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## Phonological Changes in Libyan Arabic Perceived by Libyan English Speakers

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### Abstract

Phonological change is a common phenomenon of historical linguistics to see how languages change diachronically at lexical level. To this end, this empirical study makes an attempt focus mainly on two phonological aspects. The first is the descriptive analysis of phonological change from the perspective of historical linguistics. The second is on exploring the possible phonological changes from standard Arabic to modern Libyan Arabic. Using correlational approach, the study firstly finds fifteen types of phonological changes in the form of discussing them as 15 well theorized and proven phonological rules. With respect to 15 phonological changes, the study explores the extent and types of phonological changes from standard Arabic to modern Arabic. The study concludes that Libyan Arabic shows the abundance of phonological changes and most of the phonological changes found in Libyan Arabic are not environmentally conditioned; rather, they are merely for the ease of articulation.

### Keywords

Learning, Mastering, Shape, Factors, Test, Subject, Language

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## 1. Background of the Study

Traditionally, the linguistic science has been classified into four branches as follows:

- **Phonology (?al Sautiy@t):** It discusses speech sounds.
- **Morphology (atta9rif):** It discusses the form of the words.
- **Syntax (annaHu):** It discusses the formation of sentence.
- **Semantics (alma9ani):** It discusses the meaning of any linguistic units.

In the present research, the focus is on phonology. In historical linguistics, **phonological change** is any sound change which alters the number or distribution of phonemes in a language. *All* languages vary from place to place and time to time, and neither writing nor media prevent this change. For the present research, it is desirable to understand the phenomenon of phonological change first from the perspective of historical linguistics in which we are going to discuss many examples of phonological change from different languages. All languages change over time and vary according to place and social setting. We can observe **phonological change** — a change in pronunciation patterns — by comparing spoken English at different points in time. In monitoring an ongoing change — one that

has not yet been adopted by all speakers — we can track, over time, how that change moves gradually through the language itself, across geographical space and along social boundaries. The pronunciation of the word *tunes* here is very revealing. Many older speakers in the UK would pronounce a <y> sound in between the initial consonant and vowel of a word like *tune* or *dune* — so that they sound like ‘tyoon’ and ‘dyoon’ respectively. Younger speakers are far more likely to blend the consonant and <y> sounds into a <ch> and <j> sound respectively. Thus the word *tune* might sound something like ‘choon’ and the word *dune* might be pronounced like *June*. Changes in pronunciation can come in a variety of forms. Some changes merely affect the way a single word is pronounced: older speakers across the UK tend to stress the first syllable in the word *controversy*, for instance, while younger speakers increasingly place the main stress on the second syllable, *controversy*. In other cases, the pronunciation of a particular vowel sound or consonant sound changes gradually across successive generations and thus has an impact on a large group of words. A change in pronunciation might initially take place only in one particular geographic location and remain local or it may over time spread nationally and thus affect all varieties of English.

It is imperative to stress here that phonological change and sound change have been used in the present research synonymically. Sound change which affects the phonological system, in the number or distribution of its phonemes, is covered more fully at **phonological change**. Sound changes can be **environmentally conditioned**, meaning that the change in question only occurs in a defined sound environment, whereas in other environments the same speech sound is not affected by the change. Sound change is usually assumed to be *regular*, which means that it is expected to apply mechanically whenever its structural conditions are met, irrespective of any non-phonological factors (such as the meaning of the words affected). On the other hand, sound changes can sometimes be *sporadic*, affecting only one particular word or a few words, without any seeming regularity. Sound change does not discriminate between the sources of a sound. If a previous sound change causes X,Y > Y (features X and Y merge as Y), a new one cannot affect only original X's. It is also possible that a sound change can only have phonological constraints, like X > Z in unstressed syllables. It cannot drop final W, except on adjectives, or the like. The only exception to this is that a sound change may or may not recognise word boundaries, even when they are not indicated by prosodic clues. It has also been found that if a sound can happen at a place, it will. It affects all sounds that meet the criteria for change. Apparent exceptions are possible, due to analogy and other regularization processes, or another sound change, or an unrecognized conditioning factor.

### The formal notation of sound change

(1) A > B

is to be read, "A changes into (or is replaced by, is reflected as, etc.) B". It goes without saying that A belongs to an older stage of the language in question, whereas B belongs to a more recent stage

(2) A > B /X\_\_Y

= "A changes into B when preceded by X and followed by Y." To be more precise, if a change operates conditionally in all environments, the context in which it applies must be specified. For example:

It. b > v / [vowel]\_\_ [vowel], which can be simplified to just

It. b > v / V\_\_V (where the capital V stands for any given vowel)

= "Intervocalic [b] (inherited from Latin) became [v] in Italian" (e.g. in *caballum*, *dēbet* > *cavallo* 'horse', *deve* 'owe').

(3) A > B / \_\_#

If the symbol "#" stands for a word boundary (final), the notation "/\_\_#" is used.

(4) A > B / #\_\_

If the symbol "/#\_\_" stands for a word boundary (initial), the notation "/#\_\_" is used.

For example:

Gk. [stop] > Ø / \_\_#

"Word-final stops were deleted in Greek." which can be simplified to [Gk. P > Ø / \_\_# ] where capital P stands for any plosive.

## Terms for Phonological Changes

Usually phonological change is classified into two types. (a) **Conditioned Merger** that affects sounds in certain identifiable phonetic environments. (b) unconditioned sound change, that affects every occurrence of a sound so that no conditioning factor can be identified. Conditioned sound change can be discussed mainly under four categories: (1) Assimilation, (2) Dissimilation, (3) Reordering of Segments, (4) Insertion or Deletion of Segments.

