

## Syllable Structure in Maḥbashi Yemeni Arabic: A Descriptive Analysis

*Moustafa Alhamzi  
Rubina Rahman*

### Abstract

*This paper attempts at describing the syllable structure in Maḥbashi Yemeni Arabic. Maḥbashi Yemeni Arabic (MYA) is one of the neglected Yemeni Arabic varieties. The study shows that MYA exhibits ten syllable structures. This variety permits the following syllable types: CV, CVC, CVV, CVVC, CCV, CCVV, CCVCC, CCVC, CVCC and CCVVC. The study proved that the syllable structures CV, CVV, CCV and CCVV do not occur in monosyllabic words. They exist in bi-syllabic words. It is also noticed that onsetless syllables are banned, coda is optional, consonant clusters are allowed up to two consonants in both onset and coda positions and the geminates are permissible word medially and finally.*

**Keywords:** Syllable Structure, Maḥbashi Yemeni Arabic, onset, coda, consonant cluster, gemination

### 1. Introduction

Arabic is the language of the Holy Quran and the liturgical language for more than one billion Muslims worldwide. Presently, Arabic exists in three forms: Classical Arabic, Modern Standard Arabic and Colloquial Arabic. Arabic language is used throughout the Arabic speaking world for official purposes, education, media and formal speeches along with its domestic and social use; and its written form is consistent across national boundaries. It is a member of the Semitic group of Languages, and belongs the Afro-Asiatic family of languages which are spoken in many parts of Africa and most of the Middle East (Batais, 2013). For the last few decades, there has been developing enthusiasm among language specialists for studying the Arabic dialects (Broselow, 1980; Abu Mansour, 1987; Watson, 2002; Chentir, Guerti, & Hirst, 2008; Al Yaari, Al Hammadi, & Luwa, 2012). Different linguistic issues of Yemeni Arabic varieties, Saudi Arabic dialects and Jordanian dialects have been studied (Watson, 2002; Aldamen, 2007; Alqahtani, 2014).

Syllabification of a language is essential for phonological analysis. Syllable is a phonological unit that is obligatory to explain the existence of some other important phonological entities like stress and intonation. Syllabification and re-syllabification are achieved with insertion or deletion processes (Bokhari, & Pervez, n.d: 63-65). The investigation of syllable structure and syllabification in Arabic dialects such as Egyptian, Iraqi, Hijazi, Najdi, Sudanese, Lebanese and some Yemeni dialects constitute a considerable part of the theoretical literature on Arabic phonology within different rule-based and constraint-based approaches (Abu-Mansour, 1987; Al-Mohanna, 1998; Broselow, 1992; Kiparsky, 2003; Watson, 2002; Aquil 2013; Alqahtani, 2014). However, in spite of such a considerable body of research on syllable structure in Arabic dialects, the syllable structure of Maḥbashi Yemeni Arabic<sup>1</sup> (MYA, henceforth) has not been investigated yet (Versteegh, et al 2006; Behnstedt, 2016). Despite the scarcity of research on the theoretical aspects of Yemeni Arabic, it has been pointed in a number of socio-linguistic studies that Yemeni Arabic exhibits unique phonological and morphological variations that set it apart from other

dialects of Arabic spoken in Arabic peninsula (Watson, 2002; Al-Fadly, 2007; Alsharabi, 2010; Abdulghani, 2010; Damom, 2013). Alsharabi (2010) investigated the interaction between prosody and morphology in Sharabi Yemeni Arabic and Cairene Arabic within the frame work of optimality theory's harmonic Serialism (McCarthy,2008).

Abdulghani's (2010) study of the phonology and morphology of Tihami Yemeni Arabic constitutes a hallmark in the systematic study of this variety of Yemeni Arabic. He adopted the framework of Autosegmental phonology theory to examine the underlying structures (phonological processes and rules) that are involved in contemporary Tihami dialect in the Yemeni context. Another study was added by Damom (2013) who provides a cross-linguistic and cross-dialectal study of Arabic prosody with a special reference to Tahami Yemeni Arabic (TYA). He aims at investigating the processes of penult and initial vowel deletion in TYA focusing on the ways in which those two types of vowel deletion occur in TYA.

