A Comparative Study of the Sound Alternations of English and Arabic Articles

(Sebuah Studi Perbandingan dari Pergantian Suara pada Artikel Bahasa Inggris dan Bahasa Arab)

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Abstract

Article is a type of determiner which precedes the noun to indicate the references being made to make the noun become clear. In applying the articles with noun, there are some sound alternations occurred. The analysis of the sound alternation is applied on the English and Arabic articles. The theory used in this research is generative phonology and comparative analysis theory. The discussion is intended to know phonologically the sound alternation of the articles of both languages and to know the similarities and the differences of them. Library research is used to find out the relevant concepts to the theoretical framework of the research. The data resources are taken from the English pronouncing dictionary as the data resources of English and the Arabic dictionary as the data resources of Arabic. The descriptive method is used to describe the presented data, while the comparative method is used to know the similarities and the differences of the sound alternation of English and Arabic articles. Phonological rule is used to find the appropriate rule in analyzing the underlying representation. Derivational process is used to generate the underlying representation into the phonetic representation. The result of this research indicates that there are some similarities and differences especially in the assimilation rule application according to the environment of the sound alternation of English and Arabic articles.

Key words: Arabic article, comparative analysis, English article, phonological rule, sound alternation

Abstrak

Artikel adalah sejenis kata sandang penentu yang mendahului kata benda untuk menunjukkan keterangan guna menjadikan kata benda itu menjadi jelas. Dalam mengaplikasikan penggunaan artikel dengan kata benda, ada beberapa pergantian suara yang terjadi. Analisis pergantian suara tersebut diaplikasikan dalam bahasa Inggris dan bahasa Arab. Teori yang digunakan adalah generatif fonologi dan analisis perbandingan. Pembahasannya dimaksudkan untuk mengetahui secara fonologis tentang pergantian suara yang terjadi pada kedua bahasa itu dan untuk mengetahui persamaan dan perbedaan antara keduanya. Dalam hal ini, penelitian pustaka digunakan untuk menemukan konsep yang sesuai dengan kerangka teori yang digunakan. Sumber data diambil dari kamus lafal bahasa Inggris sebagai data bahasa Inggris dan kamus bahasa Arab sebagai data bahasa Arab. Metode deskriptif digunakan untuk menguraikan data yang tersaji, sedangkan metode perbandingan digunakan untuk mengetahui persamaan dan perbedaan dari pergantian pada artikel bahasa Inggris dan bahasa Arab. Kaidah - kaidah fonologi digunakan untuk menemukan kaidah yang tepat dalam menganalisis representasi dasar. Proses derivasi digunakan untuk menurunkan representasi dasar kepada representasi fonetis. Hasil dari penelitian ini adalah bahwa ada beberapa persamaan dan perbedaan terutama dalam aplikasi kaidah asimilasi pada pergantian suara dari artikel bahasa Inggris dan bahasa Arab berdasarkan lingkungannya.

Kata kunci: artikel bahasa Arab, analisis perbandingan, artikel bahasa Inggris, kaidah fonologi, pergantian suara

Introduction

One of the characteristics of language is the uniqueness. Every language has its specific characteristics that are not possessed by the other languages. The specific characteristics can be found in the grammatical aspects, syntactical aspects, phonological aspects, morphological aspects, and many other aspects. In phonological aspects, for example, there are some rules that change the pronunciation of a word in certain condition. The phonological rules of one language and the other languages are different. That is the reason why language is unique. In relation with phonological aspects, there is a term which is usually used to represent the change of pronunciation, it is sound alternation. Sound alternation is a way of expressing grammatical categories which consists in changing a sound. It may occur in any languages. This research discusses about the problem which

is applied in two languages namely English and Arabic and then comparing them in the sound alternation's application.

The two languages which are chosen are two of the most popular and influential languages. They are used by so many country in the world. English is a chief of communication of people in the United Kingdom, the United States, Canada, Australia, New Zealand, South Africa, and numerous other countries. Nigeria and Uganda have almost two million speakers of English, Philippine has more than 11 millions, Pakistan and India have millions of speakers who have learned English [1]. Arabic has also been widely used over the world. About fifteen countries over the world use Arabic as the official language, and over 200,000,000 people are estimated to speak some dialects of Arabic [2]. It is spoken throughout the Arab world and widely studied and known throughout the Islamic world. It has been still developing until now because the spreading of Muslim all over the worlds also still developing.

