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Quranic Phonology and Generative Phonology: Formulating Generative Phonological Rules to Non-Syllabic Nuun's Rules

Ahmed Mohammed Saleh Alduais

Department of English Language, King Saud University (KSU)

Riyadh, Saudi Arabia

Tel: 966-551-367-208 E-mail: ibnalduais@yahoo.com

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Abstract

Purpose: To generate generative phonological rules for the Quranic phonological rules of the Arabic mainly non-syllabic Nuun's rules.

Method: Chomsky's and Halle's generative rules have been taken as models where principles of this theory when formulating the generative phonological rules for the non-syllabic Nunn's rules were followed. The data of this study were mainly a number of the examples quoted form the Holy Quran, as this study is completely related to the phonological system of the Holy Quran.

Results: Results indicated that the process of formulating the generative rules started by stating the main Quranic phonological rule and then translating it into a generative phonological one with the use of distinctive features which have been used originally by Chomsky and Halle.

Conclusion: It is concluded that *Generative Phonology* theory does apply to the Quranic Phonology rules but in one level it fails to show the representation of the rules of concealment that is, it seemed easy to order the rules and they have captured the changes required but it was first difficult to make distinctive features which can state that the non-syllabic Nuun in the case of concealment is neither assimilated nor pronounced clearly so it was dealt sometimes as assimilation and sometimes as clear pronunciation. As a result, we would have either additional rules of assimilation or clear pronunciation which is actually not true. Has it been true, then why our ancient Arab phonologists and linguists had

mentioned it as a different rule (hukm) of the non-syllabic Nuun?

Keywords: Generative phonology, Quranic phonology, Formulated Quranic generative rules, Ordered Quranic generative rules, Non-syllabic Nuun, Assimilation, Complete change, Concealment, Clear pronunciation

1. Introduction

Strictly speaking, all languages of the world share in one way or another some of their linguistic features. For instance, they all have the same linguistic components: semantic, syntactic, morphological, phonological and phonetic components. Yet, each one of these components will be necessarily different from the component of this or that particular language. For example, consider the phonetic systems of both Arabic and English languages. With reference to the proposed universal system of the sounds, each language will have its share from the list of the sounds. More importantly, they may share the same sounds but not all of them. That is, each language must have some sounds which are not available in the other languages.

With reference to the hypotheses of Universal Grammar, Contrastive Linguistics, and some other theories of language and linguistics which may share the same notion; many researches and studies have been conducted attempting either to look for some differences and similarities between two or more languages (Contrastive Linguistics), or find out some generalizations among all languages (Universal Grammar).

From among these theories, consider, for instance, Transformational Generative Grammar, where in, nearly all languages of the world share some linguistic features if governed by the principles of this theory, yet differ for one reason or another from one another.

More specifically, consider the theory of Generative Phonology, where in the phonological systems of nearly all the languages can be formulated as generative phonological rules depending on the principles of this theory.

On account of this, the researcher will attempt an applied study, trying to apply this theory to the rules of the phonological system of the Arabic language, mainly what is well-known as Quranic Phonology (Science of Tajweed). In other words, the Quranic Phonology and the Generative Phonology will be the researcher's main issue in this research paper.

1.1 Generative Phonology and Quranic Phonology

Basically, generative phonology is considered as a derived branch of generative grammar whose main opponents are Chomsky and Halle. Yet, it is an opposing theory to the previous theories of phonology, those lead by structuralists and other schools of pre-generative phonological schools.

Quranic Phonology, on the other hand, is a pure Quranic branch of the Arabic linguistics as some of the Arab linguists would mention it. That is, other linguists would argue that Quranic Phonology was and is not pure Quranic as some of the leading ancient linguists of Arab have discussed it as part of Phonology and phonetics. Of course, they mentioned its constant relation to Quran but they also stated clearly its applicability to the classical Arabic language mainly its early recited poems (classical poetry).

In spite of this, this issue is not the researches' concern. That is, some of the rules of the Quranic Phonology will be taken and applied to those in Generative Phonology. More clearly, the researcher will test the applicability of this theory to the system of the Quranic Phonology

by formulating the rules of some rules of the Quranic Phonology on the bases of the theory of Generative Phonology.

On the basis of this, the principle aims of this study are:

1) To account briefly for the origins and principles of both generative phonology and Quranic Phonology;
2) To formulate generative phonological rules to no-syllabic Nuun rules of the Arabic Quranic phonology.

That is to say, the study investigates the following hypotheses:

1) Is it possible to formulate generative phonological rules to the non-syllabic Nunn's rules?
2) Do the generative formulated rules to the non-syllabic Nuun's rules capture the changes required or not?
3) If, and only if those rules have been formulated, do they mean in one way or another that generative phonology is a universal theory?

However, it is worth to mention that this study delimits itself only to non-syllabic Nuun's rules and formulating generative phonological rules for them. In other words, other rules of the Quranic phonology will not be discussed or even mentioned. More importantly, this study is not a contrastive study between Arabic and English; it is more like (generating) the Quranic phonological rules and proving the possibility of stating the universality of the theory of the Generative Phonology.

2. Background of the Study

Definitely, a language of whatever world must be in one way or another characterized by some features which are unique to this or that particular language. Needless to say, these features may vary affected by may be social, cultural, and religious factors. Arabic language, for example, Arab linguists would claim the uniqueness of what is called as the Quranic Phonology (The Science of Tajweed) system. It is claimed that, it is a pure Quranic branch of linguistics. In spite of this, other linguists would argue that early Arab scientists of language have discussed such science in relation to Phonology and Phonetics without ignoring its constant relation to the Holy Quran. In this section; however, the researcher is going to introduce briefly the Quranic Phonology, non-syllabic Nuun rules and Generative Phonology as well. After that, a survey of some of the studies which in one way or another relate to this study will be accounted for.

Principally, it is almost agreed by all Arab Phonologists (linguists) that Quranic Phonology has been originated scientifically by the Prophet Mohammed (PBUH). Theoretically, it has been originated be Abu- Alaswad Aldu'ali, Al-Farahidi and some other Arab linguists. They would also agree that Quranic Phonology in its simple meaning would mean to articulate exactly and correctly the verses of the Holy Quran taking into consideration all the Quranic phonological rules and features, (Nassr, 1349 AH, pp. 4-7).

Like the Arabic phonological and phonetic systems, Quranic phonological and phonetic systems would discuss topics such as: place of articulation, manner of articulation and of course rules which are our concern here, (Bakalla, 1982, pp. 39-211).

Coincidentally, linguists and also proponents of the Quranic Phonology would discuss what we have mentioned here as the main issue of our study which is the non-syllabic Nuun. That is, whatever the way they have introduced the rules of the non-syllabic Nuun, they would reach to the same end. Put it another way, whatever the number of rules and features which they would not agree with each other about them, they would conclude that this Nuun has four rules: Assimilation (Idghaam) which is divided into incomplete/partial assimilation and full assimilation, Complete Change (Iqlaab), Concealment (Ikhfaa) and Clear Pronunciation (Idhaar), (Nouruddin 1992), (Istinih, 2003, pp. 124,141), (Mahomoud, 2003), Allam, 2004, pp. 60,288), (Mansour, 2006, 123-141) and (Derar, 2007).

Have introduced briefly the Quranic Phonology and mentioned the rules of the non-syllabic, now, Generative Phonology will be also introduced briefly.

It was the beginning of the 1960s, they say, as a mark of rebelling against both phonemics and structural linguistics and promoting for a new theory of Phonology by both Chomsky and Halle. Clarck and Yallop state that "… a large-scale treatment of English phonology jointly authored by Chomsky and Halle (1968) marked the emergence of generative phonology as a new theory and framework of description", (1995.pp.128, 129). Both Chomsky and Halle declare the importance of their theory against other phonological theories which left some of the questions unanswerable, (Chomsky & Halle, 1968).

Kenstowics introduces generative phonology as a branch of the general theory of transformational generative grammar. He maintains "generative phonology is a subfield of the general theory of language known as generative grammar", (1979, p.2). He continues, "the ultimate goal of linguists working within this framework is to answer the question: what is the nature of language?", (ibid, p.2). Kenstowics, stresses on the importance of the generative phonological rules as a tool of systematizing a particular language in particular and all languages in a framework of ruled system in general, (ibid, pp. 25-43).

In addition to what has been mentioned above is Basboll's statements in his article, where in, he discusses in a little bit details the origins for this theory and the trends within this theory. Actually, he raises the question whether we still have what is called generative phonology school and is there any relation to the recent theories of phonology with the generative theory. He concludes his paper with that, recent phonology may in one way or another is related to the generative phonology but recent schools though look similar to this theory, have been originated as opposing schools against the generative school which is accused for its abstractness, (Basboll, 1980).