To conclude, the rationale of the present study stems from the fact that the previous studies do not provide an analysis of the syllable structure of the phonology of MYA. Therefore, this study attempts:

- 1- To examine and describe the patterns and syllable templates in MYA,
- 2- To identify the phonotactics of MYA with reference to consonant clusters,
- 3- To determine if MYA and Modern Standard Arabic (henceforth MSA) exhibit similar or diverse syllable structures.

## 2. Segment Inventory

### 2.1 Consonant Phonemic Inventory

There are 28 consonants in MYA in nine places of articulation paralleling those of the Modern Standard Arabic orthography. All sounds represented in the MYA inventory follow the latest version of the International Phonetic Alphabet transcriptions (IPA) (Ladefoged, 2006). The consonants in MYA can be summed up in the following table (when in pairs, the right consonant is voiced, the left is voiceless).

Table 2.1. Consonant phonemic inventory of MYA

	Bilabial	Labio-dental	Dental	Alveolar	Post-Alveolar	Velar	Uvular	Pharyngeal	Glottal
Plosives	b			t d t <sup>h</sup> d <sup>h</sup>		k g			ʔ
Nasal	m				n				
Fricative		f	θ ð θ <sup>h</sup> ð <sup>h</sup>	s z s <sup>h</sup> z <sup>h</sup>	ʃ		χ ʁ	ħ ʕ	h
Affricate						ɟʒ			
Trill / Tap					r				
Lateral					l				
Approximant	w				j				

The above table establishes that that MYA incorporates twenty-eight consonants: eight stops: /b/, /t/, /tʰ/, /dʰ/, /d/, /k/, /g/, /ʔ/, fourteen fricatives: /f/, /θ/, /ð/, /ðˤ/, /s/, /sˤ/, /z/, /ʃ/, /x/, /ç/, /ħ/, /ʕ/, /h/, one affricate; /dʒ/, two nasals; /m/ and /n/, one lateral: /l/, one trill: /r/, and two semivowel(Approximant): /w/ and /j/.

**2.2 Vowels and Diphthongs.**

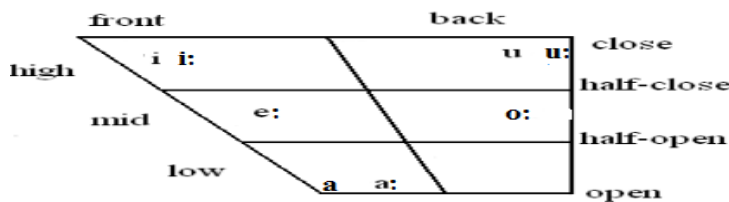
Arabic has only three underlying vowels and all Arabic vowels are oral and fully voiced (Newman, 1987:70). MYA comprises three short vowels /i, a, u/, which differ phonemically with their long counterparts, /a: i: u:/ and it has two long vowels /e:, o:/. In this paper, the long vowels are presented with the dotted length notation (a:, i:, u:). MYA has eight vowels in its inventory as seen in the table below.

Table 2.2. Vowels and Diphthongs in MYA

Short	Long
i	i:
a	a:
u	u:
---	o: a realization of MSA diphthong <i>aw</i>
---	e: a realization of MSA diphthong <i>ay</i>

The Cardinal Vowel Diagram for the vowels of MYA is illustrated in Figure below.

Figure 2.1. Vowels in MYA



It can be observed that MYA does not have lexical schwa in its vowel inventory. (Abdoh, 2011) reports that Classical Arabic (CA) and Modern Standard Arabic (MSA) include two diphthongs /ai/ and /au/, however, /ai/ and /au/ are coalesced to be recognized as /e:/ and /o:/ in MYA as in /zait/ → /ze:t/ “oil” and /s’aum/ → /s’o:m/ “Fasting”.

