A Semantico-Phonological Investigation of Proper Nouns

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Abstract

This paper investigates the underlying aspects which would account for why some Arabic geographical names accept the addition of the definite *"?al"* to their beginnings and why some don't accept such an addition. The study depends on the data taken from ''*"Atlas of Jordan and World, 2003"*''. This research is only oriented to the monosyllabic and disyllabic

words. The researchers cited some pieces of evidence validating that this addition is mainly correlated with two aspects: the place of articulation of each segment comprising the whole word and the semantic content of the whole word. The study concludes that whether accepting the definite article or not is not haphazard, but, to the contrary, it is quite subjected to specific semantic procedures and certain segmental paradigms.

Keywords: The Definite *"?al"*, Geographical Names, Place of Articulation, The Semantic Content, Phonology

1. Introduction

The Arabic definite "?al" is a prefix predominantly used in order to define the Arabic words. In addition, it is used to change indefinite, unknown nouns to definite and known ones; for example, it is employed to change the indefinite word /walad/ (English, *a boy)* to the definite word /?alwalad/ *(English, the boy)*. (Heusinger: 2002). However, All research has majorly highlighted what is called as the ''referential function'' of the article, that is, the use of a noun phrase with "the" to pick out an individual, ''*to distinguish it from all other individuals in the universe of discourse*'' (Lyons: 1977). In addition, the condition on the proper use of "the" has been labeled in different ways, such as ''uniqueness'' (Kadmon: 1990), ''identifiability'' (Du Bois: 1980), ''unique identifiability'' (Gundel *et al*.: 1993), ''familiarity (Heim: 1982)

Concerning the definite article in Arabic, nouns in Arabic can be on the whole grammatically classified into two categories: common nouns and proper nouns. Proper nouns are called names, which are definite in their own. They don't need this article to be definite; the proper nouns include people's names, countries', cities', towns', etc. On the other hand, common nouns are defined as those which refer to either concrete or abstract entities (Schmid: 2000).

After surveying the literature, the researchers have the courage to claim that there is no one single study has investigated this prominent topic. This paucity of research about this particular phonological issue has sparked off the interest to account for the puzzle of this. In general, the study's main problem is to determine the main reasons and mechanisms by which we would lay down why some geographic names accept this addition and why some do not. This study, thus, purports to answer the following intertwined research questions:

1) Why do proper names accept this realization of "?al" even though they are already definite on their own?

2) Is this "?al" similar to that of definite "?al" which is purposefully introduced to the onsets of the indefinite or common nouns to change their case in terms of definition?

3) If it is the same, what is its underlying function because the definite case is already found?

4) Why do some of these names accept this prefix and why do others not?

2. Significance of the study

Linguistically speaking, investigating the definite article which is associated with geographical names is of importance for the following possible reasons:

1) This study provides the reader with the constraints which are responsible for the manifestation of the definite article in geographical names.

2) It paves the road towards other pieces of research that handle Arabic definite articles from a phonological perspective.

3. Sample of the Study

This study is a corpus-based investigation, so actual data for the purpose of the study have been sought. The sample of the study consists of 186 geographical names which were selected randomly out of 600 geographical names. This sample was drawn from the book of *"Atlas of Jordan and World, 2003"*. These randomly chosen names were of two types: monosyllabic and disyllabic names. The sample was divided into the following divisions. 23 monosyllabic names accept the addition of "?al", 39 do not; 72 disyllabic names accep this addition; and 52 do not.

4. Data Analysis

The Analysis of the obtained data is of twofold procedure:

Firstly: all selected words were analyzed in terms of definite procedures such as the number of syllables, types of sounds of each syllables, and order of these sounds.

Secondly: all selected words were semantically processed. The researchers analyzed every word in terms of semantic content, hoping link semantics with phonology.

5. Review of Related Literature

Unfortunately, there has been no, to the best knowledge of the researchers, Arabic or foreign investigation carried out to determine the issue of adding the Arabic definite article to the beginnings of some geographical names. Most of the Arabic studies tackle the definite article in terms of nouns, not names.