In his book, Goldsmith, introduces to us both Phonotactics compared with Generative Phonology. With reference to his ideas, it seems that as if he was attempting to bring advantages and disadvantages of both theories. He describes the generative phonological rules as:

> …the theory proposed in The Sound Pattern of English (Chomsky and Halle 1968, hereinafter SPE), an account which puts most of the burden of determining phonological well-formedness on the operation of a set of ordered rules. In this conception, there are

> no well-formedness conditions as such; a representation is well-formed by virtue of where it came from, not what it is. But it has become widely accepted – to the point where we may say it is simply established that the complete elimination of phonotactics in favor of rule operation misses important generalizations, and the first area studied in this way…
> (1996, 3-4)

McMahon introduces lexical phonology as a derivational model of generative phonology which reflects the extension of this theory and framework, (2000). Moreover, (Goldsmith) accounts for the theory of generative phonology in its early origins and remarks from the early 1940s and he concludes "generative phonology is in no way diminished by the realisation that its key ideas were being considered and developed by the mid 1940s. It is, after all, the ideas that matter to us now…" (2008, p. 20).Additionally, (Ngar-Fun, 1994, p. 1) conducts a research paper discussing Chomsky's argument against phonemics and he comes to the end that Chomsky has "unjustly criticized" classical phonemics.

Having introduced generative phonology, now, a number of the related studies to this paper will be mentioned. Canavati (1970) conducts a research studying the development of the phonological development of the French language within the framework of generative phonology. He made a set of phonological rules depending on the theory of generative phonology. S/he concludes the study with that a number of certain descriptions about the French phonology have been determined with the use of this theory which were actually undetermined before with the use of pre-generative phonology theories.

One more study is that one conducted by Smith (1975) who approaches a new area in the theory of generative phonology which is actually the practical side of this theory. He attempts in his study to study some morphological features of the English language on the bases of this theory. He concludes his study mentioning that applied generative phonology showed considerable effect in the results of testing the English morphology.

From another different of view, Finely (2008), in her research, introduces sounds harmony or more accurately vowel harmony as one of the main challenges of the theory of generative phonology. In spite of this, she introduces the advantages of this theory and its applicability to many sound systems of other languages.

Again, Boyle (1973) attempted in his study to systematize what he called (Gallic Dialects) on the bases of generative phonology. He reaches to the end that generative phonology mainly its rules ordering shows a considerable results in determining one system for the Irish Gallic dialects.

Once again, Abdul-Karim (1980) states in his study which he believes the 1st to touch such an area that no study has mentioned or discussed the Lebanese Arabic within the framework of generative phonology. He concluded his study with that with use of this theory; he was able to develop a clear phonological system for Lebanese Arabic which was not available before and with the use of other pre-generative phonology theories.

Moreover, Majdi (1988) indicates in his study of the Iraqi Arabic Morphophonemics wherein

he studied the affixation process to the stems within the framework of generative phonology mainly Chomsky's and Halle's one that this theory did help to a great extent to prove his proposed claim. That is, and according to him, "related words have lexical representations which are related to phonetic representations by rules of phonology", (ibid, p. 250).

Different from the above mentioned studies is Lyche's study who conducts a study of the deletion of the French Schwa within the framework of generative phonology but he uses what he named as Natural generative Phonology. Unlike classical generative phonology, natural generative phonology does not usually allow phonological rules to be ordered or changed, that is, they are obligatory ones, (1979).

One more study wherein the researcher again has attempted to test the applicability of generative rule to the classification of the rules of some dialects in a particular language is Vasiliu's (1965). The main purpose of this study was to study the Daco-Rumanian dialects within the framework of generative phonology. The researcher concluded his/her study with that "generative approach is more powerful than the purely distributional" approaches "since it enables us to a hierarchy among various criteria of classification" of the sound system of these dialects, (ibid, p. 19).

Furthermore, in his research paper, (Carr, 1999) discussed analytically and critically some criticisms of the generative phonology. For instance, he mentioned the point of view that "data on which generative analyses are normally based are unreliable because they are not collected in a sociolinguistically sensitive manner", (p. 1).

Additionally, Homiedan (1428) clarifies in his study wherein he explains the phonological allomorphic variation of the Arabic definite article within the use of generative phonological rules the positive values of this theory. He also mentions the levels of representation that go under the phonological level.

One more study and as the final one to be mentioned here is Yadav's study (n.d.) wherein he attempts to describe the aspirated consonants of colloquial Maithili within the framework of generative phonology.

To sum up, Quranic Phonology mainly non-syllabic Nuun's rules have been discussed extensively by Arab linguists and Scientists of Quranic Phonology and we need to test their applicability to the generative phonological rules as none of the above mentioned studies has done it before. One more thing is that, we want to know whether their classification and application to generative phonological rules will face problems or they can be easily translated into generative phonological rules. On the other hand, we have seen how important is the theory of generative phonology and its flexibility and applicability to many languages and dialects.

3. Methods

As a matter of fact, this study is completely qualitative. That is to say, it has nothing to do with numbers or statistics in general as it is wholly based on rules formulation and critical analysis of the formulated rules.

Principally, the researcher has chosen the non-syllabic rules to be translated (transformed) to generative phonological rules. Needless to say, four basic rules (aahkaam) of non-syllabic Nuun's rules are stated and then will be translated into generative phonological rules. Furthermore, within each rule (hukm), there are a number of detailed rules. For that matter, the main generative formulated rules will be reformulated to suit those partial rules.

For the original rules of non-syllabic Nuun's rules, a number of books in both Quranic Phonology and Arabic Phonology and Phonetics are consulted and are all mentioned in the list of (references). Regarding the expressions, words and terms related to Quranic Phonology, the researcher has also depended on some translated books of both Quranic Phonology and Arabic Phonology and Phonetics and they are also referenced in the list of (references). More importantly, for some of the terms have not been found in any of those translated books, the researcher has made use of professor Mahmoud Isma'il Saleh's dictionary of Islamic words and expressions (A Dictionary of Islamic Words and Expressions, 2002). Again, for the rules of generative phonology, two books have been used: Chomsky's and Halle's book (The Sound Pattern of English, 1968) and Clarck's Yallop's book (An Introduction to Phonetics and Phonology, 1995).

Once again and since this research paper is mainly concerned with the Quranic Phonology so all the examples which are mentioned in the tables are quoted form the Holy Quran, where in the number of Suurah (chapter) is mentioned and also the number of aayah (verse).

Above all, the researcher will start with mentioning the original rule of the non-syllabic Nuun, stating it, formulating a generative phonological rule, drawing the distinctive features in matrix and then noting down the phonetic transcription of it. Put it another way, first the Quranic phonological rule, the generative rule (phonological representation) and then phonetic representation of the example. Technically, our input is the original rule translated into English, formulated into generative one, and then we get the outputs which are actually both the formulated generative rule and the transcription of this or that particular example.

Table 1. Table of Arabic sounds and their Phonetic symbols

Arabic sound	Its symbol
ء	ʔ
ب	b
ت	t
ث	θ
ج	ʤ
ح	ħ
خ	x
د	d
ذ	ð
ر	r
ز	z
س	s

ش	ʃ
ص	**s**
ض	≈
ط	**t**
ظ	**ð**
ع	ʔ
غ	**g** (ghayn)
ف	f
ق	q
ك	k
ل	l
م	m
ن	n
ه	h
و	w
ي	j
ـَ **fathah (accusative)** ا	a, a:
ـِ kasrah (genitive) و	i, i:
ـُ dhamah (nominative)ي	u, u:

Table 2.Table of Arabic letters and their symbols of transliteration

Arabic letter	Name	Transliteration
ا	‘alif	aa
ء	Hamza	‘
ب	Baa	b
ت	Taa	t
ث	Thaa	th
ج	Jiim	j
ح	Haa	h
خ	Khaa	kh
د	daal	d
ذ	dhaal	dh
ر	raa	r
ز	zaay	z
س	siin	s
ش	shin	sh
ص	saad	s
ض	daad	d
ط	taa	t
ظ	zaa	z
ع	‘ayn	‘

غ	ghayn	gh
ف	faa	f
ق	qaff	q
ك	kaff	k
ل	laam	l
م	miim	m
ن	nuun	n
ه	haa	h
و	waaw	uu
ي	yaa	ii
	fatha	a
	damma	u
	kasra	i

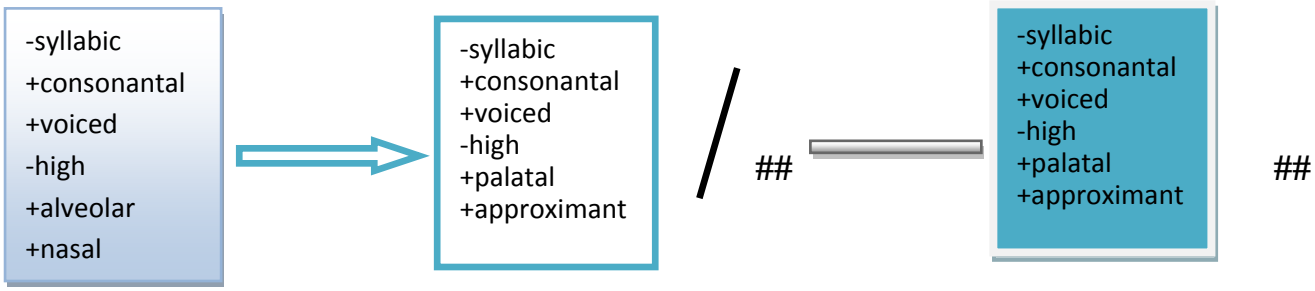
4. Results

The following 28 tables illustrate the formulated Quranic phonological rules, each table shows one rules and concluded by explanation of such rule.