1. **Assimilation:** Assimilation is a process whereby two sounds in sequence become more similar to each other or one sound becomes more like another. Assimilation may be **complete** or **partial**. Many consonant assimilation of Italian are examples of complete assimilation, which are the result of the progressive development of a language. For example, Latin "septem" *seven* became Italian "sette". The great majority of assimilations take place between contiguous segments, and the great majority involve the earlier one becoming more like the later one (e.g. in *connūbium*, *m- + n* becomes *-nn-* rather than *-mm-*).

Partial assimilation affects only a subset of a given segment's features. An example of partial assimilation is "imbibe", from "in-bibo" *drink in*, [n] has been only partially assimilated to the [b].

Assimilation can also be progressive or regressive. Progressive assimilation is a process whereby a sound acquires some features of a preceding sound. For example, Hindi, "chakra>chakka" wheel. Whereas, regressive assimilation is a process whereby a sound acquires some of the features of the following sound. For example, the fronting "t" to "ch" in Spanish words like "fecho" from earlier "fieto" (<factum).

2. **Dissimilation:** Unlike assimilation, dissimilation is a process whereby a sound becomes less like another in its vicinity. Liquids, nasals, and segments that demand complete readjustments in the glottis such as aspirated murmured, glottalized stops, seem particularly prone to dissimilation. For example, Latin "purpur" became "purple" in English. Romance *\*omine* "man" became Spanish *hombre*.
3. **Sandhi:** Conditioned changes that take place at word-boundaries but not elsewhere. It can be morpheme-specific, as in the loss of the vowel in the enclitic forms of English *is /iz/*, with subsequent change of /z/ to /s/ adjacent to a voiceless consonant *Frank's not here /fræŋksnathɪr/*. Or a small class of elements, such as the assimilation of the /ð/ of English *the, this* and *that* to a preceding /n/ (including the /n/ of *and* when the /d/ is elided). A striking exception is Sanskrit, whose orthography reflects a wide variety of such features: thus *tat* "that" is written *tat, tac, taj, tad, tan* depending on what the first sound of the next word is. These are all assimilations, but medial sequences do not assimilate the same way.
4. **Metathesis:** It refers to the process of reordering the segments of a word. To be more precise, the term 'metathesis' involves the reversing of position of two adjoining sounds. For example:

OE	ME
Brid	Bird "bird"
Hros	Hors "horse"
Thridda	third

5. **Insertion or Deletion of Segments:** Several technical terms are used to classify the insertion or deletion of sounds. Here it desirable to focus on the phenomenon of insertion first.

**Epenthesis:** Epenthesis (also known as anaptyxis) refers to the introduction of a sound between two adjacent sounds. More precisely, it is the insertion of sounds between consonants to facilitate pronunciation in forms that have developed articulatorily difficult consonant clusters. For example, *bremel*> *brembel* (later *bramble*) by addition of /b/. Another examples of epenthesis are Latin *humilis* > English *humble*; in Slavic an -l- intrudes between a labial and a following yod, as *\*zemya* "land" > Russ. *zemlya* (земля).

**Prothesis:** This refers to the insertion of a vowel in the beginning of a word, for example Sanskrit *raktam*>Tamil *iraktam*. Another examples can be seen as word-initial /s/ + stop clusters in Latin

gained a preceding /e/ in Old Spanish and Old French; hence, the Spanish word for "state" is *estado*, deriving from Latin *status*.

**Anaptyxis** (Swarbhakti): This refers to the insertion of vowel in the middle, for example, Hindi *janm>janam*, *dharm>dharam*, etc.

**Aphesis** (aphaeresis): This refers to the loss of initial vowel, for example, the dialectal English "possum" from "opposum".

**Apocope**: This refers to the loss of word final vowels, for example, the English word "tale" was in early middle English pronounced with final schwa as *ta:l+schwa*. The final *-e* [ə] in Middle English words was pronounced, but is only retained in spelling as silent E. In English voiced stops were apocoped in final position after nasals: *lamb*, *long* /læam/ /loŋ/.

**Syncope**: Syncope is the loss of medial sounds. It refers to the loss of vowels within a word, for example, OE "munecas": *monks* became ME "munkes~monkes". The ME singular "monk" is introduced on the basis of the syncopated plural form. Similarly, the Old French word for "state" is *estat*, but then the *s* dropped, yielding, *état*. Similarly the loss of /t/ in English *soften*, *hasten*, *castle*, etc.

**Haplology**: This refers to the loss of a whole syllable in a sequence involving duplicated or nearly duplicated syllables. In other words, this is case of the loss of a syllable when an adjacent syllable is similar or (rarely) identical. For example, Old English *Anglaland* became Modern English *England*, or the common pronunciation of *probably* as [ˈprɒblɪ]/. Similarly, *interpretative>interpretive*, *morphophonemic > morphonemic*. Such changes usually affect commonly used words. The word haplology itself is sometimes jokingly pronounced "Haplogy".

## 1.2: Objective:

The prime objective of the research is to explore different types of phonological changes in Libyan Arabic resulting from Standard Arabic under the influence of present days' English . As a part of findings, all the phonological changes found in the research have been prescribed as phonological rules which have been substantiated with the help of adequate and appropriate examples. Since the present research is talking about phonological changes in Libyan Arabic in comparison with standard Arabic, it is desirable to have a look at the sound system of Libyan Arabic as well as Standard Arabic. **Libyan Arabic** also known as **Sulaimitian Arabic** is a collective term for the closely related varieties of Arabic spoken in Libya. It can be divided into two major dialect areas; the eastern centred in Benghazi, and the western centred in Tripoli. The eastern variety extends beyond the borders to the east into western Egypt. The following table shows the consonants used in Libyan Arabic.