Al-Hamad and Al-Zubai (1984) argue forward that categorization of the definite "?al" is of four aspects: a relative pronoun which is introduced to the gerund or participle, a definite article which can be either Al-?ahdayah or Al-Gensayah, an optional article which can be either transitive or intransitive, and an interrogative article, but this type is almost never used. What is significant in their study is that they claim that this article can be eliminated in only two instances which are syntactically pure.

Al-Maozai (1993), in turn, states that "?al" can be classified into three main categories: a relative pronoun which is introduced to the gerund or participle, a definite article which can be either Al-?ahdayah or Al-Gensayah, and an optional article which can be either transitive or intransitive.

Salman (2003) indicates that there are two kinds of the definite "?al": Al-?ahdayah and Al-Gensayah. Linguistically speaking, the main difference between them is semantically oriented to highlight some underlying aspects related to the nouns not the names. He does not say that this article can be introduced to names. He restricts himself, as other Arabic scholars, to investigate the main functions of this article based on the nouns, not names.

Concerning the definite article in English, it has to be noted that this article are much examined and investigated. The researchers have defined its functions into semantic or discoursal. For example, Epstein (2002) argues that neither of the two main approaches to definiteness, familiarity or unique identifiability, provide necessary or sufficient conditions

for the use of the definite article in English. He proposes instead that the basic meaning of the article is to signal the accessibility of a discourse referent, more specifically, the availability of an access path through a configuration of mental spaces, or cognitive domains. Speakers employ the article to construct discourse referents under various conceptual guises, as well as to guide addressees in establishing mental spaces and appropriate connections between the elements in those spaces.

It should bear in mind that all Arabic-related studies and books do not even refer to the main reasons behind the addition of this article to some names, especially the geographical ones. We hope to contribute to the literature with a subtle explanation to this newly-touched on phenomenon, which goes back to the first appearance of Arabic.

6. Results and Discussion

In this paper, the researchers endeavor to provide potential answers to all of previous questions with much focus on the fourth question which, in fact, constitutes the prime problem of this study. Actually, this study deals primarily with the addition of this article to the beginnings of geographic names.

Obviously, upon surveying more than 300 geographic names, it would be hypothesized that this addition is not related to the syllables number composing the name. Generally speaking, both /ʔiraq/ (English, Iraq) and /ʔuman/ (English, Oman) have two syllables, but the former accepts this realization, and the latter doesn't accept it. Furthermore, /hind/ (English, India) and /Faas/ (English, Fas[1]) are both monosyllabic; the former accepts it, but the latter doesn't accept it. Besides, this addition isn't related to the number of the segments which comprise the whole name; for instance, both /ħimʃ/ and /ʂalt/ have the same number of segments in terms of vowels and consonants, but the former doesn't accept it, and the latter accepts it.

It seems apparent that this realization is not attributed to the type of the segments in terms of manner of articulation. For instance, both /ʃiin/ and /tuuz/ are alike in terms of the manner of articulation of each consonant comprising the name; but the former accepts it, and the latter doesn't accept it. Given that the realization of this prefix is not related to syllable number or the manner of articulation of segments, there should be other constraints that govern the realization of "ʔal" in geographical names in Arabic.

In order to find out satisfactory answers to the questions of the study, more than 300 Arabic geographical names are thoroughly analyzed according to the manner of articulation, place of articulation, moras number, and syllables number. The researchers depend heavily on certain notation as shown in Table (1) to facilitate the process of analysis, which is chiefly conducted due to the number of the syllables; that is, monosyllabic names are analyzed alone with no combination to, say, the disyllabic ones as shown below to facilitate the process of observation.

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[1] Fas is a known city located in the north of Morocco

Table 1. The Notation Used in this Article:

Manner of Articulation			
symbol	The Place	Symbol	Manner
B	Bilabial	O	Obstruent
L	Labiodental	l	Lateral
D	Dental	n	Nasal
A	Alveolar	g	Glides
R	Retroflex		
O	Alveopalatal		
T	Palatal		
V	Velar		
U	Uvular		
P	Pharyngeal		
G	Laryngeal		

A. Monosyllabic Names

Given that monosyllabic geographical names are simpler to be investigated than other disyllabic names, let's first consider these names. Such names are comprised of only one syllable. Some of these names accept the definite "?al", and others don't accept it. It is apparent that such nouns are not as common as disyllabic or trisyllabic nouns. After analyzing some of these names according to the place of articulation and manner of the articulation, it is clear that there are certain segmental paradigms controlling all of the process as shown in Tables 2 and 3.