Tables of Quranic Phonological Rules & Generative Rules

1) */n/ assimilates partially to any of the following sounds if it is followed by it:*

J, m,n,w

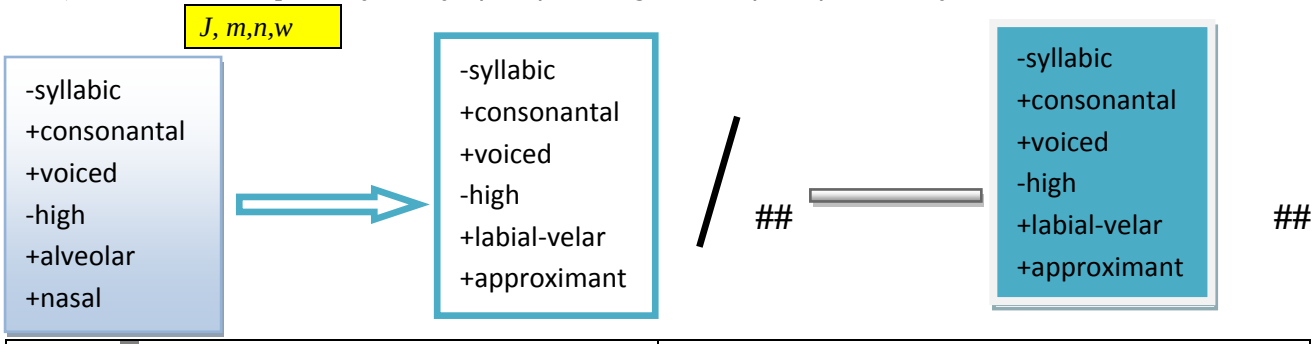


e.g. In**n** yakoulouna	*إن يقولون*
/?ijaaqulu:n/	

- /n/, here, is a consonant in any position and it is followed by the sound/j / cross word boundary, so it assimilates partially to this sound. The partial assimilation here is regressive as it is followed by the sound.

2) */n/ assimilates partially to any of the following sounds if it is followed by it:*

J, m,n,w

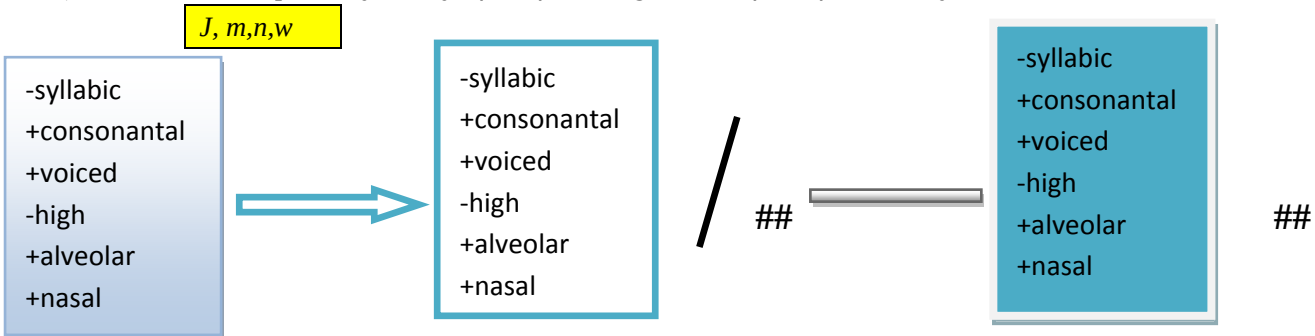


e.g. mi**n** walien	من ولي
/miwali/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/w/ cross word boundary, so it assimilates partially to this sound. The partial assimilation here is regressive as it is followed by the sound.

3) */n/ assimilates partially to any of the following sounds if it is followed by it:*

J, m,n,w

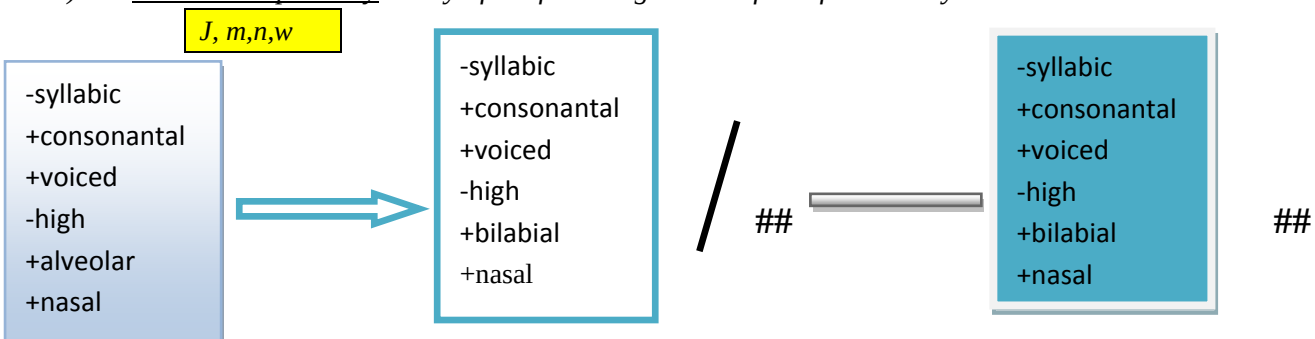


e.g. Wamaa**n** noamirhu	ومن نعمره
/waman?mirh/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/n/ cross word boundary, so it assimilates partially to this sound. The partial assimilation here is regressive as it is followed by the sound.

4) */n/ assimilates partially to any of the following sounds if it is followed by it:*

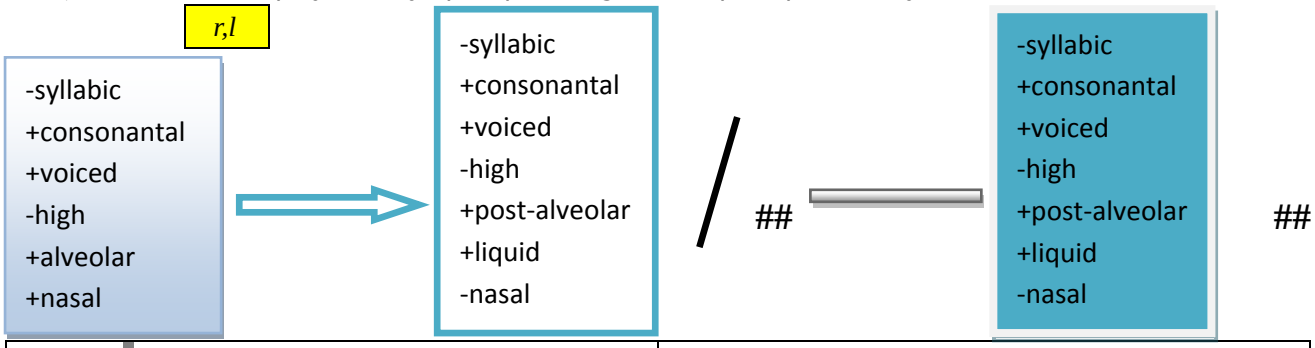
J, m,n,w



e.g. Mi**n** masaad	من مسد
/mimasad/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/m / cross word boundary, so it assimilates partially to this sound. The partial assimilation here is regressive as it is followed by the sound.