**3. Methodology**

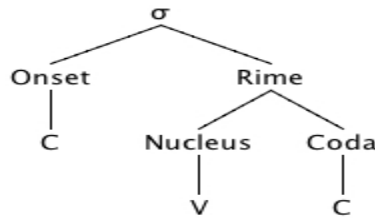
The purpose of this research is to provide a descriptive analysis of the syllable structures in MYA. This investigation made use of data from a set of people who are native speakers of Mahbashi Arabic. The researcher recorded participants’ live conversations that took place in official, social, cultural, religious and domestic contexts. The primary informant of the data is the researcher himself who is a native speaker of this particular variety. A corpus of 1000 representative words had been collected and put together from MYA for the purpose of the current work. The recorded data has been transcribed and then analyzed to determine the syllable structure. The analysis of the syllable structure of MYA was examined within the framework of onset/rime model of syllable – internal structure and moraic theory (Hyman, 1985).

## 4. Theoretical Background

### 4.1 The syllable

According to Hyman (1985), many phonological studies (See Halle & Vergnaud, 1980) have adopted the traditional branching model (Pike & Pike, 1947), in which the syllable is regarded as a unit consisting of an onset and a rime. The rime, then, is divided into a nucleus and a coda. An example of the traditional onset/rime representation of a syllable of the shape CVC is given in the following figure:

Figure 4.1. Syllable-Internal Structure (Onset/Rime Model) (Pike & Pike, 1947)

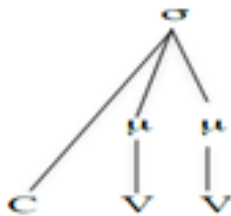


The representation of syllable-internal structure has also played a significant role in establishing syllable weight. For example, a branching model such as that in McCarthy (1979) admits that only segments controlled by the rime node can determine the syllable weight, whereas the onset contributes no weight to the syllable.

### 4.2 Moraic Theory

Moraic theory (Hyman 1985; Hayes 1989) proposes a phonological unit termed as mora. This unit is used to determine the weight of the syllable (Hyman, 1985; Hayes, 1989; McCarthy & Prince, 1996). Moraic Theory, in general, assumes that prevocalic segments (onset consonants) are morales and are dominated directly by the syllable node, a vocalic element is linked via a mora, and postvocalic segments may be assigned moras in a language-specific manner. An example of the moraic representation of a syllable of the shape CVV is given in figure (3).

Figure 4.2. Syllable-Internal Structure (Moraic Model) Method (Hyman, 1985; Hayes, 1989)



## 5. Discussion

### 5.1 Syllable Structure of MYA

No study has yet been carried out on the syllable structure of MYA. MYA shares MSA in almost some of the different types of syllables. The main syllables in MYA are: CV<sup>ii</sup>, CVV, CVC, CCVC and CVVC, CVCC.

MYA exhibits the following ten syllabic patterns:

Table 5.1. Syllable Patterns in MYA &amp; MSA

Syllable Pattern in MYA	Example	Gloss	Syllable Pattern in MSA	Example	Gloss
/CV/	/ma.ja/	'he went'	CV	/sa.maaʔ/	'Sky'
/CVC/	/mis.dʒid/ /min/ , /dʒin/	'mosque' 'who' 'goblin'	CVC	/sin/	'Tooth'
/CVV/	/ra.sal/	'to contact'	/CVV/	/sa.lim/	'scientist'
/CVVC/	/ma:t /	'he died'	/CVVC/	/ba:b /	'door'
/CVCC/	/mahr/	'Dowry'	/CVCC/	/nahr/	'river'
/CCV/	/twa.sil./	'you continue'			
/CCVCC/	/xtart/	'I chose'			
/CCVV/	/hmu:dah/	'sourness'			
/CCVC/	/swad/ 'black' /hwal/	'black' 'cross-eyed'			
/CCVVC/	/s fu:f/	'classes'			

From the above table, in the same vein with MSA, MYA prohibits words with onsetless syllable. Looking at the ten syllable patterns which represent all the possible types in MYA, it is clear that the nucleus is always represented by either a short or long vowel. Both the onset and the coda may consist of one consonant or two consonants. As opposed to MSA, consonant clusters in MYA are attested word-initially/finally either they obeyed Sonority Sequencing Principle<sup>iii</sup> (SSP) or not. It is observed that the syllable structures CV, CVV, CCV and CCVV do not occur in monosyllabic words. They have to be found in bi-syllabic words. The following table shows the distribution of MYA syllable types with regard to their occurrences:

Table 5.2. Syllable Types in MYA According to Their Occurrence

Syllable type	Word-Initially	Word-Medially	Word-Finally
CV	<u>wa</u> .fi 'loyal'	/ja. <u>dʒa</u> .rih/ 'tree'	/wa. <u>fi</u> / 'loyal'
CVV	/ka.tib/ 'writer' /ba.bu:t/ 'engine'	/ða. <u>ri</u> .bah/ 'tax'	/ra. <u>ma</u> :/ 'he throw'
CVC	/mis.dʒid/ 'mosque'	/si. <u>far</u> .dʒal/ 'quince'	/mis. <u>dʒid</u> / 'mosque'
CVCC	/ʃams/ 'the sun',	/ða. <u>baht</u> .ha/	/nha. <u>bast</u> /
CVCG	/sidd/ 'Dam'	'I killed her'	'I was jailed'
CVVC	/be:t/ 'house'	/xab. <u>be:t</u> .ha/	/nis. <u>wan</u> / 'ladies'
CCV	/kta.jaf/ 'He discovered'		
CCVCC	/xtart/ 'I chose'		
CCVC	/stag.bal/ 'he received' /swad/ 'black' /hwal/ 'cross-eyed'		
CCVVC	/hru:b/ 'wars'		
CCVV	/hmu:dah/ 'sourness'		

It can be observed that the first five syllable types occur freely in all positions while the last five are restricted to word initially and they result from syncope or suffixation.

**5.2 Word Structure**

MYA lexemes are monosyllabic, disyllabic, tri-syllabic or quadric-syllabic. Word-final syllables (including monosyllabic words) are invariably maximal consisting of a simple onset, nucleus and coda and since syllables in MYA require an onset, therefore, they always begin with and optionally end with a consonant as in the following examples:

Table 5.3. Attested Word Structures in MYA

Word	Syllable Pattern	Word Lexeme	Gloss
/nu:m/	CVVC	Monosyllabic Word	‘sleep’
/fa.ras/	CV.CVC	Disyllabic Word	‘horse’
/mit.ʃall.mi:n/	CVC.CVCG.CVVC	Tri-Syllabic Word	‘Educated, M.pl.’
/tal.faz.yu:.na:t/	CVC.CVC.CVV.CVVC	Quadri-syllabic Word	‘televisions’

It is noted that the commonest MYA word has four syllables at most. However, this does not include the affixes, verb extension combinations and reduplicated words. With all these, it is possible to have MYA words or verbs with more than four syllables.

**5.3 Representation of Syllable Structures in MYA**

In order to establish the core lexical syllable types in MYA, we would investigate some syllable types only due to the lack of space in this research paper. As far as the onset is concerned, MYA syllables always begin with C. Onsetless syllables are banned in the language. Syllables starting with V are not allowed. Therefore; VC syllables are not accepted as it is evident in the example below:

- (1) \*/girb. ih/ “sack for water”

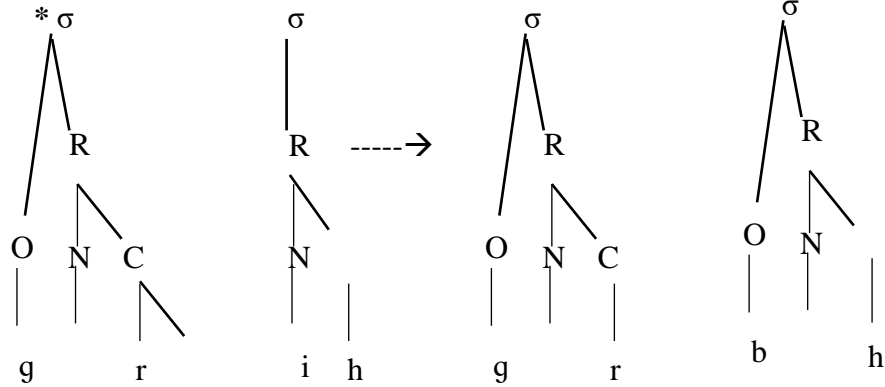
This can be represented as follows:



The main challenge that MYA faces in this regard is how to avoid onsetless syllables from surfacing. Therefore, the language resorts to the process of syllabification in order to deal with this problem as is illustrated below:

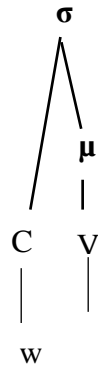
	Underlying Representation	→	Surface Representation	Gloss
(2)	a */girb.ih/	→	/ gir.bih/	‘flask for water
	b */juft.ak/	→	/juf.tak /	‘I saw you’

For the sake of transparency, let's look at the syllabification of one of the above examples:



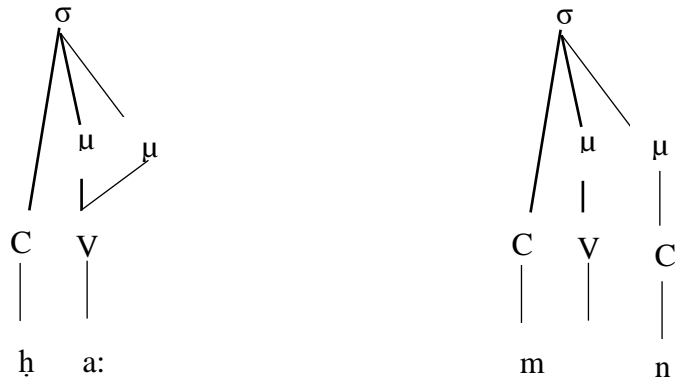
The following monomoraic syllable is the minimal syllable pattern in MYA in general. To keep in mind, under the moraic theory, onset consonants are morales (Hyman, 1985; Hayes, 1989). This syllable is obligatorily filled by a consonant and a vowel:

(3) /wa/ in /wa.fi / 'loyal'



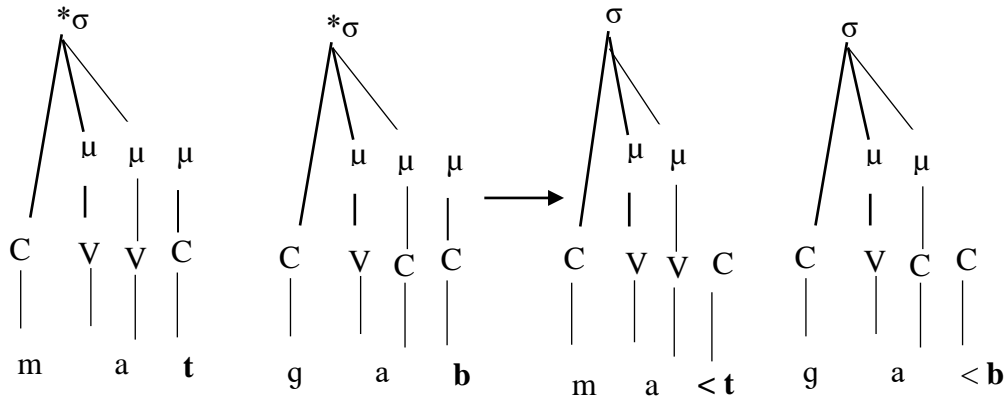
Syllable structures like CVC and CVV are bimoraic. Consider the following examples:

(4) a. /CVV/ as in /ha: / in /ha:mid/, "sore"      b. /CVC/ as in /min/, 'Who?'