Table 2. Monosyllabic Words That Accept the Definite "?al" with Their Complete Inner Analysis[2]

No	Word	Syllable No.	Mora No.	Manner	Place	S. Paradigms
	Şiin	1	3	ovvn	AvvA	S
	Hind	1	3	ovno	GvAA	S
	tʃiik	1	3	ovvo	OvvV	S
	quds	1	3	ovoo	UvAA	S
	zulf	1	3	ovlo	AvAL	S
	şal ɬ	1	3	ovlo	AvAA	S
	rims	1	3	lvno	RvBA	S
	faaw	1	3	ovvg	LvvB	S
	marj	1	3	nvlo	BvRO	S
	niil	1	3	nvvl	AvvA	S

Table 3. Monosyllabic Words That Don't Accept the Definite "?al" with Their Complete Inner Analysis[3]

No	Word	Syllable No.	Mora No.	Manner	Place	S. Paradigms
	naask	1	4	nvvoo	AvvAV	S
	saalm	1	4	ovvln	AvvAB	S
	b ɔ:rt	1	4	ovvlo	BvvRA	S
	h ɔ:rn	1	4	ovvln	GvvRA	S
	d ɔ:vr	1	4	ovvol	AvvLR	S
	naant	1	4	nvvno	AvvAA	S
	jiims	1	4	ovvno	OvvBA	S
	gum	1	2	ovn	UvB	H
	kin	1	2	ovn	VvA	H
	fi ŝ	1	2	ovo	LvO	H

The data shown in Tables 2 and 3 offer very important clues which can account for the realization of "?al". Some constraints controlling this distribution are:

- Any monosyllabic geographical name that consists of 2 or 4 moras does not accept the "definite ?al" such as /gum/, /bɔ:rt/.

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[2] More words that accept the definite "?al" are found in appendix 1
[3] More monosyllabic words that don't accept the definite "?al" are found in appendix 2

- Any monosyllabic geographical name that begins or ends with a vowel doesn't accept the "definite ?al" such as /iist/, /kaai/.

- Any monosyllabic geographical name that begins and ends with the same segment does not accept the "definite ?al" such as /waaw/, /liil/.

- Any monosyllabic geographical name that consists of three segments from the same place of articulation accepts the "definite ?al" such as /şalŧ/ unless the first letter is /l/.

Moreover, these data show that there is a correlation between all segments comprising the name in favor of its place of articulation. For example, if the first consonant is alveolar, and the final one is labiodental, the geographical name accepts this prefix. So, having certain segmental paradigms enables us to account for why some monosyllabic names accept this prefix and why other names do not accept it, along with the constraints mentioned above.

Table 4 shows segmental paradigms to the geographical names which accept "the definite "?al" according to the place of articulation in light of the data shown in Table 2, in which the first column shows the first letter and so on. On the other hand, table 5 shows segmental paradigms to the names which do not accept "the definite "?al" according to the place of articulation in light of the data shown in Table 3.

Table 4. Segmental Paradigms to the Monosyllabic Names Which Accept "The Definite "?al" According to the Place of Articulation

1st segment	2nd segment	3rd segment	4th segment	Conditions(constraints)
A	V	v	A	Vowel must be /ii/
A	V	A	L	
A	V	A	A	The first letter is not /l/
A	V	B	V	
A	V	v	R	
G	V	A	A	
O	V	v	V	
O	V	v	L	
U	V	A	A	
U	V	R	B	
U	V	v	P	
U	V	v	R	
R	V	B	A	
R	V	v	A	
R	V	v	L	
L	V	v	B	
B	V	R	O	
P	V	v	A	
V	V	v	B	
V	V	v	L	

Table 5. Segmental Paradigms to the Names Which Don't Accept "The Definite "?al" According to the Place of Articulation

