features for SSG. Unlike some dialects of Arabic, in HYA, sonority does not play a role in shaping the syllable template. For instance, HYA accepts coda CC clusters whether obeying or disobeying the Sonority Sequence Principle (SSG).

Examples of coda clusters obeying the SSP.

/ʔams/	'yesterday'
/galb/	'heart'
/kajd/	'roof'

Examples of coda clusters disobeying the SSP.

/χatm/	'a stamp'
/fagr/	'poverty'

This part reviews previous studies in syllable structure and current views of the syllabic skeleton in generative phonology in both English and Arabic.

English-based Studies

The syllable is generally considered a unit that must be recognized in the intermediate position between word and phoneme. The syllable is the larger unit of the organization of sounds. Definitions of various kinds have been put forward. Hockett calls it "the smallest unit in the structure of an utterance". While Daniel Jones (1918; 1972:55) discuss this unit as "Each sound which constitutes a peak of prominence is said to be syllabic, and the word or phrase is said to contain as many syllables as there are peaks of prominence". According to Katamba, (1989: 153) syllable is "the smallest unit in the structure of an utterance".

Moreover, "the syllable is at the heart of the phonological representation. It is the unit in which phonological systems are organized". In addition, Rogers (2000: 314) defined the syllable as "a unit of phonological organization, typically larger than a segment and smaller than a word". Furthermore, George Yule (2006) defined it as "a unit of sound consisting of a vowel and optional consonants before or after the vowel".

Attempts have been made to distinguish between phonetic and phonological syllables, e.g., By Pike (1967), who talks of "–emic" and –"etic" syllables. Thus, Gimson (1670:51) states two approaches to defining the syllable: phonetic and linguistic. Togeby (1973:287) pointed out three kinds of definitions of the syllable (i) operational, (ii) analytic and (iii) synthetic, among which the analytic definition is shown to be the most general one since it is common to languages that do not have an accent and those which do.

Syllable structure usually calls the first part of a syllable the onset, the middle part the peak and the end part the coda; the combination of peak and coda is called the rhyme. Syllables are claimed to be the most basic units in speech: every language has syllables, and babies learn to produce the syllable before they can manage to say a word in their native language. When a person has a speech disorder, their speech will still display syllabic organization, and tongue slips also show that syllabic regularity tends to be preserved even in "faulty" speech (Roach, 2002: 76). Blevins (1995: 207) states that the syllable then is the phonological unit that organizes segmental melodies regarding sonority; syllabic segments are equivalent to sonority peaks within these organizational units.

A majority of present-day phonologists like Selkirk (1982), Blevins (1995), Broselow (1995) etc. Assume that the syllable has a fixed position in the universal prosodic hierarchy. Blevins represents syllables in the Universal Prosodic Hierarchy, as in Figure 3 below.

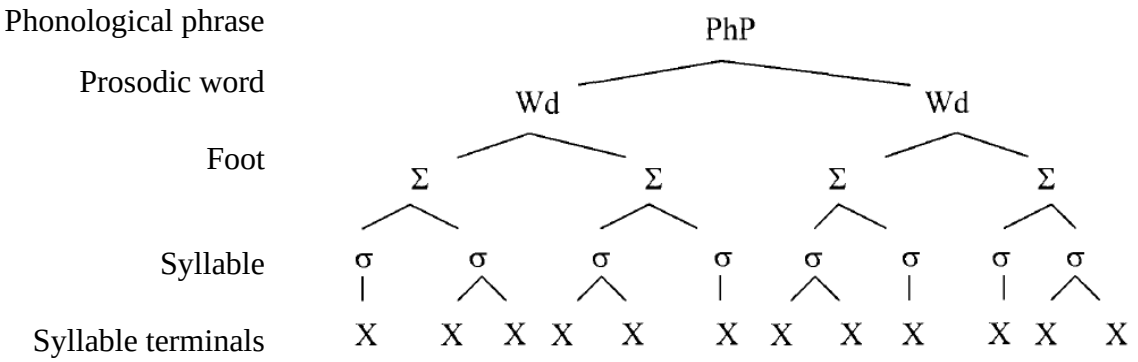


Figure 3. Universal Prosodic Hierarchy

Steriade (1982) considers syllabic structures constructed by rules ordered among the rules of phonology. She presents two types of syllabification rules, namely, language-specific and universal. The language-specific rules form complex onsets and rimes (this includes branching onsets and codas). A universal rule parses the segmental string to form /CV/ syllables. Their relative order of application, their unbounded or binary manner and the presence of segmental well-formedness conditions on their application are also language-specific. Levin (1983) claims the nucleus (peak) is the syllable core. The coda is defined as a complement of the nucleus. The onset is defined as the specifier of the syllable. McCarthy and Prince (1990) and Hayes (1982, 1986) have suggested a different proposal representing the mora as a weighing unit. The moraic theory requires using the moras as a unit to determine syllable weight, such that light syllables count as mono-moraic and heavy syllables as bi-moraic. Crystal (1997) defined a syllable as "a unit of pronunciation typically larger than a single sound and smaller than a word" Words can be divided into three different parts based on their number of syllables in the word: monosyllabic form, disyllabic form or polysyllabic form. Monosyllabic words consist of only one syllable, disyllabic words consist of only two syllables, while polysyllabic words consist of multiple syllables (more than two syllables).

Moreover, Crystal (1997) describes syllables by their position within the word, though only terms for the final three syllables are generally used. The final syllable in a word is referred to as the ultimate syllable, the rightmost edge of the word as in the syllable shape /CV.CVC.**CVCC**/, while the second before the last syllable is the penultimate syllable as in the syllable shape /CV.**CVC**.CVCC/ and the third to final syllable is the antepenultimate syllable as in the syllable shape /**CV**.CVC.CVCC/. Crystal (1997) classifies syllables further into three parts: the first part, an onset (consonant), describes the opening of the syllable, while the second part, a nucleus (a vowel), describes the middle of the syllable and the last part a coda (consonant) describes the end of the syllable. Different languages have different structures according to combinations of sounds that may appear in the coda or onset, while some languages may disallow codas completely. Syllables can be classified according to the levels of prominence; we have two kinds of syllables. Firstly, syllables that can be

metrically heavy (H) or light (L). A light or weak syllable is that syllable whose rhyme consists of a short vowel nucleus, alone followed by a coda of no more than one short consonant (called a more in terms of phonological length). The heavy or strong syllable is any other type; structure CV:C or CVCC syllables are sometimes called super-heavy (Crystal, 2003: 499).

