

**A Sociophonetic Study of Selected Morphophonetic
Alternations in the Egyptian Folk Epic *Beibers***

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Abstract

This paper examines selected phonetic and morphological phenomena in early Egyptian Arabic, from about the mid of the 13th century up till, approximately, the end of the 16th century. *It attempts to reveal how certain Egyptian Arabic words deviated from Classical Arabic (CA) pronunciation.* The data are primarily extracted from the epic of *Al-Zāhir Beibers*, which flourished during that era. In order to reach this end, the paper adopts a synchronic-diachronic perspective to data analysis under the theory of Lexical Phonology, within the broader framework of Sociophonetics. The selected sound changes include chosen cases of glottal stop alternations, vowel shortening, emphatic spread, and conversion of interdental. The findings show that some of the depicted alternations were used as variants in Al-Jazeera Arabic dialects. Others are presumed to be a result of false analogical application of originally Classical Arabic rules, the Coptic influence on Egyptian Arabic, and for ease of articulation. Moreover, the results reflect the adequacy of Lexical Phonology as an analytical tool when dealing with such morphophonological alternations.

Key words:

16th century Egyptian Arabic- Epic of *Beibers*- Sociophonetics- Lexical Phonology - phonemes alternations

1- Inventory of consonants used throughout the paper (i.e. CA&EA)

<i>Place</i> →	<i>Bilabial</i>	<i>Labio- dental</i>	<i>Inter- dental</i>	<i>Denta l</i>	<i>Dento- Alveolar</i>	<i>alatal</i>	<i>post- Alveola r</i>	<i>Vela r</i>	<i>Jvular</i>	<i>Pharyn- Laryng geal -eal/ Glottal</i>
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<i>Manner</i>											
<i>Plosive</i>	<i>b</i> ب			<i>t</i> ت <i>d</i> د				<i>k</i> ك <i>g</i> ج (EA)	<i>q</i> ق		<i>ʔ</i> ء
<i>Plosive Emphatic</i>				<i>T</i> ط <i>D</i> ض							
<i>Affricate</i>								<i>ɟ, j</i> (CA) dialectal EA) ج			
<i>Fricative</i>	<i>f</i> ف	<i>θ</i> ث <i>TH</i> ذ		<i>z</i> ز <i>s</i> س			<i>ʃ</i> ش	<i>ʁ</i> غ <i>X</i> خ	<i>ʕ</i> ع <i>H</i> ح		<i>h</i> ه
<i>Fricative Emphatic</i>		<i>TH</i> ظ		<i>Z</i> ز مفخمة (EA Only) <i>S</i> ص							
<i>Trill</i>				<i>r</i> ر							
<i>Lateral</i>				<i>l</i> ل							
<i>Nasal</i>	<i>m</i> م			<i>n</i> ن							
<i>Glide</i>						<i>y</i> ي		<i>w</i> و			

(Adapted from Newman, 2006, p.2)

Further Notes on Consonants

- All the phonemic symbols above are used also in transliteration, except for [ʔ] for /ʔ/ ء, [ʕ] for /ʕ/ ع, and [kh] for /x/ خ
- Underlining is used to denote emphasis spread.

2- Symbols of Vowels

	Front	Back
High (closed)	/i/, /ii/	/u/, /uu/

Mid	/ee/	/oo/
Low (open)	/a/-/a/, /aa/-/aa/	/ā/, /āā/- /ā/, /āā/,

(Adapted from Watson, 2002, pp.21- 23)

3- List of Abbreviations and Symbols

<i>Abbreviation</i>	<i>full form</i>	<i>Symbol</i>	<i>Meaning</i>
Antepenult.	Antepenultimate]	word Final position
Penult.	Penultimate	[word/phrase initial position
C, V	consonant, vowel	/	if / Under the condition
(F)VS	(final) vowel shortening	→, <	alternates to / becomes
HVD	high vowel deletion rule	[]	norphological nit/ allophone
O, C, N	onset, coda, nucleus	()	Optionality
VL	vowel lengthening	μ	Mora
SL	source language	σ	syllable level
CA	Classical Arabic	`	Stress
SA	Standard Arabic	*	ll-formedness
EA	Egyptian Arabic		
UR	underlying Form		
PF	phonetic Form		
LP	Lexical Phonology		

4- Arabic Morphological Categories: Abbreviations and Arabic translations

<i>Category</i>	<i>Arabic Translation</i>
Imperfective (Imperf.) Perfective (perf.)	الفعل المضارع- الفعل الماضي
masculine (masc.), Feminine (fem.)	المذكر- المؤنث
Singular (sing.), Plural (plu.)	المفرد- الجمع
Active Participle (AP)	اسم الفاعل
Preposition (prep)	حرف الجر
Hollow verb	الفعل الاجوف
Imperative verb (Imp.)	الفعل الأمر
Adjective (Adj.)	صفة

Noun (n.)	اسم
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0. Introduction

Egypt manifests a distinguishably rich model of language variation, which can be attributed to the ongoing state of change in its social and political life throughout its long history. Egyptian Arabic has always been a source of attraction for both Arab and Western linguists, being the most popular dialect in the Arab world. Nevertheless, studies have been devoted, basically, to contemporary Egyptian dialect(s) rather than to the early variety. This, consequently, led to a lack of knowledge concerning Egyptian Arabic path of variation and change. Moreover, in order to trace the historical phases of a language or a dialect, linguists usually resort to written records. However, the majority of early Egyptian records reflected Classical Arabic, rather than representing the spoken variety. Nonetheless, fewer Egyptian documents, written in a language that mixes CA with the colloquial variety, survived. *Al-Zāher Beibers* (1996) is considered to be one of those scarce sources or representatives of Egyptian Arabic, which was spoken at the Mamluk and Ottoman Egypt.

0.1. Sirat Al-Zāher Beibers

Sirat Al-Zāher Beibers is a folk epic tale that narrates the story of Sultan Beibers Al-Bunduqdāāriy. Beibers was the 4th baHariyالبحري (maritime) Mamluk ruler of Egypt and the Levant from 1260 till his death in 1277 (Shalaby, 1992, pp. 32-33). According to Al- GhiTāāni (1996), Beibers' wisdom, justice and rationality

made him one of the most loved and respected rulers throughout the history of Egypt. In addition, Egyptians' great appreciation for Sultan Beibers led them to weave folk stories about him. Thus, the epic aimed at describing his own and his companions' adventures, championships, relationships, and different circumstances of his sultanate, in which reality was mixed with imagination. The epic was recited for ages in popular Egyptian cafes that were named after it as *Al-Zāheriyya* before its completion during the Ottoman era. He added that the epic provides a linguistic evidence of the colloquial dialect spoken during the Mamluk era (p.6). Likewise, 'ĀTiyyāh (2001) asserts that one of the unique elements of *Beibers* is its successful contribution to preserving the Egyptian dialect and expressions used during that time (n. p).

0.2. Language in Egypt Ever Since the Dawn of History

It is believed that the history of language in Egypt extends thousands of years back in time. According to Allen (2004) "Egyptian first appeared in writing shortly before 3000 BC and remained in active use until the eleventh century AD" (p. i). Scholars have divided Egyptian language phases chronologically, based on the types of scripts they discovered. Thus, the first type was Hieroglyphs; the second and third types were Hieratic, and Demotic. Coptic came as the fourth and the last descendant of ancient Egyptian language. It was the indigenous language of Egyptians up till the advent of Islamic state in the 7th century, with its official Arabic language. According to Haikal (2003), "Arabic must have been initially acquired next to Coptic". However, by the "twelfth century Arabic had become the main written language in the church, indicating that the population could no longer understand Coptic" (pp. vii-ix). Hence, Coptic, as well as its parent ancient Egyptian were assumed to have left traces on Egyptian Arabic. Moreover, the Arabic spoken by Egyptians has possibly been affected by Al-Jazeera Arabic dialects, amongst other languages. Hence, the paper studies some of these aspects under the rubric of sociolinguistics.

1.0. Sociolinguistics

Sociolinguistics is basically concerned with investigating language within its social context. Wodak, Johnstone, and Kerswill (2011) heralded that sociolinguistics has "endorsed the view that language could not be adequately understood without taking many layers of social context into account, be it the situational context of utterances, the geographical origin of speakers, the age, the gender, social class, ..." (pp. 1-2). Thus, language variation is a consequence of an intersection between linguistic and extra-linguistic factors.

1.1. Arabic Situation

Variation shows to be a central characteristic of Arabic speaking countries. This consequently, as Haeri (2000) confirmed, has led to the emergence of the more specialized “Arabic Sociolinguistics” in the mid of the 1970s (p. 62). Arabic sociolinguistics sought to evaluate and analyze speaker linguistic choices in line with the situational and communal contexts. This was enriched by utilizing sociolinguistic notions and “trends in reseach on diaglossia, code-switching, gendered discourse, language variation and change, and language policies in relation to Arabic” (Bassiouney, 2009, p. 6).

Examining linguistic variation in relation to the Arabic community/speakers started as early as medieval ages. Miller and Caubet (2010) argued that Medieval Arab grammarians were “aware of the heterogeneity of the Arabic language” (p. 239). This was further affirmed by Bassiouney (2009) who signaled out that the “interest in the differences in ways people speak is very old”, referring to Al-Khaliil Ibn Ahmed Al-Farahiidiy as the first one who mentioned the concept of phonological variation in his dictionary of *kitaabu-l-‘Ayn* (p. 5). However, the chief objective was, then, to preserve Classical Arabic, and refine it rather than to study variation per se, as a valid characteristic of language (Miller & Caubet, 2010, p. 421).

1.2. Language Change and Sociolinguistics

The state of language change has proved to be in a direct relationship with time. Guy (1996) asserts that language is essentially “a dynamic social system, which is continuously moving, changing, interacting, and working” (p. ix). In addition, Attinasi (1974) elucidated that there are three aspects from which language change could be approached, namely, “the origin, the spread, and the regularization of language differences through time” (p. 282). According to Coulmas (2013), “the fact of language change forces us to look at instability, deviation and loss of comprehension across generations and dialects” (p.4). This means that language would not be able to resist deviation from what might at certain times be regarded as a standard form.

Aitchison (2001) affirms that “a change tends to sneak quietly into a language, like a seed, which enters the soil and germinates unseen” (p. 66). This was corroborated by Hickey (2001) explaining that “[t]he way languages change offers an insight into the nature of language itself, its internal organisation, and how it is

acquired and used". He asserts the inevitable relation between language, dynamicity and ultimately change, sustaining that "given the dynamic nature of language, change is ever present" (p. 1). Henceforth, dynamicity here could be equivalent to variability, where language variation acts as a preliminary stage for language change. This, therefore, renders language variation as the substantial key for understanding language change. Further, Baker (2010) emphasizes that "exploring the historical and social contexts of time periods being examined" results in a "more reliable description and explanation" (p.80).

This could be witnessed in English language, for instance, which is well-recognized for manifesting correlation between linguistic changes and external factors represented by sociohistorical events. Meyer (2009) maintains that "various historical and linguistic events led to changes in English over time" (p. 20). This could be witnessed in the borrowings of either lexical items or linguistic habits that take place across English history. Algeo (2010) explicates that one of the proposed triggers of sound change, (for instance), is language contact, which usually happens when one group of speakers learn the language of another. However, within the course of attempting to learn the new foreign language, sometimes the native speakers tend to transmit "native habits of pronunciation into the newly acquired language" (p. 30). According to Hickey (20 English for example "has lost consonantal length, has acquired phonemic voiced fricatives, and has developed contrastive word stress under Romance influence (p. 5). Some changes, however, have been attributed to internal factors, others are still mysterious.

1.3. Language and Society in Mamluk and Ottoman Egypt

Lane-Poole (1901) mentions that during this era, "the population of Egypt was sharply divided into two classes who had little in common with each other". One division was "the military oligarchy", and the other represents "the mass of the Egyptians" (pp. 252-253). Al-Māqriiziyy (2007) describes the diverse layers of the Egyptian mass in detail, dividing the society into seven classes (pp.147-149), naming the first group as "أهل الدولة" 'ahlu-l- dawlah (the ruling class). The second and the third are: "أهل اليسار من التجار و أولي النعمة من ذوي الرفاهية" 'ahlu-l-yasaar min-al-tudzāār wa-'uli-l-niṣmah min THawi-l-rāfaahiyah (Well-off merchants), and "وهم الباعة" 'al-baa'ah wa-hum mutawāsiTu-l-Haal min-al-tudzāār (vendors who are financially moderate). The fourth and the fifth are: "أهل الفلح" 'ahlu-l-filH (Peasants and villagers), and "جل الفقراء و طلاب العلم" dʒullu-l-fuqārāā' wa-Tullāābu-l-'ilm (Poor people and students). The sixth and the seventh groups consist of "أرباب" 'arbaabu-l-Sānāā'i' wa-l-'udzarāā' wa-'aSHāābu-l-mihan (craftsmen and wage earners), and the less privileged class of "ذوو الحاجة و

"المسكنة" THawu-l-Haadzi wa-l-maskanah (panhandlers and poor fellows) (pp.147-149). Hence, such diversity of the Egyptian society is reflected on the language spoken by its members. According to Selim (1957), the foreign ruling class, for example, are of Turkic origins, and spoke Turkic languages (i.e. Turkish and Jerkisi); whereas Egyptians speak colloquial Arabic. He further assures the co-existence of colloquial Arabic, which can collectively be referred to as Egyptian Arabic, and foreign languages, mainly used by the ruling class. This is in addition to Classical Arabic, which is restricted to formal religious, scientific, literary, and poetic writings, etc. (p. 21).

1.4. A Brief Description of Arabic Morphological System and Syllable Structure

Fullwood and O'Donnell (2013) state that "the predominant mode of Semitic word formation is non-concatenative" (p. 21). Arabic, being a descendant of Semitic family, conforms to this mode. Ryding (2005) illustrates that Arabic morphological system is marked by a "discontinuous morphemes" pattern. She further explains the way Arabic morphology is constituted, where the "system of consonant roots ... interlock[s] with patterns of vowels (and sometimes certain other consonants) to form words, or word stems" (p.45).