1st segment	2nd	3rd	4th	Conditions
O	v	v	A	
O	v	v	O	
A	v	v	B	
A	v	v	A	
A	v	v	O	
A	v	R	A	
A	v	A	A	
A	v	P	A	
A	v	O	A	
P	v	B	A	
B	v	v	U	
B	v	v	A	
B	v	v	O	
B	v	A	R	
L	v	v	A	
R	v	O	A	
U	v	v	A	

It is clear in both tables that there is not any cross between the paradigms of Table 4 and those of Table 5. Subsequently, this result reflects a very crucial clue to the whole process, that this prefix is realized or not due to the inner word structure, in light of the place of articulation of each segment of the name. It seems apparent that realizing the definite "?al" is mainly related to the place of articulation of each segment as well as some constraints related to the inner structure of the syllable.

B. Disyllabic Name

Disyllabic geographical names are those which are composed of two syllables with no regard to the syllable type[4]. These names are the most common ones and have the widest distribution among geographical names. The disyllabic names are classified into many kinds due to the syllable type paradigms; for example: (LH)(HL)(LS)(HH), etc.

To find the potential answers to the questions of the study, more than 150 words of these disyllabic geographical names are analyzed according to some constraints as those in monosyllabic names. Table 6 shows the analysis of the disyllabic names accepting the definite article, and Table 7 shows the analysis of the disyllabic names not accepting the definite article.

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[4] Syllables are classified according to the mora number: Light syllable (L) is composed of one mora, heavy syllable (H) two moras, and superheavy syllable (S) more than 2 moras.

Table 6. The Disyllabic Names Accepting The Definite Article[5]

No	Word	Syllable No.	Mora No.	Manner	Place	S. Paradigms
	ram θa	2	3	lvn-ov	AvB-Dv	HL
	Burda	2	3	Ovl-ov	BvA-Av	HL
	namsa	2	3	Nvn-ov	AvB-Av	HL
	kun γu	2	3	Ovn-ov	VvA-Uv	HL
	Ŧaibeh	2	4	Ovv-ovo	Avv-BvG	HH
	Ramlih	2	4	Lvn-lvo	AvA-AvG	HH
	kafrah	2	4	Ovo-lvo	VvL-AvG	HH
	ʔurdun	2	4	Ovl-ovn	GvA-AvA	HH
	Nayjar	2	4	Nvg-ovl	AvT-OvA	HH
	Zahraa	2	4	Ovo-lvv	AvG-Avv	HH

Table 7. Disyllabic Names Not Accepting The Definite Article[6]

No	Word	Syllable No.	Mora No.	Manner	Place	S. Paradigms
	dakka	2	3	ovn-ov	AvV-Vv	HL
	maali	2	3	nvv-lv	Bvv-Av	HL
	ŝab9a	2	3	ovo-ov	OvB-Pv	HL
	t ɔ: γu	2	3	Ovvn-ov	Avv-Uv	HL
	buşra	2	4	ovolv	BvAAv	HL
	maşqaɫ	2	4	nvo-ovo	BvA-UvA	HH
	idlib	2	4	vo-lvo	vA-AvB	HH

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[5] More words with disyllabic segmentation accepting the definite article are found in appendix 3
[6] More words with disyllabic segmentation not accepting the definite article are found in appendix 4

	tadmur	2	4	Ovo-nvl	AvA-BvA	HH
	yaħmur	2	4	gvo-nvl	TvP-BvA	HH
	jablih	2	4	Ovo-lvo	OvB-AvG	HH

The data shown both in Tables 6 and 7 provide very important clues related to the disyllabic names. Some constraints concluded from the data controlling this distribution are as follows:

- Any disyllabic geographical name in which the first syllable is super-heavy, and the second is light don't accept the definite ?al" such as /ɬɔ:kyu/.

- Any disyllabic geographical name that consists of two light syllables accepts the "definite ?al" such as / ħasa/.

- Any disyllabic geographical name in which the first syllable is only composed of a vowel does not accept this prefix such as /iraan/.

Moreover, this data shows that there is a correlation between all segments comprising the geographical name in favor of place of articulation. Therefore, we can reach certain segmental paradigms enabling us to grasp why some disyllabic geographical names accept this prefix and why others do not accept it, along with the constraints mentioned above. Table 8 shows some segmental paradigms to the names which accept "the definite "?al" according to the place of articulation in light of the data shown in Table 6. On the other hand, Table 9 shows some segmental paradigms to the names which don't accept "the definite "?al" according to the place of articulation in the light of the data shown in Table 7.