However both English and Arabic belong to different language family, they have some similarities and differences, for example, in using article. Article is a very common thing used by both languages. English have two articles. They are the indefinite article 'a' and the definite article 'the'. Meanwhile, Arabic has only one definite article namely 'ال'. There are some sound alternations in their application. In English, the article 'the' is pronounced /ðə/ in onetime and it is pronounced /ðɪ/ in other times. Likewise, in Arabic, the article 'ال' has some sound variations. The original sound of ''ال' is /ʌl/. The sound variations of that article are /ʌt/, /ʌΘ/, /ʌd/, /ʌð/, /ʌr/, /ʌz/, /ʌs/, /ʌʃ/, /ʌsˤ/, /ʌdˤ/, /ʌtˤ/, /ʌðˤ/ and /ʌn/.

Two main points in this research namely the sound alternation of two languages and the comparison between those two languages used two theories. They are generative phonology by Noam Chomsky and Morris Halle and comparative analysis theory by Gorys Keraf [3]-[4].

In short, this research is intended to describe phonologically the sound alternation occurs in the English and Arabic articles and compare them to know the similarities and the differences of them.

Research Method

Qualitative research is used in analyzing data in the form of non numeric data. Library research is used because all of the data and analysis are taken from written materials. The presented data are taken from English Pronouncing Dictionary as the English data and from Arabic Dictionary as the Arabic data. In sampling, this thesis uses two sampling strategies which are merged. They are stratified random sampling and quota sampling [5]. It uses stratified random sampling because the data represented by words are homogenous but classified based on the alphabet, while quota sampling is also used because the words in the dictionary are too many, so they need to be limited. In applying that merger strategy, this research takes 50 words of English pronouncing dictionary as the sample to be analyzed with the indefinite article and definite article of

English. Furthermore, Arabic also uses 50 words taken from Arabic dictionary as the sample to be analyzed with the definite article of Arabic. So, there are 100 words of English and Arabic to be analyzed in this research.

The descriptive method is used to describe the presented data. It means that, the first process is collecting the data of the English and Arabic words with articles and their sound alternations. The second process is classifying the sound alternations of the articles of both languages by phonological rules. The next process is derivational process. That is to generate the underlying representation of the sound alternations of the articles to the phonetic representation. The final process is to compare the sound alternations resulted by the previous process. That is what is meant by comparative analysis. The comparison of the two languages by phonological rules and derivational process is intended to show the similarities and the differences of them.

Results and Discussion

The Sound Alternation of the Articles of English

The 50 words to be analyzed with the English articles are presented on the table below:

No	Orthography	Using Indefinite Article	Using Definite Article
1	action	an action	the action
2	ability	an ability	the ability
3	aeroplane	an aeroplane	the aeroplane
4	age	an age	the age
5	aesthetics	an aesthetics	the aesthetics
6	almond	an almond	the almond
7	aunt	an aunt	the aunt
8	autumn	an autumn	the autumn
9	bird	a bird	the bird
10	chalk	a chalk	the chalk
11	cigarette	a cigarette	the cigarette
12	dairy	a dairy	the dairy
13	eagle	an eagle	the eagle
14	ear	an ear	the ear
15	earth	an earth	the earth
16	effort	an effort	the effort
17	era	an era	the era
18	ecology	a ecology	the ecology
19	eye	an eye	the eye
20	face	a face	the face
21	game	a game	the game
22	giraffe	a giraffe	the giraffe
23	habit	a habit	the habit
24	hour	an hour	the hour
25	issue	an issue	the issue

26	job	a job	the job
27	key	a key	the key
28	lamp	a lamp	the lamp
29	man	a man	the man
30	name	a name	the name
31	news	a news	the news
32	onion	an onion	the onion
33	ocean	an ocean	the ocean
34	office	an office	the office
35	oil	an oil	the oil
36	ooze	an ooze	the ooze
37	outcome	an outcome	the outcome
38	price	a price	the price
39	queen	a queen	the queen
40	rule	a rule	the rule
41	sound	a sound	the sound
42	shape	a shape	the shape
43	team	a team	the team
44	theory	a theory	the theory
45	unit	a unit	the unit
46	victim	a victim	the victim
47	war	a war	the war
48	xerox	a xerox	the xerox
49	yard	a yard	the yard
50	zoo	a zoo	the zoo

From the data above, it is found that there are two allophones of the English indefinite article namely 'a' and 'an'. The indefinite article 'a' /ə/ changes into 'an' /ən/ when the following sound is a vowel or a diphthong sound. While if the following sound is a consonantal sound, it does not change. There is insertion rule process in the sound alternation of /ə/ becomes /ən/. That process can be represented below:

/Ø/ ⟹ [n]   / ----# [i,ɪ,i:, e, ɑ:, u, u:, ʊ, ɔ:, ɒ, æ, ə, ɜ:, ʌ, eɪ, aɪ, əʊ, aʊ, ɔɪ, ɪə, eə, ʊə]

That formula can be read "insert the alveolar nasal after the sound of indefinite article 'a' /ə/ if it is followed by vowel and diphthong sounds and they belong to different word". It can be applied to the words based on the data above. The following table contents the application of insertion rule of indefinite article.