Crystal (2008) defines "root" as "a sequence of consonants" (p. 418), i.e. in Arabic [F.ʔ.L]. Words after intervening vowels could be measured against templatic scales. According to Haywood & Nahmad (1965), the definite number of derived forms is "open to dispute" (p. 151). Nevertheless, the first 10 forms of Arabic verbs are, generally, widely discussed in the literature because of their frequent use. The most frequent, however, is the basic form I [Faʕa(i)(u)L], followed by the form II [faʕʕala], III [faaʕala], IV [ʔafʕala], V [tafaʕʕala], VI [tafaaʔala], VII [ʔinfaʕala], VIII [ʔiftaʕala], IX [fʕalla], and X [ʔistaʕala]. Thence, what primary turns roots to words is the intervening vowels for both nouns and verbs, which is the case in CA, as well as its dialects including Egyptian Arabic. Moreover, Abdil-Tawwaab (2000, p. 55) & Ryding (2005, p. 36) amongst others, have listed five syllable structures for CA. Mitchell (1956, p. 110) confirmed the presence of the same five syllables for EA as follows: CV, CVV, CVC, CVVC, and CVCC.

1.4. Previous Studies on EA

This section briefs on some of the previous related studies of EA. As for historical oriented studies, the researcher has found few studies conducted on early phases of Egyptian Arabic. *Allahdʒah Al-'Aamiyyah Al-MāSriyyāh fi-l-Qārn Al-*

Haadi 'Ashar Al-Hidzriy by 'Abdi-l-Tawwaab (n.d.), and *Egyptian Arabic in the seventeenth century: A study and edition of Yūsuf Al-Maghribiy's Daf' Al-'ISr 'an Kalaam Ahl MiSr* by Zack (2009) are two of the most influential studies that investigated the linguistic characteristics of early EA. Both studies were carried out on *Daf' Al-'iSr*, a manuscript that is regarded as one of the most precious linguistic documents that studied the Egyptian dialect of the 16th & 17th centuries. Another distinguished study is *Al -Lahḏatu-l-MiSriyyatu-l- FāāTimiyyah* (1999, 2014) by 'ĀTiyya Sulaymaan Ahmed. The study is classified as a historical linguistic study that, basically, concentrated on describing the Egyptian dialect during the Fatimid era. In addition, a recent study, entitled *A Sociophonetic Study of Selected words in Al-Qawl Al-Muqtadab Fiima Waafaqa Lughat Ahl Misr*, studied *Al-Qawl Al-Muqtadab*, an abridged version of *Daf'-l-'iSr*, as representative of Egyptian Arabic in the Early Ottoman Period by Aboul Enein (2013). The research examined the morphophonological features of EA words during that era utilizing the theory of Lexical Phonology.

Woidich and Behnstedt's Atlas (1985) is one the most significant dialectological studies that led to the advance of Arabic sociolinguistics in current time. The study is known for delving deep into investigating Egyptian dialects based on geographical distribution. The Atlas has been described by Eissele (1987) as "the best dialectological work to have been carried out on Arabic dialect" (p. 221), as it drew an accurate map of various unstudied regions of Egypt (i.e. Delta and the Nile valley, as well as the oases). Further researches have been concerned with providing a colloquial Egyptian lexicon, such as Badawi and Hinds' *A Dictionary of Egyptian Arabic* (1973), which is considered one of the most comprehensive compilers of EA lexical items. In addition, Ezzat conducted a number of valuable studies on Egyptian Arabic from multiple dimensions. Among these studies is: *Intelligibility among Arabic Dialects in 1974*, where he examined aspects of EA. Moreover, he investigated the wider scope of the influence of EA on 2nd language acquisition (English) in his *Some Phonological Problems involved in Teaching English to Speakers of Egyptian Arabic (Cairene Dialect)* in 1977. Finally, Harrell's *The Phonology of Colloquial Egyptian Arabic* (1957), and Olmsted and Gamal El-din's *Cairene Egyptian Colloquial Arabic* (1981) are also significant studies that examined phonology and morphology of EA.

2. Methodology

2.1. Purpose of the Study

The current study is an attempt to explore the way Egyptians talked at a certain period of Egypt's history. This was carried out by investigating the colloquial variety as reflected in the folk epic of Al-Zāher Beibers (1996), as a representative of EA

spoken at the time of the Mamluk and Ottoman Egypt. *Thus, the first radical aim is to conduct a morphophonological analysis on the EA words selected from Beibers with respect to the historical social dimension. The second end is to specify the appropriateness of the theory of LP for the analysis. The third purpose is to specify the similarities/differences between early EA and CA as well as contemporary EA and early EA, with respect to the application of certain morphophonological rules in selected words. This is in addition to tracing the persistence of a given phenomenon productivity through time.*

2.2. Research Questions

The study attempts to answer the following questions:

- 1- What are the phonological/morphological processes involved in altering Classical Arabic words into colloquial ones in the selected corpus? Do they exhibit a systematic or idiosyncratic attitude?
- 2- In view of the scarcity of studies conducted on Arabic language under Lexical Phonology, to what extent does such an analytical tool applicable on the data under investigation?
- 3- Taking into account adopting a synchronic/diachronic approach to the data, did the same phonological/morphological alternations detected in the data exhibit persistence through time?
- 4- Could the epic of *Al-Zaher Beibers* be considered as a good representative of the dialect spoken at the Mamluk and the early Ottoman periods?

2.3. Source of Data

Sirat Al-Zāher Beibers (1996) is the main source of data selected for this study, from which words exhibiting orthographic variations were extracted as representative of EA phonological and morphological alternations (i.e. colloquial variety). It consists of fifty parts falling in five volumes, forming a total of 3000 pages. The text misses all kinds of punctuation (i.e. commas, periods, semi colons, question marks), and is written in CA mixed with the local colloquial language used in Egypt during these early periods.

2.4. Corpus, method, and Procedures

The analysis was conducted on 140 words from *Beibers*. Words were collected manually, due the lack of a computerized version of the corpus. Thus, the

first step was skimming through the epic, where some words encountered were inferred as colloquial, as reflected in their orthography (i.e. deviating from CA). Next, the chosen words were looked up for in CA dictionaries, henceforth; they were detected as alternating forms of the original CA. In addition, most of the words selected were either repeated multiply throughout the epic or else proved persistence up till the present time, and/or were detected in other historical sources. These were traced through *baheth.net*, which is a search engine that encompasses five of the most reputable CA dictionaries. These are *Lisaanu-l- 'Ārāb*, *Maqāyīisu-l- Lughah*, *Al-SiHāH fi-l-Lughah*, *Al-Qāmuus Al-MuHiiT*, and *Al- 'Abaabu-l- Zaakhir*.

The words were checked also through *Elixir*, which is a CA/SA morphology analytical tool. It helped revealing word root forms as well as the meanings of words, in relation to their derivations, and their grammatical categories. It was also consulted for checking the transcription of few CA words. The data selected was, then, classified into groups, based on the alternation they exhibited. Furthermore, some of the categorized words reflected a number of alternations, which would be pinpointed (i.e. through the transcription only and/or by more illustration), yet the focus would be given chiefly to one phenomenon in every sub/section. Thence, LP was used to account for morphophonological processes, which affected CA words, turning them into colloquial. It is noteworthy that Moraic theory was also frequently utilized, whenever found helpful for the phonological description of processes and their representation. In addition, extra-linguistic aspects were inspected in an attempt to trace the source of alternations under study.

2.5. Theoretical Framework

The current paper is a synchronic- diachronic study, conducted within the broad framework of Sociophonetics under which Lexical Phonology (LP) was employed. They are explained in the following subsections.

2.5.1. Synchrony-Diachrony

The distinction between synchrony and diachrony was first established by de Saussure (Crystal, 2008, p.142). Meyer (2009) explained diachronic studies as “examining the historical development of a language, taking into consideration changes it has undergone over time”. As for synchronic studies, they relate to the convention of “investigating a language in its present form as it is currently spoken and written” (p. 20). Hence, synchronic-diachronic integration could be described as being in a perpetual complementary distributional relationship.

2.5.2. Sociophonetics

It is a relatively new interdisciplinary field which draws on the integration and interaction of three main approaches, namely, sociolinguistics, phonetics, and phonology. Sociophonetics has sprung from the broader sociolinguistics, and it addresses variations with more focus on describing and accounting for phonetic/phonological variations. Foulkes, Scobbie, Watt (2010) reveal that sociophonetics aimed at the “development of theoretical models in phonetics and sociolinguistics, spanning speech production and perception, with a clear focus on the origin and spread of change” (p. 704).

The term "socio-phonetic" was first recorded by Deshaies-Lafontaine in his dissertation on variation in Canadian French (1974). Since the mid of the 1990s, ‘sociophonetics’ studies have witnessed a considerable bounce as well as expansion (Foulkes et al., 2010, p. 703). Foulkes and Docherty (2006) describe the discipline’s borderlines as “become(ing) increasingly porous”. They explain that “sociophonetic research now amalgamates theories and methods not only from phonetics and sociolinguistics but also from related fields including... theoretical linguistics, **phonology**, and computational linguistics” (p.704).

According to Foulkes et al. (2010), sociophonology was used synonymously with sociophonetics by Dressler and Wodak (1982) in their variationist study of Viennese German in 1982 (p. 703). Ohala (1990) further clarified the integrational relationship between phonetics that is the manner in which speech sounds are produced and perceived “doing”, and phonology that is “how and why” speech sounds are organized and structured in a certain way “knowing” (p. 155).

2.5.3. Lexical Phonology

The theory of Lexical phonology is one of the descendants of the school of Generative grammar (Carr, 1993, p.103). LP was launched by Mohanan (1982, 1986) and Kiparsky (1982), focusing on the relationship between phonology and morphology. According to Mohanan (1986), "phonology and morphology... are inputs to each other...", where "the output of phonological operations may undergo morphological operations, and may then undergo further phonological operations" (p.8).

2.5.3.1. Lexical vs. post lexical modules

The core assumption of the theory of Lexical Phonology (*LP*) lies in the distinction between lexical and postlexical modules. Typically speaking, the division indicates that rules, which apply word internally, will be assumed to be supplied by morphological information, hence, occurring within the lexicon.

Mohanan (1986) explains that “A rule application requiring morphological information must take place in the lexicon” (p.9), e.g., /g/ sound deletion in the word ‘*sign*’ before a nasal, where /g/ → /ɟ/ / _____ [+nasal]] (p. 22). In case the rule operated across words, then this would designate postlexicallity (p.10). One example of postlexical rules is the flapping of the stop /t/ both within word boundary e.g. bu/ɫ/er and across word boundary e.g. *See you [ɫ]omorro*. Hence, flapping takes place as a result of the presence of the appropriate structural description, namely, [-cont., +alveolar, -nasal] (i.e. /t/) between [+stress] and [-stress] (Stabler, 2007, p. 26).

There is a specific order for these rules to take place, where lexical rules are expected to operate before postlexical ones. That is why "postlexical operations are blind to the internal structure of words" (p.14). McMahon (2000) confirmed that “lexical and postlexical rules display distinct clusters of properties, and are subject to different sets of constraints” (p.5). Moreover, McCarthy (1999) spots some of the basic characteristics of both modules as seen below:

	Lexical	Postlexical
a.	Word-bounded	Not word-bounded
b.	Access to word-internal structure assigned at same level only	Access to phrase structure only
c.	Precede all postlexical rules	Follow all lexical rules
d.	Cyclic	Apply once
e.	Disjunctively ordered with respect to other lexical rules	Conjunctively ordered with respect to lexical rules
f.	Apply in derived environments	Apply across the board
g.	Structure-preserving	Not structure-preserving
h.	Apply to lexical categories only	Apply to all categories
i.	May have exceptions	Automatic
j.	Not transferred to a second language	Transferrable to L2
k.	Outputs subject to lexical diffusion	Subject to Neogrammarian sound change
l.	Apply categorically	May have gradient outputs

(p. 55)

The lexical-postlexical categorizaation of rules could, thus, be identified via being measured against the previous criteria. Hence, in case, for example, a given process exhibited signs of cyclicity, operation in a derived environment, limitation to word boundary, results in a contrastive feature as well as applies prior to postlexical rules, then it could be realized as a lexical rule. Another significant sign that helps decide on the nature of a rule is the Structure presevering (SP) principle, which, according to Kiparsky (1985), is “a result of constraints formulated over the entire lexicon” (p. 87). This was further explained by Watson (2002) as: “lexical processes are structure preserving” as long as “they don’t introduce new segment” that is not part of the underlying inventory of the language” (p. 201). A case in point could be, according to Mohanan (1986), the American Flapping, which is not present in English phonemic inventory.

In addition, Mohanan (1986) elucidates that rules applying “solely in the postlexical stratum, such as “Aspiration, Flapping, Nasalization of vowels before nasals, Deletion of *r* in non-rhotic accents” are non-exceptionally productive and

therefore are assigned to the postlexical stratum. Nevertheless, rules embracing “the packet of Shortening-Lengthening-Vowel Shift-Diphthongization, g Deletion, [n] Deletion” were located by him in a lower rank, which postulates their affiliation to the lexical stratum (p. 56).

2.5.3.2. Levels and Cyclicity

One of the focal ends of LP is defining the nature of the relationship between the phonological and the morphological components. Mohanan (1986) states that “a subset of phonological rule applications takes place in the lexicon, in tandem with the morphological operations” (p.8). Maye (2000) explains that LP “is a derivational theory which posits various strata in which morphemes are concatenated and phonological rules may apply” (p. 78). This, therefore, assures the idea of interaction of both components, which takes place following a certain order, giving rise to ‘Cyclicity’. According to Mohanan (1986), the term designates “a single pass through the whole rule system” (p.23). As a result, examining a rule application would consistently take place through every single step of the derivation within the lexical module. He adds that cyclicity is generated out of “a consequence of the interaction between the lexical strata and the phonological rule system” (p.48).