Table 8[7]. Segmental Paradigms to the Disyllabic Names Which Accept "The Definite "?al" According to the Place of Articulation

Syllable Types	First Syllable				Second syllable			
	1st segment	**2nd**	**3rd**	4th	1st segment	**2nd**	**3rd**	4th
HL	A	**v**	**B**		D	v		
HL	B	**v**	**A**		A	v		
HL	A	**v**	**B**		A	v		
HL	V	**v**	**A**		U	v		
HH	A	**v**	**v**		B	v	G	
HH	A	**v**	A		A	v	G	
HH	V	**v**	L		A	v	G	
HH	G	**v**	A		A	v	A	
HH	A	**v**	T		O	v	A	
HH	B	**v**	U		A	v	A	

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[7] Blank cells mean that there is no segment.

HH	B	**v**	**G**		A	v	v	
HH	P	**v**	**B**		A	v	G	
LH	P	**v**			A	v	A	
LH	V	**v**			A	v	A	
LH	O	**v**			P	v	A	
LH	O	**v**			L	v	A	
LS	B	**v**			A	v	v	A
LS	v	**L**			P	v	v	A
LS	A	**V**			B	v	v	A

Table 9. Segmental Paradigms to the Disyllabic Names Which Don't Accept "The Definite "?al" According to the Place of Articulation

Syllables types	First Syllable				Second syllable			
	1st segment	**2nd**	**3rd**	4th	1st segment	**2nd**	**3rd**	4th
HL	A	v	V		V	v		
HL	B	v	v		A	v		
HL	O	v	P		P	v		
HL	A	v	v		U	v		
HH	B	v	A		U	v	A	
HH	v	A			A	v	B	
HH	A	**v**	v		A	v	A	
HH	A	v	v		O	v	A	
HH	A	v	P		A	v	G	
HH	T	v	P		B	v	A	
HH	A	v	A		B	v	A	
HH	A	v	A		P	v	v	
LH	U	v			A	v	A	
LH	A	v			B	v	A	
LH	A	v			L	v	A	
LH	V	v			B	v	A	
LS	A	v			B	v	v	U
LS	P	**v**			b	v	v	G
LS	P	**v**			A	v	v	A

As shown in Tables 6 and 7, some clear reasons related to the mentioned constraints clarify why these geographical names accept or refuse "?al". Moreover, these tables show no change in the results caused by the place of articulation in these names.

Admittedly, there are rare violations to these paradigms and constraints, which are all ascribed to the semantic meaning of the name. To illustrate, if the geographical names themselves have a meaningful reference such as /burda/; they are abided by this prefix whatever its inner phonological structure is. Even though these names accept "?al", they are

not abided by the paradigms and constraints mention above. We can draw a high-ranking constraint to control this part of the issue. This constraint states:

> **When the geographical name has a meaningful reference, it accepts the definite "?al" to be added to its onset when it is used as a name of a region….etc.**

Accordingly, the previously mentioned explanation provides us with an adequate account of why, for instance, /hind/ is associated with the definite "?al" when it refers to a female name. Otherwise, it does not accept this prefix when /hind/ refers to a country name, namely, India. In other words, when the word does not seem odd when deleting this prefix, it accepts this article. From this point, we can account for the semantic function of this definite article; that is, this article is especially used with those having meaningful reference to distinguish them from their counterparts without this prefix. This "?al" is not only used to define but also to distinguish the words from each other to determine which is a place and which is not. i.e. to determine which is a person's name and which is a region's name.