The Origin	Phonetic Transcription	The Alternation	Environment Sound
a action	/ə ækʃn/	/ən ækʃn/	open-mid front unrounded vowel
a ability	/ə ə'bɪləti/	/ən ə'bɪləti/	close-mid central vowel

a aesthetics	/ə i:s'θetiks/	/ən i:s'θetiks/	close front unrounded vowel
a almond	/ə 'ɑ:lmənd/	/ən 'ɑ:lmənd/	open back unrounded vowel
a aunt	/ə ɑ:nt/	/ən ɑ:nt/	open back unrounded vowel
a autumn	/ə 'ɔ:təm/	/ən 'ɔ:təm/	open-mid back rounded vowel
a eagle	/ə 'i:gl/	/ən 'i:gl/	close front unrounded vowel
a earth	/ə ɜ:θ/	/ən ɜ:θ/	open-mid central unrounded vowel
a effort	/ə 'efət/	/ən 'efət/	close-mid front unrounded vowel
a era	/ə 'ɪərə/	/ən 'ɪərə/	close centralized unrounded vowel
a ecology	/ə i'kɒləʤi:/	/ən i'kɒləʤi:/	close central unrounded vowel
a issue	/ə 'ɪʃu:/	/ən 'ɪʃu:/	close central unrounded vowel
a onion	/ə 'ʌnjən/	/ən 'ʌnjən/	open-mid back unrounded vowel
a office	/ə 'ɒfis/	/ən 'ɒfis/	open back rounded vowel
a oil	/ə ɔɪl/	/ən ɔɪl/	open-mid back rounded vowel
a ooze	/ə u:z/	/ən u:z/	close back rounded vowel
a outcome	/ə 'aʊtkʌm/	/ən 'aʊtkʌm/	closing diphthong
a aeroplane	/ə 'eərəpleɪn/	/ən 'eərəpleɪn/	centering diphthong
a age	/ə eɪʤ/	/ən eɪʤ/	closing diphthong
a ocean	/ə əʊʃn/	/ən əʊʃn/	closing diphthong
a eye	/ə aɪ/	/ən aɪ/	closing diphthong
a hour	/ə 'aʊə(r)/	/ən 'aʊə(r)/	closing diphthong
a ear	/ə ɪə(r)/	/ən ɪə(r)/	centering diphthong

The second rule used in the indefinite article which does not change the sound is unchanged rule. That rule can be represented below:

/ə/ ⟹ [ə] /----#[p,b,t,d,k,g,ʧ,ʤ,θ,ð, s,z,ʃ,h,m,n,l,r,j,w,ʒ,ŋ]

The description above can be read "the middle vowel does not change if it is followed by all the consonantal sounds". It means that the indefinite article 'a' /ə/ constantly becomes 'a'/ə/ if the following sound is a consonantal sound. This rule can be applied to the articles with the words below:

The Origin	Phonetic Transcription	No Alternation	Environment Sound
a bird	/ə bɜːd/	/ə bɜːd/	voiced labial plosive
a chalk	/ə tʃɔːk/	/ə tʃɔːk/	voiceless palatoalveolar africative
a cigarette	/ə ˌsɪɡəˈret/	/ə ˌsɪɡəˈret/	voiceless alveolar fricative
a diary	/ə deərɪ/	/ə deərɪ/	voiced alveolar plosive
a face	/ə feɪs/	/ə feɪs/	voiceless labiodental fricative
a game	/ə ɡeɪm/	/ə ɡeɪm/	voiced velar plosive
a giraffe	/ə dʒəˈrɑːf/	/ə dʒəˈrɑːf/	voiced palatoalveolar fricative
a habit	/ə hæbɪt/	/ə hæbɪt/	voiceless glottal fricative
a job	/ə dʒɒb/	/ə dʒɒb/	voiced palatoalveolar fricative
a key	/ə kiː/	/ə kiː/	voiceless velar plosive
a lamp	/ə læmp/	/ə læmp/	lateral
a man	/ə mæn/	/ə mæn/	bilabial nasal
a name	/ə neɪm/	/ə neɪm/	alveolar nasal
a news	/ə njuːz/	/ə njuːz/	alveolar nasal
a price	/ə praɪs/	/ə praɪs/	voiceless bilabial plosive
a queen	/ə kwiːn/	/ə kwiːn/	voiceless velar plosive
a role	/ə ruːl/	/ə ruːl/	alveolar trill
a sound	/ə saʊnd/	/ə saʊnd/	voiceless alveolar fricative
a shape	/ə ʃeɪp/	/ə ʃeɪp/	voiceless palatoalveolar fricative
a team	/ə tiːm/	/ə tiːm/	voiceless alveolar plosive
a theory	/ə ˈθɪərɪ/	/ə ˈθɪərɪ/	voiceless dental fricative
a unit	/ə juːnɪt/	/ə juːnɪt/	palatal approximant
a victim	/ə vɪctɪm/	/ə vɪctɪm/	voiced labiodental fricative
a war	/ə wɔː(r)/	/ə wɔː(r)/	bilabial approximant
a xerox	/ə zɪərɒks/	/ə zɪərɒks/	voiced alveolar fricative
a yard	/ə jɑːd/	/ə jɑːd/	palatal approximant
a zoo	/ə zuː/	/ə zuː/	voiced alveolar fricative

The environment which influences the sound alternation in the English definite article is the same with in its indefinite article. The difference is that in sound alternation of indefinite article influences to the spelling, while in definite article, there is no change of spelling.

The rules used in the sound alternation of the English definite article are assimilation rule and unchanged rule. Assimilation rule is applied if the definite article 'the' is followed by a vowel or a diphthong sound. 'the' which is pronounced /ðə/ changes into /ði/ if it is followed by a vowel or a diphthong sound. It can be represented below:

/ə/ ⟹ [I]/ ----# [i,ɪ,iː, e, ɑː, u, uː, ʊ, ɔː, ɒ, æ, ə, ɜː, ʌ, eɪ, aɪ, əʊ, aʊ, ɔɪ, ɪə, eə, ʊə]

The formulation above can be read "change the middle vowel sound into the high front vowel sound if it is followed by all vowel or diphthong sounds and they belong to different word". The rule above can be applied in some example words in the table below:

The Origin	Phonetic Representation	The Alternation	Environment Sound
the action	/ðə ækʃn/	/ði ækʃn/	open-mid front unrounded vowel
the ability	/ðə əˈbɪləti/	/ði əˈbɪləti/	close-mid central vowel
the aesthetics	/ðə iːsˈθetiks/	/ði iːsˈθetiks/	close front unrounded vowel
the almond	/ðə ˈɑːlmənd/	/ði ˈɑːlmənd/	open back unrounded vowel
the aunt	/ðə ɑːnt/	/ði ɑːnt/	open back unrounded vowel
the autumn	/ðə ˈɔːtəm/	/ði ˈɔːtəm/	open-mid back rounded vowel
the eagle	/ðə ˈiːɡl/	/ði ˈiːɡl/	close front unrounded vowel
the earth	/ðə ɜːθ/	/ði ɜːθ/	open-mid central unrounded vowel
the effort	/ðə ˈefət/	/ði ˈefət/	close-mid front unrounded vowel
the era	/ðə ˈɪərə/	/ði ˈɪərə/	close centralized unrounded vowel
the ecology	/ðə iˈkɒlədʒiː/	/ði iˈkɒlədʒiː/	close central unrounded vowel
the issue	/ðə ˈɪʃuː/	/ði ˈɪʃuː/	close central unrounded vowel
the onion	/ðə ˈʌnjən/	/ði ˈʌnjən/	open-mid back unrounded vowel
the office	/ðə ˈɒfis/	/ði ˈɒfis/	open back rounded vowel
the oil	/ðə ɔɪl/	/ði ɔɪl/	open-mid back rounded vowel
the ooze	/ðə uːz/	/ði uːz/	close back rounded vowel
the outcome	/ðə ˈaʊtkʌm/	/ði ˈaʊtkʌm/	closing diphthong
the aeroplane	/ðə ˈeərəpleɪn/	/ði ˈeərəpleɪn/	centering diphthong

the age	/ðə eɪʤ/	/ ði eɪʤ/	closing diphthong
the ocean	/ðə əʊʃn/	/ ði əʊʃn/	closing diphthong
the eye	/ðə aɪ/	/ ði aɪ/	closing diphthong
the hour	/ðə 'aʊə(r)/	/ ði 'aʊə(r)/	closing diphthong
the ear	/ðə ɪə(r)/	/ ði ɪə(r)/	centering diphthong