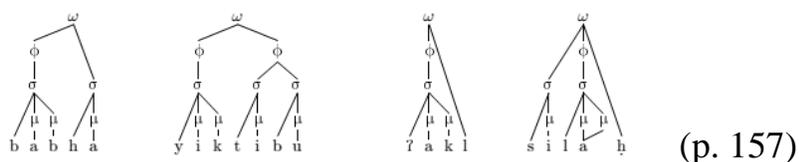
Cyclicity, additionally, encompasses a constraint that is called “Bracket Erasure Convention” (BEC). The principle is known to work on deleting “the (internal) brackets at the end of all affixation processes”, after the completion of “morphological and phonological operations at each level of the lexicon” (Carr, p.176, 1993). One example that well-demonstrates both cyclicity and BEC is the rule of Trisyllabic Vowel Shortening (TSS). The steps of derivation in the lexical module are depicted by Mohanan (1986) as follows: 1) UR: [diviin] [iti], 2) Affixation: [[diviin] [iti]], TSS: [[divin][iti]] (i.e. cyclicity), 4) Lexical Representation: [divinity] (p. 10). Thus, cyclicity is reflected in the subsequential phonological effect of vowel shortening resulting, primarily, from the morphological process of [iti] suffixation. This corroborates the state of interaction taking place between both components of phonology and morphology.

2.5.3.3. Lexical Phonology, the Moraic Model and Arabic Syllable Structure

Lexical Phonology (LP) was employed with reference to the Moraic Model. Such an approach of utilizing lexical phonology and moraic model has been adopted by Kiparsky (2003). Such an approach has also been implemented by Watson (2002), whose model was followed through the data analysis. According to Oostendorp (2005), the moraic model introduced “a popular alternative to the representations of syllable structure” (p. 1). Moreover, Crystal (2008) affirms that the

“Moraic structure accounts for many of the phenomena described in other models” (p. 312).

The term “Mora” was introduced by Hyman (1984, 1985), McCarthy and Prince (1986) (McCarthy & Prince, 1990, p. 4). Noske (1993) refers to Mora as: “the element which expresses phonological weight (and) plays a major role in syllable structure” (p. 31). Watson (2002) declares that the model “could adequately reflect syllables’ weights”, as it “develops a prosodic conception of the syllable, giving status only to those segments which bear weight and are potentially stressable” (p.53). Crystal (2008) elucidates that the “analysis of segments into moras is usually applied only to the syllabic nucleus and coda (the rhyme), and not to the onset” (p. 312). However, as far as EA is concerned, not all codas are assigned a mora where this would depend on its location in a syllable. This is referred to as “a weight by position”, which Watson (2002) explains as: “a ‘coda’ consonant is assigned a mora in the course of syllabification (parametric)” (p. 54). It means that codas would count moraic only after word syllabification, where coda weight would be determined according to its position, and parametric stands for the language specific nature of such a principle. This could be deduced from Kiparsky (2003) through the diagrams below:



Therefore, the diagrams designate the places of mora, which in turn marks weight. It reflects the association existing between the number of vowels and the locations of consonants after syllabification (i.e. 1 vowel=1 mora, 2 vowels = 2 moras, onset= 0 mora, coda in a heavy syllable CVC=1 mora, coda in an ultimate syllable (word final) CVCVC (extrametrical) = 0 mora, coda in a final position of super heavy CVVC= 0 mora (extrasyllabic), or CVCC = 0 mora (extrasyllabic)) (Watson, pp. 56-58).

3. Data Analysis

3.1. The Case of Glottal Stop Alternations in Early EA

Before starting the analysis, an idea is given about the historical background of the glottal stop.

3.1.1. A Sociohistorical Linguistic Perspective of Al-Alif and Al-Hamza

The history of the glottal stop could be traced back through time to Egyptian and Semitic languages. Kramer (n.d) explicates that the “glottal stop remained without a letter in most Coptic dialects, although the distribution is traditionally constrained to the beginnings and ends of vowel-initial and vowel-final words, and between doubly written vowels” (p. 19). As for Semitic languages, the stop persisted, where, in addition to Arabic, it existed in Hebrew, Assyrian, Aramaic, and Abyssinian. In addition, it manifested various phonological alternations in almost all of these languages, just like the case in Arabic. Moreover, the orthographic history of the glottal stop in Arabic played a crucial role in its phonological realization across Arabic dialects (De Lacy, 1923, pp. 30-41).

Badawi, Carter & Gully (2004) assert that “the original Arabic alphabet had used the letter ʾ (*Alif*)”, where it stood for both the long vowel /aa/ and the glottal stop /ʔ/ (p. 1). According to Abdil-Tawwaab (1996), the problem was solved by Al-Farāhiidiy, where he introduced a new symbol (ء), thus distinguishing between the /aa/ and the glottal stop, instead of the common (ʾ). Moreover, many early Arab grammarians such as Ibn Yaʿiish and Sibawayh agreed on the marked articulatory effort that accompanies the glottal stop’s production. This consequently led to the wide alternations observed to accompany this phoneme. This was evident through the dialect of the people of Hidʒaz, particularly Quraysh tribe, who resorted to forsaking glottal stops in favor of either deletion or alternation to another phoneme (pp. 24-27). Conversely, some other tribes preserved the glottal stop such as Tamim, Qays, and Banu Osd, as asserted by Hilaal (1993, p. 220).

In contemporary EA, /ʔ/ is majorly used as a variant of /q/, yet some words preserved the /q/. Ezzat (1974) points out that the /q/ is still present in Egyptian Arabic, as in the words /ʔalqāāhirāh/ 'Cairo', and /ʔilquds/ 'Jerusalem'. Moreover, it could be discerned "when the speaker classicizes or elevates his style" as in /tāqdi:r/ 'estimation', and /fāqāT/ 'only' (p.22).

It is to be noted that *Al-Zāher Beibers* orthographically recognized glottal stops at some instances, which may indicate that it could have been left out at the other instances to conform to the colloquial dialect used then, as in: رأيتك، ياخذوا (p. 1518) /rāʔayta(u)k/ (I saw you), /yaʔxuTHu/ (they took) vs. شاتها /shaanha/ (her business) (p. 1521), and رأسه /rāāsuh/ (his head) (p. 1764).

3.1.2. Post-vocalic Glottal Stop Elision: Final Position after a Long Vowel

The following group is divided into five paradigms, where the division is based on the word category. All the paradigms encompass words with glottal stop deletion after a long vowel. For convenience, the examined EA forms are presented using current articulation (based on their orthography), since it is not possible to present exact Mamluk pronunciation. Moreover, variants, if any, are given between brackets.

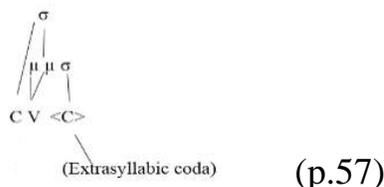
Table 1

<i>Vord in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
a) Singular Nouns			
القضا	/ʔi(a)l-qāDā/	/ʔal-qāDāʔ/ القضاء	p.1521) <i>destiny</i>
جزا	/g(j)(i/a)za/	/dʒazaaʔ/ جزاء	p.1478) <i>penalty</i>
الصحرا	/ʔi(a)l-SāHārā/ V insertion	/ʔal-SaHrāāʔ/ الصحراء	(p.1484) <i>desert</i>
البلا	/ʔi(a)l-bala/	/ʔal-balaaʔ/ البلاء	p.1482) <i>ordeal</i>
المسا	/ʔi(a)l- m(i)(a)sa/	/ʔal-masaaʔ/ المساء	(p.1517) <i>night</i>
b) Plural nouns			
الغفرا	/ʔi(a)l-ghufārā /	/ʔal-ghufarāāʔ/ الغفراء	(p.1502) <i>guard</i>
الاعدا	/ʔi(a)l-ʔaʕda/	/ʔa(i)l-ʕdaaʔ/ الأعداء	p.1649) <i>enemies</i>
فقرا	/fuqā(ʔa)rāh/	/fuqārāāʔ/ فقراء	(p. 1515) <i>poor people</i>
دما	/di(a)ma/	/dimaaʔ/ دماء	(p.2850) <i>blood</i>
c) Verb			
آجي	/ʔaag(j)i/	/ʔadʒiiʔ/ أجيء	p.1554) <i>I come</i>
d) Adverb of Place			
ورا	/wārā/	/warāāʔ/ وراء	p.1501) <i>behind</i>

(For more examples, check appendix 1 no. (a))

All the previous data share the same phonetic environment for the glottal stop, being underlyingly preceded by a long vowel in an ultimate syllable. Onsets do not seem to confine to a specific place or manner of articulation, i.e. dento-alveolar, trill /r/, bilabial, nasal /m/, alveo-dental, stop /d/, alveo-palatal, affricate /dʒ/, etc. Hence, ultimate closed syllables are made up of the templatic structure [CVVC] in polysyllabic words (i.e. with a disyllabic majority). Glottal stops are observed for being extrasyllabic in a super heavy, bimoraic syllable all along. Further, the pre-glottal stop vowel (i.e. bimoraic) has /aa/ as noticeably dominating (26 out of 38 words) (please check table (a) in appendix 1). These final glottal stops, however, were elided, leaving a final open [CVV] syllable.

Birkeland (1952) spells out that “Cairene does not usually allow word-final [CVV] syllables as a result of “the history of the dialect when long final vowels were reduced to short final vowels” (as cited in Watson, 2002, p. 56). The examples above are assumed to have been subjected to the same shortening process when meeting the structural conditioning environment, i.e. being located word finally after the glottal stop elision process. Such historical final vowel shortening has been confirmed by Watson (2002) stating that CVV does not occur in phonological word-final position. The following illustration, adopted from Watson (2002), could represent the process:



In addition, the rules given below were deduced to account for the phonological condition, required for the application of the two processes attested with the set of words in the table above:

1) /ʔ/ deletion	/ʔ/ → /∅/ / [+long V]----] (i.e. glottal stop is deleted in case it follows a long vowel in a word final position).
2) Final Vowel Shortening (FVS)	[+long V] → [-long V] / -----] (i.e. long vowels are shortened in a word final position).

Gadalla (2000) affirms the presence of a regular phonological rule, in which “[F]inal /ʔ/ Deletion and Final-Vowel Shortening” take place in EA (p. 149). The phenomena are noticed to accompany words of different categories in the data displayed in table (1), encompassing nouns (sing. & pl.), adjectives; a verb, and an adverb of place that occurred repeatedly in the corpus. Accordingly, the final long vowels become short, thus turning bimoraic, closed syllables into monomoraic, open syllables. It could be hinted out that postvocalic glottal stop elision might reflect evidence for being affiliated to the lexical domain as it takes place inside the word, is

structure preserving, and is non-final being followed by other processes (i.e. reveals cyclicity) as would be seen below.

Tracing out the phenomenon of glottal stop deletion throughout different epochs, Ahmed (1993) has reported witnessing it in documents from the Fatimid era, mentioning words, such as /ʔ(i)al-qāDā/ القضا, instead of /ʔ(i)al-qāDāʔ/, from *Akhbāār Sibawayh Al-MāSri*, and /ghada/ غدا instead of /ghadaaʔ/ غداء (lunch) from *Manamaatu-l- wahrāāniy* (p. 41). As for the Ottoman period, words such as /ʔa(i)l-rida/ الردا for /ʔa(i)l-ridaaʔ/ (p. 16) (gown/robe), and الغنا/ʔa(i)l ghuna/ from /ʔa(i)l-ghinaaʔ/ (p. 17) (singing) were attested in *Hazz Al- QuHuuf* by Al-Shirbiiniy (1890). It was also detected in other Mamluk era documents, such as Al-Bashbaghawiy's *Nuzhat Al-Nufuus wa-Mudhik Al- 'Abuus*, where it was found to embrace words, such as "سوده", "بيضه", "الهوا" (as cited in Dos & Davies, 2013, p. 45), i.e. /suudah/ from /sawdaaʔ/ سوداء (black), /beeDāh/ from /bayDāāʔ/ بياض (white), and /ʔa(i)l-hawa/ from /ʔal-hawaaʔ/ الهواء. This, in turn, could prove the antiquity of the phenomenon in EA tradition.

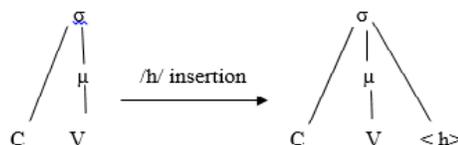
3.1.2.1. /h/ insertion accompanying final stop /ʔ/ elision

Some peculiar observations could be pinpointed in relation to group (f), encompassing the following words,

<i>f) Adjectives (with h/insertion)</i>			
دهمة	/dahmah/	دهماء/ /dahmaaʔ/	(p.1602) <i>black</i>
عرجه	/ʕarg(j)ah/	عرجاء/ /ʕargaaʔ/	(p.1554) <i>lame</i>
عوره	/ʕoorāh/	عوراء/ /ʕawrāāʔ/	(p.1554) <i>one-eyed</i>
شقرة	/shāq(ʔ)rāh/	شقرأء/ /shaqrāāʔ/	(p.1554) <i>blond</i>
شهبه	/shahbah/	شهبأء/ /shahbaaʔ/	(p.1554) <i>white mixed ith red or black</i>

Group (f) is noticed to encompass words that surfaced with a pharyngeal /h/. The set appears to share some common factors. First, it includes adjectival words that exhibit the same CA (UR) templatic measure of [FaʕLaaʔ]. Second, their ultimate

syllables, commonly, share the same UR ending, namely, long vowel followed by a glottal stop /aaʔ/. Hence, as mentioned by Ryding (2005), /aaʔ/ is one of the CA nominal feminine markers in addition to /aa/, i.e. Alif Tāwiilāh [ا] & Alif Maqṣūrāh [ى] (p. 123). Converting to EA, by virtue of /ʔ/ deletion and preceding vowel shortening, the words in (d) developed a coda (/ʕarga<h>/, /shāqrā<h>/, etc.) that is restricted to the pharyngeal segment /h/. The process could be deduced to be formulated as such:



The /h/ is regarded here as extrametrical, for according to Watson, “a word-final CVC syllable counts as monomoraic” (p. 58), being “prosodically light” in such position (p. 57). Furthermore, /h/ insertion reflected a significant appearance that is, particularly, associated with the word location in the phrase. It has been observed that the word /fuqārāhʔ/ was written in *Beibers* in two ways as: فقرا and فقره (i.e. with and without the final /h/). The following phrases with the word forms in their contexts might provide some clues to account for such a phenomenon:

a) /ʔakalna ʔakl **fuqārāh** / (we ate of the food of poor people) "اكلنا اكل فقره"
(p. 1501).

b) / **fuqārā**-l-balad / (the poor of the country) "فقرا البلد"
" (p. 1515).