C. Names with More Than Two Syllables

We will not go further to show the segmental paradigms of such names because the data is not adequate to generalize constraints or to put segmental paradigms. It is apparent that these names are subjected to certain segmental paradigms and constraints which are similar to those of monosyllabic and disyllabic ones. However, there is a positive relationship between the number of the geographical names accepting this prefix and the number of the syllables composing these names. That is, when the geographical name has, say, three syllables, it may highly accept this prefix more than the monosyllabic or disyllabic do, as shown in figure 1.
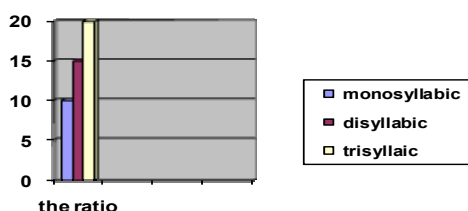
Figure 1. The Positive Relationship Between the Syllables Number and the Acceptance of

The Definite "?al"

7. Conclusion

This paper shows that the realization of "?al" in the onset of some geographical names is not haphazard, rather it is obviously governed by certain segmental paradigms and constraints. The findings of this paper show that there are two conclusive factors controlling this process: place of articulation of each segment comprising the whole article, especially the first and last ones with a complete combination with other syllables of the word and the semantic meaning of the whole word.

Realizing the definite articles to some geographical names is rather complicated because

there are many constraints controlling this process. By virtue of the fact that the definite article could be pre-nominally attached to proper nouns in other languages, like Hebrew, a further study is recommended to contrast the differences between the Arabic definite article and its counterpart in Hebrew. Furthermore, a further study is also recommended to see if the definite article associated with geographical names has the same pragmatic meaning of the definite article associated with other nouns, say, common nouns.

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Appendix

Appendix 1.

1.	j ɔːf	1	3	ovvo	OvvL	S
2.	riif	1	3	lvvo	RvvL	S
3.	nabk	1	3	nvoo	AvBV	S
4.	qvv9	1	3	ovvo	UvvP	s
5.	d ɔːr	1	3	ovvl	AvvR	s
6.	9ein	1	3	ovvn	PvvA	S
7.	x ɔːr	1	3	ovvl	UvvR	S
8.	toor	1	3	ovvl	AvvR	S
9.	koom	1	3	ovvn	VvvB	S
10.	kaaf	1	3	ovvo	VvvL	S
11.	siin	1	3	ovvn	AvvA	S
12.	rein	1	3	lvvn	RvvA	S
13.	qarm	1	3	ovln	UvRB	S

Appendix 2.

1.	jiin	1	3	ovvn	OvvA	S
2.	niim	1	3	nvvn	AvvB	S
3.	ħimş	1	3	ovno	PvBA	S
4.	şuur	1	3	ovvl	AvvR	S
5.	buu γ	1	3	ovvo	BvvU	S
6.	ŝiin	1	3	ovvn	OvvA	S
7.	miin	1	3	nvvn	BvvA	S
8.	saan	1	3	ovvn	AvvA	S
9.	faan	1	3	ovvn	LvvA	S
10.	tuuz	1	3	ovvo	AvvA	S
11.	d ɔːn	1	3	ovvn	AvvA	S
12.	b ɔːn	1	3	ovvn	BvvA	S

13.	faas	1	3	ovvo	LvvA	S
14.	l ɔ:j	1	3	lvvo	AvvO	S
15.	liil	1	3	lvvl	AvvA	S
16.	biiŝ	1	3	ovvo	BvvO	S
17.	linz	1	3	lvvo	AvAA	S
18.	misr	1	3	nvol	BvAR	S
19.	sirt	1	3	ovlt	AvRA	S
20.	tʃaad	1	3	ovvo	OvvA	S
21.	kaai	1	3	ovvv	Vvvv	S
22.	naan	1	3	nvvn	AvvA	S
23.	ŝvvŝ	1	3	ovvo	OvvO	S
24.	riŝt	1	3	lvoo	RvOA	S
25.	ta9z	1	3	ovoo	AvPA	S
26.	najd	1	3	nvoo	AvOA	S
27.	iist	1	3	vvoo	vvAA	S
28.	waaw	1	3	gvvg	BvvB	S
29.	γaat	1	3	ovvo	UvvA	S

Appendix 3.