Crystal (1997) dismantles the parts of a syllable, the onset, nucleus and the coda, into moras. A mora is defined as the minimal unit of metrical time or weight. Moras are not counted at the onset of a syllable, and only the nucleus and the coda are counted for the weight of a syllable. Through moras, syllables can be described in terms of syllable weight. Light syllables are generally monomoraic with only one mora; heavy syllables are bimoraic with two mora, and super heavy syllables are trimoraic with more than two mora.

Arabic-based Studies

Watson (2007) studied Kiparsky's (2003) classification of Arabic dialects into CV-, VC- and C- dialects. She extends the three-way typology put forward by Kiparsky for Arabic to a four-way typology. She argues that the syllables incorporating long segments are distinguished from syllables ending in final consonant clusters in relevant dialects and accounted for utilizing a mora-sharing analysis. She also considers many dialects not considered by Kiparsky (2003) and fits them into the classification.

Group 1: CV dialects
Yemen (al-Hudaida, San'ani, Yaafi'i, Yariimi, Ibbi), Egypt (Cairene, Middle Egyptian dialects), Saudi Arabia (Meccan).

Group 2: VC dialects
The Levant (Haifa, Ras-Beirut), Turkey (Cukurova dialects and Kinderib), Yemen (in-NaDhiir), Egypt (il-'Awam}a), Libya (Tripoli).

Group 3: Dialects which prominently display both VC- and CV epenthesis patterns Sudan (Shukriyya, Central Urban Sudanese) (Watson, 2007: 7).

Thus, Watson has added five Yemeni dialects to the group of CV- dialects, the closest of which to Hajji Yemeni Arabic is the San'ani dialect, spoken in Sana'a city, about 127 km from Hajjah Watson also argues that some characteristics cited by Kiparsky, 2003, as typical of particular groups are shared by other dialects of other groups, e.g. C-characteristics shared by some CV and VC dialects, CV characteristics shared by some VC dialects and vice versa. Hence, Watson argues that some dialects fail to fully conform to the characteristic phenomena of Kiparsky 's dialect types. She proposes a new type of dialect and gives them the name Cv dialects, distinguished from CV dialects by the lowercase 'v'. Finally, she suggests other constraints to account for the difference between groups. All syllables have an onset in standard Arabic; some Arabic restrict onsets to be only a single consonant (simple onset), while others allow complex onsets (complex onsets) according to various rules and sounds; for example, in MSA, no consonant clusters in the word-initial position, and as opposed to many

Arabic dialects and even some Yemeni dialects such as Hudaidi dialect which accept complex onset.

Sameer (2011: 18-22), in his study of Taizi Arabic, mentioned that TYA has ten vowels; five short vowels as in /i/, /a/, /e/, /u/, and /o/, and five long vowels as in (/i:/, /a:/, /e:/, /u:/, and /o:/). According to him, Taizi Arabic has twenty-eight consonants, including thirteen fricatives, eight plosives, three nasals, one trill, one lateral, two approximants and no affricates. Moreover, he mentioned that Taizi Arabic has no diphthongs at all. Furthermore, Sameer pointed out that Taizi Arabic has 5 types of syllables (/CV/, /CVCC/, /CVC/, /CVCCC/, /CV:C/ and /CV:/). The phonemic inventory of Hajji Yemeni Arabic consists of 28 consonants: /b, t, d, k, g, tˁ, ʔ, dˁ, m, n, f, θ , ðˁ, ð , ʕ, s, z, sˁ , ʃ , χ , ʁ , ħ , h, r, l , j, w, ʤ/. Vowel sounds of HYA are of two types; three short vowels /i/, /u/ and /a/ and three long vowels, namely /i:/, /u:/, and /a:/.

As Al-Mamri and Shabana (2017) noted, the Mehri language has two types of onset: simple and complex. Two coda types also exist in the Mehri language; simple and complex, according to them. Mehri language has three patterns of syllables; monosyllabic as in /ham/ "name", disyllabic as in /raħ.mi:t/ "rain" and trisyllabic as in /din.xi.ru:r/ "snoring". According to AL-Qahtani (2014), Najdi Arabic has three groups of syllables; light, such as /ʔa.kal/ "he ate", heavy such as /sa:.ʕah/ "an hour" and super-heavy syllables, such as /ɡbu:r/ "graves". He pointed out that the onset is obligatory while the coda is optional in Najdi Arabic.

METHOD

This study utilized qualitative method to investigate the syllables structure of Hajji Yemeni Arabic. The phenomenological approach was applied to engage in the study of a person's lived experience of a phenomenon that highlights the universal essences of that phenomenon. The data was collected through direct conversation between all informants and the researcher, as the third informant provided the words wherever gaps in the data were found. The collected speech samples were purely natural and spontaneous conversations between the researcher and the informants. Four recording sessions, with an average of 25 minutes, were conducted, and a time gap of 10 days separated each recording session. Each session recorded contained more than 100 natural words. The conversations from the first informant were recorded in natural settings. The researcher interacted with the informants in a normal way for the most part. Sometimes, the interaction was provided to make the informant produce long natural words. During recording, the researcher sometimes echoed the informant's words when they were felt either ambiguous or to facilitate the transcription and data analysis. No testing or experimental manipulation was used; all the data was collected almost without stimuli.

The samples of spontaneous speech are considered to be representative of the characteristics of the informant's language. Hoff (2009: 29) reports some consensus that 50 words is the minimum acceptance speech sample size. As for this study, each recording session yielded more than 100 natural and spontaneous utterances. The

utterances were all recorded at home in natural settings and the university's landscape. A second informant, an English teacher, conducted the conversations. It was made sure that the quality of the signal was clear and loud. The researcher collected many words naturally; firstly, the researcher wrote down some words simultaneously and some from the chatting conversation. The researcher recorded some conversations, and he benefited from them to support his study in data.

The researcher, a native speaker of Hajji Yemeni Arabic, has done well in memorizing and writing down any word that can come to mind. Sometimes, outside the door, in the market or in the mosque, he remembered some words and directly wrote them in his small notebook. He tried to cover the gap that usually happened in collecting data from the two informants. So, the researcher has covered all shortages and lack of some words. Now the point comes to be clear for the researcher to put the first steps in his study. Finally, all the conversations were recorded with a high-definition recording SAMSUNG, with a built-in microphone and a noise-canceling feature. The recording set was placed 25 to 40 centimeters away from an informant. The sound quality was more than sufficient for this study. All the audio files and video were exported to a laptop, and several backup copies were created.