The word /**fuqārā**/ in both phrases are noticed to share the same nominal adjectival category, with the same UR (CA) templatic form [Fuʕalaaʔ], yet the crucial difference lies in the position of each word. Hence, /**fuqārāh**/ is located in a final position, whereas /**fuqārā**/ is located phrase initially. Hence, the position of the word might be a triggering factor for /h/-insertion, as it is noticed to accompany adjectives positioned phrase-finally. However, this postulation is based on the data attested here as extracted from the epic and requires further evidence to be generalized to EA.

/h/-insertion has its origin in CA phonological tradition. According to Al -Pop (2010), Sibawayh has termed finally-located inserted /h/ as “haa’ al- sakt”. It denotes an inserted /h/ that is pronounced in phrase final position or pause “Al-Wāqf”. The /h/ in such location, typically, helps in revealing the “*Harāka*” (inflection/diacritic) of the final segment. The augmented consonant is well-recognized also in Qur’anic spelling and recitation, where it can be witnessed with defective imperatives such as

/ʔiqtādi(h)/ اقتده (follow as an example), and the noun /sulTāāniya(h)/ سلطانيه (my power/ my sultanate), etc. (p. 21).

/h/ insertion, consequently, could be classified as being located in the postlexical module, because it applies after the phonological phrase level rather than the word level. This means that the epenthesis occurred after the clustering of words, and syllabification. It takes place in regard to the location of words in a phrase. Moreover, it may be sensitive to speed and register. These reasons, therefore, could support the postulation that /h/ insertion takes place in the postlexical module. The phenomenon could also be regarded as a supporting evidence (i.e. along with the synchronic evidence) that corroborates for final vowel shortening, as none of the words with /h/ insertion surfaced with a pre-/h/ long vowel.

3.1.3. Post-Vocalic Glottal Stop Elision in CVC Syllables

The original forms (CA) in the following table display an ultimate syllable structure of (CVC) with a glottal stop that is located post-vocally. The table is divided into two paradigms based on the category of each set, where CA and EA are to be examined. It is to be noted that the punctuation of EA words is added by the researcher, while CA words are taken from *baheth.net*. Moreover, roots are added next to the derived words for clarification.

Table 2

Word in EA	EA word transcribed	Original form in CA	Page no. & Gloss.
a) Verbs			
امتلا الغليون	/ʔimtala/	/ʔimtalaʔ/ امتلاً [m,l,ʔ]	p.1600) to get full
اتكى	/ʔittaka/	/ʔittakaʔ/ اتكأً [w,k,ʔ]	(p.1612) leaned
يتدفى	/yi(a)t(d)daffa/ (V elision)	/yatadaffaʔ/ يتدفى [d,f,ʔ]	(p.1501) to get warm
يتهنى	/yithanna/ (gemination of /n/)	/yahnaʔ/ يهنأً [h,n,ʔ]	(to be pleased)
توضى	/t(T)āwāDā/ (change in V quality)	/tawāDDāʔ/ تَوْضاً [w,D,ʔ]	p.1576) performs ablution
تنطفي	/tinTifi/- /ti(a)nTāfa/	/tanTāfiʔ/ تنطفي [T,f,ʔ]	p.1480) to (be) put out

b) Nouns			
مُقري	/muq(?)ri/	/muqri?/مُقري [q,r,ʔ]	(p.1816) eciter/reader
مَواطِي اِقْدَامِك	/māwāāTi/	/mawāāTi?/مَواطِي [w.T.ʔ]	(p.1532) foothold

(For more examples, check appendix 1 no.(b))

Examining the data above, it could be observed that all stems are derived from a set of roots that exhibited the same structure of [C. C. ʔ], i.e. [F.ʔ.L] ‘d.f. ʔ’, ‘q.r. ʔ’, ‘m.l. ʔ, etc.’, as checked by the researcher in *Elixir* and *baheth.net*. They noticeably have in common the glottal stop functioning as the third radical, namely, the *laam* of the verb on the templatic pattern [F.ʔ.L]. Second, they range between perfective and imperfective verbs, nouns and adjectives, where they are all derived from the same triconsonantal root structure. Each corresponding colloquial form shows a systematic loss of the coda of the ultimate syllable, typically with no further changes to follow, as detected in the data. The rule operating could, consequently, be formulated as given below:

$$/ʔ/ \quad \text{---} \phi \text{---} [- \text{long V}] \text{---}]$$

(i.e. glottal stop is deleted when preceded by a short vowel before a word boundary).

The final glottal stop elision rule here appears to be similar to that applied to the one deleting glottal stop after a long vowel [CVVʔ] in table 1. This would lead to the following rule combining the two cases:

$$/ʔ/ \quad \text{---} \phi \text{---} [+/- \text{long V}] \text{----}]$$

(i.e. glottal stop is deleted when preceded by a short or a long vowel before a word boundary).

3.1.4. Medial Glottal Stop Elision:

3.1.4.1. At the End of the Lexical Morpheme before Suffixes

The data below manifest a set of words that surfaced with no glottal stop, i.e. in their final forms. However, by inspecting CA versions, it was noticed that each word has a medial glottal stop that is precisely located at the end of the lexical morpheme, before the beginning of the attached suffix.

Table 3

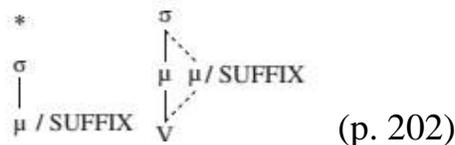
Word in EA	EA word transcribed	Original form in CA	Page no. & Gloss.
a) Nouns			
غداك	/ghadaak/	/ghadaaʔak/ غَدَائِكْ	(p.1497) your lunch
رفقائك	/ru(i)faqaāq/ currently /rifaaʔ(q)/	/rufaqaāʔak/ رُفْقَائِكْ	(p.2846) your friends
اعضائك	/ʔāʕDāāk/	/ʔaʕDāaʔak/ اِعْضَائِكْ	(p.1648) your organs
جزاه	/g(j)azaah/	/dʒazaaʔah/ جَزَاءُه	(p.1608) his penalty
لقاءه	/lu(i)qāā(ʔaa)h/	/liqāāʔih/ لِقَائِه	(p.1592) meeting him
ابقاها	/ʔi(a)bqāāha/	/ʔibqāāʔi(a)ha/ اِبْقَائِهَا	(p.1514) keeping it/her
b) Verbs			
اجيب لك جاب لكم جانا أجيبك	/ʔag(j)iib lak/ /gab lu(a)kum// /gaana/ /ʔagii lak/	1-/dʒaaʔa b-/ (blend) جاء ب /ʔadʒiiʔ(u) lak(um) b- /dʒaaʔana/ جاء-أجى لكم ب or 2-/ dʒaʔab/ جَأَبْ	(p.1608) to bring to you (S&pl.) to come

Words displayed in the above table are all suffixed to a personal pronoun and/or a particle. A characteristic feature of these lexical units is their CA underlyingly terminal glottal stop (before the suffixes), which follows a long vowel all along. This in fact is noticed to be equivalent to the data in table (1), which, predominantly, exhibited the same UR structure of an ultimate super heavy syllable in nominal and verbal stems.

The data above are classified into two groups; group (a) includes a set of nouns, whereas group (b) encompasses perf., and imperf. verbs. The surfaced short vowel-ending-lexical morphemes, i.e. /ghada/, /ʔāʕDā/, after undergoing glottal stop omission & VS, are noticed to attach to five kinds of suffixes. Suffixes detected are: 1st pers. plu. [na], 2nd pers., sing., masc. [ak], realized here as [k]) (you). According to

Watson (2002), [k] occurs post vocally e.g. /ghadaa.k/, whereas [ak] occurs post consonantly, e.g. /ʔakl.ak/ (p.181). There are also the 3rd pers. masc. sing. [-h], and the prepositions [li-] and [bi-], attached to /dʒaaʔa/. Abdil -Tawwaab (1997) attributed the output /dʒaab/ to combining /dʒaaʔa/ (came) and /bi-kaTHa/ (with something) (p. 145). However, it has to be mentioned that /dʒaaʔaba/ has been traced out in *Lisaan Al-Ārāb* with the meaning ‘to earn’ كَسَبَ جَابًا: وَجَابٌ يَجَابُ جَابًا: which could be regarded as the word’s origin, yet with undergoing slight semantic shift, as it means here ‘to bring’. Moreover, /dʒaaba/ meaning ‘to answer’ جَابَ مِنْ الإِجَابَةِ أَيِ أَسْرَعَهُ إِجَابَةً، جَابٌ has also been detected.

McCarthy (1992) elucidates that there “are no stem-final vowels that remain short before a suffix” (p. 1). Watson (2002) agrees, stating that the output of such suffixes cliticization should undergo “mora reduplication” as a reaction to a constraint forbidding monomoraicity in a pre-suffix position. This is represented as follows:



In addition, VL in pre-consonantal suffix context should be ordered in a late stage in the lexical derivation. This is attributed to the fact that /ʔ/ omission is followed by vowel shortening in prior steps, resulting in the creation of a derived environment for pre-suffix VL to take place, i.e. cyclicity is an indication of lexical rules, as explained on p. 12. Watson (2002) also confirms that pre-suffix vowel lengthening is affiliated to lexical module. This was detected in the data under study; for the rules have, all through, been witnessed to confine to word boundaries. Moreover, they had an access to internal word information, and did not result in a new segment or sequence, thus it is stipulated to take place in the lexical stratum. Based on the data extracted from the epic, the phenomenon seems to apply systematically, wherever the phonological conditioning environment is provided.

3.1.4.2. Glottal stop elision in V--- C position

Glottal stops in the next paradigms are noticed to be located in syllable coda position in CA stems (UR). The data below are classified into two paradigms based on the environment of the glottal stop. Moreover, roots are added next to the derived words for clarification.

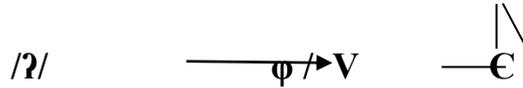
Table 4

Word in EA	EA word transcribed	Original form in CA	Page no. & Gloss
a) glottal stop elision in V_ C position			
I-Verbs			
تستأهل	/ta(i)staahil/	/tastaʔhil/ (تستأهل [ʔ. h.l]) وَأَسْتَأْهِلُهُ اسْتَوْجِبُهُ	(p.1700) you deserve
استنوني	/ʔistannuuni/ (sometimes	/ʔistaʔnuuni/ استأنوني [ʔ.n.y]	p.1501) wait for me

	<i>spotted currently as /ʔistaʔana/</i>		
ناخذ- ها)ياخذ	<i>/(ya)(na)xuTH(z)(ha)/</i>	ياخذها/ <i>(ya)(na)ʔxuTH.haa/</i> [ʔ. x.TH]	(p.1501) to take (plu.)
ناكل- ياكل تاكل	<i>naakul – /taakul/-/yaaku</i>	يأكل/ <i>(n-)(t-)(y-)aʔkul/</i> [ʔ.k.l]	(pp.1597-1612 to eat)
2-Nouns			
كاس	<i>/kaas/</i>	كأس [k.ʔ.s]/ <i>/kaʔs/</i>	(p.1480) cup
بئر	<i>/biir/</i>	بئر [b.ʔ.r]/ <i>/biʔr/</i>	(pp.1488, 1505) well
فأس	<i>/faas/</i>	فأس [f.ʔ.s]/ <i>/faʔs/</i>	(p.1510) axe
ثار	<i>/thāār/ currently as /(T/t)āār/</i>	ثار [th.ʔ.r]/ <i>/thāʔr/</i>	(p.1698) revenge
راس	<i>/rāās/</i>	رأس [r.ʔ.s]/ <i>/rāʔs/</i>	(p.1510) head
علي شأنه	<i>/ʕalaa shaanuh/ now cliticized as /ʕalashanuh/</i>	على شأنه/ <i>/ʕalaa shaʔnuh/</i> [sh.ʔ.n]	(pp.1505, 1577) for him
3-Arabized word			
زئبق	<i>/zeebāq/(aʔ)/ (Arabacized from Persian)</i>	زئبق/ <i>/ziʔbāq/</i>	(p.1702) mercury

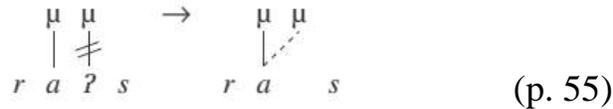
The glottal stop is, generally, noticed for being a member of the radicals of each of the above words (except for /ziʔbāq/), whether verbs or nouns, i.e. (ʔ. h. l), (ʔ. x.TH), (k. ʔ. s), etc. It is located in CA stems as occupying the coda position in either a non-ultimate, heavy syllable (CVC) of a polysyllabic word (i.e. verbs in the table above), or in a super heavy (CVCC) of a monosyllabic word (i.e. nouns in the table above). In addition, glottal stop elisions take place with all word categories, i.e. verbs with different inflections and tenses, nouns, and cliticized forms. Arabicized words, such as /ziʔbāq/, i.e. arabicized from Persian (baheth: *Lisaan-l-‘Ārāb*), could be also affiliated to the same group as they reflect the same change conditioned by the phonological environment. Thus, all words have undergone medial glottal stop elision, as a consequence of the following deduced rule:

Coda



(a glottal stop is elided in coda position in case it is immediately preceded by a vowel, and immediately followed by a consonant).