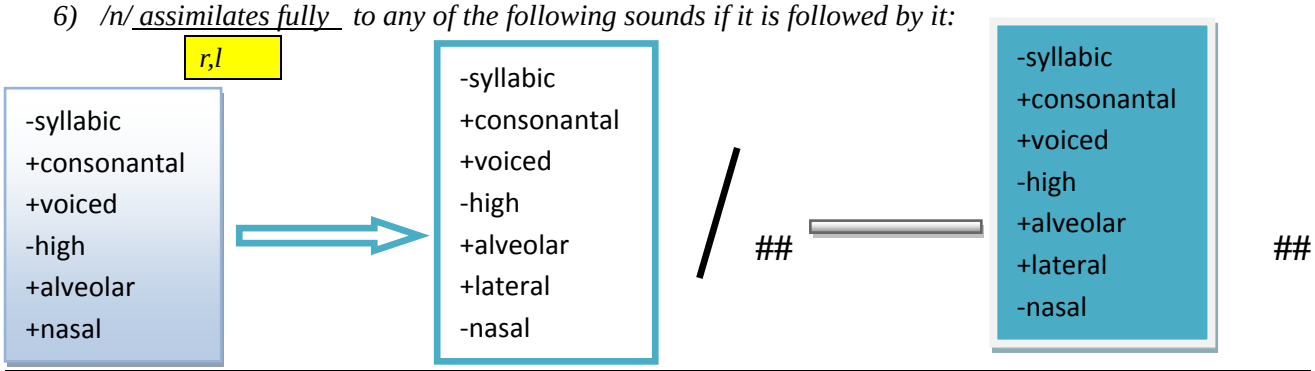
5) */n/ assimilates fully* to any of the following sounds if it is followed by it:



e.g. Mi**n** *r*aab	من رب
/mirab/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ r / cross word boundary, so it assimilates fully to this sound. The full assimilation here is regressive as it is followed by the sound.

6) */n/ assimilates fully* to any of the following sounds if it is followed by it:

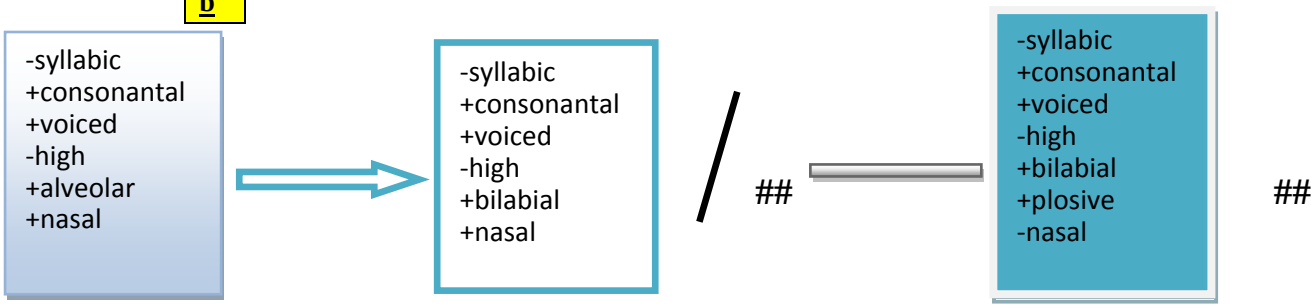


e.g. Mi**n** *l*aadun	من لدن
/miladun/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ l / cross word boundary, so it assimilates fully to this sound. The full assimilation here is regressive as it is followed by the sound.

7) */n/changes completely to the sound/m/ if it is followed by the sound:*

b

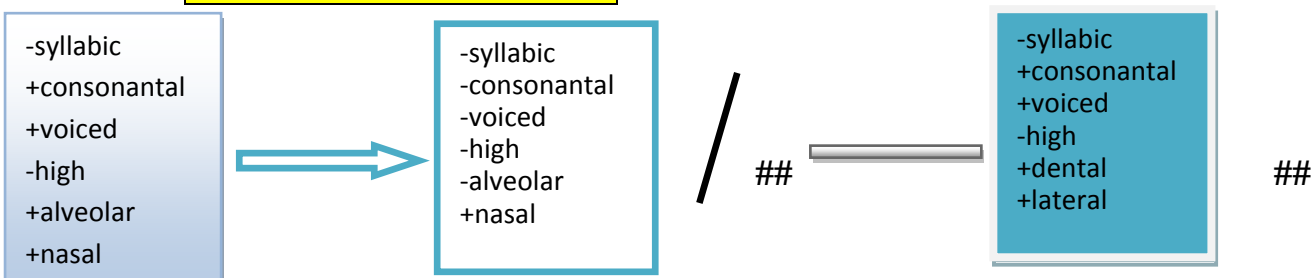


e.g. aa**n** *b*ourik will become aa**m** bourik	أن بورك
/aambu:rik/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ b / cross word boundary, so it is completely changed to the sound/b/. The complete change here is regressive as it is followed by the sound.

8) */n/is concealed if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð



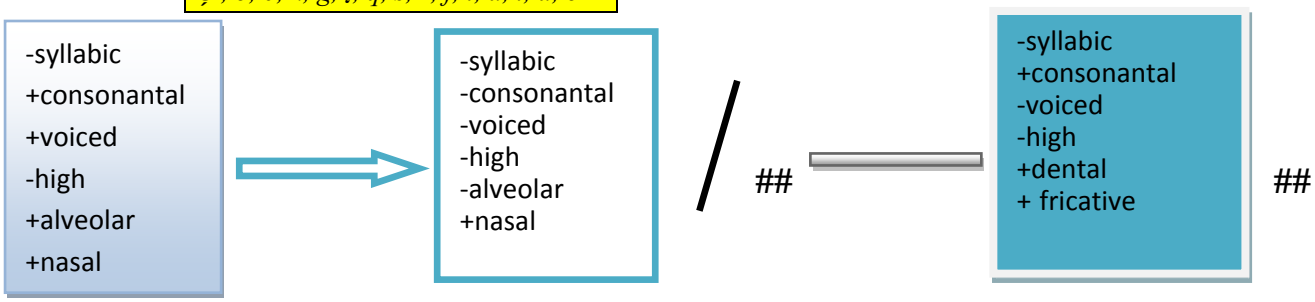
e.g. Mi**n** *th*akarin	من ذكر
/mi ðaakar/ /min ðaakar/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ð/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

❖ In this example and the other 14 examples (8-22), the sound /n/ is concealed, and we only hear it from the nasal cavity; otherwise, it is concealed. Put it another way, the sound/n/ and each of the (15) sounds, are neither near to each other so they can assimilate, nor they are far from each other so that they can be both pronounced clearly.

9) */n/is* <u>*concealed*</u> *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

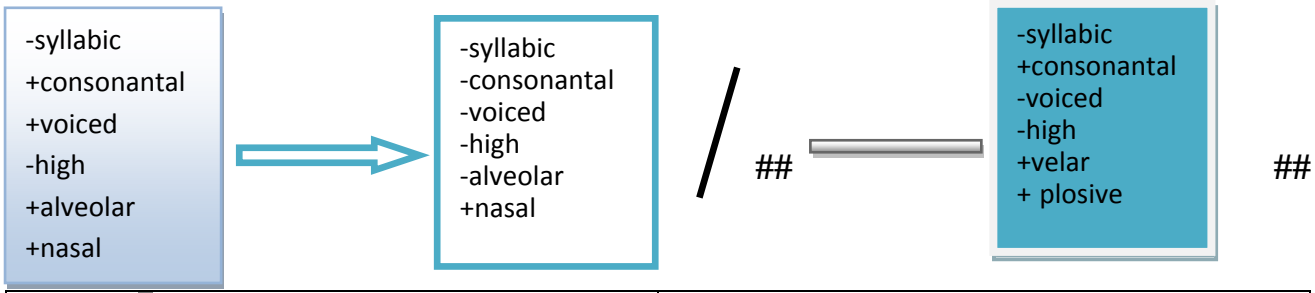


e.g. Min thamaritin	من ثمرة
/miθamaratin/ /minθamaratin/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ θ/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

10) */n/is* <u>*concealed*</u> *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

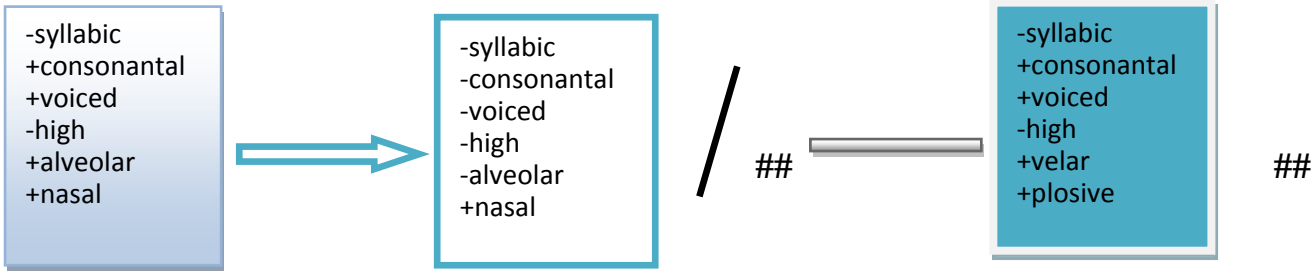


e.g. Maan kaana	من كان
/makaana/ /mankana/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ k/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