After each recording session, the researcher played the audio file with a Q&Q player, which allowed increasing the 10 times double the original. External speakers- CREATIVE brand- were connected to the laptop to ensure clear output. The Q&Q player also offers easy control through a keyboard and allows playing the audio tracks with different speeds, either decreased or increased. Whenever there was difficulty in recognizing a particular sound, the researcher would pause the player and rewind several times until the doubts were ruled out. All the words of informants and researchers were written down on notebooks in IPA notation. Then all the hand-written words were fed to the computer in Microsoft Word 2010 documents. After that, the words of the informant were separated into new documents. Syllabification of the informant's words was done manually by the researcher. No automated syllabication was used to derive high reliability in subsequent analysis tasks. Feeding the work to the computer consumed quite a lot of time because it was in IPA notation, and many tasks required processing the whole data manually. Data are about 400 words collected from different sources and direct conversations with the informant and the researcher, considered the main resource in this study. One hundred thirty words are collected from direct informants. One hundred words are collected from the brother of the researcher (English teacher). The rest of the words, about 170, have covered the lack and limitation of data collected by the researcher.

Data analyses lasted throughout the process of data collection. Tables and figures were designed in Microsoft Office 2010 to keep track of all the syllable structures. As for the syllable types, it is stated earlier that Hajji Yemeni Arabic has only 5 types of syllables. All 5 syllables are attested in the database of the speech production of the informant, and the percentage of each syllable type is given in Figure 4. The syllable boundaries were marked manually while feeding the tokens to the computer and storing them in a database. As seen in Figure 4, the most frequently occurring syllable

type is /CVCC/, with the highest percentage (used more). Then, syllables with /CVCC/ structure constituted the vast majority of the syllable's types in the speech production of the informants (See Figure 4). The syllable type with /CV/ shape is used less in HYA.

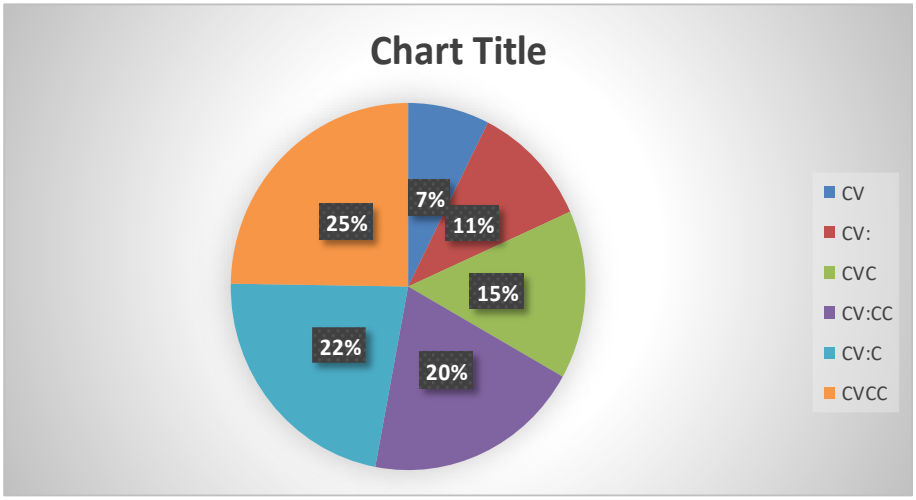
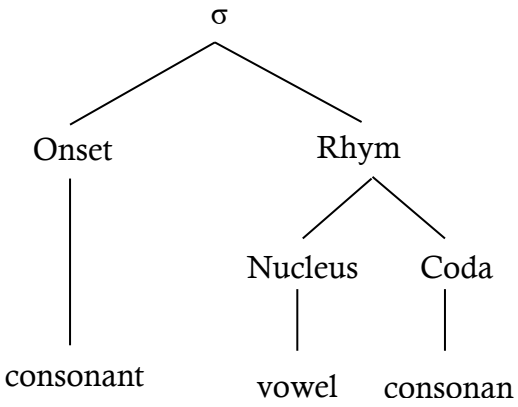


Figure 4. Percentage of syllables types of HYA

FINDINGS AND DISCUSSION

Structure of the Syllable in Hajji Yemeni Arabic

All syllables in all languages are variants of the framework we are about to describe. In our discussion of the syllable, we have assumed, so far, that a syllable consists of a vowel and initial and final consonant, as in Figure 5.



Onset

Consonant, obligatory in some languages, optional or even restricted in others. Onset in Hajji Yemeni Arabic has no consonant clusters in the word-initial position. Just like Arabic Modern Standard (MSA) and as opposed to many Arabic and even Yemeni dialects which accept complex onset such as Hudiadi, every syllable must begin with one and only one consonant sound. For example:

/**ħ**ubb/ 'love' **m**aʕ / 'no'

Nucleus

Obligatory in most languages. Generally, every syllable requires a nucleus (sometimes called the peak). The minimal syllable consists only of a nucleus, as in English, and a vowel can occur in the word's initial position, whereas in Arabic not accepted.

A nucleus in Hajji Yemeni Arabic is usually a vowel in the middle or final of syllables. No vowel occurs word-initially in Hajji Yemeni Arabic, Like MSA. For example:

/χ**a:**jf/ "scared" /z**i**d/ 'do more'

Coda

Consonant, optional in some languages, highly restricted or prohibited in others. The coda comprises the consonant sounds of a syllable that follows the nucleus. Coda in Hajji Yemeni Arabic is a consonant sound at the end of a syllable, occurring after the nucleus. Consonant clusters are permitted in the coda position in HYA, and the maximum number of permitted consonant sounds is only two, as shown below.