This fact has been affirmed by Gadalla (2000) who states that “[T]he glottal stop is ... lost in EA when it forms all or part of the coda of a syllable...”, which leads to “compensatory lengthening” of the adjacent vowel (p. 30). This conforms to the data here, where a repairing process of vowel lengthening was noticed to operate to balance the guttural segment loss and to preserve the UR syllable weight (bimoraic). The phenomenon is described by Crystal (2008) as “an effect in which the deletion of one segment is accompanied by an increase in the length of another usually adjacent to it, thus preserving the syllable weight” (pp. 91, 92). Similarly, a stability in the syllables’ weight is noticed through the examples above after undergoing glottal stop deletion (i.e. CVʔ < CVV, CVʔC < CVVC). Watson (2002) explicates that the deletion would cause freedom of the “right hand mora”, represented by the vowel, leading to its “spread” or in other words lengthening. She further illustrates the process as follows:



The same phenomenon seems to have taken place with the word /ʔistaʔnuuni/ استئأوني, which according to Abdil Tawwaab (2007) is the source of the colloquial /ʔistannuuni/ (p. 396). The word was looked up in baheth: *Lisaanu-l-Ārāb*, where it was found as denoting the same meaning intended here: “يقال: استأن في أمرك أي لا “تَعْجَلْ، استأنَيْتُ بكم أي انتظرت وتربَّصت (It is said slow down or do not hasten, also I am waiting for you, which means that I awaited and expected). The word must have first passed by a glottal stop deletion, i.e. /ʔistanuuni/. Nevertheless, it could be deduced of the word’s spelling استئوني that, instead of a compensatory vowel lengthening, the adjacent /n/ might have become geminated, hence, /ʔistannuuni/ (consonant lengthening), which is the form attested at the present time. However, the gemination cannot be totally affirmed during that time due to the absence of diacritics in the epic. In addition, n-strengthening was concluded to be related to the lexical domain as confirmed by Watson (2002, p 205). It could be argued therefore, that signs of cyclicity could be reflected through the glottal stop deletion followed by the vowel lengthening. Some words are noticed to escape the deletion process nowadays. This is seen in synchronic lexical exceptions, such as /maʔzuun/ (marriage official) مأذون , /miʔzanah/ مئذنة (minaret), /maʔsaah/ مأساه (misery). Moreover, the deletion process

did not result in novel structures (i.e. templatic forms). All these proofs signify the lexicality of the process.

3.1.4.3. Glottal Stop Elision in V---V Position

The second paradigm manifests the omission of the medial glottal stop between two vowels, as could be revealed through the data below:

Table 5

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
<i>b) glottal stop elision intervocalically</i>			
كانك	/kaa(n)nak/	/kaʔannak/ كَأَنَّكَ	as if you
سالت	/sa(a)lt/	/saʔalt/ سَأَلْتُ (also imp. /sal/ سَلِّ)	(p.1605) to ask
راي	/rāāy(a)/	/rāʔa/ رَأَى	(p.1582) to see

In group (b), the glottal stop is located between two short vowels. All words are noticed to surface without the glottal stop; yet, no further vowel lengthening is detected. This could be attributed to the fact that the deletion process resulted in concatenation of vowels, thus, leading automatically to long vowels. It is worth noting that the process here would cause a syllable subtraction, where instead of /saʔal/ consisting of /sa/, weighing one mora and /ʔal/ weighing one mora, the whole word became bimoraic /saal/.

Abdil-Tawwaab (1996) confirms glottal stop disappearance between identical and even non-identical short vowels in some Arabic dialects. He mentioned the words /saal/ instead of /saʔal/, and /suil/ سُوِّل instead of /suʔila/ سُوِّل (was asked), thus leading to “Hiatus” phenomenon (p.28), or the adjacency of two vowels that belong to different syllables (Crystal, 2008, p. 228). Nevertheless, the glottal stop in such position is retrieved in some dialects, i.e. Cairene, e.g. /kaʔinnak/ كَأَنَّكَ, /suʔaal/ سُؤَال (question), and omitted in others, e.g. ‘kannak ya-’Abu Zeed ma ghazeet’ (as if you, abu zeed, have not invaded...).

To conclude this section, the two instances of glottal stop medial deletion occur within the word boundary, and the deletion process did not result in novel structures (i.e. templatic forms). There are also signs of cyclicity, which is reflected in the deletion, which is followed by the vowel lengthening. In addition, the word /ʔistannuni/ might provide an evidence of cyclicity, (in case of /n/ gemination), as the stop deletion is followed by the doubling of /n/, where “/n/ strengthening” before vowel initial suffixes (in our case (/u/) has been classified as lexical by Watson (2002, p. 205). The words in group (a) have lexical exceptions that could be viewed in synchronic data in such words as /maʔzuun/. As for group (b), the rule seems to have ceased in some words such as /saʔalt/ and /kaʔannak/. All these proofs might support the postulation that medial stop deletion pertains to the lexical domain.

It is worth noting that one of the seven avowed Qur’anic recitations, namely *Warsh ‘an Naafi’*, is marked by glottal stop deletions, e.g. /yuuminuun/ يؤمنون instead of /yuʔminuun/ يؤمنون (have faith), e.g. /biir/ بئر instead of /biʔr/ بئر (well), /biis/ instead of /biʔs/ بئس (misfortune) (MaSri, 2009, p. 28). Moreover, the phenomenon of medial glottal stop elision (i.e. in both environments V__V & V__C) has been traced in the Fatimid era through words, such as "امراته" (Ahmed, 2104, p. 95) /ʔimrāʔatuh/ for /ʔimrāʔatuhu/ امرأته (his wife). Furthermore, Aboul-Enein (2012) mentioned the words /rāās/ and /faas/ from the 17th century (pp. 27, 29).

3.1.6. Initial Glottal Stop Epenthesis

Generally speaking, the phenomenon of inserting a glottal stop in a word initial position is widely used in Arabic. It is known in CA as Alifu-l-WaSl (junctural Hamza), and it is described by Ryding (2005) as “a phonetic device affixed to the beginning of a word for ease of pronunciation” (p.19). Sibawayh (1982) defines it as an augmented element that is used in case a word begins with a “*saakin*” that would result in two consecutive consonants (p. 144). Broselow (1976), McCarthy (2007) and Badawi et al. (2004), amongst others, agree that the glottal stop insertion is preceded by another intermediate level. In such a level, vowel epenthesis takes place, where the glottal stop insertion follows to prevent starting with a vowel, which is another phototactically disallowed condition in Arabic. Badawi et al. (2004) explain that “*CCVC becomes VC-CVC, but since no syllable can begin with a vowel, a Hamza is pronounced” in CA. In addition, the term Alifu-l-WaSl meaning the joining/connecting Alif could perfectly denote its sensitivity to its phrasal location, henceforth postlexical, as it would solely be pronounced in a word as well as in a phrase initial position, e.g. /ʔuktub/ اكتب (write) (imp.) (p. 12). This was also confirmed by Watson (2002) as she states that in Cairene “the glottal stop acts as the

postlexical default consonant: this is the consonant which is inserted in the default case to provide an onset for an otherwise vowel-initial syllable” (p.38). The process could be formulated through the rules assumed below:

- 1) $\varnothing \longrightarrow \text{ʔ} / [_ \text{CC}]$
 2) $\varnothing \longrightarrow \text{ʔ} / [_ \text{VCC}]$

Grammarians such as Sibawayh and Ibn Ginni specified certain word categories as well as certain strategies for inspecting *Hamzatu-l-WaSl* as opposed to *Hamzatu-l-QāT'*. Ibn Ginni (1993) asserted that, generally, *Hamzatu-l-WaSl* is common amongst verbs rather than nouns or particles. He elucidated that it comes initially with perf. verbs, in case the verb exceeded four letters like /ʔiHmārrā/ احمر (turned red), /ʔistaxrādʒa/ استخرج (extracted). He added that it also accompanies imperative verbs, provided that they have their imperf. prefix [ya] followed by a *saakin* letter [i.e. CC], hence, /yāDrib/ (imperf.), /yashrāb/ (p. 111). The imp. form of such imperf. verbs should be attached to *Hamzatu-l-WaSl*, e.g. /ʔiDrib/ اضرب (hit) & /ʔishrāb/ اشرب (drink). Concerning EA verbs, they seem to conform to the same rule of *Hamzatu-l-WaSl* initial epenthesis. This could be concluded from observing the paradigm below, where the punctuation for the EA is provided by the researcher:

Table 6

<i>EA word transcribed</i>	<i>Word in EA</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
a) Imperative			
/ʔindah/	أَنْدِه	/naad/ نَاد imperf.: /yunaadi/ يُنَادِي	(pp.1503, 1514) call
/ʔitsalla/	أَتَسَلِّي	/tasal(la)/ تَسَلُّ imperf.: /yatasalla/	(p.1596) have fun
/ʔuqā(ʔa)f/	أَقْف	/qif/ قَف imperf./yaqif/ يَقِف	(p.1586) stop

Group (a) includes imperative verbs, where the EA forms are noticed to have an initial syllable of a glottal stop followed by a vowel. This appears to be similar to the case of *Hamzatu-l-WaSl*, which might be enhanced by considering the imperf. forms of the imp. The imperf. forms in this group are supposed to be initiated by the structure [ya+CV_] in CA, where *Hamzatu-l-WaSl* is not required in such a case, i.e. /yu.naadi/, /ya.qif/, and /ya.tasalla/. Nevertheless, *Hamzatu-l-WaSl* annexation here might be attributed to deriving EA imp. forms from EA imperf. counterparts, i.e.

[ya+CC_] structure (i.e. the colloquial imperf. prefix might also be assumed to be [yi] or [yu]), i.e. /y(a)(i)ndah/ and /y(a)(i)tsalla/, where these forms would match the requirement for *Hamzatu -l-WaSl* insertion. As for the verb /ʔuqaf/, it might have been derived from the colloquial imperf. /y(a)(i)wqā(ʔa)f/ (common in the Levant).

The following table displays a paradigm of perf. verbs that also show an insertion of an initial syllable consisting of the [ʔV] structure. The verbs are mentioned in their contexts to affirm their past tense. Though this case looks similar to the previous condition of imperative verbs, yet it shows distinctive differences from the state above. This could be affirmed via investigating the data below:

Table 7

Word in EA	EA word transcribed	Original form in CA	Page no. & Gloss.
b) Perfective verbs			
فَأَكَادَتِ أَنْ تَنْفَطِرَ مَرَارَتَهُ	/ʔaka(a)dat/	/kaadat(a)/ كَادَتِ	(p.1500) was about to
... لَهُ أَنْ الْمَلِكِ عَرَنُوصِ فَاحْكَا	/ʔaHka/	/Hakiya/ حَكِي	(p. 1587) narrated
أَنْتِ إِذَا أَضْمَنْتَهُ وَكَانَ ... خَائِنًا	/ʔāDmāntuh/	Dāmāntuhu/ ضَمَنْتُهُ	(p.1617) guaranteed him
فَأَقْبَضَ عَلَى وَدِ ابْنِ الْإِمَامِ	/ʔāqbāD/	/qābāD(ā)/ قَبَضَ	p.1638) arrested

Table (7) encompasses EA verb forms that are noticed to agree with the templatic form IV in CA or [ʔaFʔala]. According to Ryding (2005), this form could be, generally, compared to form I or [FaʔaLa], where the form IV is regarded as a transitive version giving a causative meaning e.g. [ʔalima] عِلِمَ (to know) (I) vs. [ʔaʔalama] أَعْلَمَ (IV) (to inform) (p. 516). However, adding [ʔV] to perf. trilateral verbs cannot take place all along, as some forms would result in either a different meaning or else turn to a form that is deviating from CA. Thus, on searching for the set of EA verbs in the paradigm above in *Elixir*, and in *baheth.net*, it was affirmed that the forms /ʔakaada/, /ʔaHka/ do not exist in CA, whereas /ʔāDmānuh/ (I guarantee him) was found, yet in the 1st pers. sing. imperf. form ضَمِنْتُ الشَّيْءَ أَضْمَنْتُهُ ضَمَانًا. Therefore, it is evident that the perf. forms attested here belong to the colloquial variety, rather than to CA. Hence, the process involved in the conversion from CA to EA was accomplished via adding the glottal stop and the instantly following vowel, resulting in the perf. [ʔaFʔaL].

It should be pointed out that the systematic attitude of Alif Al-WaSl is, particularly, associated with CA. It is transferrable to borrowed words, i.e. a feature

of postlexicality, which could be witnessed in the adaptation of even nouns starting with initial clusters such as /stadium/ < /ʔistaad/. Thus, it is productive. Moreover, the process could be specified as postlexical as it takes place in respect to the position of the verb in a phrase, and appears to be phonologically conditioned. As for the case of glottal stop initial epenthesis in group (b), it seems to have taken place lexically, as it did not show to exceed the word boundary. However, the verbs here are noticed to be preceded by the causative [f] and the conditional [ʔiTHa], which might have triggered the stop epenthesis, where then it would be postlexical (table 7). Moreover, to the knowledge of the researcher, the phenomenon became archaic as it is not commonly attested synchronically, which makes it exclusive to that particular time.