Patterns /CVVC/ and /CVCC/ are super heavy syllables since they consist of two moras plus an additional consonant:

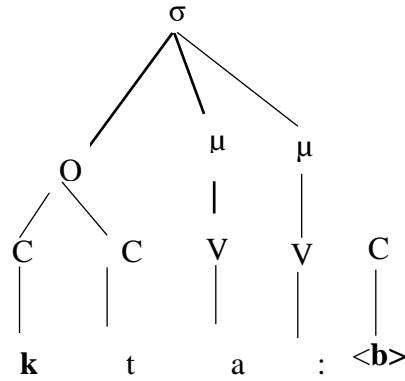
(5) a. /CVVC/ as in /ma:t/ ‘he died’ b. /CVCC/ as in /galb/ ‘heart’



It can be seen that the super heavy syllable /CVVC/ and /CVCC/ exceeded the number of moras. Being tri-moraic in Arabic dialects is not allowed. Therefore, the last consonants are parsed as extrametrical (non moraic). It is extrametrical in MYA in order to satisfy Broselow’s (1992:10) Pan-Arabic ‘Bimoraicity Constraint’ which states that ‘syllables are maximally and optimally bimoraic’. Now, consider the syllables that exhibit margin clusters:



(6) /CV.CVVC/-→ /CCVVC/ /ki'ta:b/ --→ /kta:b/ “book”



From the above structure, it is observed that the onset is occupied by two consonant clusters due to the deletion<sup>iv</sup> of the high short unstressed vowel in the open syllable. However, the consonant at the right periphery is extrametrical to obey the bimoraicity constraint. CVVC and CCVVC syllables in MYA, similar to other Arabic dialects, are maximally bimoraic. Pattern /CCVVC/ is at the underlying level represented as /CV.CVVC/; the short vowel in open syllables is subject to deletion when it is unstressed.

#### 5.4 Phonotactics of MYA

Languages of the world vary in their phonotactics. Speech sounds are constrained and accounted for by using various phonotactics. Languages in a specific manner differ in identifying and applying constraints which provides an insight into the reason that speakers are naturally able to break and form consonant sequences. Phonotactic constraints refer to the restrictions on the distribution of speech sounds and their sequences at different places; initially, medially and finally in the phonological word or phrase (Kenstowicz, 1994).

##### 5.4.1 Consonant Clusters in MYA

It is important to start our discussion by identifying how the term ‘consonant cluster’ is defined in the literature. Consonant cluster also known as a ‘consonant blend’ is defined as a ‘combination of two or more consonants that contain no intervening vowel’<sup>v</sup> (Sadanand & Kala, 2006 cited in Haroon & Sohail, 2012:777). This section provides a brief discussion of consonant clusters in word-initial, word-medial, and word-final positions.

##### 5.4.2 Initial Consonant Clusters in MYA

The initial clusters can be classified and analyzed according to their composition. What follows is a description of some types of initial consonant clusters.

Table 5.4. Initial Consonant Clusters in MYA

MSA	CC-	Cluster in MYA	Gloss
Initial Consonant Cluster due to the Deletion of High Unstressed Vowel			
/hi.'sʰa:n/ (CV.CVVC)	hʰs	hʰsʰa:n (CCVVC)	Horse
tu.'ra:b (CV.CVVC)	tr	tra:b (CCVVC)	Soil
Initial Consonant Cluster due to Morphological Processes & the Deletion of Glottal Stop			
nu.bar.wiz (CV.CVC.CVC)	nb	nbar.wiz (CCVC.CVC)	We frame (a picture)
ʔah.wal. (CVC.CVC)	hʷ	hʷal (CCVC)	Cross-eyed

MYA possesses words with two consonant clusters at the onset. MYA allows maximum of two consonant clusters in the onset of the syllable. It can be noticed from the above table that the consonant cluster surfaced as a result of applications of some phonological or morphological rules as in /hi.'sʰa:n/ → [hʰsʰa:n] 'horse' by deletion rule, /nu.bar.wiz/ 'we frame' which yields /nbar.wiz/ due to deletion of high unstressed vowel /u/ when the prefix /nu-/ is added to mark first person plural and by the deletion of the glottal stop/ʔ/ and the vowel which follows it as in /ʔah.wal/ which becomes /hʷal/ 'cross-eyed'.

#### 5.4.3 Medial Consonant Sequences in MYA

The distribution of consonant sequences in the middle of words in MYA is similar to their distribution in MSA. A look at table (7) clearly illustrates this observation.

Table 5.5. Medial Consonant Sequences in MYA.