Same with the second rule of indefinite article, the second rule used in the definite article which does not change the sound is unchanged rule. That rule can be represented below:

/ə/ ⟹ [ə] /----#[p,b,t,d,k,g,ʧ,ʤ,θ,ð, s,z,ʃ,h,m,n,l,r,j,w,ʒ,ŋ]

The description above can be read "the middle vowel does not change if it is followed by all the consonantal sounds". It means that /ə/ in the definite article 'the' /ðə/ constantly becomes /ə/ if the following sound is consonant. This rule can be applied to the articles with the words below:

The Origin	Phonetic Representation	No Alternation	Environment Sound
the bird	/ðə bɜ:d/	/ðə bɜ:d/	voiced labial plosive
the cake	/ðə keɪk/	/ðə keɪk/	voiceless palatoalveolar africative
the chalk	/ðə ʧɔ:k/	/ðə ʧɔ:k/	voiceless alveolar fricative
the cigarette	/ðə ,sɪgə'ret/	/ðə ,sɪgə'ret/	voiced alveolar plosive
the diary	/ðə deərɪ/	/ðə deərɪ/	voiceless labiodental fricative
the face	/ðə feɪs/	/ðə feɪs/	voiced velar plosive
the game	/ðə geɪm/	/ðə geɪm/	voiced palatoalveolar fricative
the giraffe	/ðə ʤə'rɑ:f/	/ðə ʤə'rɑ:f/	voiceless glottal fricative
the habit	/ðə hæbɪt/	/ðə hæbɪt/	voiced palatoalveolar fricative
the job	/ðə ʤɒb/	/ðə ʤɒb/	voiceless velar plosive
the key	/ðə ki:/	/ðə ki:/	lateral
the lamp	/ðə læmp/	/ðə læmp/	bilabial nasal
the man	/ðə mæn/	/ðə mæn/	alveolar nasal
the name	/ðə neɪm/	/ðə neɪm/	alveolar nasal
the news	/ðə nju:z/	/ðə nju:z/	voiceless bilabial plosive
the price	/ðə praɪs/	/ðə praɪs/	voiceless velar

			plosive
the queen	/ðə kwi:n/	/ðə kwi:n/	alveolar trill
the role	/ðə ru:l/	/ðə ru:l/	voiceless alveolar fricative
the sound	/ðə saʊnd/	/ðə saʊnd/	voiceless palatoalveolar fricative
the shape	/ðə ʃeɪp/	/ðə ʃeɪp/	voiceless alveolar plosive
the theory	/ðə 'θɪəri/	/ðə 'θɪəri/	voiceless dental fricative
the unit	/ðə ju:nɪt/	/ðə ju:nɪt/	palatal approximant
the victim	/ðə vɪctɪm/	/ðə vɪctɪm/	voiced labiodental fricative
the war	/ðə wɔ:(r)/	/ðə wɔ:(r)/	bilabial approximant
the xerox	/ðə zɪərɒks/	/ðə zɪərɒks/	voiced alveolar fricative
the yard	/ðə ja:d/	/ðə ja:d/	palatal approximant
the zoo	/ðə zu:/	/ðə zu:/	voiced alveolar fricative

The Sound Alternation of the Articles of Arabic

The 50 words to be analyzed with the Arabic articles are presented on the table below:

No	Orthography	Using Article	Meaning in English
1	اسلام	الاسلام	the Islam
2	امام	الامام	the leader
3	بلد	البلد	the country
4	باب	الباب	the door
5	توبه	التوبه	the regret
6	ثقه	الثقه	the trusty
7	جنه	الجنه	the heaven
8	جبل	الجبل	the mountain
9	حكيم	الحكيم	the wise
10	حجر	الحجر	the stone
11	خير	الخير	the goodness
12	خريطه	الخريطه	the map
13	دين	الدين	the religion
14	دكّان	الدكان	the shop
15	ذرّه	الذره	the atom
16	ذقن	الذقن	the chin
17	رايه	الرايه	the flag
18	رساله	الرساله	the message
19	زهره	الزهره	the flower
20	سماء	السماء	the sky