11) */n/is* <u>*concealed*</u> *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

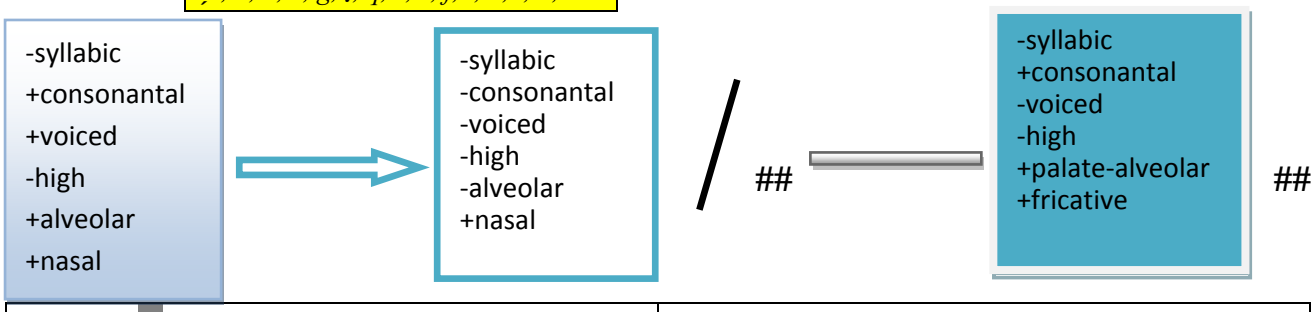


e.g. Aan ga'akum	أن جاءكم
/aanja?kum/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/j/ cross word boundary, so it assimilates partially to this sound. The partial assimilation here is regressive as it is followed by the sound.

12) /n/is concealed if it is followed by any of the following sounds:

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

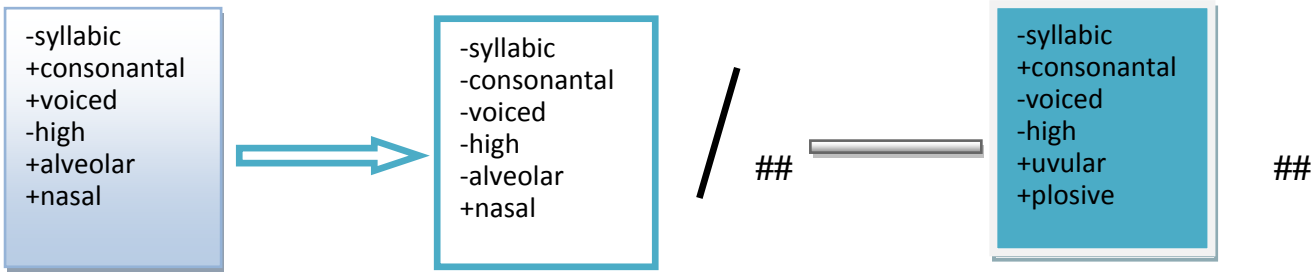


e.g. Maan sha'a	من شاء
/manʃaa?/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ʃ/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

13) /n/is concealed if it is followed by any of the following sounds:

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

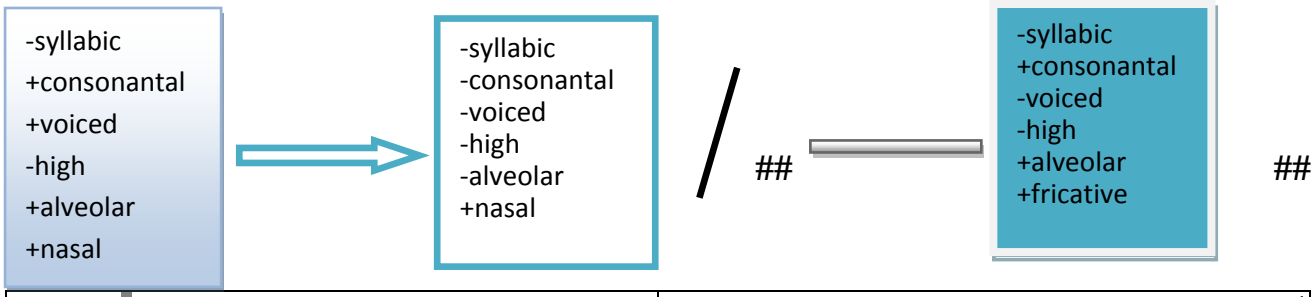


e.g. Waalaen koultum	ولئن قلتم
/wala?inqultum/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ q/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

14) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

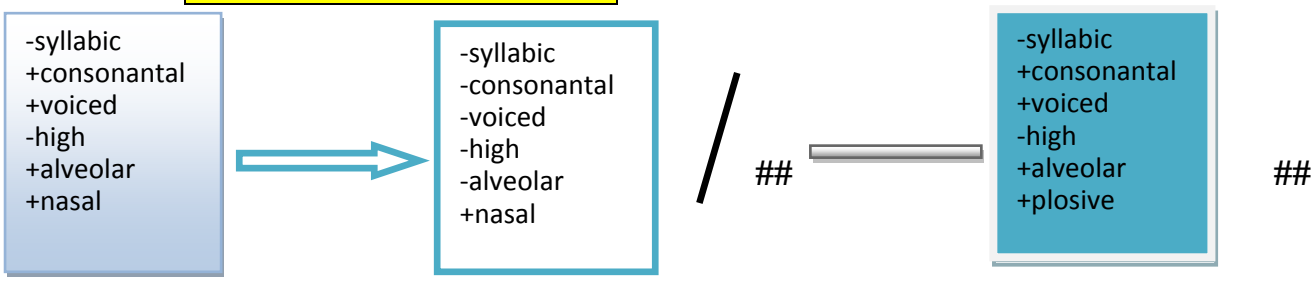


e.g. Aan salamun	أن سلام
/aansalamun/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ s/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

15) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

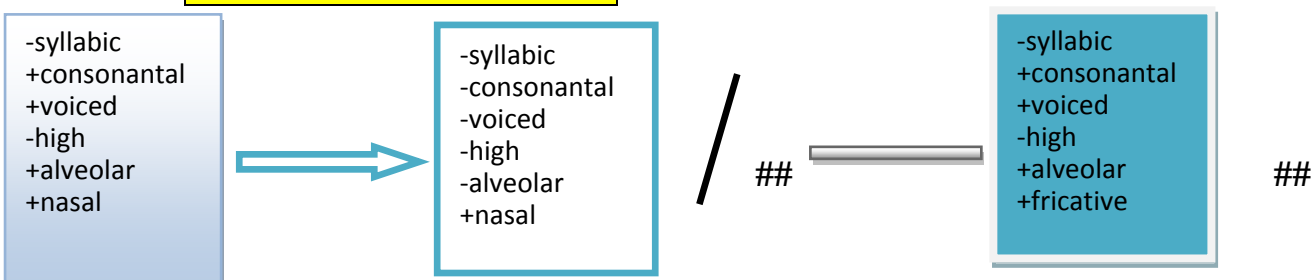


e.g. Min daabatin	من دابة
/mindabaitin/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/d / cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

16) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

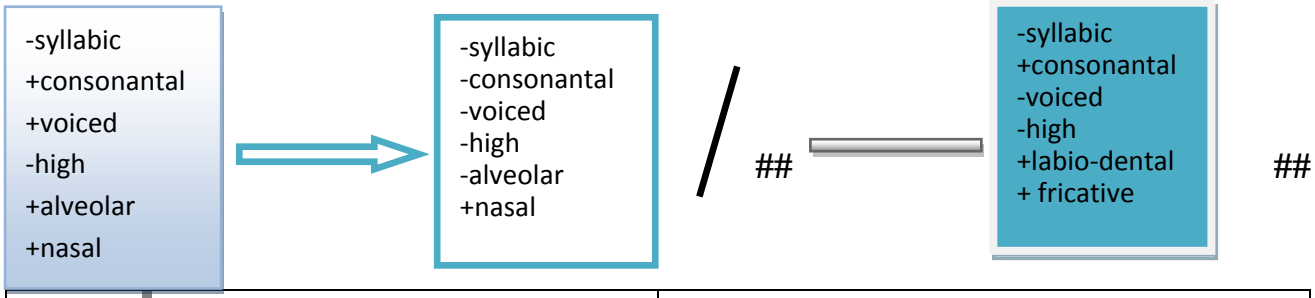


e.g. Fa'ain zalaltum	فان زللتم
/f?inzalaltum/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ z/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