/ʔa**w/** "or" /ba**s**/ 'enough'

Classification of Syllable in Hajji Yemeni Arabic

Syllables can be classified according to various criteria first of all, syllables are either open or closed according to the presence and absence of the coda in the syllable. The syllable can also be classified according to the levels of syllabic prominence, which is based on the segmental constituency of syllables. An open syllable ends with a vowel; thus, it lacks coda in rhyme, and the open syllable consists of only an onset plus sort or long vowel (a peak), sometimes referred to as a free syllable as in the syllable shape /CV/ or /CV:/. While closed syllable is a word that ends with a coda (consonant sound) within a rhyme, as in the syllable shape /CVC/, /CV:C/ and /CVCC/. Light, heavy and super-heavy syllables are found in Hajji Yemeni Arabic; light syllables as the syllable shape /CV/, heavy syllable as the syllable shape /CVC/ while super-heavy syllables as the syllable shapes /CVCC/, /CV:CC/ or /CV:C/. The clarification about the classification of a syllable in Hajji Yemeni Arabic is presented in Table 1.

Table 1. Classification of syllables in Hajji Yemeni Arabic

Classification of syllables in HYA	Examples	Glossary
Open syllables	/wa.fi/	'loyal'
	/li:/	'to me'
	/wa/	and'
	/fi: /	'in'
Closed syllables	/kam/	'how much'
	/ba:b/	'door'
	/na:s/	'People'
Light syllable	/hu/	"he"
	/wa/	"and"

	/χa.saʕ/	“mud”
Heavy syllables	/ʔab/	“father”
	/ʤa.mal/	“camel”
	/sˤud.fah/	“chance”
Super-heavy syllables	/ʔumm/	“mother”
	/ra:tb/	“salary”
	/ta:ʤ/	“crown”

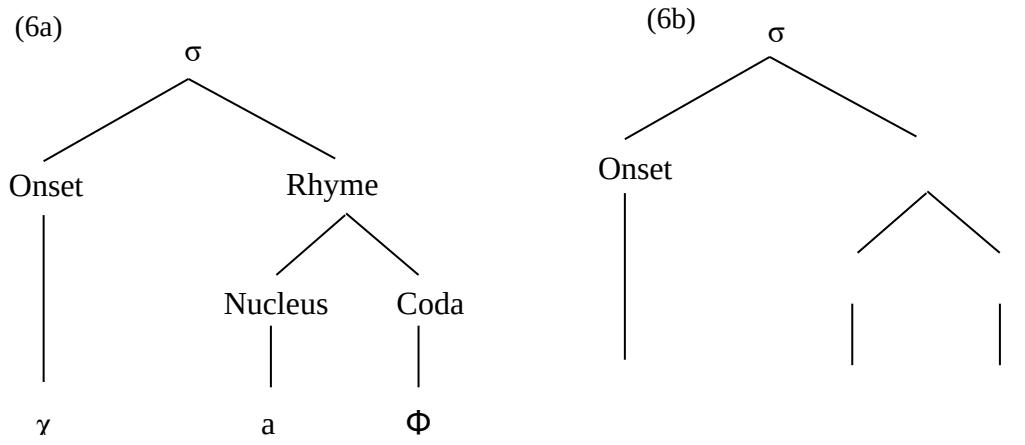
Types of Syllables in HYA

Tables 2. Types of syllables in HYA

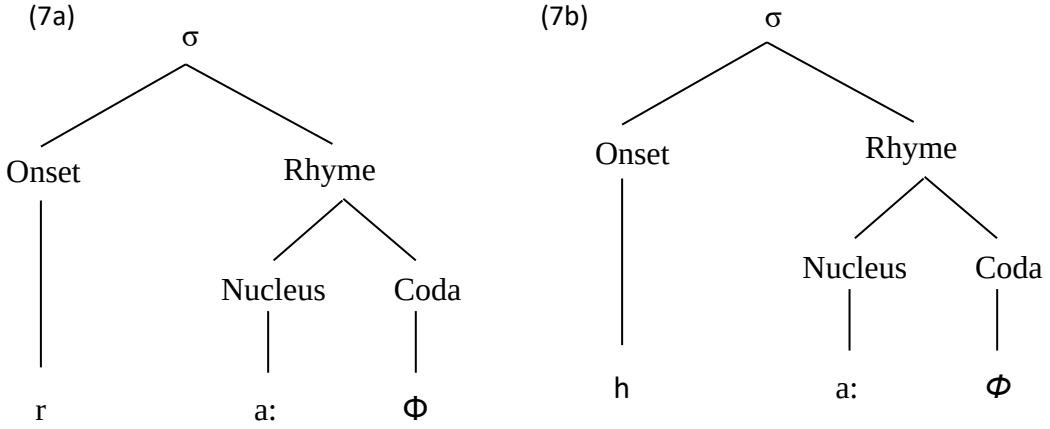
Types of syllables in HYA			
	Syllable shape	Examples	Glossary
a.	CV	**la**	“no”
		ga.lam	“pen”
		/ba/	“with”
		ʔa.biz	“I take”
b.	CV:	**ra:**.ʕi	“wait”
		sa;.kin	“resident
		/fi:/	“in”
		/ha: nak/	“there”
c.	CVC	**Lak**	“for you”
		Kam	“how much”
		/ħar/	hot “
		min	“of /from”
d.	CV:C	**ba:b**	“door
		/ʃa. ʤ a:ʔ/	“brav”
		/ri:ħ/	“wind”
		fi:l	elephant
e.	CVCC	**galb**	“heart”
		ward	“rose”
		/aʕr/ʃ	“hair”
		kajf	“how”
f.	CV:CC	/ħa:sd/	“envier”
		/ħa:ʤb/	“eye brow”
		/sa:rg/	“thief”
		/ba:rd/	“cold”

As shown above, Hajji Yemeni Arabic has 6 different types of syllables; The syllable type in 3.a. /**CV**/, above is the most preferred type by all languages of the world, which consist of an onset and short vowel, “The CV syllable is an absolute substantive universal; all languages have CV syllables, and some have only CV syllables. Any syllable types that are more complex than the CV syllable are therefore marked, the degree of markedness directly dependent on the degree of complexity.” (Carlisle, 2009). The /**CV/** syllable type occurs very frequently in HYA. It occurs word initially as in /**ga**.lam/ “pen”, /**ħa**.ʤar/ “stone”, /**ʔa.**biz/ “I take”, /**ħa**.naʃ/ “snake” and /**ha**.rab/ “he fled”, word medially as in /ha:.**ka**.ða:/ “like this”,

/ʔaħ.**na**.ʤak/ “i love you”, /tan.**ʤa**.rah/ “pot” and word finally as in /wa.**fi**/ “loyal”, /sˁa:.ħi.**bi**/ “my friend” and /ra:.**ʕi**/ “wait”. /CV/ as shown in figures 6 below (6a as in /**χa**.saʕ/ “mud”, 6b as in /**ʔa**.saɗ/ “lion”, 6c as in /tan.**ʤa**.rah/ “pot”, 6d as in /na:.**hi**/ “ok”).