3.1.7. /ʔ/ Alternation to the Glide /y/

3.1.7.1. Singular and plural nouns

CA words within the table below are all noticed to surface with altered glottal stops. This time the stop is located in syllable onset position, in a word medial position (sing. & plu. nouns). The behavior of glottal stop alternation is inspected from the data below:

Table 8

Word in EA	EA word transcribed	Original form in CA	Page no. & Gloss.
a) Masc. Sing. Nouns [FaaʕiL]			
غايب	/ghaa(āā).yib/	/ghāā.ʔib(un)/ غائب	(p.1623) absent
خاين	/xaa(āā)y in/	/xāā.ʔin/ خائن	(p.1505, 1717) traitor
غايص	/ghāāy.iS/	/ghāā.ʔiS/ غائص	(p.1496) Plunger
فاير	/faayir/	/faaʔir/ فائر	(p.1586) (effervesce)
سائل	/saa.yil/	/saa.ʔil/ سائل	p.1503) inquirer
حائر	/Haa.yir/	/Haa.ʔir/ حائر	(p.1642) confused
لايق	/laa(āā).yiq(?)/	/lāāʔiq/ لائق	(p.1500) suing
b) Fem Sing. Noun [FaaʕiLah]			

رايحة	/rāā(aa).yHah/	رائحة/rāā.ʔi.Hah/	(p.1502) smell
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(For more examples, check appendix no. (c))

Words in groups (a) and (b) are observed to display the templatic measure of [FaaʕiL]. This is the templatic form of active participles (APs) derived from three radical-rooted verb being checked in *Elixir*. APs are well-recognized for semantically referring to agentive roles, such as attested in /kataba/-/kaatib/. The Glottal stop in CA word is consistently located in the *ʕiin* position of [FaaʕiL]. Thus, it was observed to regularly occupy the onset position of the 2nd heavy syllable. Furthermore, the AP forms are commonly derived from hollow verbs, where according to Ryding (2005), these verbs have semi-consonants (glides) ى or و as the middle radical (p. 461). Hence, glides are observed in the mid of the root of each of the words above, i.e. [f. w. r], [x. w. n], [H. y. r], etc. Broselow (1976) affirms that “participles of hollow verbs (in EA) have...the glide which appears on the surface...(an) invariable /y/, even in verbs with putative underlying /w/” e.g. “/naayim/”, “/xaayif/”, “/shaayil/” (p.168), as [n.w.m], [x.w.f], and [sh.w.l]. Hence, the glide /y/ proves to be a consistent alternant of the glottal stop in AP words, which are derived from hollow rooted verbs.

Gadalla (2000) states that “the change of the glottal stop /ʔ/ to the high glide /y/” takes place “when it is followed by /i/ and preceded by any vowel”, presenting the formula “Vʔi → Vyi” (p. 33). Thence, the regularity in the data attested here might result in the formulation below, (i.e. the rule is restricted to the set of words exhibited above).

$$\begin{array}{c}
 \text{+stop} \\
 \text{+glottal}
 \end{array}
 \left(\quad \right)
 \xrightarrow{\text{+high glide}}
 \left(\quad \right) /
 \begin{array}{c}
 \text{- high V} \\
 \text{+long V}
 \end{array}
 \text{—}
 \begin{array}{c}
 \text{- low V} \\
 \text{- long V} \\
 \text{+front V}
 \end{array}$$

(i.e. glottal stop turns to a high glide in case it is preceded by a low, long vowel and followed by a high, short, front vowel)

The rule has proved to apply to words showing the same phonological environment though belonging to various sub-categories (as would be also noticed in table 9). This could be clearly demonstrated by considering the CA word /rāāʔiHah/ (i.e. homophonous with the word denoting ‘she is going’), which is classified as a fem., sing. noun. The word designates that even though it does not belong to the broad morphological category of APs, yet it underwent the same process of stop conversion, because of being measured against the templatic form [FaaʕiL]. To the

knowledge of the researcher, the word /rāā(aa)yHah/رايحه, meaning smell, is not used as such nowadays, where the diphthong /ay/ turned to the long vowel /ii/, giving rise to /riiHah/.

3.1.7.2. Plural nouns

The glottal stop alternation to /y/ was to affect the following nouns as follows:

Table 9

Word in EA	EA word transcribed	Original form in CA	Page no. & &Gloss.
c) Broken Plural Nouns/FaʕaaʔiL/			
وسايد	/wa.saayid	وسائد /wa.saa.ʔid/	pillows
تفرقت المراير	/mā.rāā.yir/	مرائر /ma.rāā.ʔir/	(p.1834) gall bladder
مكايد	/ma.kaa.yid/	مكائد /ma.kaa.ʔid/	(p.1800) intrigues
سراير	/sā.rāā.yir/	سرائر /sa.rāā.ʔir/	(p.1652) conscience
شمائل	/sha.maa.yil/	شمائل /shamaaʔil/	(p.1633) good traits

Table (9) encompasses another group that belongs to the same broad class of nouns, i.e. broken plural nouns. Moreover, pluralized forms agree in having singular alternatives that are noticed to range between the templatic form [FaʕiiLa(h)], e.g. /sariirā(h)/ and [Fiʕaala(h)], e.g. /wisaadah/. The sing. skeletal form [CVCVVCa(h)], in general, has been referred to by Ryding (2005) as characterized by an insertion of a medial or initial glottal stop in the plural formation (p. 152). Accordingly, by investigating the words in (c), it could be observed that the sing. forms, of the above mentioned forms of EA, are fem. where they all have the [a(h)] marker along with having long vowels in the penult. syllable, e.g. /marāārā(h)/, /makiida(h)/, etc. Henceforth, they commonly reflected an insertion of glottal stop word medially in the plu. CA form, whereas in EA plu. version of the data, the glottal stop was missing.

This came as a result of following the same previous postulated rule of glottal stop alternation into the glide /y/.

3.1.7.3. C-----[+long] Adjectives

Investigating EA words in table (10), the glide /y/ has also been detected as an alternative to the glottal stop in CA words.

Table 10

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & &Gloss.</i>
<i>e) C___ [+long V]</i>			
مليان	/mal.yaan/	ملآن /mal.ʔaan/	(p.1574) full
ميشومه	/may.shuum/	مشؤوم /mash.ʔuum(ah)/ مشؤوم	(p. 1590) ominous

Similar to the previous groups, the glottal stop here is noticed to occupy an onset position in word ultimate syllables. The main difference, however, lies in the surrounding environment, where the stop here is preceded by a consonant and followed by a long vowel. This might permit the following formulation to be stated, as specific to the data:

$$+glottal \left(\begin{array}{c} +stop \\ \end{array} \right) \longrightarrow +glide \left(\begin{array}{c} +high \\ \end{array} \right) / \left(\begin{array}{c} +C \\ \end{array} \right) \longrightarrow \left(\begin{array}{c} -short \\ \end{array} \right) V$$

(The glottal stop turns into the glide /y/ in case it is surrounded by a consonant and followed by a long vowel)

Glottal stop alternation in the data above did not surpass the word boundary. Looking up the word /malaʔ/ in *Lisaan Al-Ārāb*, it was found that there are other forms than /malʔaan/ like (ملأى وملانة...إناء ملآن) (a full vessel /malʔaan/, there is also the masc. /malʔan/ ملآن and the fem. /malʔaanah/. Hence, it is worth noting that the form /malaan/ with the glottal stop omitted was mentioned in *Lisaan Al- Ārāb* as well,

" وإن شئت خففت الهمزة والعامة تقول : إناء ملا و في المذكر ملان" (Hamza could be alleviated, folks say 'full vessel /malaa/', and in the masc. '/malaan/'), which could provide evidence that enhances the postulation of glottal stop alternation being originally transferred into EA through the dialects of some Arabic tribes. According to Ahmed (2014), the word /mayshuum/ has been witnessed in Fatimid era documents, such as *Manamaat Al-Wahrāāniy*, i.e. "وهو ميشوم الطلعة في كل حين" (and he is accursed at all times). He deduced that the word has first become /mashyuum/, and was affected by metathesis, which consequently led to the form /mayshuum/ (p.132). In addition, the word /mayshuum/ seems to have undergone a further glide omission turning to /mashuum/ as in folkloric proverbs, mentioned by Salah El-Din (2010): " أبوك البصل " (Your father is onion and your mother is garlic, from where would you get the good smell, you cursed).

The alternation process attested in tables (8, 9, and 10) could be affiliated to the lexical stratum, as it shows no signs of being applied across word boundary. Moreover, the segment resulting of the alternation process is a member of EA phonemic inventory. It also shows to have exceptions which could be revealed through synchronic data such as /mutafaaʔil/ متفائل (optimistic), /mutashaaʔim/ متشائم (pessemestic), /masaaʔil/ مسائل (problems), which have the glottal stop located in a similar environment of an /aa—/i/ sequence to those in (a &b), and /masʔuul/ مسئول (responsible), which has the C—[+long V] sequence in (e). Accordingly, for these reasons the process here could be regarded as lexical.

3.2. Vowel shortening (VS) as a Model of Vowel Alternation

3.2.1. Nouns

In addition to the previous examples of VS, the following paradigms include a variety of words that display vowel shortening, as could be noticed through the following table:

Table 11

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
<i>a)nouns</i>			
جريتك	/g(j)aryitak/	جريتك/ʒaa.ri.ya.tak/	(p.1503) your maid slave
وكانت وقعة يالها من واقعة	/wāq(aʔ)ʕah/	واقعة/ʔwāā.qiʕah/	(p.1616) incident
فجعة	/fag(j)ʕah/	فاجعة/ʔfaa.dʒiʕah/	(p.1482) crisis
وايش قدرين نعملوا	/qā(ʔa)driin/	قادرين/ʔqāā.diriin/	(p.1607) they can

Examining group (a), it could be noticed that the words are originally derived from three radicals and share the active participle templatic form [FaaʕiL] (Elixir). Moreover, all the data are suffixed to the fem. marker [a(h)] i.e. [FaaʕiL(a(h))] (i.e. with the exception of /qāādiriin/, which ends in a plu. 3rd pers. suffix). The initial syllables of each word agree on being bimoraic ones, structured as CVV in CA (UR). According to Broselow (1976), VS takes place right after the application of a high vowel deletion rule (HVD) (p. 19). The rule deletes the high, front vowel /i/ in EA, in case the morpheme becomes attached to a pronominal suffix, provided that the morpheme is vowel-initial, i.e. /ah/, /u/, etc. This gives rise to the adjacency of the long vowel to a consonant leading to [CVVC.CV--] structure. In addition, the syllable location in a penult. position would make its final consonant moraic (non-extrametrical). Accordingly, Vowel shortening operates to prevent the occurrence of a forbidden trimoraic syllable. Abu-Mansour (1992) expounds that:

In moraic theory, Closed Syllable Shortening is a consequence of the two mora limit on syllables. A long vowel occupies two moras, but a syllable final consonant is also moraic. Thus, a long vowel and a syllable final consonant cannot co-occur, the vowel shortens instead. Word-final consonants do not trigger Shortening because they are extrametrical. (p. 53)

Vowel shortening could be observed to reflect a systematic, analogical attitude that is even persistent till the present time, as in /fāāTimah/ فاطمة & /fāTmāh/ فاطمة < /fāāTimah/ فاطمة < /naadʒiHah/ ناجحة < /nagHah/ نجحة. The rule was formulated by Gadalla (2000) as follows:



A subsequent vowel shortening rule based on trimoraic restriction could be postulated as such:

2) VS:

[+long V] \longrightarrow [-long V] / ___C.CV

(VS takes place, because the final consonant in a super heavy syllable [CVVC] (i.e. /waaq/) would be moraic (equals 1 mora), resulting in a syllable that weighs 3 moras; because of being located in a penult. position (not extrasyllabic), leading to VS).

The derivation should then be ordered as follows:

Lexical Module

UR: [wāā.qi.ʕ]	}	CA
Suffixation: [[waaqi.ʕ][ah]]		
HVD: [wāāq.ʕāh]	}	EA
VS: [wāqʕāh]		
PF (i.e. output): /wāqʕāh/		

Watson (2002) has affiliated VS to the postlexical module, while (Abu-Mansour) linked it to either the lexical or postlexical in EA, considering HVD as postlexical. However, Berendsen (1986) asserts that HVD could also be lexical stating “I have not been able to discover any facts leading to a descision about the proper position of HVD” (p.126). Hence, the domains of such rules are controversial. Thus, they would be substantiated based on the data under study. According to the data exhibited here, the process might be assumed to have taken place in order to prevent trimoraic syllable, primarily to preserve the structure of a maximum bimoraic permitted syllables. As Borowsky (1989) remarks, VS could, also, be witnessed in English, which is evident in deriving the past participle /ment/ (meant) from /miin/ (mean) instead of */miint/. This happened as a result of closed vowel shortening rule that shortens vowels “when they are followed by a tautosyllabic consonant (adding) that it is triggered by Structure Preservation” (p. 150).

VS, as regards the current data, might be regarded as lexical, as it showed to follow HVD. This may, therefore, denotes cyclicity and application in a derived environment, which is defined by Pandey (1997) as “an environment created by the

application of an earlier rule in the same cycle” (p.99). In addition, the output is restricted to a preserved structure, as neither novel segments nor sequences were created. This might provide evidence for the lexicality of the process (i.e. unlike the flapping attested in English, where it resulted in the surfacing of the allophone [ɹ] as in [bu/ɹ/er], which is, according to Mohanan (1986), not part of English phonemic inventory. Hence, since the structure is preserved, this may be another proof of the lexicality of the process.