1.	Ŝaata?	2	4	Ovv-ovo	Ovv-AvG	HH
2.	Ŝuuneh	2	4	Ovv-nvo	Ovv-AvG	HH
3.	Zarqaa	2	4	Ovl-ovv	AvA-Uvv	HH
4.	?azraq	2	4	Ovo-lvo	GvA-AvU	HH
5.	Batraa	2	4	Ovo-lvv	BvA-Avv	HH
6.	Harmal	2	4	Ovl-nvl	GvA-BvA	HH
7.	Humrah	2	4	Ovn-lvo	PvB-AvG	HH
8.	Muqlid	2	4	Nvo-lvo	BvU-AvA	HH
9.	faaŜir	2	4	Ovv-ovl	Lvv-OvA	HH

10.	Ŝɔ:bak	2	4	Ovv-ovo	Ovv-BvV	HH
11.	Xandaq	2	4	Ovn-ovo	UvA-AvU	HH
12.	Marnaf	2	4	Nvl-nvo	BvA-AvL	HH
13.	Mafraq	2	4	Nvo-lvo	BvL-AvU	HH
14.	başƑah	2	4	Ovo-ovo	BvA-AvG	HH
15.	dawĦah	2	4	Ovg-ovo	AvB-PvG	HH
16.	Ħumrah	2	4	Ovn-lvo	PvB-AvG	HH
17.	Daamir	2	4	Ovv-nvl	Avv-BvA	HH
18.	Miinaa	2	4	Nvv-nvv	Bvv-Avv	HH
19.	Jafrah	2	4	Ovo-lvo	OvL-AvG	HH
20.	fei đah	2	4	Ovv-ovo	Lvv-AvG	HH
21.	Mahrah	2	4	Nvo-lvo	BvG-AvG	HH
22.	maɣrib	2	4	Nvo-lvo	BvU-AvB	HH
23.	ħɔ:leh	2	4	Ovv-lvo	Pvv-AvG	HH
24.	saħmah	2	4	Ovo-nvo	AvP-BvG	HH
25.	basrah	2	4	ovolvo	BvAAvG	HH
26.	kuufah	2	4	Ovv-ovo	Vvv-LvG	HH
27.	bai đaa	2	4	Ovv-ovv	Bvv-Avv	HH
28.	Đafrah	2	4	Ovo-lvo	AvL-AvG	HH
29.	Jiizih	2	4	Ovv-ovo	Ovv-AvG	HH
30.	ʔuqşur	2	4	Ovo-ovl	GvU-AvA	HH
31.	Ħuşin	2	3	Ov-ovn	Pv-AvA	LH
32.	Gaşur	2	3	Ov-ovl	VvAvA	LH
33.	Şa ħar	2	3	Ov-ovl	Ov-PvA	LH
34.	Yaman	2	3	Gv-nvn	Tv-BvA	LH

35.	Rubu9	2	3	lv-ovo	Av-BvP	LH
36.	Karak	2	3	Ov-lvo	Vv-AvV	LH
37.	Jafur	2	3	Ov-ovl	Ov-LvA	LH
38.	Mazaar	2	4	Nv-ovvl	Bv-AvvA	LS
39.	ifĦeiş	2	5	Vo-ovvo	vL-PvvA	LS
40.	Şumaal	2	4	Ov-nvvl	Av-BvvA	LS
41.	siweɪd	2	4	Ov-gvvo	Av-BvvA	LS
42.	xariiŦ	2	4	Ov-lvvo	Uv-AvvA	LS
43.	Siweis	2	4	Ov-gvvo	Av-BvvA	LS
44.	9ariiŜ	2	4	10v-4vv6	Pv-AvvO	LS
45.	9iraaq	2	4	Ov-lvvo	Pv-AvvU	LS
46.	ribaaŦ	2	4	lv-ovvo	Av-BvvA	LS
47.	Balaaş	2	4	Ov-lvvo	Bv-AvvA	LS
48.	Nuhuud	2	4	Nv-ovvo	Av-GvvA	LS
49.	i đleil	2	5	vO-lvvl	vA-AvvA	HS
50.	yaabaan	2	4	Gvv-ovvn	TvvBvvA	HS
51.	maksiik	2	5	Nvo-ovvo	BvVAvvV	HS
52.	yuunaan	2	5	gvvnvvn	TvvAvvA	HS
53.	?aħwvvz	2	5	Ovo-gvvo	GvP-BvvA	HS
54.	9a ŧruun	2	5	Ovo-lvvn	PvA-AvvA	HS
55.	Faiyuum	2	5	Ovv-gvvn	Lvv-TvvA	HS
56.	Idweim	2	5	Vo-gvvn	vA-BvvB	HS
57.	jaɣboob	2	5	Ovo-ovvo	OvU-BvvB	HS
58.	Ŧullaab	2	5	Ovl-lvvo	AvA-AvvB	HS
59.	?abyii đ	2	5	Ovo-gvvo	GvB-TvvA	HS
60.	Salluum	2	5	Ovl-lvvn	AvA-AvvB	HS