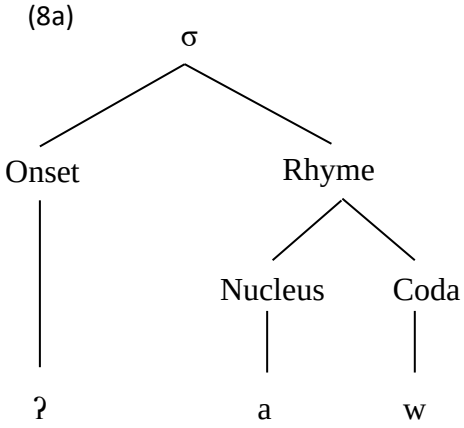
The syllable type in 3.b., /**CV:/**, which consists of an onset and a long vowel, can occur only in word initially in HYA as in /**ra:**ʕi / “wait”, /**ru:**.ti/ “bread”, /**sa:**.kin/ “resident”, /**ha:**.nak/ “there” /**wa:**.ħiɗ/ 'one', word medially as in /ni.**sa:**.fir/ “we travel”, /ʤa.**ri:**.mah/ “crime”, /ðˁa.**ru:**.ri/ “necessary”, /ga.**ɗˁi:**.jah/ “case” and word finally such as /ʁa.**da:**/ “lunch”, /χa:.**li:**/ “my cousin” and /ʕa.**la:**/ “over”. For more clarification about syllable type /CV:/ see the following examples in Figure 7 below (Figure 7a as in /**ra:**.ʕi/ “wait”, Figure 7b as in /**ha:**.nak/ “there”, Figure 7c as in /**χa:**.li:/ “my cousin”, Figure 7d as in /ʁi.**tˁa:**/ “cover”).



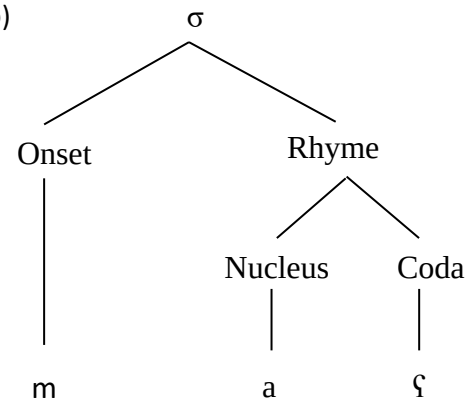
The syllable type in 3.c., /**CVC/**, which consist of an onset and short vowel, then coda, also occurs frequently in HYA in all position of the word. It occurs word-initially as in /**nis**.waan/, ‘women’, /**ʔasˁ**.far/ “yellow”, /**sˁaw**.tak/ ‘ your voice’, /**χaj**.ra:t/ “a lot”, /**mis.**ma:r/ ‘nail’, word medially as in /kul**.lij**.jah/ ‘college’, /su.**far**.gal/ 'quince' and word finally as in /ʔa**.biz**/ ‘I take’/tˁa:.gah/ “window”, /ʔa**.sad**/ ‘lion’**, /**ʔas**.raħ/** ‘I go’/ʁa:.**mig**/ “dark” as shown in Figure 8 (Figure 8a as in /ʔaw/ “or”, Figure 8b as

in /maʕ/ "no", Figure 8c as in /sˁa.**nadʒ**/ "deaf", Figure 8d as in /dʒa:.**wiʕ**/ "hungry").

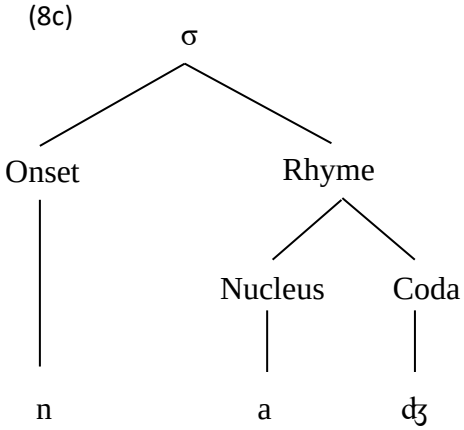
(8a)



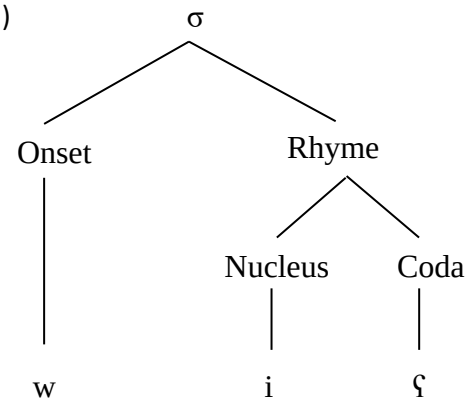
(8b)



(8c)

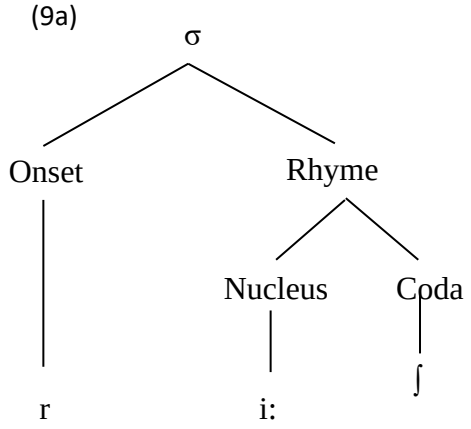


(8d)

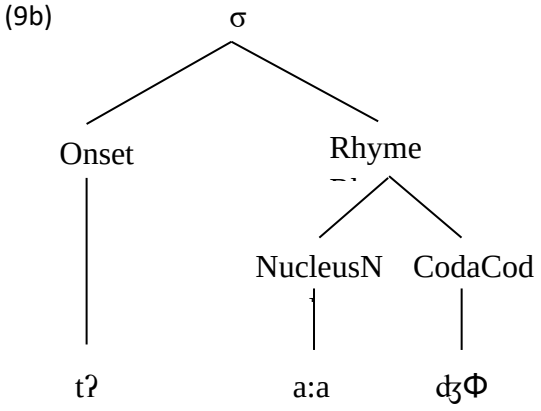


The syllable type in 3.d., **/CV:C/ ,** which consist of an onset and long vowel then simple coda, can occur only in one position of the word, word finally as in /ki.**ta:b**/ 'book', /ħa.**ma:m**/ "doves", /ga.**ri:b**/ 'near', /ʃa.**dʒa:ʔ**/ "brave", /tu.**fa:h**/ 'apples'; it cannot occur word initially or medially in HYA as shown in figures 9 below (9a as in /ri:ʃ/ "feather", 9b as in /ta:dʒ/ "crown", 9c as in /tˁa.**bi:χ**/ "cuisine", 9d as in /ʕi.**ðˁa:m**/ "bones").