Table: 1. IPA of Libyan Arabic

Libyan Arabic consonant phonemes										
	<u>Labial</u>	<u>Inter-dental</u>		<u>Dental</u>		<u>Post-alveolar or palatal</u>	<u>Velar</u>	<u>Uvular</u>	<u>Pharyngeal</u>	<u>Glottal</u>
		plain	emphatic	plain	emphatic					
<u>Stop</u>	<u>voiceless</u>			T	T		K	(q)		(ʔ)
	<u>voiced</u>	b		D	D		G			
<u>Fricative</u>	<u>voiceless</u>	f	θ	S	S	ʃ		X	ħ	h
	<u>voiced</u>	(v)	ð	Z	Z	ʒ		ʁ	ʕ	
<u>Nasal</u>		m		N						
<u>Lateral</u>				L	L					
<u>Tap</u>				R	R					
<u>Approximant</u>		w				j				

The e and o vowels exist only in long form. This can be explained by the fact that these vowels were originally diphthongs in Classical Arabic with /e:/ replacing /ai/ and /o:/ replacing /au/. In some eastern varieties, however, the classical /ai/ has changed to /ei/ and /au/ to /ou/. Libyan Arabic has at least three clicks, which are used interjectionally, a trait shared with the Bedouin dialects of central Arabia. The first is used for affirmative responses and is generally considered very casual and

sometimes associated with low social status. The second is a dental click and used for negative responses and is similar to the English 'tut'. The third is a palatal click used exclusively by women having a meaning close to that of the English word 'alas'.

Table: 2. IPA of Standard Arabic

Arabic consonant phonemes										
		Bilabial	Inter-dental	Dental	Emphatic dental	(Alveo-) Palatal	Velar	Uvular	Pharyngeal	Glottal
Stops	Voiceless			t			k	q		ʔ
	Voiced	b		d	d̤	dʒ <sup>1</sup>				
Fricatives	Voiceless	f	θ	s	s̤	ʃ	x		ħ	h
	Voiced		ð	z	ð̤		ʁ		ʕ	
Nasals		m		n						
Laterals				l <sup>2</sup>						
Rhotic (trill)				r						
Semi-vowels		w				j				

Arabic has 28 consonantal phonemes (including two semi-vowels), expressed by the 28 letters of the Arabic alphabet. In dialects, usually not all 28 phonemes are realized, so that for these speakers, some homophones are disambiguated only orthographically (see table. 3).

Table: 3. Consonant Sounds

Arabic Sounds	Examples			English
alf      أ	كان	was	/na@k/	@
ba      ب	باب	door	/b@b/	b
ta      ت	توت	berry	/tUt/	t
tha      ث	ثُعب	fox	/th@9lab/	th
ji:m      ج	جبال	mountains	/ji:bal/	j
Ha      ح	حديقة	garden	/Hadi:qAh/	H
XA      خ	خريطة	map	/Xari:TA /	X
dal      د	دار	room	/dAr/	d
dhal      ذ	ذهب	gold	/dhahab/	dh
ra      ر	ربيع	spring	/rabi:9/	r
zain      ز	زهرة	flower	/zahra/	z
si:n      س	سماء	sky	/sam@/	s
Shi:n      ش	شمعة	candle	/sham9@/	sh
SAd      ص	صديق	friend	/Sadi:q/	S
DAd      ض	ضوء	light	/Dau?/	D
TA      ط	طائر	bird	/ /Taiyr	T
9ain      ع	عين	eye	/9ain/	9
gain      غ	غرفة	room	/gurf/	g
fa      ف	فقط	only	/faqaT/	f
qaf      ق	قريب	near	/qari:b/	q
kaf      ك	كريم	generous	/kari:m/	k
l@m      ل	ليل	night	/lail/	l
mi:m      م	معلم	teacher	/mu9alim/	m
nun      ن	نهر	river	/nahr/	n

h@	هـ	هاتف	Telephone	/h@tif/	h
waw	و	ورقة	paper	/waraqa /	w
ya	ي	يد	hand	/yad/	y
o	و	أمي	mother	/ʔ_ommi: /	o

Arabic has six vowel phonemes (three short vowels and three long vowels); they appear as various allophones, depending on the preceding consonant. Short vowels are not usually represented in written language, although they may be indicated with diacritics (see table.4).

Table:4. Vowel Sounds

Arabic Sounds		Examples			English
FatHa	رَ	رَجُل	Man	/rajul/	a
madda	أَ	حصان	Horse	/HiSAn/	A
Hammza	أ	انا	I	/ʔana	ʔ
damma	وُ	هو	He	/hua/	u
Tanwwan	وو	ثوم	Garlic	/thUm	U
kasra	إِ	بارد	Cold	/b@rid/	i
Hammza	ء	انا	I	/ʔana/	ʔ
Long /i:/	ي	سرير	Bed	/sari:r/	l:
diphthong	يـ	بينما	While	/bainam@/	ai
diphthong	واو	تتسوق	Shopping	/tata~sawwag/	aw

### Convention of abbreviation

- ~ This symbol means separate liaison
- ^ This symbol is used after any sound which is not pronounced.
- ∅ This refers to null sound.
- . This symbol is sometimes used to show smaller length of schwa vowel
- { } The curly braces mean "optionally" when the word change is not environmentally conditioned.

## 2. Methodology

This research is empirically exploratory in its nature. The total population of the informants for this study was 200 undergraduate students of Ajdabiya University, Libya. Document analysis and observation were used as the primary source of data collection; whereas, narrative analysis was used to analyze the data.

## 3. Results and Discussion

In response to the objectives of this study set above, fifteen types of phonological were explored based on the collected corpus (data). The following are the details of the same.