17) /n/is <u>*concealed*</u> *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

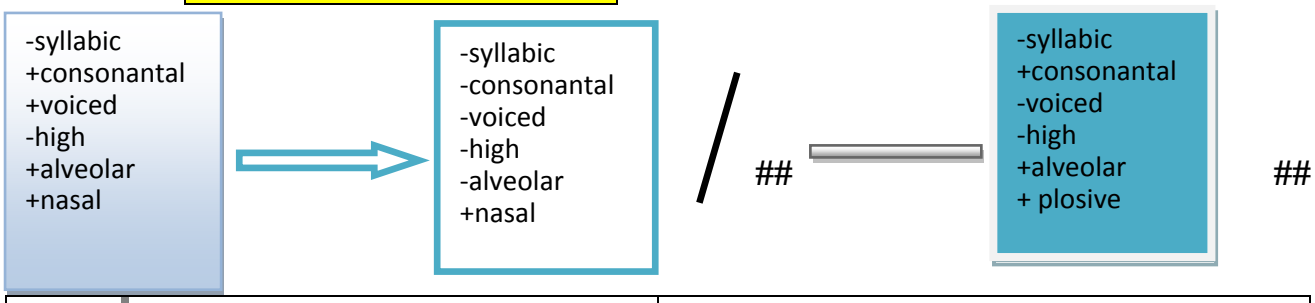


e.g. Wa'in faatakum	وان فاتكم
/w?infaatakum/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ f/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

18) /n/is <u>*concealed*</u> *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

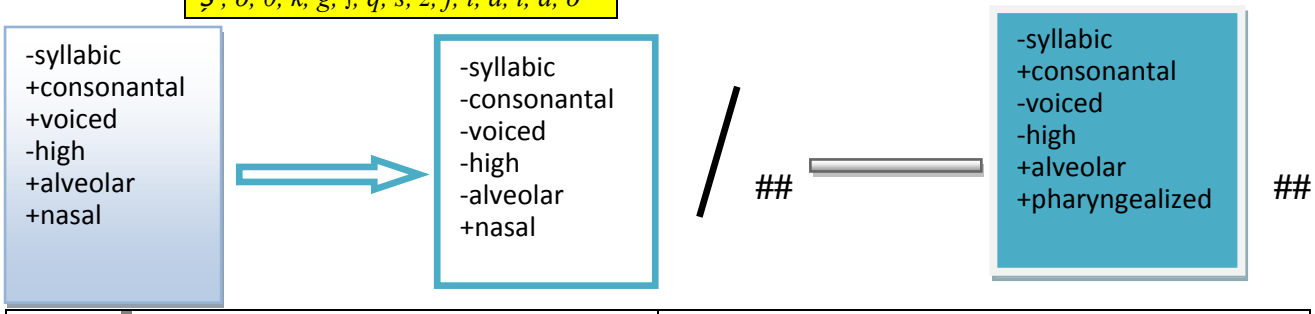


e.g. Min tahetiha	من تحتها
/mintahtihaa/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ t/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

19) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

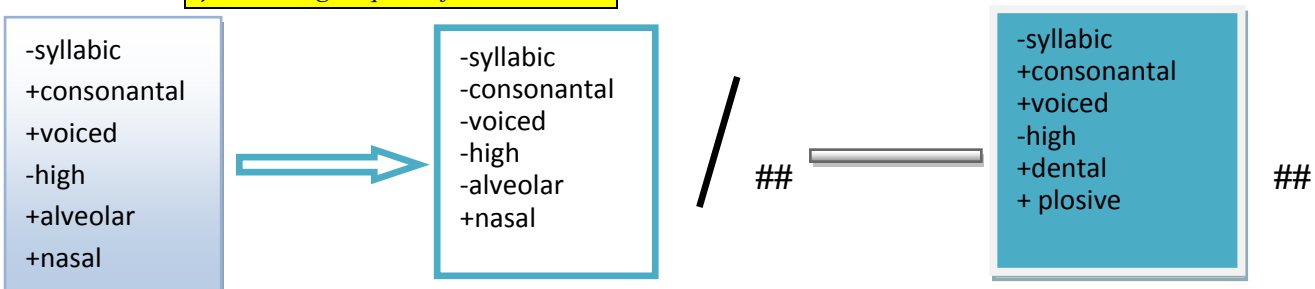


e.g. Aan sadoukum	أن صدوكم
/aansadukum/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ **s**/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

20) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

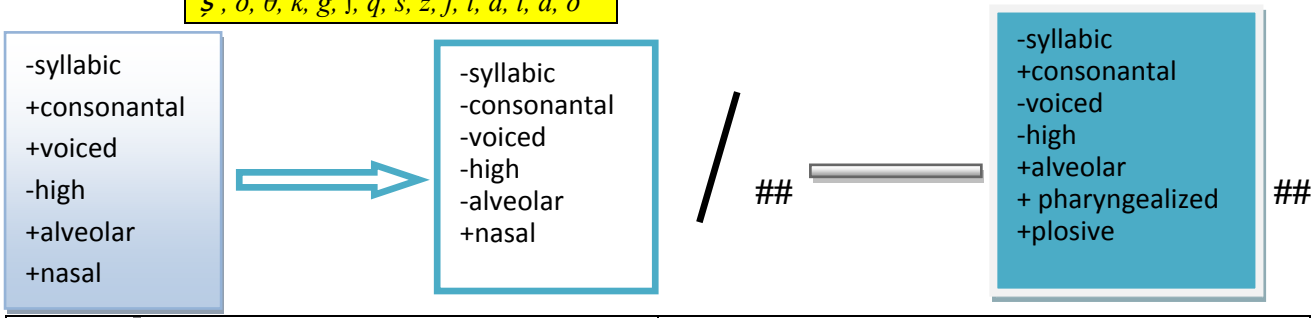


e.g. Inn dalalta	إن ضللت
/?in≈alalta/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ **≈**/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

21) /n/is *concealed* *if it is followed by any of the following sounds:*

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð

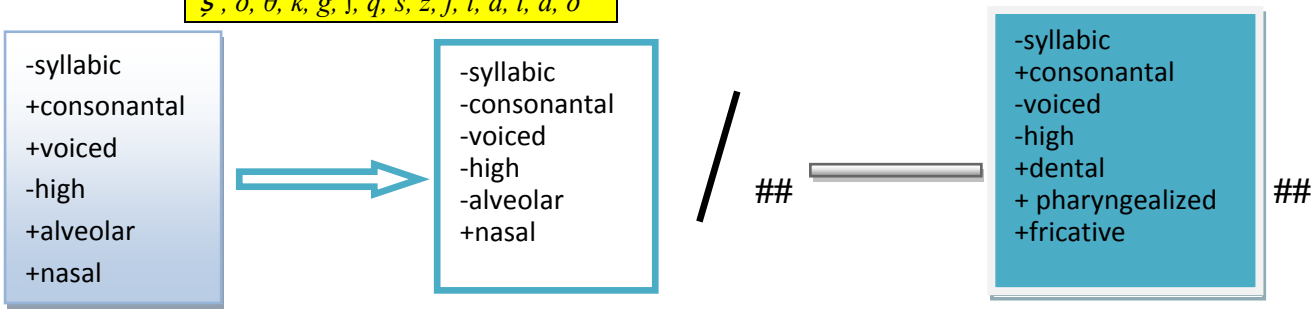


e.g. Wain taaifatani	وان طائفتان
/wa?intaa?fitan/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ŧ/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

22) /n/is concealed if it is followed by any of the following sounds:

ʂ , ð, θ, k, g, ʃ, q, s, z, f, t, d, t, d, ð



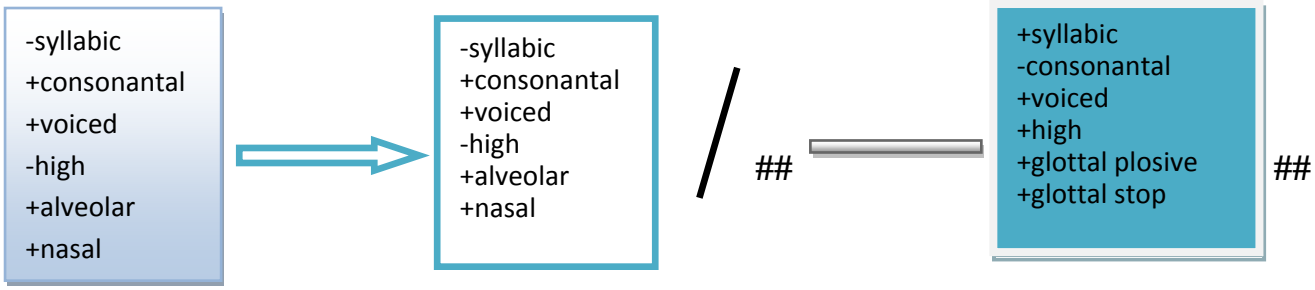
e.g. Inn ɖanaa	إن ظنا
/in-ðanaa/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ð/ cross word boundary, so it is concealed. The concealment here is regressive as it is followed by the sound.