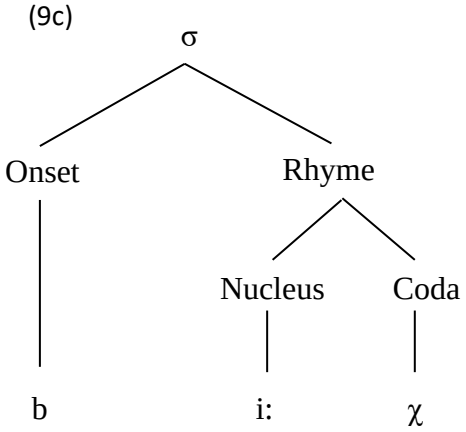
(9a)



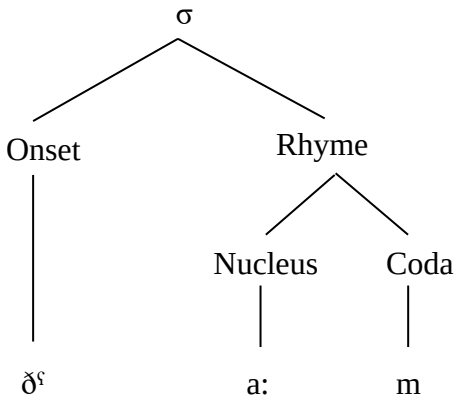
(9b)



(9c)

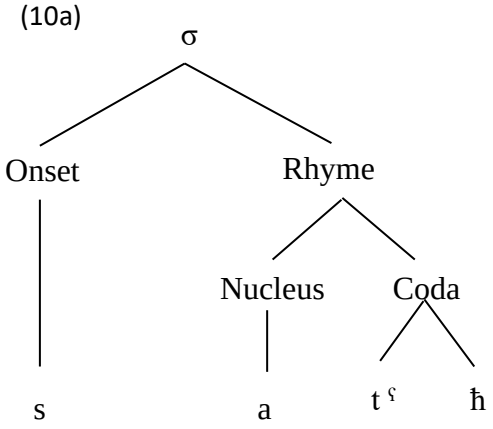


(9d)

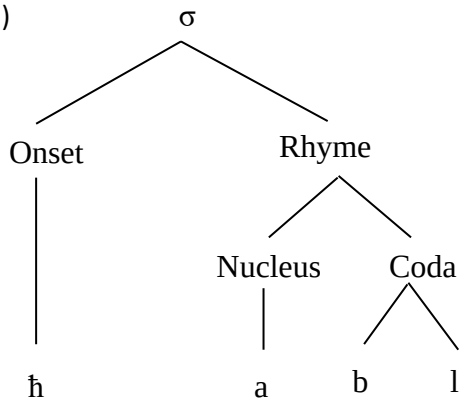


The syllable type in 3.e., /CVCC/, is dealt with in almost the same way as /CV:C/. It can occur only in one position of the word in HYA word finally as in /ʔal.**wagt**/ "the time" as shown in Figure 10 (Figure 10a as in /satˤħ/ "roof", Figure 10b as in /ħabl/ "rope", Figure 10c as in /nafs/ "soul", Figure 10d as in /ʔal.**wagt**/ "the time").

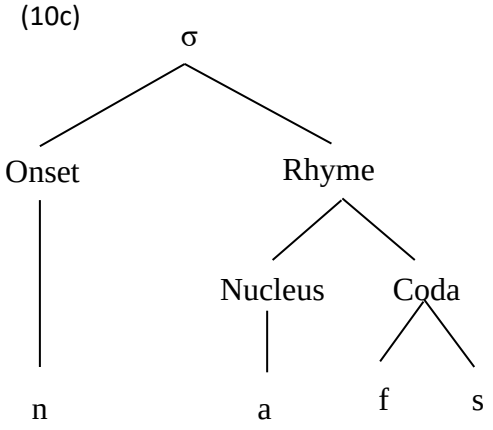
(10a)



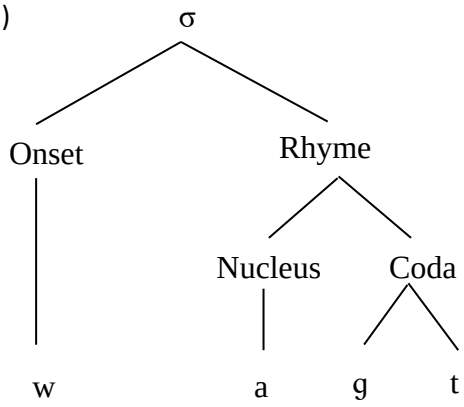
(10b)