| 61. | Ħasa | 2 | 2 | Ov-ov | Pv-Av | LL |
| 62. | Zaawyih | 2 | 5 | Ovvg-gvo | AvvB-TvG | SH |

Appendix 4.

1.	?azru9	2	4	ovo-lvo	GvA-AvP	HH
2.	manbij	2	4	Nvn-ovo	BvA-BvO	HH
3.	raaqib	2	4	Lvv-ovo	Avv-UvB	HH
4.	zaħlah	2	4	Ovo-lvo	AvP-AvG	HH
5.	9inbeh	2	4	Ovn-ovo	PvA-BvG	HH
6.	irbid	2	4	vl-ovo	vA-BvA	HH
7.	sii ŝil	2	4	Ovv-ovl	Avv-OvA	HH
8.	tuunis	2	4	Ovv-nvo	Avv-AvA	HH
9.	şan9aa	2	4	Ovn-ovv	AvA-Pvv	HH
10.	qa tar	2	3	Ov-ovl	Uv-AvA	LH
11.	kabul	2	3	Ov-ovl	VvBvA	LH
12.	şa mad	2	3	Ov-nvo	Av-BvA	LH
13.	şa fad	2	3	Ov-ovo	Av-LvA	LH
14.	dima ŝq	2	4	ov-nvvo	Av-BvvU	LS
15.	biniin	2	4	Ov-nvvn	Bv-AvvA	LS
16.	bisaaw	2	4	Ov-ovvg	Bv-AvvB	LS
17.	israas	2	4	vo-lvvo	vA-AvvA	LS
18.	ħamaah	2	4	Ov-nvvo	Pv-BvvG	LS
19.	9ikaar	2	4	10v-ovvl	Pv-AvvA	LS
20.	nibaal	2	4	nv-ovvl	Av-BvvA	LS
21.	9umaan	2	4	Ov-naan	Pv-BvvA	LS
22.	butaan	2	4	Ov-ovvn	Bv-AvvA	LS

23.	iraan	2	4	v-lvvn	v-AvvA	LS
24.	ŝimtaar	2	5	Ovn-ovvl	OvB-AvvA	HS
25.	wahraan	2	5	Gvo-lvvn	BvG-AvvA	HS
26.	9ammaan	2	5	ovn-nvvn	PvB-BvvA	HS
27.	tahraan	2	5	Ovo-lvvn	AvG-AvvA	HS
28.	bikkiin	2	5	Ovo-ovvo	BvV-VvvA	HS
29.	ba ŝ kiik	2	5	Ovo-ovvo	BvO-VvvV	HS
30.	bairoot	2	5	Ovv-lvvo	Bvv-AvvA	HS
31.	tikriit	2	5	Ovo-lvvo	AvV-AvvA	HS
32.	9intaab	2	5	Ovn-ovvo	PvA-AvvB	HS
33.	yabruud	2	4	Gvo-lvo	TvB-AvvA	HH
34.	?an ş aar	2	5	Ovn-ovvl	GvA-AvvA	HS
35.	libnaan	2	5	Lvo-naan	AvB-AvvA	HS
36.	baanjil	2	5	Ovvn-ovl	BvvA-OvA	SH
37.	ruusya	2	4	Lvvo-gv	AvvA-Tv	SL
38.	suurya	2	4	ovvl-gv	AvvA-Tv	SL
39.	kuurya	2	4	ovvl-gv	VvvA-Tv	SL
40.	m ɔ:sku	2	4	nvvo-ov	BvvA-Vv	SL
41.	t ɔ:kyu	2	4	ovvo-gv	AvvV-Tv	SL
42.	zaamya	2	4	ovvn-gv	AvvB-Tv	SL