### 1. Rule: {/u>a/}

Based on the corpus below, we find that /u/ sound in Standard Arabic changes into /a/ sound in Libyan Arabic. For example, in 1a, the word /naHnu/meaning 'we' becomes /neHna/ in LA. Similarly, the words, /yuHa~dherni/, /ʔalSSundUq/, /taqrA?u/ become, /HaDArnish/, /ʔilSSandUg/, /tagra/ respectively in 1b, 1c and 1d. Viewing the above-mentioned phonological

changes, the research proposes a rule  $\{/u>a/\}$  which states that **/u/** sound in SA changes into **/a/** sound in LA optionally. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

- a. **SE:** We did not see any thing ahead of us in the road.

**SA:** /naHnu lam nara ?ay shay?un ?am@mun@ fi ?al^TTAri:q/

**LA:** /neHna m@ shefn@ gidd@mna shay fi ?il^Tari:g/

- b. **SE:** If he had not warned me, I would have made a mistake.

**SA:** /?idha lam yuHa~dherni lawaqA9tu fi ?alXATAyi/

**LA:** /k@n ma HaDArnish rAni dert ?ilXaTa/

- c. **SE:** Put this book in the box.

**SA:** /DA9 h@dh@ ?alkit@ba fi ?al^SSundUq/

**LA:** /HaT halikt@b fi ?il^SSandUg/

- d. **SE:** Layla reads the newspaper every morning.

**SA:** /taqrA?u lail@ ?aljari:~data kulla SabAH/

**LA:** /lail@ tagra ?iljridah kil SebeH/

## 2. **Rule:** $\{/u>i/\}$

- a. **SE:** She washes her car every Friday.

**SA:** /tagsilu saiyAra~tah@ kula jum9atin/

**LA:** /tagsil saiyAr~th@ kil jim9ah/

- b. **SE:** My mother was shopping while I was having my hair cut.

**SA:** /bainam@ kuntu ?aH~liqu sha9ri: k@nat ?ommi: tata~sawwaq/

**LA:** /k@nat ammi ti~sawwag wana kinit ?inHallaq/

- c. **SE:** The man bought a cake.

**SA:** /?ishtArA ?al^rrajulu k@9katan/

**LA:** /?il^rrajil sh.rA ?ilbASTi/

- d. **SE:** Where do you live?

**SA:** /?ain@ taskunu/

LA: /wein **tiskin**/

- e. SE: Ali **likes** to teach.

SA: /9aly **yuHibbu** ?al^ttadri:s/

LA: /9ali: ?**iyiHib** ?i:qari/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /u/ sound in Standard Arabic changes into /i/ sound in Libyan Arabic. For example, in 2a, the word /**kula**/ meaning ‘every’ becomes /**ki**/ in LA. Similarly, the words /**kuntu**/, /**al^rrajulu**/, /**taskunu**/, /**yuHibbu** / become /**kinit**/, /**il^rrajil**/, /**tiskin**/, /**iyiHib**/ respectively in 2b, 2c, 2d, and 2e. Viewing the above-mentioned phonological changes, the research proposes a rule {/u>i/} which states that /u/ sound in SA changes into /i/ sound in LA optionally. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

### 3. Rule: {/a>i/}

- a. SE: **Royal** mail sent the package.

SA: /?arsala ?albari:du ?**almalaki** ?arruzmta/

LA: /b9ath ?ilbarid ?**ilmalaki** ?il^DDarf/

- b. SE: We usually eat breakfast at **7:00**.

SA: /nata~n@walu ?alifTara 9@datan ?ass@9ata ?**ass@bi9ah**/

LA: /niHna nifTaru marrAT ?**issb9a**/

- c. SE: The thieves **stole** the jewels.

SA: /**saraq**a ?alluSUSu ?aljawAhir/

LA: /assr@g:i:n **siregu** ?il^dhdhehab/

- d. SE: **We** are having dinner now, please join us.

SA: /**naHnu** natan@walu ?al9ash?a ?al@na, raja~@n tafADAlu/

LA: /**niHna** inta~9shU tawwa, taffaDalU m9~@na/

- e. SE: She doesn't **need** to study hard.

SA: /hiya la **taH~t@ju** lil mudhAkarati bijid/

LA: /hiyya m@ **tiHt@jish** tagrA wajid/

### Contrastive Knowledge Base:



Based on the corpus above, we find that /a/ sound in Standard Arabic changes into /i/ sound in Libyan Arabic. For example, in **3a**, the word /ʔalmalaki/ meaning ‘Royal’ becomes /ʔilmalaki/ in LA. Similarly, the words /ʔass@bi9ah/, /saraqa/, /naHnu/, /taH~t@ju/ become /ʔisb9a/, /siregu/, /niHna/, /tiHt@jish/ respectively in **3b**, **3c**, **3d** and **3e**. Viewing the above-mentioned phonological changes, the research proposes a rule {/ a >i /} which states that /a/ sound in SA changes into /i/ sound in LA optionally. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

**4. Rule: {/t>h/}**

- a. **SE:** She washes her car every friday.

**SA:** /tagsilu saiyAra~tah@ kulla **jum9aṭin**/

**LA:** /tigsil saiyAr~th@ kil **jim9ah**/

- b. **SE:** We gave the teacher a gift.

**SA:** /ʔa9Taina ʔalmu9lima **hadiyaṭan**/

**LA:** /9aTaina ʔilist@d **hadiyah**/

- c. **SE:** My father bought not only a new car but also a big land for me.

**SA:** /lam yashtari li: ʔaby saiy~@rtan **j@di:daṭan** faqAT bali ʔshtarA ʔarDan kabi:rAtan ʔayDan/

**LA:** /bAti ma sharAlish sayArah **jedi:dah** bas, laken ʔm9@ha ʔAraD kebi:rAh/

- d. **SE:** She went home quickly.