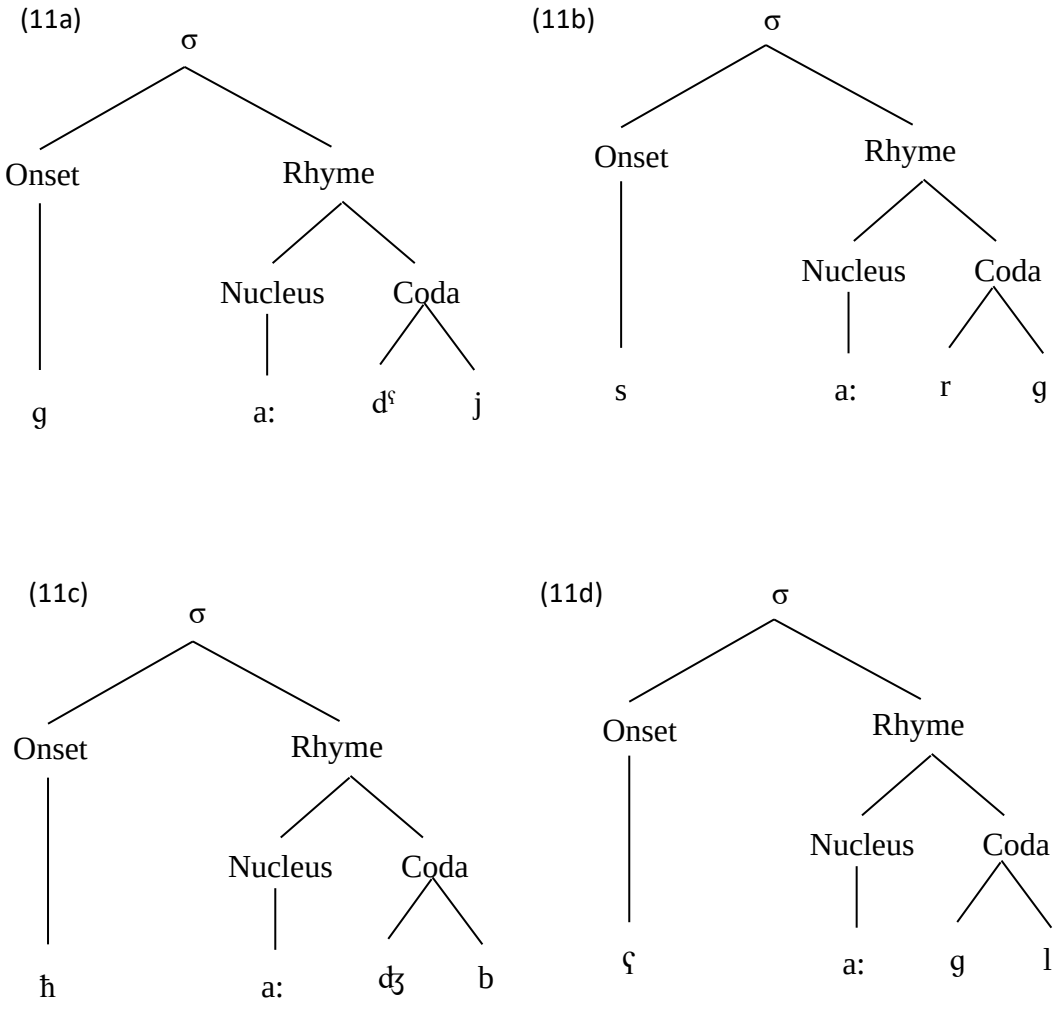
(10c)



(10d)



The final syllable type in 3.f., /CV:CC/, which consist of onset and long vowel, then complex coda such as / ħ a:sd/ "envier", /ħa:ʤb/ "eye brow", /sa:r g/ "thief" and /ba:rd/ "cold" as shown in Figure 11 (Figure 11a as in /ga:dˤ j/ "judge, Figure 11b as in /sa:rg/ "thief", Figure 11c as in /ħa:ʤb/ "eye brow", Figure 11d as in /ʕa:gl/ "wise-man").



Looking at Table 2, we will notice some properties. Firstly, all the syllables begin with a single consonant (simple onset), meaning we do not have onset-less syllables or consonant clusters in the onset position of HYA. Secondly, only some of the syllables in HYA are open, while others have codas that can either be simple or complex. Another thing we notice about this list of syllable types is related to the nuclei. The nuclei can be simple (3. 6. a, b, c, d) or complex (4. 7. a, b, c, d). We can put it differently by saying that the nuclei can be short or long vowels. We can conclude that onsets are always present (obligatory) while codas are not always present (optional) in Hajji Yemeni Arabic.

Patterns of syllables in HYA

Tables 3. Patterns of syllables in HYA

Patterns of syllables in HYA			
Patterns of syllables	Syllable shape	Examples	Glossary
Monosyllabic	cvc	/gum/	‘stand up’
	cv	/bi/	‘with’
	cv:	/ma:/	“water”
	cv:c	/na:s/	‘people’
	cvcc	/ɢalb/	‘heart’
	cv:cc	/ħa:sd/	“envier”
Disyllabic	cv.cvc	/ɢa.lam/	‘pen’
	cvc.cvc	/sˤaw.tak/	‘your voice’
	cvc.cv:c	/ χaj.ra:t/	‘ a lot’
	cv:cv	/na:. hi/	‘ok’
	cv:.cvc	/ha:. nak/	‘ there’
	cv.cv:c	/ɢi.ri:b/	‘ near’
	cvc.cv:c	/sik.ri:m/	‘ ice-cream’
	cvc.cvcc	/ʔiʃ.ʃams/	‘the sun’
	cv:.cv:	/χa:.li:/	‘my cousin’
	cv.cv	/wa.fi/	‘loyal’
	cv.cv:	/ra.mu:/	‘they threw’
Tri syllabic	cv:.cv.cv	/sˤa:. ħi.bi/	‘ my friend’
	cv:.cv.cv:	/ha: ka .ða:/	‘like this’
	cv:.cv.cv:c	/tˤa: li.ba:t/	‘ female students’
	cv.cv:.cv	/ti. ħa: ki/	‘speak’
	cv.cv.cv	/ba.la.di/	‘local’
	cvc.cvc.cvc	/kul.lij.jah	‘college’
	cvc.cvc.cvc	/bil.ma tˤ. ba χ/	‘in the kitchen’
	cv.cv.cvc	/ʃa.ʤa.rah/	‘tree’
	cvc.cv.cv:	/lin.ni.hi:/	‘because she’
	cv.cv:.cvc	/ni.sa:fir/	‘ we travel’
	cvc.cv.cvc	/lin.nu.hum/	‘ because they’
Tetra-syllabic	cv.cv.cv.cvc	/ra.ga.ba.tih/	‘his neck’

	cvc.cv.cv.cvc	/mak.ta.ba.tih/	'his library'
	cv.cvc.cv.cv	/ra.sam.ta.li/	' you(MASC SG)drew for me'
	cv.cvc.cvc.cvc	/ji.kal.lim.hum/	' he speaks to them'
Penta syllabic	cv.cv.cvc.cv.cv:c	/ti.li.fiz.zi.juːn/	'television'
	cv.cvc.cv.cv.cv	/ju.χaw.wi.fu.ni/	"he is frightening me"
	cv.cv:.cv.cv.cvc	/zi.ja: ra.tu. hum/	visit (NOM.SG)3pl.poss'
	cvc.cvc.cv.cvc.cvc	/ʔis.taʕ.ma.lat.hum/	"she used theme"