21	سحاب	السحاب	the cloud
22	شمس	الشمس	the sun
23	شباب	الشباب	the youth
24	صبر	الصبر	the patient
25	صندوق	الصندوق	the box
26	ضيف	الضيف	the guest
27	ضباب	الضباب	the fog
28	طبيب	الطبيب	the doctor
29	طريق	الطريق	the street
30	ظرافه	الظرافه	the beauty
31	عظيم	العظيم	the great
32	عزم	العزم	the intention
33	غشوه	الغشوه	the cover
34	غراب	الغراب	the raven
35	فتح	الفتح	the victory
36	فجر	الفجر	the dawn
37	قلم	القلم	the pen
38	قصّه	القصّه	the story
39	كبير	الكبير	the greatness
40	كتاب	الكتاب	the book
41	لقاء	اللقاء	the meeting
42	ماء	الماء	the water
43	مجلّه	المجلّة	the magazine
44	ناس	الناس	the human
45	نجم	النجم	the star
46	ولد	الولد	the child
47	ورق	الورق	the sheet
48	همّه	الهمه	the wish
49	يوم	اليوم	the day
50	يد	اليد	the hand

The rules used in the sound alternation of the definite article of Arabic are assimilation rule and unchanged rule. There are two groups of consonant sounds which determine whether the sound alternation occur or not. The sounds that assimilate the /l/ of the definite article /ʌl/ are called sun letters and the sounds that do not assimilate are called moon letters. There are fourteen sun letters and fourteen moon letters. The fourteen sun letters are /t/, /θ/, /d/, /ð/, /r/, /z/, /s/, /ʃ/, /sˤ/, /dˤ/, /tˤ/, /ðˤ/, /n/ and /l/. Then, the fourteen moon letters are /ʔ/, /b/, /ʁ/, /ħ/, /dʒ/, /k/, /w/, /χ/, /f/, /ʕ/, /q/, /j/, /m/ and /h/. The /l/ sound of the definite article /al/ changes into one of sun letters sounds except /l/ if it is followed by the same sound. Inversely, the /l/ sound does not change if it is followed by the /l/ sound itself and all of the moon letters.

Assimilation rule

The assimilation rule of the sound alternation of Arabic article is applied in some variations. They are:

a. The lateral /l/ assimilation into voiceless alveolar plosive [t]

The lateral /l/ assimilates into voiceless alveolar plosive /t/ if it is followed by voiceless alveolar plosive /t/. That phenomenon can be represented below:

/l/ ⟹ [t]   / ----+ [t]

The rule above is read "assimilate the lateral sound into voiceless alveolar plosive if it is followed by voiceless alveolar plosive". That rule can be applied in the word taken from the data التوبه /ʌltaubah/→/ʌttaubah/

b. The lateral /l/ assimilation into voiceless dental fricative [θ]

The lateral /l/ assimilates into voiceless dental fricative /θ/ if it is followed by voiceless dental fricative /θ/. That phenomenon can be represented below:

/l/ ⟹ [θ]   / ----+ [θ]

The rule above says "assimilate the lateral sound into voiceless dental fricative if it is followed by voiceless dental fricative". That rule can be applied in the word الثقه /ʌlθiqqɔh/→/ʌθθiqqɔh/

c. The lateral /l/ assimilation into voiced alveolar plosive [d]

The lateral /l/ assimilates into voiced alveolar plosive /d/ if it is followed by voiced alveolar plosive /d/. That phenomenon can be represented below:

/l/ ⟹ [d]   / ----+ [d]

The rule above is read "assimilate the lateral sound into voiced alveolar plosive if it is followed by voiced alveolar plosive". That application rule can be found in the word الدين /ʌldi:n/→/ʌddi:n/

d. The lateral /l/ assimilation into voiced dental fricative [ð]

The lateral /l/ assimilates into voiced dental fricative /ð/ if it is followed by voiced dental fricative /ð/. That phenomenon can be represented below:

/l/ ⟹ [ð]   / ----+ [ð]

The rule above is read "assimilate the lateral sound into voiced dental fricative if it is followed by voiced dental fricative". That rule can be applied in some word الـذّرّ ه /ʌlðarrɔh/→/ʌððarrɔh

e. The lateral /l/ assimilation into trill [r]

The lateral /l/ assimilates into trill /r/ if it is followed by trill /r/ sound. That phenomenon can be represented below:

/l/ ⟹ [r]   / ----+ [r]

The rule above is read "assimilate the lateral sound into trill if it is followed by trill". That rule can be applied in some words الرايه /ʌlrɔ:yah/→/ʌrrɔ:yah/

f. The lateral /l/ assimilation into voiced alveolar fricative [z]