**SA:** /dh@h@bat ʔilal manzili **musri9aṭan**/

**LA:** /rawHat lil Haush ʔibser9ah/

**Contrastive Knowledge Base:**

Based on the corpus above, we find that /t/ sound in Standard Arabic changes into /h/ sound in Libyan Arabic. For example, in **4a**, the word /**jum9aṭin**/ meaning ‘Friday’ becomes /**jim9ah**/ in LA. Similarly, the words /**hadiyaṭan**/, /**j@di:daṭan**/, /**musri9aṭan**/ become /**hadiyah**/, /**jedi:dah**/, /**ʔibser9ah**/ respectively in **4b**, **4c**, and **4d**. Viewing the above-mentioned phonological changes, the research proposes a rule {/t>h/} which states that tanwin ending /t/ sound in SA changes into /h/ sound in LA optionally. This kind of rule falls under the category of haplology which refers to the loss of final vowel in a word.

**5. Rule: {/q>g/}**

- a. **SE:** My house is near from the sea.

**SA:** /manzili: **qAri:bun** minal baHri/

**LA:** /Haushi: **ʔgraiyb** mil baHar/

b. **SE:** The book is on the table.

**SA:** /ʔalkit@bu **fawqa** ʔal<sup>TT</sup>Awilah/

**LA:** /likt@b **fawg** ʔil<sup>TT</sup>Awlah/

c. **SE:** Bone is stronger than iron.

**SA:** /ʔal9iDAamu **ʔagwa** minal H@di:d/

**LA:** /ʔil9DAm **ʔagwa** mil Hadi:d/

d. **SE:** Put this book in the box.

**SA:** /DA9 h@dh@ ʔalkit@ba fi ʔal<sup>SS</sup>SundUg/

**LA:** /HaT halikt@b fi ʔil<sup>SS</sup>SandUg/

e. **SE:** Layla reads the newspaper every morning.

**SA:** /**tagrAʔu** lail@ ʔaljari:~data kulla SabAH/

**LA:** /lail@ **tagra** ʔiljridah kil SebeH/

#### Contrastive Knowledge Base:

Based on the corpus above, we find that /q/ sound in Standard Arabic changes into /g/ sound in Libyan Arabic. For example, in 5a, the word /qAri:bun/ meaning ‘near’ becomes /ʔgraiyb/ in LA. Similarly, the words /fawqa/, /ʔagwa/, /ʔal<sup>SS</sup>Sundug/, /tagrAʔu/ become /fawg/, /ʔagwa/, /ʔil<sup>SS</sup>SandUg/, /tagra/ respectively in 5b, 5c, 5d, and 5e. Viewing the above-mentioned phonological changes, the research proposes a rule {/q>g/} which states that /q/ sound in SA changes into /g/ sound in LA especially in initial position or after vowel sounds. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

#### 6. Rule: {/u>Ø/}

a. **SE:** The child plays outside.

**SA:** /yal9abu ʔalTi~flU fi ʔalXArij/

**LA:** /ʔil9yil yal9ab barrA/

b. **SE:** I asked the teacher.

**SA:** /sa@ltu ʔalmu9lim/

c. **SE:** The teacher is explaining the lesson.

**SA:** /yashrAHu ʔalmu9limu ʔal<sup>dd</sup>dars/

**LA:** /yashraH list@d ʔil<sup>dd</sup>dars/

d. **SE:** My mother was shopping while I was having my hair cut.

**SA:** /bainam@ kuntu ?aH~liqu sha9ri: k@nat ?ommi: tata~sawwaq/

**LA:** /k@nat ammi ti~sawwag wana kinit ?inHallaq/

e. **SE:** I live in London now.

**SA:** /?ana ?a9ishu fi London ?al@n/

**LA:** /?an@ ?n9i:sh fi london/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /u/ sound in Standard Arabic changes into /Ø/ sound in Libyan Arabic. For example, in **6a**, the word /yal9abu/ meaning 'plays' becomes /yal9ab/ in LA. Similarly, the words /sa@ltu/, /yashraHu/, /kuntu/, /?a9ishu/ become /sa@lt/, /yashraH/, /kinit/, /?n9i:sh/ respectively in **6b**, **6c**, **6d**, and **6e**. Viewing the above-mentioned phonological changes, the research proposes a rule {/u> Ø/} which states that /u/ sound in SA changes into / Ø / sound in LA optionally. This kind of rule falls under the category of apocope which refers to the loss of final vowel in a word. Usually /u/ ending tanwin finally in SA also as /u/ in LA

### 7. Rule: {/a>Ø/}

a. **SE:** The cat sleeps under the chair.

**SA:** /?algiTTatu tan@mu taHta ?alkursi/

**LA:** /?ilgaTTUsah tirgid teHt ?ilkirsi/

b. **SE:** John was tired.

**SA:** /k@na jon mut9aban/

**LA:** /jon k@n ta9b@n/

c. **SE:** He put the book on the table.

**SA:** /waDa9a ?alkit@ba 9ala ?alminDAda/

**LA:** /HaT liktab 9al TTawla/

d. **SE:** The farmer was working in his field.

**SA:** /9amala ?almuzari9u fi Haqilihi/

**LA:** /9amal ?almuzara9 fi mazre9tah/

e. **SE:** my house is near from the sea.

**SA:** /manzili: qari:bun mina ?albaHri/

LA: /Haushi: graiyb min ?ilbaHar/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /a/ sound in Standard Arabic changes into /Ø/ sound in Libyan Arabic. For example, in **7a**, the word /taHta/ meaning ‘under’ becomes /teHt/ in LA. Similarly, the words /k@na/, /9ala/, /9amala/, /mina/ become /k@n/, /9al/, /9amal /, /min/ respectively in **7b**, **7c**, **7d**, and **7e**. Viewing the above-mentioned phonological changes, the research proposes a rule {/a > Ø /} which states that /a/ sound in SA changes into /Ø/ sound in LA optionally. This kind of rule falls under the category of apocope which refers to the loss of final vowel in a word. Usually /a/ ending word in SA drops /a/ sound in LA in final position.