CONCLUSION

Hajji Yemeni Arabic (HYA), as we have seen, a dialect of Yemeni Arabic, exhibits syllabification patterns that are more or less similar to Modern Standard Arabic (MSA). However, many properties are specific only to the syllable structure of Hajji Yemeni Arabic and differ from the dialects spoken in the other Yemeni cities like Sana'a, the capital, and which sometimes differ even from the properties of the syllable structure of some dialects spoken in the surrounding areas to the city of Hajjah. The main findings of this study are that HYA has 6 different types of syllables; /CV/ as in /**ʔa.**biz/ 'I take', /CV:/ as in /**ra:** ʕi/ 'wait', /CVC/ as in /**lak/** / 'for you', /CV:C/ as in /**ba:b/** 'door', /CVCC/ as in /**galb/** 'heart' and /CV:CC/ as in /saːrg/ "thief". HYA has five patterns of syllables; monosyllabic forms, disyllabic forms, trisyllabic forms, tetrasyllabic forms and pentasyllabic forms. HYA has no consonant cluster in the word-initial position. Just like MSA and as opposed to many Arabic and even Yemeni dialects, which accept complex onset, every syllable must begin with one and only one consonant. No vowel occurs word-initially in HYA. Like MSA, Hajji Yemeni Arabic requires all syllables to have a single onset due to a highly ranked constraint (Onset) which bars onset less syllables; vowels are not allowed in the onset position. Consonant clusters are permitted in coda position in HYA, and the maximum number of permitted consonants is two only.

REFERENCES

Al-ani, S, and & May, D (1973). The Phonological Structure of the syllable in Arabic. In Salman

AL-Mamri, M, and Shabana H. (2017). Consonant cluster and syllable structure in Mehri language. International Journal of Scientific and Research Publications, 7(2): 242-248.

Al-Qahtani, Mufleh. (2014). Syllable structure and related processes in optimality theory: An examination of Najdi Arabic. PhD thesis. Newcastle University.

Archibald, J. (2003). "Learning to parse second language consonant clusters" .Canadian Journal. Carter, M.G. 2004. Sibawayhi. London: Tauris.

Chomsky, N., & Halle, M. (1968). The sound pattern of English.

Clements, G. N. (1990). The role of the sonority cycle in core syllabification. *Papers in laboratory phonology*, 283-333.

Conway, S. J., Bundy, J., Chen, J., Dickman, E., Rogers, R., & Will, B. M. (2000). Decreased neural crest stem cell expansion is responsible for the conotruncal heart defects within the Splotch (Sp2H)/Pax3 mouse mutant. *Cardiovascular research*, *47*(2), 314-328.

Crystal, D. (1997). 'Dictionary of linguistics and phonetics'. .Malden, Massachusetts: Blackwell Publishers Inc.

Davis. S. (1998). 'Syllable Onsets as aFactor in Stress Rules. Phonology'. 5.1-19.

Gadoua, A.H. (2000). "Consonant clusters in Quranic Arabic". Cahiers Linguistiques d'Ottawa 28. 59–85.

Goldsmith, J. (1976), Autosegmental Phonology. Ph.D. dissertation, MIT. (Published by Garland Press, New York.

Yule, G. (2006). *Pragmatik*. Pustaka Pelajar.

Halpern, J. (2009). Word stress and vowel neutralization in modern standard arabic. Unpublished manuscript, Department of Linguistics, The CJK Dictionary Institute, Saitama, Japan. Retrieved from http://www.kanji.org/cjk/arabic/an_paper.pdf

Hayes, B. (1986). Inalterability in CV Phonology. Language 62, 321-351.

Hockett, C. F. (1955). Attribution and apposition. *American speech*, *30*(2), 99-102.

Hooper, J. (1972). An Introduction to Natural Generative Phonology. New York Academic Press.

Jarrah, A. (1993). The Phonology of Madina Hijazi Arabic: A Non-Linear Analysis. Ph.D. Thesis, Essex University.

Jones, D. (1967) An Outline of English Phonetics. Cambridge: CUP.

Katamba, F. (1989). An Introduction To Phonology. London: Longman.

Kiparsky, Paul (2003) Syllables and Moras in Arabic. Stanford University.

Kuiper, Koeuroad (1987) An Introduction to English language, England: Cambridge University press.

Ladefoged, P. (1975) A Course in Phonetics. New York: Harcourt Brace.

Levin, J. (1985). A Metrical Theory of Syllabicity. Ph.D. dissertation, MIT, Massachusetts.

McCarthy, J. (1979). Formal Problems in Semitic Phonology and Morphology. Ph.D. dissertation, MIT, Distribute by Indiana University Linguistic Club.

McCarthy, J & A. Prince. (1993). Prosodic Morphology I: Constraint Interaction and Satisfaction. RuCCS-3, Rutgers University.

McCarthy, J & A. Prince. (1993). Generalized Alignment. Yearbook of Morphology 1993, 79-153.Dordrecht: Kluwer.

Pike, K. L. (1967). Etic and emic standpoints for the description of behavior.

Roach, P. (1994) English Phonetics and Phonology: A Practical Course. Cambridge: CUP.

Rogoff, B., Baker-Sennett, J., Lacasa, P., & Goldsmith, D. (1995). Development through participation in sociocultural activity. *New Directions for Child and Adolescent Development*, *1995*(67), 45-65.

Sameer, Abdulrazzaq. (2011). Syllable structure of Taizi Yemeni dialect of Arabic: An optimality theory perspective. MA dissertation. School of Language Science, the English and Foreign Languages University (EFL-U), Hyderabad, India.

Schane, S. A. (1973) Generative Phonology. New Jersey: Prentice- Hall, Inc.

Singh, S. and K. Singh (1977) Phonetics: Principles and Practices. Baltmore: University Park Press.

Steriade, D. (1982). Greek Prosodies and the Nature of Syllabification. Ph.D. Dissertation. MIT.

Umer, A.Mukhtar (1976) Dirasat –l Sawut Al-Lughawi [A Study of the Linguistic Sound]. Cairo: Alam Alkutub.

Watson, Janet C. E. (2007), Syllabification patterns in Arabic dialects: long segments and mora sharing, University of Salford: Cambridge University Press.