The lateral /l/ assimilates into voiced alveolar fricative /z/ if it is followed by voiced alveolar fricative /z/. That phenomenon can be represented below:

/l/ ⟹ [z]   / ----+ [z]

The rule above is read "assimilate the lateral sound into voiced alveolar fricative if it is followed by voiced alveolar fricative". That rule can be applied in the word الزهره /ʌlzahrɔh/→/ʌzzahrɔh/

g. The lateral /l/ assimilation into voiceless alveolar fricative [s]

The lateral /l/ assimilates into voiceless alveolar fricative /s/ if it is followed by voiceless alveolar fricative /s/. That phenomenon can be represented below:

/l/ ⟹ [s]   / ----+ [s]

The rule above is read "assimilate the lateral sound into voiceless alveolar fricative if it is followed by voiceless alveolar fricative". That rule can be applied in the word السماء /ʌlsama:ʔ/→/ʌssama:ʔ/

h. The lateral /l/ assimilation into voiceless palato-alveolar fricative [ʃ]

The lateral /l/ assimilates into voiceless palato-alveolar fricative /ʃ/ if it is followed by voiceless palato-alveolar fricative /ʃ/. That phenomenon can be represented below:

/l/ ⟹ [ʃ]   /----+ [ʃ]

The rule above is read "assimilate the lateral sound into voiceless palato-alveolar fricative if it is followed by voiceless palato-alveolar fricative". That rule can be applied in the word الشمس /ʌlʃams/→/ʌʃʃams/

i. The lateral /l/ assimilation into voiceless emphatic fricative [sˤ]

The lateral /l/ assimilates into voiceless emphatic fricative /sˤ/ if it is followed by voiceless emphatic fricative /sˤ/. That phenomenon can be represented below:

/l/ ⟹ [sˤ]   / ----+ [sˤ]

The rule above is read "assimilate the lateral sound into voiceless emphatic fricative if it is followed by voiceless emphatic fricative". That rule can be applied in the word الصبر /ʌlsˤɔbr/→/ʌsˤsˤɔbr/

j. The lateral /l/ assimilation into voiced emphatic plosive /dˤ/

The lateral /l/ assimilates into voiced emphatic plosive /dˤ/ if it is followed by voiced emphatic plosive /dˤ/. That phenomenon can be represented below:

/l/ ⟹ [dˤ]   / ----+ [dˤ]

The rule above is read "assimilate the lateral sound into voiced emphatic plosive if it is followed by voiced emphatic plosive". That rule can be applied in the word الضيف /ʌldˤɔif/→/ʌdˤdˤɔif/

k. The lateral /l/ assimilation into voiceless emphatic plosive /tˤ/

The lateral /l/ assimilates into voiceless emphatic plosive /tˤ/ if it is followed by voiceless emphatic plosive /tˤ/. That phenomenon can be represented below:

/l/ ⟹ [tˤ]   / ----+ [tˤ]

The rule above is read "assimilate the lateral sound into voiceless emphatic plosive if it is followed by voiceless emphatic plosive". That rule can be applied in the word الطبيب /ʌltˤɔbib/→/ʌtˤtˤɔbib/

l. The lateral /l/ assimilation into voiced emphatic fricative /ðˤ/

The lateral /l/ assimilates into voiced emphatic fricative /ðˤ/ if it is followed by voiced emphatic fricative /ðˤ/. That phenomenon can be represented below:

/l/ ⟹ [ðˤ]   / ----+ [ðˤ]

The rule above is read "assimilate the lateral sound into voiced emphatic fricative if it is followed by voiced emphatic fricative". That rule can be applied in the word الظرافه /ʌlðˤɔrɔ:fah/→/ ʌðˤðˤɔrɔ:fah /

m. The lateral /l/ assimilation into alveolar nasal [n]

The lateral /l/ assimilates into alveolar nasal /n/ if it is followed by alveolar nasal /n/. That phenomenon can be represented below:

/l/ ⟹ [n]   / ----+ [n]

The rule above is read "assimilate the lateral sound into alveolar nasal if it is followed by alveolar nasal". That rule can be applied in the word الناس /ʌlna:s/→/ʌnna:s/

Unchanged Rule

The lateral /l/ sound of the definite article /ʌl/ does not change if it is followed by the sounds other than the mentioned sounds above. That phenomenon can be represented below:

/l/ ⟹ [l]   /---+   [l,/ʔ/,/b/,/ʁ/,/ħ/,/ʤ/,/k/,/w/, /χ/,/f/,/ʕ/,/q/,/j/,/m/,/h/]