### 8. Rule: {/i> Ø/}

- a. SE: We usually eat breakfast at 7:00.

SA: /nata~n@walu ?alifTara 9@datan ?ass@9ata ?ass@bi9ah/

LA: /niHna nifTaru marrAT ?issb9a/

- b. SE: Her job interview was yesterday.

SA: /k@nat muqabaltuha lil 9amali bilams/

LA: /k@nat muqabalitha lil 9amal ams/

- c. SE: My house is near the sea.

SA: /manzili: qAri:bun minal baHri/

LA: /Haushi: ?graiyb mil baHar/

- d. SE: This book is mine.

SA: /hadh@ ?alkitabu li/

LA: /liktab hAdhA liya/

- e. SE: Abdullah bought a new car.

SA: /9abudallahi ?ishtArA sayA~ratan jadidatan/

LA: /9abdalla sharA saiy@rA jadi:d@/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /i/ sound in Standard Arabic changes into /Ø/ sound in Libyan Arabic. For example, in **8a**, the word /?ass@bi9ah/ meaning ‘7:00’ becomes /?issb9a / in LA which is the case of syncope. In **8b**, the word /9amali / meaning ‘work’ becomes /9amal / in LA which is the case of apocope. In **8c**, the word /baHri/ meaning ‘sea’ becomes /baHar/ in LA which is the case of apocope. In **8d**, the word /?alkitabu/ meaning ‘book’ becomes /liktab/ in LA which is the case of syncope. In **8e**, the word /?ishtArA/ meaning ‘bought’ becomes /sharA/. in LA which is the case of aphaeresis. Viewing the above-mentioned phonological changes, the research proposes a

rule {/i> Ø /} which states that /i/ sound in SA changes into /Ø/ sound in LA optionally. In other words, /i/ sound in SA usually gets dropped unconditionally in initial, medial and final position in LA.

**9. Rule: {/a>n/}**

- a. **SE:** I live in London now.

**SA:** /ʔana ʔaʔishu ʔal@n fi lundon/

**LA:** /an@ tawwa ʔnʔi:sh fi lundan/

- b. **SE:** I know the answer.

**SA:** /ʔaʔrifu ʔalij@bah/

**LA:** /nʔref lij@ba/

- c. **SE:** I learn English.

**SA:** /ʔana ʔatʔallamu ʔalinjilizi:yah/

**LA:** /an@ ʔn~taʔalam fil ʔingilizi/

**Contrastive Knowledge Base:**

Based on the corpus above, we find that /a/ sound in Standard Arabic changes into /n/ sound in Libyan Arabic. For example, in **9a**, the word /ʔaʔishu/ meaning ‘live’ becomes /ʔnʔi:sh/ in LA. Similarly, the words /ʔaʔrifu/, /ʔatʔallamu/ become /nʔref/, /ʔn~taʔalam/ respectively in **9b**, and **9c** respectively. Viewing the above-mentioned phonological changes, the research proposes a rule {/a>n/} which states that /a/ sound in SA changes into /n/ sound in LA optionally. This kind of rule falls under the category of aphaeresis which refers to the loss of final vowel in a word. This rule also shows that /a/ sound preceded by /ʔ/ in the initial position, changes into /n/ in LA as in **9a**, **9b**, and **9c**.

**10. Rule: {/h> Ø/}**

- a. **SE:** We will clean the room at **4:00**

**SA:** /sanu~na`Difu ʔalgurfata 9inda ʔass@ʔah ʔa rrAbi9a/

**LA:** /nebbu innaDfU ʔiddAr ʔis@ʔa arba9A/

- b. **SE:** We usually eat breakfast at **7:00**.

**SA:** /nata~n@walu ʔalifTara 9@datan ʔass@9ata ʔass@biʔah/

**LA:** /niHna nifTaru marrAT ʔissbʔa/

- c. **SE:** I know the answer.

**SA:** /ʔaʔrifu ʔalij@bah/

LA: /n9ref ?ilij@ba/

- d. SE: Money can not buy **happiness**.

SA: /la yumkkinu lil m@li an yashtariya ?al^ssa9@dah/

LA: /?iss9@da ma idjesh bilflUs/

- e. SE: There maybe some eggs in the **fridge**.

SA: /rubbam@ yUjadu bA9Dul ?albaiDi fi: ?al^ththall@jah/

LA: /balki fi daHi fi ttal@ja/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /h/ sound in Standard Arabic changes into /Ø/ sound in Libyan Arabic. For example, in 10a, the word /?ass@9ah/ meaning ‘watch’ becomes /?is@9a/ in LA. Similarly, the words /?al^ss@bi9ah/, /?alij@bah/, /ssa9@dah/, /?al^ththall@jah/ become /?issb9a/, /?ilij@ba/, /?iss9@da/, /ttal@ja/ respectively in 10b, 10c, 10d, and 10e. Viewing the above-mentioned phonological changes, the research proposes a rule {/h> Ø /} which states that /h/ sound in SA changes into /Ø/ sound in LA optionally. This kind of rule falls under the category of apocope which refers to the loss of final vowel in a word.

#### 11. Rule: {/?>y/}

- a. SE: There are **hundred** students in this class.

SA: /yUjadu hunaka mi?atu TALibin fi hadha ?alfASal/

LA: /?ilfaSal hADA fih miyat TALib/

- b. SE: I will come after five **minutes**.

SA: /sawafa ?@ti ba9da Xam~si daqA?iq/

LA: /tawwa ?inji ba9ad Xams digayig/

- c. SE: I could not find your name in this **list**.

SA: /lam astaTe9 ?ijada ?ismika fi h@dhihi ?alqA?ima/

LA: /ma 9araftish nalga ?esmak fil qAyma/

- d. SE: He has got the first **prize**.