MSA	Cluster in MYA	Gloss
ti,waðʰ.ðaf (CV.CVCCVC)	twaðʰ.ðaf (CCVCCVC)	'he was employed'
/ʔaʃra:s/ (CVCCVVC)	/ʔaʃra:s/ (CVC.CVVC)	'weddings'
/murhag/ (CVCCVC)	/murhag/ (CVC.CVC)	'exhausted'

It can be seen that medial consonant sequences attested in MYA are restricted to two consonants and all involve at least one sonorant: /mur.haq/ 'exhausted', /ʔaʃ.ra:s/ 'weddings'. Moreover, it is apparent that MYA followed MAS rules in in the forming the medial consonant sequences. A two consonant sequences in the medial position can be a geminate as in /twaðʰ.ðaf/ 'he was employed'. Moreover, it can be noticed that each consonant of the sequences is maintained by a distance governed by the syllable boundary. In other words, all word-internal clusters are in fact hetero-syllabic relating to two adjacent syllables.

#### 5.4.4 Final Consonant Clusters in MYA

MYA final clusters are similar to MSA. What follows is a list of some examples of the occurrence and the composition of final clusters.

Table 5.6. Final Consonant Clusters in MYA

MSA	-CC	Cluster in MYA	Gloss
ħaðʰ.ðʰ (CVGG)	-ðʰ.ðʰ	ħaðʰ.ðʰ (CVCG)	Luck
naħs (CVCC)	-ħs	naħs (CVCC)	Bad luck
xartʰ (CVCC)	-rtʰ	xartʰ (CVCC)	Telling lies

Table (9) shows that final consonant clusters are possible. It is important to mention here that the syllable template (CVCC) in MYA is similar to that of MSA. Maximum of two consonants can occupy coda at word-final position in MYA.

## 6. Conclusion

This paper attempted to examine the syllable structure and phonotactics in MYA. The study showed that there are a total of ten syllable structure types in MYA. The study came up with the following parameters: onsetless syllables /\*VC/ are prohibited, coda CV(C) is optional, there are restrictions on the occurrences of the syllable types, consonants clusters CC- are maximally two in the onset position of the syllable, and two consonant clusters are allowed to surface in the medial and coda positions. Moraic theory is supportive in examining the syllable structure of MYA. It showed how the syllable internal structure failed to account for super heavy syllables. The study, under the moraic theory, proved that consonants at the right periphery of a syllable type like /CCVVC/, /CVVC/ and /CVCC/ are extrametrical CCVV(C).

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<sup>i</sup> The dialects of Yemen, as noted by Versteegh, et al (2006) are one of the most neglected topics in Arabic dialect geography. Based on what has been pointed out by Versteegh (2006: 751-753), Yemeni Arabic can further be divided into various dialects, with some distinct vocabulary and

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phonology. A division of the Yemeni Arabic dialects into 11 main types (with subdivisions) was proposed named after geographical zones (Behnstedt, 2016) one of which is Maḥbashi Yemeni Arabic.

<sup>ii</sup> The syllable Template Abbreviation Keys: C = Singleton Consonant, V= Short Vowel, VV= Long Vowels, G= Geminate, CC= Consonant Cluster,  $\sigma$  = Syllable,  $\mu$  = Mora, <C> = Extrametrical Consonant

<sup>iii</sup> SSP stipulates that onsets increase in sonority toward the nucleus, while codas decrease in sonority (Clements, 1990).

<sup>iv</sup> This is known in the literature as syncope (Watson, 2002; Alqahtani, 2014).

<sup>v</sup> This definition implies that any adjacent consonants form clusters even if they occur in different syllables and there are a lot of arguments debated with regard to this definition, however, I like most researcher don't agree with this definition and stipulate the consonants must occur in the same syllable for them to be analyzed as being clusters. Thus in a word like / rki**bn**a/ "we (masculine) rode", the /b/ and /n/ don't form a cluster and they are adjacent heterosyllabic consonants and therefore form a consonant sequence rather than a cluster and as a result the word / rki**bn**a/ is syllabified as [rki**bn**a].