❖ In this example and the above 14 examples (8-22), the sound /n/ is concealed, and we only hear it from the nasal cavity; otherwise, it is concealed. Put it another way, the sound/n/ and each of the (15) sounds, are neither near to each other so they can assimilate, nor they are far from each other so that they can be both pronounced clearly.

23) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

?, h, ʕ, h, ɣ ,x

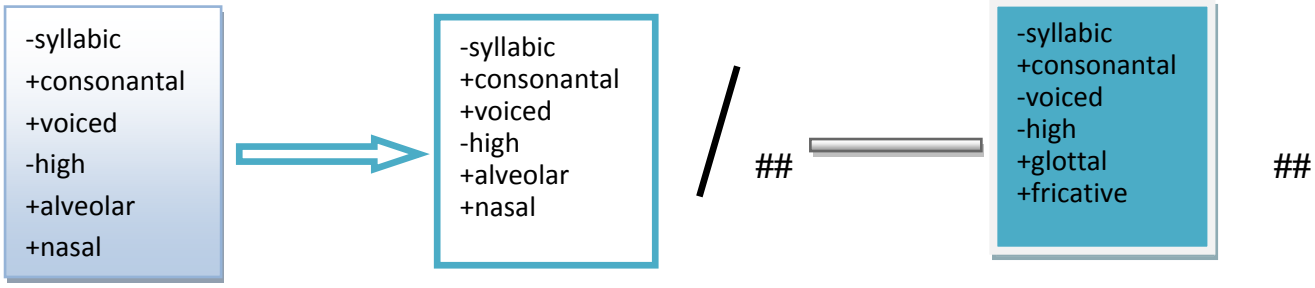


e.g. maan a'amana	ومن أحسن
/waman?hsan/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/? / cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

24) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

ʔ, h, ʕ, ħ, ɣ ,x

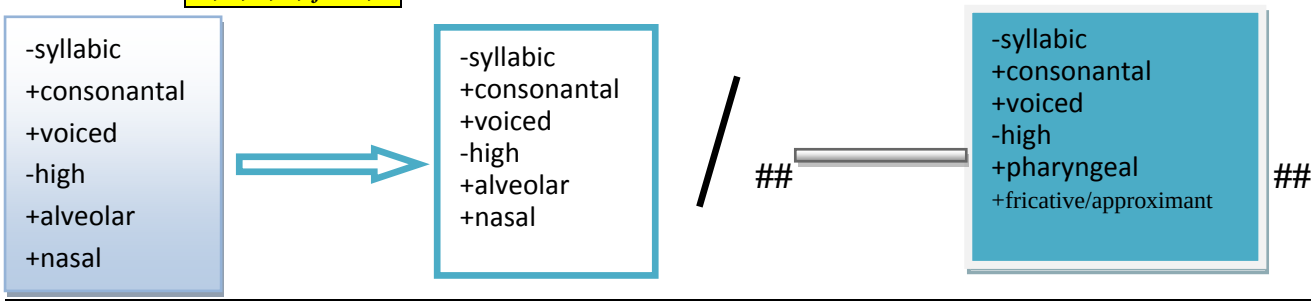


e.g. Min haddin	من هاد
/minhaad/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ h/ cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

25) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

ʔ, h, ʕ, ħ, ɣ ,x

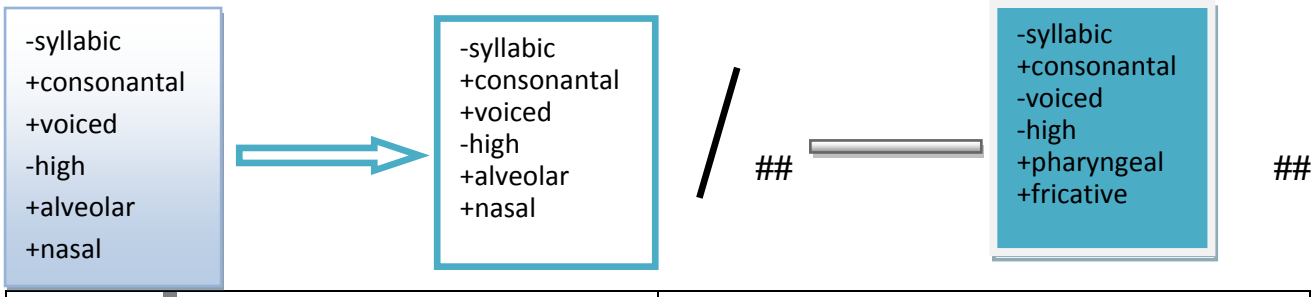


e.g. Min a'alak	من علق
/minʕlaq/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ʕ / cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

26) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

ʔ, h, ʕ, ħ, ɣ ,x

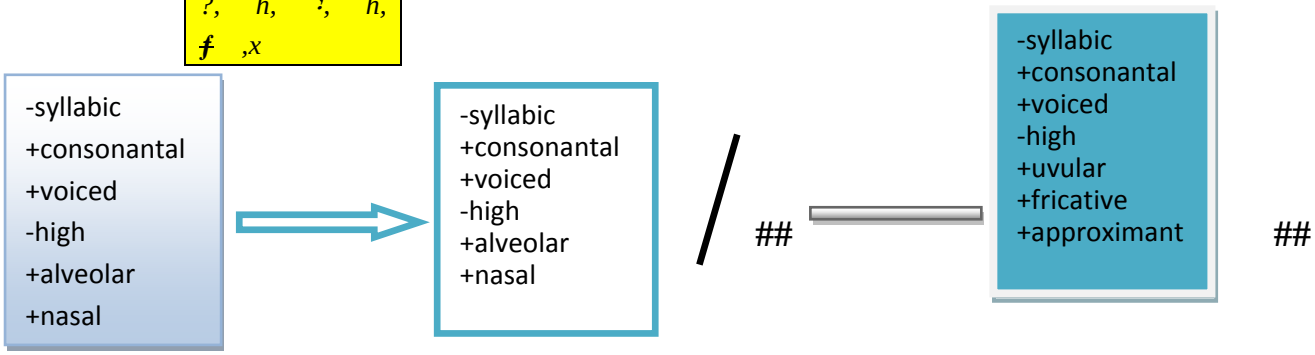


e.g. Famaan haagaka	فمن حاجك
/famanhaajaka/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ h/ cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

27) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

ʔ, h, ʕ, ħ, ɣ ,x

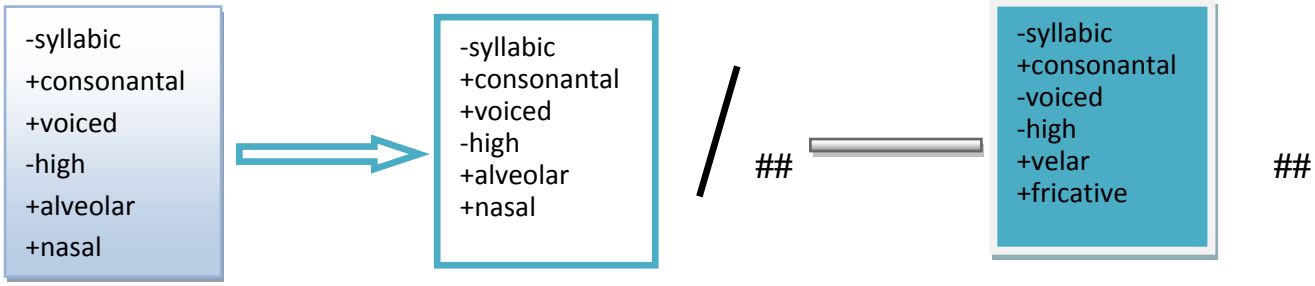


e.g. min ghislin	من غسلين
/min*ɣ*isli:n/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ ɣ / cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

28) /n/ is pronounced clearly after any of the following sounds if it is followed by it:

ʔ, h, ʕ, ħ, ɣ ,x



e.g. Min khaairin	من خير
/minxaair/	

❖ /n/, here, is a consonant in any position and it is followed by the sound/ x/ cross word boundary, so it is pronounced clearly after this sound. The clear pronunciation here is regressive as it is followed by the sound.