SA: /hua taHaSSalA 9ala ?alj@?izati ?al?Ula/

LA: /huwwa XaDA ?il^jjayzah lUl@/

- e. SE: **Lung** is an important part of our body.

SA: /ʔalʔrriʔatu takunu juzʔan muhemman fi ʔajs@mina/

LA: /ʔrriya muhimma fi jismn@/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /ʔ/ sound in Standard Arabic changes into /y/ sound in Libyan Arabic. For example, in 11a, the word /miʔatu/ meaning ‘hundred’ becomes /miyat/ in LA. Similarly, the words /daqaʔiq/, /ʔalqaʔima/, /ʔalj@ʔizati/, /ʔalʔrriʔatu/ become /digayig/, /qAyma/, /ʔilʔjjayzah/, /ʔrriya/ respectively in 11b, 11c, 11d, and 11e. Viewing the above-mentioned phonological changes, the research proposes a rule {/ʔ>y/} which states that /ʔ/ sound in SA changes into /y/ sound in LA optionally. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

### 12. Rule: {/A>a/}

- a. SE: Your hat is expensive.

SA: /qubbA9atuka gAliyah/

LA: /TAGitak galyah/

- b. SE: Abdullah bought a new car.

SA: /9abdallah ʔishtArA sayA~ratan jadiahtan/

LA: /9abdallah sharA saiy@rA jadi:da/

- c. SE: She is tall and strong.

SA: /hiya TAwil:latun wa qawiyatun/

LA: /hiyya Tawi:la wa guwiya/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /A/ sound in Standard Arabic changes into /a/ sound in Libyan Arabic. For example, in 12a, the word /gAliyah/ meaning ‘expensive’ becomes /galyah/ in LA which is the case of aphaeresis. In 12b, the word /ʔishtArA/ meaning ‘bought’ becomes /sharA/ in LA which is the case of syncope. In 12c, the word /TAwil:latun/ meaning ‘tall’ becomes /Tawi:la/ in LA which is the case of aphaeresis. Viewing the above-mentioned phonological changes, the research proposes a rule {/A>a/} which states that /A/ sound in SA changes into /a/ sound in LA optionally.

### 13. Rule: {/t > Ø/}

- a. SE: Mike prefers writing at night.

SA: /yuffa~Dilu mike ʔalkitabaṭa lailan/

LA: /mike ʔiHb ʔilkitiba fil lail/

- b. SE: The teacher is sitting among the students.

SA: /?almu9alimu jalisun baina ?al^TTalabati/

LA: /listad ?imgam9iz bain ?il^TTalaba/

- c. SE: My mother was **shopping** while I was having my hair cut.

SA: /bainam@ kuntu ?aH~liqu sha9ri: k@nat ?ommi: **tata~sawwaq**/

LA: /k@nat ammi **ti~sawwag** wana **kinit** ?inHallaq/

- d. SE: The **party** will be in the yard.

SA: /satuqamu ?alHaflatu fi ?al^ss@Ha/

LA: /yubu ?idi:ru ?ilHafla/ fi ?il^ss@Ha/

- e. SE: The man **bought** a cake.

SA: /?ishtArA ?al^rrajulu k@9katan/

LA: /?il^rrajil **sharA** ?ilbASTi/

#### Contrastive Knowledge Base:

Based on the corpus above, we find that /t/ sound in Standard Arabic changes into /Ø/ sound in Libyan Arabic. For example, in 13a, the word /?alkitabata/ meaning 'writing' becomes /?ilkitiba/ in LA. Similarly, the words /?al^TTalabati/, /tata~sawwaq/, /?alHaflatu/, /?ishtArA/ become /?il^TTalaba/, /ti~sawwag/, /?ilHafla/, /sharA/ respectively in 13b, 13c, 13d, and 13e. Viewing the above-mentioned phonological changes, the research proposes a rule {t>Ø/} which states that /t/ sound in SA changes into /Ø/ sound in LA optionally. This kind of rule falls under the category of apocope which refers to the loss of final vowel in a word. This also shows that /t/ in LA is dropped in medial or final position.

#### 14. Rule: {a>e/}

- a. SE: My father bought not only a new car but also a **big** land for me.

SA: /lam yashtari li: ?aby saiy~@rtan j@di:datan faqAT bali

?shtarA ?arDan **kabi:rAtan** ?ayDan/

LA: /bAti ma sharAlish sayArah jedi:dah bas, laken ?m9@ha

?AraD **kebi:rah**/

- b. SE: He has built a **new** house.

SA: /hua bana baitan **jadi:dan**/

LA: /huwwa bna Haush **jedi:d**/

- c. SE: We have **lived** in Beirut since 1945.



**SA:** /naHnu naskunu fi bayrUt mindhu 1945/

**LA:** /niHna neskin fi bayrUt min 1945/

- d. **SE:** Mary had broken the vase into pieces.

**SA:** /Mary ka~sarāt ?almaz~hariyata ?il@ qiTa9/

**LA:** /Mary ke~saret ?ilmazhariya ligTA9/

### Contrastive Knowledge Base:

Based on the corpus above, we find that /a/ sound in Standard Arabic changes into /e/ sound in Libyan Arabic. For example, in **14a**, the word /kabi:rAtan/ meaning ‘big’ becomes /kebi:rah/ in LA. Similarly, the words /jadi:dan/, /naskun/, /ka~sarāt/ become /jedi:d/, /neskin/, and /ke~saret/ respectively in **14b**, **14c**, and **14d**. Viewing the above-mentioned phonological changes, the research proposes a rule {/a>e/} which states that /a/ sound in SA changes into /e/ sound in LA optionally. This kind of rule falls under the category of syncope which refers to the loss of final vowel in a word.