The rule above is read "the lateral sound does not change if it is followed by lateral, labial, palatal, velar, uvular, pharyngeal and glottal". That rule can be applied in some words in the table below:

Words with Article	Phonetic Representation	No Alternation	Environment Sound
الاسلام	/ʌlʔisla:m/	/ʌlʔisla:m/	voiceless glottal plosive
الامام	/ʌlʔima:m/	/ʌlʔima:m/	
البلد	/ʌlbalad/	/ʌlbalad/	voiced labial plosive
الباب	/ʌlba:b/	/ʌlba:b/	
الجنه	/ʌlʤannah/	/ʌlʤannah/	voiced palatoalveolar fricative
الجبل	/ʌlʤabal/	/ʌlʤabal/	
الحكيم	/ʌlħaki:m/	/ʌlħaki:m/	voiceless

الحجر	/ʌlħadʒr/	/ʌlħadʒr/	pharyngeal fricative
الخير	/ʌlχɔir/	/ʌlχɔir/	voiceless uvular fricative
الخريطه	/ʌlχɔri:tˤɔh/	/ʌlχɔri:tˤɔh/	
العظيم	/ʌlʕaðˤi:m/	/ʌlʕaðˤi:m/	voiced pharyngeal fricative
العزم	/ʌlʕazm/	/ʌlʕazm/	
الغشوه	/ʌlʁɔʃwah/	/ʌlʁɔʃwah/	voiced uvular fricative
الغراب	/ʌlʁurɔ:b/	/ʌlʁurɔ:b/	
الفتح	/ʌlfataħ/	/ʌlfataħ/	voiceless labiodental fricative
الفجر	/ʌlfadʒr/	/ʌlfadʒr/	
القلم	/ʌlqɔlam/	/ʌlqɔlam/	voiceless uvular plosive
القصّه	/ʌlqisˤsˤɔh/	/ʌlqisˤsˤɔh/	
الكبير	/ʌlkabi:r/	/ʌlkabi:r/	voiceless velar plosive
الكتاب	/ʌlkita:b/	/ʌlkita:b/	
اللقاء	/ʌlliqɔ:ʔ/	/ʌlliqɔ:ʔ/	lateral
الماء	/ʌlma:ʔ/	/ʌlma:ʔ/	bilabial nasal
المجلّه	/ʌlmadʒallah/	/ʌlmadʒallah/	
الولد	/ʌlwalad/	/ʌlwalad/	labiodental approximant
الورق	/ʌlwarɔq/	/ʌlwarɔq/	
الهمه	/ʌlhimmah/	/ʌlhimmah/	voiceless glottal fricative
اليوم	/ʌljaum/	/ʌljaum/	palatal approximant
اليد	/ʌljad/	/ʌljad/	

Conclusion

The result indicates that there are some similarities and differences in the sound alternation of both English and Arabic articles. The similarities are that both English and Arabic definite articles apply assimilation rule and unchanged rule as the appropriate rule in derivational process. Furthermore, the differences of them are that the indefinite articles of English apply insertion rule and unchanged rule, while Arabic does not apply any rules to its indefinite articles. Arabic has only the marker in indefiniteness and has no sound alternation occurs. The allophones of English definite article are only two namely /ðə/ and /ðɪ/, while the allophones of Arabic definite article are /ʌl/, /ʌt/, /ʌθ/, /ʌd/, /ʌð/, /ʌr/, /ʌz/, /ʌs/, /ʌʃ/, /ʌsˤ/, /ʌdˤ/, /ʌtˤ/, /ʌðˤ/ and /ʌn/. The discussion of the definite article of Arabic is more complex than definite article of English because the rules of phonological rules which are applied also more complex.

The articles of both English and Arabic are attached on the words. The same function of both articles in English and Arabic is to clarify the words attached by them. However, in applying them, there are some differences. Some assimilation rules which appropriate in English article do not appropriate in Arabic article and conversely. For example, the assimilation rule application in Arabic /ʌlti:n/ becomes /ʌtti:n/. Its environment sound is voiceless alveolar plosive. When that voiceless alveolar plosive is applied in English definite article, there is no assimilation rule applied. For example, /ðə ti:m/ constantly become /ðə ti:m/. Some sounds in English are also not available in Arabic and conversely, so they can not be applied to any phonological rules.

In conclusion, sound alternation occurs in English and Arabic, and may be in other languages, but in applying the rules which make the sound alternation may be the same and may be different. Studying the differences of some languages in this case is important in order to be aware in pronouncing them correctly.

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