4. Discussion

It is a truth that cannot be denied that languages do differ from one another whatever the number of similarities they share. In other words, we may suggest or prove in one way or another that a particular theory can be applied to a number of the world languages or even sometimes all languages of the world, yet this or that particular language still remains different and distinguished from the other language(s). Despite this, we do need sometimes to use a particular theory especially when the notion of this theory is beyond the idea of contrasting or comparing two or more languages. That is, it attempts to systematize and make certain principles and generalizations about a language in general rather than finding similarities and differences. In this research paper, however, Generative Phonology theory is tested and taken as a model to be applied on the non-syllabic Nuun's rules which are one of the general rules of Quranic Phonology of Arabic language. Hence, with the use of this theory mainly generative phonological rule, (28 tables) have been designed to show the formulation of also (28 Quranic Phonological Rules) which have been formulated as generative phonological rules. More specifically, these Quranic phonological rules are actually divided into four main groups, each of which is divided again into a number of rules. Namely, Assimilation, Complete Change, Concealment and Clear Pronunciation are the four basic groups. Thus, how these rules have been formulated and whether the generative formulated rules have captured the changes required or not in addition to the values of formulating such rules will be discussed analytically and critically but briefly?

Basically, non-syllabic Nuun is defined as the one (sound) which is always unvoweled (unvoclaized) whether it has been the last sound in a word or it was it followed by another sound. Structurally, it comes in any part of speech including nouns, verbs prepositions an it can occur in the middle of the word or at the end of the word followed by another word. Generative phonology, on the other hand, is a subfield theory of generative grammar. It proposes that a particular sound has two levels: one is phonological and the other is phonetic.

That is, a rule is formulated where in distinctive features are put in matrix and the output is the phonetic representation of this or that particular sound transcribed according to the system of the used language.

With reference to section two wherein both Quranic phonological rules and generative rules have been introduced, it is important to notice that the researcher has started first with stating the basic Quranic phonological rules. Next, the sounds which effect this or that particular rule are listed and in each table one sound is taken as a model to be applied to the generative rule formulated with the use of distinctive features. After that, an example is mentioned to show the application of the rule and at the same time as the input of that formulated generative rule. Then, the example is transliterated into English and finally transcribed to show the phonetic representation of it. A more important point is that, in each formulated rule, at least three or rarely two distinctive features are drawn wherein the first one—shows always the non-syllabic Nuun, the second one to show also always the sound which if follows the non-syllabic Nuun results to the application of a particular rules, and finally the third one to show again always the output of the formulated rule itself within the phonological level and the phonetic level.

Firstly, assimilation's (?idghaam) rules have been introduced and as it has been shown that six rules have been needed. That is, a generative rule for each Quranic Phonological rules. So, tables (1-6) show both Quranic Phonological rules and the formulated rules for them illustrated with examples from the Holy Quran. However, assimilation is basically divided into two types: incomplete or partial assimilation (?idghaam naaqis) and full assimilation(?idghaam kaamel). Thus the former has four rules and the latter has two rules.

Secondly, the 2nd group are the rules of complete change (?iqlaab). As it is shown in section two, for this rule (Hukm) only one rule is included and for that matter only one generative rule is required and formulated.

The third rule (Hukm) of the non-syllabic Nuun is concealment (?ikhaa) which consists of fifteen rules. As a result, fifteen generative rules have been ordered and formulated and yet fifteen examples from the Holy Quran have been mentioned to show the phonetic representation of the ordered rules. Unlike assimilation, concealment is not divided into two or more kinds though some of the Arab Quranic phonologists and linguists have divided it into three kinds: one which includes a number of the fifteen rules is nearer to assimilation, the second one with also a list of the fifteen sounds (rules) is nearer to clear pronunciation and the rest of the list are in between. Despite this, this kind of division is not mentioned and considered at least for the purpose of this study though and as we will see later that such issue will for one reason or another cause problems when deciding whether the formulated generative rules have captured the changes or not and in the phonetic representation of the rules as well. Hence, tables (8-22) demonstrate such rules.

Finally, group four includes the fourth rule (hukm) which is clear pronunciation (?idhaar). This rule consists of six rules and because of this six generative rules have been ordered and formulated illustrated with six examples again form the Holy Quran. Similar to concealment and complete change is clear pronunciation which of course is not divided into two or more

kinds.

As far as phonological rules have been mentioned, it is worth to discuss now whether the rules ordered have captured the changes required or not. With reference to the above mentioned division of the Quranic phonological rules into four groups; four main generative rules have been formulated: one for assimilation, one for complete change, one more for concealment and finally one for clear pronunciation.

In detail, the first rule which has been formulated for assimilation has been then taken as a model to formulate the rules of the other rules of assimilation. However, changes which have been to the main rule to formulate the other rules have achieved this research goal. That is to say, generative phonological rules which have been ordered have captured the changes required when formulating them.

Dissimilarly, in the case of complete change where in, there was only one rule (hukm) which is actually the main Quranic phonological rule. For that matter, there is only one rule which has been formulated and no changes and the rules ordered for formulating this rule have captured the changes ordered.

Like assimilation is clear pronunciation where in six rules has been ordered: one of them is the main generative phonological rule and the other five have been adjusted to suit each rule (hukm).

By and by, problems have started to appear when ordering the rules of concealment. That is to say, the rules have been formulated but the last part of applying these rules which is the phonetic representation seems difficult to be determined. The reasons behind this difficulty were due to the nature of the Quranic phonological rules. To put it differently, in the case of concealment, it has been argued whether to represent these rules phonetically as assimilation or clear pronunciation because almost the majority of the Arab linguists and Quranic phonologists agree that these rules have not been so near to the places of articulation of assimilation so that they can be considered as assimilation, nor they are far from each other as in the case of clear pronunciation so they can be mentioned as clear pronunciation. For that matter, the researcher has attempted to represent them in that way but it seems actually not accurate as some of the features will require to order some features which are sometimes a combination of two features in order to clarify that the non-syllabic Nuun in this or that particular area is neither assimilated nor concealed.

The final issue which has been raised in this research paper is a combination of both the universality of the generative phonology theory and the advantages of formulating the Quranic phonological rules to generative phonological rules. With reference to section two, it has been approved practically that this theory of generative phonology does help to systematize the Quranic phonological rules of Arabic language. In spite of this, it fails or more accurately it appears as unsuitable especially and as mentioned above in the case of concealment. Thus, this study and attempt to formulate such rules may in one way or another attract researchers' attentions to the importance of conducting and searching in such area.

5. Conclusion

This research paper aimed to formulate generative phonological rules for the Quranic phonological rules mainly non-syllabic Nuun's rules. In order to achieve this purpose, the researcher has first introduced briefly the Quranic Phonology and then the Generative Phonology theory. After that a number of the related studies have been introduced and discussed. The researcher has made use of the Chomsky's and Halle's book to formulate the rules. After formulating the rules, it has been shown that the formulation of the rules was fit to the Quranic phonological rules and they have captured the changes required except in the case of concealment. That is to say, in this rule mainly its phonetic representation; the researcher has faced problems when representing these rules phonetically due to the complex nature of these Quranic phonological rules.

Thus, the researcher concludes his paper with that generative phonology theory does apply on the Quranic phonological rules but partially. Yet, it is not fair to say that generative phonology is not applicable for may be the nature of this research was not applied and conducted in the way that can make generative phonology suit the rules of concealment where in the phonetic representation requires to order compound features.

To conclude, it will be worthy to conduct a research where in the rules of only concealment are taken to be the main purpose of the research to see again whether another methodology of research can formulate generative phonological rules which can suit these rules or not. Again, it is important to conduct another research attempting to formulate generative phonological rules for Arabic classical poetry, classical prose, and classical preaches to see whether rules such as assimilation, complete change, concealment, clear pronunciation and other rules are pure Quranic or they were used before Quran and a long with those Ancient fluent Arabs? Hence, if and only if, this purpose has been achieved, then this study can start formulating generative phonological rules for classical Arabic language and not only for Quranic Phonology

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Many thanks are due to doctor Moheiddin Alhomeidi (previously a professor of Phonetics and Linguistics at the Department of English Language, King Saud University, Riyadh, Saudi Arabia) for his valuable lectures in the field and also for doctor Mahmoud Isma'il Saleh (professor of Applied Linguistics, Department of English Language, King Saud University) for his very useful dictionary which greatly helped in the translation of the terms related to Quranic Phonology from Arabic into English.

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