### 15. Rule: {/Ø >sh/}

- a. **SE:** If he had not warned me, I would have made a mistake.

**SA:** /?idha lam yuHa~dherni lawaqA9tu fi ?alXATAYi/

**LA:** /k@n ma HaDArnish rAni dert ?ilXaTa/

- b. **SE:** Khalid did not understand yet.

**SA:** /Xalidun lam yafham b@9d/

**LA:** /Xalid ma fahamsh la9end tawwa/

- c. **SE:** Unless you work hard, you cannot succeed.

**SA:** /idh@ lam taj~tahid falan tastaTi:9a ?al^nnaj@H/

**LA:** /k@n ma ij~tahatsh ma tagdarsh tanjaH/

- d. **SE:** I have never visited Tehran.

**SA:** /?ana lam ?azur TahrAn ?abandan/

**LA:** /?an@ m@~zertsh TahrAn bikel/

- e. **SE:** She does not need to study hard.

**SA:** /hiya la taH~t@ju lil mudhAkarati bijid/

**LA:** /hiyya m@ tjHt@jsh tagrA wajid/

## Contrastive Knowledge Base:

Based on the corpus above, we find that /Ø/ sound in Standard Arabic changes into /sh/ sound in Libyan Arabic. For example, in 15a, the word /yuHa~dhereni/ meaning ‘warned me’ becomes /HaDArnish/ in LA. Similarly, the words /yafham/, /taj~tahid/, /?azur/, /taH~t@ju/ become /fahamsh/, /ij~tahatsh/, /zertsh/, /tiHt@jsh/ respectively in 15b, 15c, 15d, and 15e. Viewing the above-mentioned phonological changes, the research proposes a rule {/ Ø >sh/} which states that /Ø/ sound in SA changes into /sh/ sound in LA optionally. This kind of rule falls under the category of Aphaeresis which refers to the loss of final vowel in a word.

## 4, Conclusion

As the title of the present research suggests that the research is empirical in its nature, it focuses mainly on two aspects. The first is the descriptive analysis of phonological change from the perspective of historical linguistics as discussed under *Background of the Study*. The second focus is on exploring the possible phonological changes Libyan Arabic with respect to Standard Arabic as perceived by English speakers of Libyan students. In this pursuit, fifteen types of phonological change have been found which have been formulated as 15 phonological rules. These rules have been well theorized and proved with the help of appropriate and adequate examples. All the examples have been substantiated in the form of CKB (Contrastive Knowledge Base). In the light of the contrastive knowledge base discussed under chapter 2 above, the research explores several striking facts in terms of phonological changes. Here it is desirable to mention all the phonological changes in a nutshell which are relevant to the present research only.

1. /u>a/
2. /u>i/
3. /a>i/
4. /A>a/
5. /a>e/
6. /u>Ø/
7. /a>Ø/
8. /i>Ø/
9. /h>Ø/
10. /t>Ø/
11. /t>h/
12. /q>g/
13. /a>n/
14. /?>y/
15. /Ø>sh/

In the above-mentioned 15 phonological rules, the first five rules, i.e. 1, 2, 3, 4, and 5) have been found to be the examples of vowel change. Rule number 11 and 12 are the examples of consonantal change. Rule number 6, 7, 8, 9, and 10 are the examples of deletion. There are only two rules (13 and 14) in which vowels are changing into consonants. The last rule, i.e. (15) is absolutely different from the other rules. This is the only rule of its type in which we see the phenomenon of addition. This kind of addition is unique in itself as null sound is replaced by /sh/ in Libyan Arabic.

Now if we look at the above mentioned rules from the perspective of historical linguistics, we find that the rules {/u>a/}, {/u>i/}, {/a>i/}, {/?>y/}, {/q>g/} can be viewed as the phenomenon of syncope which refers to the loss of vowels within a word as in 1a, 1b, 1c, 1d, 2a, 2b, 2c, 2d, 2e, 3a, 3b, 3c, 3d, 3e, 5a, 5b, 5c, 5d, 5e, 8a, 8d, 12b, 14a, 14b, 14c, and 14d.

The cases of {/u>Ø/}, {/a>Ø/}, {/h>Ø/}, {/t>Ø/}, {/a>e/} show the phenomenon of apocope which refers to the loss of word final vowels as in 6a, 6b, 6c, 6d, 7a, 7b, 7c, 7d, 7e, 8b, 8c, 10a, 10b, 10c, 10d, 10e, 13a, 13b, 13c, 13d, 13e, 14a, 14b, 14c, and 14d.

The third finding shows the phenomenon of aphaeresis which refers to the loss of initial vowel. For example, the rules {/a>n/}, {/Ø >sh/} come under aphaeresis as exemplified in 8e, 9a, 9b, 9c, 12a, 12c, 15a, 15b, 15c, 15d, and 15e.

Usually /q/ becomes /g/ in LA in initial position or after vowel sounds. Tanwin ending /t/ of SA becomes /h/ in LA. Usually /a/ ending word in SA, drops /a/ sound in LA in final position as in 4a, 4b, 4c and 4d. /i/ sound in SA, usually gets dropped unconditionally in initial, medial and final position in LA as in 8a, 8b, 8c, and 8e. Usually /A/ becomes /a/ in LA especially in medial position as in 12a, 12b and 12c. Usually /t/ in LA is dropped in medial or final position as in 13a, 13b, 13c, 13d, and 13e. Usually /a/ becomes /e/ in LA if it comes medially in a word as in 14a, 14b, 14c, and 14d.

To sum up, we can say that most of the phonological changes found as a part of this research are not environmentally conditioned. They have undergone some changes merely for the ease of articulation. Besides, some cases seem to be confined to some particular regions and sometimes of a particular register too. Whatever be the case, Libyan Arabic shows the abundance of phonological change.

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