3.2.2. Miscellaneous Categories

The following group also has an underlying long vowel that surfaces as a short one, as could be deduced from the paradigm:

Table 12

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
<i>b) Misc. Categories</i>			
..يا حج شوحه	/Hag/ (n.)	/Haadʒ/ حاج	(p.1514) pilgrim
بجنب ابيه	/bi-gan(m)b/ (prep-adv)	/bi-dʒaanib/ بجانب	(p.1588) beside
خديم قبر النبي	/xa.diim/(n.)	/xaa.dim/ خادم	(p.1604) servant

Group (b) encompasses words of different categories (two nouns and an adverb), yet they all surface with a shortened vowel. The first /Haadʒ/ is a closed, heavy, monosyllabic, bimoraic word that is kept bimoraic with VS. The word /Hag/ is currently popular. Originally, it was used for calling upon someone who did pilgrimage, then was used for calling elderly people in general. The second word is a concatenation of a prep. /bi-/ and the adverb of place /gaanib/, which is measured against the form [FaaʕiL]. The morpheme [dʒaanib], thus, is underlyingly disyllabic, but surfaces as the monosyllabic, bimoraic [gan(m)b]. What seemed to happen here is that the high vowel in the nucleus of the ultimate syllable was omitted giving rise to the form */gaanb/. Nevertheless, the syllable [CVVCC] does not exist amongst the five syllable types in Arabic listed by Abdil-Tawwaab (2000, p. 55) (see section 2.5.2). Consequently, the long vowel becomes shortened resulting in the form /gan(m)b/, which is in use at the present time. It could be noted that VS amongst other phenomena could be a result of people’s proneness towards ease of articulation, where this conforms to zipf’s principle of ‘the least effort’ or ‘economy’, which suggests that “the ways in which human beings organize their linguistic systems and exert themselves in speaking tend towards least effort” (p. 12).

As for the word /xaadiim/, it is noticed to be one of a kind in the data under study. The change affects, primarily, the weights of syllables, where /xaa/ vowel length transferred to the ultimate syllable /dim/, leading to the ultimate syllable’s

alternation to the super heavy /diim/. This occurs at the expense of the penult. syllable, turning to light /xa/. The form might be a consequence of overcorrection. The term has been defined by Crystal (2008) as: the phenomenon when “speakers of a non-standard dialect attempt to use the standard dialect and ‘go too far’, producing a version which does not appear in the standard” (p. 232). Thus, in the case viewed here, speakers might have measured it against such words as adjectives /qadiim/ قديم (old), /haziil/ هزيل (weak), /Tawiil/ طويل (long), which eventually gave rise to false analogical form. The VS instances here might be reflecting an idiosyncratic attitude that lacks regularity, represented in the absence of more similar words throughout the epic. It could also be regarded as lexical because of the apparent exceptionality, analogical attitude to other templatic forms, restriction to word boundary and observing structure preservation.

Words exhibiting VS have been captured across different consecutive ages, precisely, during the Fatimid and Ottoman eras. Ahmed (2014) mentioned words such as بدرة (p. 123), أقبلك رحلات (p. 124), /badrah/ instead of /baadirah/ بادرة (initiative) /ʔaqā(ʔa)blak/ instead of /ʔuqāābilak/ اقبالك (meet you), and /raHlaat/ (now riHalaat/), instead of /rāāHilaat/ راحلات (journeys), which are analogues to group (a) from the Fatimid era. Aboul-Enein (2013) has, also, extracted such words as عنق /ʕānāq/ instead of /ʕaanāq/ عانق (hugged) and /Hashaak/ حاشاك instead of /Haashaak/ حاشاك (God forbids) (p. 23).

3.3. The Conversion of Interdental Sounds

One of the most distinguished characteristics of modern EA is the disappearance of interdental phonemes and their replacement by dental ones. According to Al-Wer (2004) “interdental sounds occur relatively rarely in human languages, and a change from fricative interdental to a stop is a widely attested phenomenon” (p. 21). The phenomenon could be observed through the orthography, which might mirror how Egyptians talked at that time.

Table 13

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
a) /th/~ /t/+ vowel change			
تخين	/tixiin/	/thaxiin/ تخين	fat
تعبان	/tiʕbaan/	/thuʕbaan/ ثعبان	(p. 1713) snake
عثمان	/ʕitmaan/	/ʕuthmaan/ عثمان	(p.1809) proper name
b) /TH/ ~ /d/			
خد	/xud/	/xuTH/ خذ	(p.1608) take

داب	/daab/	/THaab(a)/ ذاب	<i>melted</i>
دقنه	/daq(?)nuh/	/THāqnuh/ ثقنه	<i>p.1517)his chin</i>
حذف	/Hadaf/	/HaTHaf/ حذف	<i>(p.1722) threw</i>
c) /TH/ ~ /z/			
معزور	/maʕzuur/	/maʕTHuur/ معزور	<i>p.2283) excused</i>
بزره	/bizrah/	/biTHrāh/ بذرة	<i>p.2741) seed</i>

(For more examples, check appendix 1 no.(d))

Words in paradigm (a) are nouns, which commonly have an interdental /th/. However, the interdental /th/ is noticed to be replaced by the dental /t/, which is the closest amongst plosives to the /th/ place of articulation. As for the word /ʕuthmaan/, it is a proper noun that denotes a male's name and the interdental could be postulated to have turned into the plosive sound (i.e. also pronounced currently as /ʕuSmāān/, where other than /t/, /th/ also alternates to /s/ or /S/). Paradigms (b) and (c) both manifest an alternation of the voiced, fricative, interdental /TH/ into a plosive at one instance, and into a fricative at another. Group (b) has /TH/ surfacing as /d/, where the phoneme is observed to occur initially, medially, and finally. Thus, the same counterpart persisted in all instances, which opposes the interdental alternation into fricative in group (c). The voicing feature is noticed to be preserved in the course of the conversion of interdentals attested in the data above. In addition, the variation taking place aims at getting rid of the interdental feature, where the sibilant manner is sometimes preserved (i.e. /TH/</z/). Alternation of interdentals now takes place with all Arabic interdentals, with no restrictions to certain phonological or morphological governing conditions. Another noticeable feature is its transference to L2 (postlexical feature), which could be observed with some English learners, for example, when they tend to alternate the interdental fricatives into /s/ and /z/, e.g. /za/ for 'the', and /srii/ for 'three'. This might provide an evidence for the phenomenon postlexicity.

The phenomenon has been assumed as indigenous for Egyptians, who spoke Coptic before Arabic (Ahmed, 2014, p. 43). This view was enhanced by the fact that ancient Egyptian as well as Coptic lacked interdental sounds, as they encompassed solely one interdental phoneme (i.e. the one known as theta (Θ) in Coptic pronounced as /th/). However, the interdental phoneme was said to have been replaced by /t/ as was discovered in some words, particularly in the Middle kingdom sources of ancient Egypt (Māqāār, 2006, p.194). This view, thus, is generally based on believing in the indigenous language extended influence (i.e. traces of native tongue). Another interpretation attributed the influence to the contact between Egyptians and some Arab tribes, where Al-Tonsi, Al-Sāwi & Massoud (1987) mentioned that the tribe of

Khāyber خيبر used to replace /th/ with /t/. In addition, turning the /TH/ into /z/ was a speech characteristic of Rābii‘a tribe ربيعة (p. 6).

The phenomenon was detected in Fatimid era, where Ahmed (2014) detected from *Al-Madḡmuu‘Al-Safawiy* by ‘Ibn Al-‘Assaal such words as "تامن", "كتيره" (p. 85) /ʔa(i)l- taamin/ instead of /ʔal-thaamin/ الثامن (the eighth), /k(a/i)tiirah (a lot of), instead of /kathiirah/ كثيرة. In addition, the phenomenon accentually showed during the Ottoman period, where Zack (2009) declared that “the /th/ was pronounced as /t/ in the dialect of (Ottoman) Cairo”. She exhibited some examples as a proof from *Daf‘ Al-‘ISr* such as “/nadl/” نذل (wicked) instead of /naTHI/ نذل, /yiHadrim/ يحدرم (to speak quickly) instead of /yuHaTHrim/ يَحْذَرِم, also /tifl/ (dregs) تِفْل instead of /thifl/ تِفْل” (pp. 89, 90). Furthermore, Aboul-Enein (2012) extracted such words as “/ladaʕituh/ (burned /cauterized him) for /laTHaʕatuh/, in addition to /ʔillat/ اللت (kneading), instead of /ʔillath/ اللث (used in the current colloquial expression *ʔillat wil ʕagn* و اللت و العجن, meaning extra, useless talk), and /bāʕtār/ بَعْتَر (scattered) for /bāʕtār/ بَعْتَر” from *Al-MuqtaDāb* (pp. 35, 36).

3.4. Processes Affecting Consonants: Emphasis Spread

Emphatic sounds الاصوات المفخمة constitute a set of sounds, which particularly distinguish Semitic languages in general, henceforth, Arabic language and its dialects. According to Crystal (2008), an emphatic phoneme is “a type of consonant, associated particularly with the Semitic languages”, adding that it “is articulated in the pharyngeal or uvular regions of the vocal tract” (p. 167). Thus, they form a natural phonemic class in CA (/T, D, TH, S/) as well as in EA (/T/, /D/, /Z/, /S/). In addition, some sounds, which are not underlyingly emphatic would become emphasized by virtue of neighboring an emphatic phoneme or another emphasized one. Davies (1995) asserts that “in Arabic dialects, when an underlying emphatic occurs in a word, emphasis (i.e. pharyngealization) typically spreads to the neighboring sounds” (p. 466). Bin-Muqbil (2006) adds also that the set of uvulars (i.e. /q/, /x/, /gh/) could spread emphasis to adjacent vowels (p. 45). Another class includes “independent secondary emphatics” (Harrell, 1956, p. 72). Watson (2002) has listed out the four EA velarized allophones that belong to this category as: the laterals /r/ and /l/, and the bilabials /b/ and /m/ (p. 21).

Looking up the following words in *bahith.net*, it was observed that they do not exist under the same orthographic representation, where, in opposition to EA words, no emphasis spread was evident in CA surface forms. The words witnessed throughout the epic could be said to reflect the conversion of CA words to colloquialism by virtue of emphasis spread as viewed below:

Table 14

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
a) Progressive Emphasis Spread (/s/ < /S/)			
اخرص	/ʔixrās/	/ʔixras/ اخرس	(p. 1703) (stop talking, imp.)
الحراس	/ʔa(i)l Hurrāās/	/ʔal Hurrāās/ الحراس	(p. 1703) (guards)
يحرص دينك	/yuHruS/	/yaHrus/ يحرص	(p. 1726) (to guard)
b) Progressive Emphasis Spread (/d/ < /D/)			
الزواجه رضيه	/rāDiyyāh/	/rādiiʔah/ رديئة	(p.2283) bad

The data in group (a) and (b), in general, reflect the influence of emphasis spread on underlyingly non-emphatic phonemes. The same secondary emphatic sound has been located with all the data, namely, the independent secondary velarized allophone [r]. Hence, the velarized, allophonic [r] shows to be the source from which emphasis transferred to neighboring phonemes. That is to say that the emphasis feature held by [r] has spread towards the fricative /s/ in (a), and towards the plosive /d/ in (b), turning them to their emphasized correspondences /S/ & /D/. Emphasis spread could be observed as moving forward, i.e. progressively, in these examples. Moreover, the process in (a) is observed to take place within the same syllable boundary, with the /r/ occupying onset and the /s/ occupying coda positions. Nevertheless, the trigger [r] and the affected consonant /d/ are located in neighboring syllables, i.e. /rā.Diy.yāh/, i.e. heterosyllabic.

The following table manifests an opposite direction of emphasis spread to that attested in group (13) as is revealed through the following data:

Table 15

<i>Word in EA</i>	<i>EA word transcribed</i>	<i>Original form in CA</i>	<i>Page no. & Gloss.</i>
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c) Regressive Emphasis Spread (/s/ < /S/)			
صار به الي ملك سيس	/Sāār/	/saar(ā)/ سار	p. 1610) walked
الصور - أصوارنا	/ʔa(i)l- Suur/ /ʔāSwārnā/	/ʔal- suur/ السور لأسوار/ aswaarāna/	p. 1502) fence (s)
صرايه	/Sārāāyāh/	sarāāyah/ سَرايَة	p. 1801) palace
صراحي	/SārāāHi/	sarāāHi/ سَراحي	Release
d) Regressive Emphasis Spread (/d/ < /D/)			
تخضر	/ti(Ti)xāDDār/	/tuxaddir/ تُخْذَر	(p.1592) (anesthetize)

(For more examples, check appendix 1 no.(e))

The velarized (i.e. emphatic) [r] in paradigm (c) is evident to affect the fricative /s/, turning it to its emphasized correspondent /S/. The different direction of both locations of sounds has not prohibited the process, as here /s/ is situated before the secondary emphatic [r]. As for inspecting the emphasis spread domain of application in terms of syllable structure, it was detected that the application took place within, as well as across syllable boundaries. In addition, the word /tixāDDār/ in (d) is similar to /rāDiyyāh/ in terms of the affected sound /d/ < /D/. However, it fits with table (14), because of the regressive direction of emphasis it manifested. In addition, one important general characteristic that is noticed as connected to the emphatic /r/ is its recurrence with the back vowel (i.e. /ā/). Another postulation could be attributing the source of emphasis spread to the uvular /x/ in both /ʔixrāS/ and /ti(Ti)xāDDār/. Harrell (1956) mentioned few words that have an emphatic /x/ in EA, such as /mufāxxām/ and /fuxxāār/ (p. 76). The emphasis scope here, therefore, might be extended further to affect the spotted pharyngealized consonants in both words.

Emphasis spread in association with the data displayed above is exclusive to word boundary and only shows to surpass the syllable domain. Harrell (1957) argued that emphasis spread in EA is a gradient feature, which means that the degree of velarization is controllable by the speaker. In addition, it was also pointed out as dependent on style, where he even related it to gender with more tendency of females to alleviate emphasis (pp. 81- 82). Watson (2002) agrees stating that “in contrast to lexical processes, post-lexical processes often result in gradient rather than binary outputs: in the spread of pharyngealization ..., emphasis decreases towards the end of the domain and may result in a segment which is pharyngealized at the edge close to the trigger, but non-pharyngealized at the edge away from the trigger” (201). Moreover, Harrell purported that it is dependent on style, where he even related it to

gender with more tendency of females to alleviate emphasis (pp. 81- 82). These reasons affirm the postlexicality of the process.

This process has been witnessed in EA since the Fatimid era. An evidence of its antiquity could be witnessed in Ahmed (2014) mentioning words as "مرقص", "رفص", "أخرص", "صور" (pp. 28, 29); /rāfāS/ (kicked), /murquS/ (proper name), /Suur/ (fence), /ʔixrāS/ (be quiet), and /gārāS/ جرص (bell) instead of their CA versions, with /S/ instead of /s/. Aboul-Enein (2012) has extracted such words as "/Sihriig/ صهريج (water tank), /yihāyyāS/ يهيص (acts merrily), as well as /māāyiS/ مايص (to walk loosely)" from *Al-MuqtaDāb*, also with /S/ instead of /s/ (p. 36). Furthermore, the phenomenon is widely used at the present time, and is a source of attraction for many modern linguists.

4. Results and Findings

The field under which the current study was conducted, namely sociophonetics, has proved appropriate, as it could manage to deal harmoniously with both the sociohistorical dimension and the linguistic dimension as well. In addition, lexical phonology was capable of dealing with the morphophonological alternations encountered via organizing and classifying processes into the suitable components of grammar, based on the data available whether historical or present day ones. The moraic model was, also, beneficial, especially in cases of representing weights of syllables and the changes accompanying length of vowels. Thus, it proved helpful in representing and accounting for particular phenomena.

The data comprised 140 EA words exhibiting varied alternations, such as glottal stop deletions, vowel shortening, variations of glottal stop, conversion of interdental, and emphasis spread. The highest marked variation was generally detected in the stop alternations with a total number of 104 words, amongst them final stop deletion after a long vowel recorded the highest frequency of occurrence with 38 words, whereas final glottal stop deletion after a short vowel had an occurrence of only 14 words. The second highest alternation was identified in stop alternation into the glide /y/ with a total number of 24 words. The rest of words manifesting other kinds of alternation had a total number of 36 words, with the highest number detected through words reflecting conversion of interdental (17 words), followed by emphasis spread (11 words), and finally comes vowel shortening with an occurrence of 7 words.

Almost all of the selected sound alternations addressed in this paper were proved to reflect a regular attitude, which also implied that they are rule-governed. However, some words reflected an idiosyncratic behavior, which was shown by the

absence of a regularity of sound alternation. The systematic behavior was noticed as a characteristic feature of final glottal stop elisions in a word final position, provided it is preceded by either a long vowel (table 1) or a short vowel of different qualities (table 2). The process reflected an affiliation to the lexical module, as it took place within word boundary, in addition to exhibiting signs of non-finality, i.e. other changes might take place after suffixation. This designated the probability of other processes to follow the deletion process in an interactional manner (i.e. cyclicity). The cyclicity was evident in the case of suffixation to consonant initial morphemes leading to stem final vowel lengthening, e.g. /dʒazaaʔahu/ < /g(j)azaah/ جزاءه (table 3). In addition, /h/ was depicted to be related to final stop deletion after a long vowel. It reflected sensitivity to the phrasal location, where word final position in the data triggered /h/-insertion; hence, it proved to be ordered after lexical processes, i.e. postlexical. In addition it was subsumed to be close to 'Haaʔ Al-Sakt' attested in CA phonological rule.

Alternation of the glottal stop was located in a word/stem medial position. The medial stops attested underwent changes, which range between a deletion and an alternation. The change was determined by the surrounding phonological environment, where the data revealed that the stop would be deleted, when preceded by a short vowel and followed by a consonant, e.g. /tastaʔhil/ < /ta(i)staahil/ (table 4). There are signs of cyclicity, which is reflected in the deletion followed by the vowel lengthening. It has lexical exceptions that could be viewed in synchronic data, such as /maʔzuun/ (marriage official) مأذون. The deletion process did not result in a novel structure (i.e. templatic forms). Moreover, deletion is witnessed in case the stop was surrounded by short vowels, e.g. /kaʔannak/ < /kaa(n)nak / (table 5). The rule in the group of table (5), nevertheless, seems to have been lost, which is revealed in retaining the stop synchronically. It is restricted to word boundary and is structure preserving. These reasons might provide evidence of the lexical domain of the rule application.

The data also reflected the alternation of the stop into a high glide, in case it is preceded by a low, long vowel, and followed by a high, short, front vowel (table 8 and 9). Hence, the conditional phonological context was also observed to coincide with certain morphological categories derived from similar root patterns, such as the case with glottalized active participles, i.e. [FaaʕiL], and glottalized broken plurals i.e. [FaʕiiLa(h)], [Fiʕaala(h)]. In addition, the alternation into /y/ was revealed also in the environment C_V, e.g. /mashʔuum/ < /mayshuum/ (table 10).

Most of the changes related to glottal stop have, most probably, occurred for varied reasons. The reasons could be, first, ease of articulation or resorting to

economizing effort, which also agrees with Zipf's law, and second, profound influence by Egyptians contact with Arab tribes either through commerce or due to their constant abiding in Egypt. Nonetheless, the effect might have originated, specifically, from the people of Hidjaz, who were known for traditionally forsaking the glottal stop realization.

As for initial glottal stop epenthesis, it reflected higher regularity with imperative, trilateral verbs (table 7) rather than with perfectives (table 6). This is because, in the case of glottal stop epenthesis in imperatives, the phenomenon seems to be originating from *Hamzatu-l-WaSl* tradition in CA. The major difference lies in Egyptians deriving the imperative verb from a colloquial version of imperf. form. EA imperatives would have a glottal stop in initial position in analogy to CA rules of *Hamzatu Al-Wasl*, e.g. /ʔitsalla/ from /ya(i)tsalla/ in EA. The phenomenon is conditioned by the verb position within the phrase, i.e. initial, which renders the process to the postlexical module. However, such sensitivity was not observed in the case of perfective verbs. Hence, this group seems to be equivalent to CA causative verbs having the same templatic form [ʔaFʕaL], yet the group of verbs captured in the epic proved colloquial.

One group of words (table 11) with vowel shortening manifested a regularity affirmed by the phonological environment. The process operated basically on nouns measured against the nominal templatic measure [Faaʕila(h)], as it operates on the long vowels in the super heavy, non-ultimate syllables, [CVVCC] after HVD. It prevents the occurrence of a forbidden trimoraic syllable. VS reliance on HVD is an evidence of cyclicity. In addition, the restriction to the word level, Structure Preserving, and the absence of sensitivity to the phrase level within the data inspected might be indications of affiliation to the lexical module. However, the other group of words manifesting VS, though they primarily showed no evidence of postlexicity, yet if the repeatedly attached [f] and the conditional /ʔiTHa/ were considered, they might then be considered as postlexical (table 12).

As for the conversion of interdental (table 13), it seems to apply across the board, with no exceptions. Moreover, it is transferable to L2, which could be observed with some English learners, for example, when they tend to alternate the interdental fricatives into /s/ and /z/, e.g. /za/ for 'the' /srii/ for 'three'. This might provide an evidence for the phenomenon postlexicity. Furthermore, it showed to be one of the historical sound changes, which possibly originated from either the Coptic as an indigeneous language or a dialectal influence from Arabic tribes. The alternation has not been witnessed to trigger further processes inside the word domain.

With respect to emphasis spread, the [r] reflected a high frequency of occurrence with a wide spread assimilatory influence. Moreover, the uvular /x/ was

suspected as a trigger of emphasis spread with two words /ʔixrās/, /tu(i)xāDDār/. The emphasis feature carrier was witnessed to spread to adjacent consonants in both positions, namely, when the trigger and the emphasized exist within the same syllable and across different syllables. The assimilation (emphasis spread) was also witnessed to move progressively (table 14) and regressively (table 15). Furthermore, it exhibited sensitivity to style, (i.e. degree of formality), thus revealing signs of postlexicality.

The social dimension of the study is revealed on two levels. The first is drawn from the fact of the study being conducted on a folk epic that is recited for Egyptians and by Egyptians at the Mamluk and Ottoman epochs. This, therefore, suggests that the vernacular employed throughout the epic reflects everyday-Egyptian Arabic spoken at that time. The second level of the social angle is drawn from the attempts of unearthing the sociohistorical triggers of each of the phenomenon that were addressed throughout the research. Hence, this is evident, particularly, in tracing the origin of glottal stop alternations, as well as interdental's conversion, language contact, in addition to the internal force detected through systemacity of application. Other phenomena seem to have stronger linguistic internal motivation, such as attested in vowel shortening, i.e. closed syllable shortening, and emphasis spread, i.e. assimilation.

In sum, EA words were observed to be originally derived from CA, yet with exhibiting deviations. Some of the detected phonological and morphological alternations had origins in CA, yet are applied differently, leading to colloquial versions of CA words, e.g. *Hamzat Al-WaSl* & vowel shortening. Nonetheless, the changes attested did not show drastic changes from the Underlying CA. In addition, the majority of the selected phonological and morphological alternations examined in this research have reflected antiquity as well as continuity till present-day Egyptian Arabic. Further, *Al-Zāher Beibers* could be considered as one of the most important sources that both preserved and represented Egyptian Arabic dialect spoken at the Mamluk and Ottoman periods.

5. Recommendations for Further Research

Generally speaking, more researches should be devoted to tracing the development of Egyptian Arabic throughout history. This could be accomplished via inspecting for historical documents that are fully or partially written in the colloquial variety. This, therefore, would contribute to revealing the shape of EA curve of linguistic change through time. One kind of studies might be, for example, applying recent linguistic theories to the historical data.

Another suggestion is to start an electronic database, which is concerned with storing all historical documents written in EA. This would lead to building up an electronic bank of corpora that would preserve such documents as well as provide the researchers with an easy access to the data required as well as an easy way of processing such data. Hence, the availability of the sources of data would encourage researchers to start applying modern linguistic theories to the data. Hence, they could investigate corpora by integrating both linguistic and extra-linguistic dimensions, which would provide a more comprehensive perspective.

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Appendix 1

Additional words from Beibers reflecting the phenomena under study

<p>a) Final glottal stop deletion after a long vowel 38 words, only 11 with ā</p>	<p>/kimyaa?/كيمياء</kimya/كيميا(chemistry)(p.1702),/miinaa?/مينااء</miinah/مينه(harb or) (p.1488), /Hayaa?/حياء</Haya/حيا(shyness) (p.1555), /ʔiHyaa?/أحياء</ʔiHya/أحيا (to revive) (p. 1659), /xalaa?/خلاء</xala/خلا (empty space), (p. 1509), /duʕaa?/دعاء</duʕa/دعا(prayer),/ghāTāā?/غطاء</ghāTā/غطا(cover)(p.1532), /baqa/بقاء</bāqāā?/بقاء(stay)(p.1478),/ʔalʔumarāā?/الأمراء</ʔalʔumārā/الأمراء(princes)(p.1640),/bayDāā?/بيضاء</beeDā/بيضا(white)(p.1513),/sawdaa?/سوداء</sooda/سودا (black) (p. 302), /ʔal wuzarāā?/الوزراء</ʔa(i)l wuzārā/الوزراء(ministers) (p. 1534), /ʔal radii?/الردى</ʔa(i)l radi/الردى(bad) (p. 2849), /ʔibtidaa?/ابتداء</ʔibtida/ابتداء(beginning), /ʔintihaa?/انتهاء</ʔintiha/انتهاء(end), /ʔal ʕishaa?/العشاء</ʔa(i)l ʕisha/العشاء(a prayer) (p. 1506), /huduu?/هدوء</hudu/هدوء (serenity) , /hawaa?/هواء</hawa/هوا(air) (p. 1593), /ʔal ʔashyaa?/الأشياء</ʔa(i)l ʔashya/الأشياء(things) (p. 1537), /ʔal wafaa?/الوفاء</ʔal wafa/الوفاء(loyalty) (p. 1489), /ʔal nisaa?/النساء</ʔal nisa/النساء (night) (p. 2849), /ʔaHibbaaʔuh/أحبائه</ʔaHibbaah/أحبائه(his beloved) (p. 204),</p>
<p>b) Final Glottal Stop deletion after a short vowel (14 words)</p>	<p>/yataɖarrā?/يتجارأ</yitgārā/يتجاري(dare)(p. 1641), /yubarri?/يبيري</yubri/يبيري(p.300), /ʔal baadi?/البيادي</ʔal baadi/البيادي (the one who begins) (p. 2846). /ʕabba?/عَبَّأ</ʕabba/عيا to load(p.1610) /yuqri?/يُقْرِئ</yuqār(r)ii/or/yu(i)qarri/) يُقْرِئ (to recede)(p.2220)</p>
<p>c) glottal stop alternation into the glide /y/ (24 words)</p>	<p>/saaʔiq/سائق</saayiq/سابق (driver) (p. 1617), /xaaʔif/خائف</xaayif/خايف(scared) (p. 1582), /qāāʔil/قائل</qaayil/قائل(the one who said), /naaʔim/نائم</naayim/نائم(sleeping) (p.1501), /saaʔir/سائر</saayir/سائر(the one who walks) (p.1604), /daaʔir/دائر</daayir/دائر(p.1586) , /ghaaʔir/غانر</ghaayir/غانير(hollow) (p.1616), /rāāʔiq/رائق</raa.yiq/رائق (someone with merry mode), /rāā.ʔiH/رائح</raayih/رائح(going)(p.1783).</p>
<p>d) Interdentals conversion (16 words)</p>	<p>/ʔawthāqti/أوثقتي</ʔāwsāqtii/أوسقتي (constrained) (p. 1647), /dʒuTHuur/جذور</guzuur/جذور(roots) (p. 1796), /THurāh/ذرة</durāh/ذرة(corn) (p. 1801), /kaTHa/كذا</keda/كذا(like this)(p. 1712)</p>
<p>e) Emphasis Spread (11 words)</p>	<p>/SuuT/صوط from /sawT/سوط (whip), /yubaasiT/يباسط</yubāāSiT/يباصط (p. 2756)(speak openly).</p>

Appendix 2

