

PHONEME CHANGES IN ENGLISH LOANWORDS FROM ARABIC (A STUDY OF PHONEME CHANGE PATTERNS IN GRIMM'S LANGUAGE MODEL)

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Abstract

This article is part of a historical linguistic study on word nativization caused by cultural contact between two nations with different languages. Cultural contact causes language contact, language contact causes word adoption from other languages, which then leads to phonemic changes. What are the phonemic changes in English loanwords from Arabic? What is the pattern? The researchers discuss phonemic changes in English loanwords of Arabic, based on the analogy of Grimm's Law regarding phonemic change patterns. It aims to identify English loanwords derived from Arabic and the patterns of phonemic change. The method used in this study is comparative descriptive. The results of this analysis include the discovery of 50 phoneme change patterns in English loanwords from Arabic. The 50 patterns were then further classified to obtain 22 groups of phoneme change patterns. In terms of the form of change, these 22 change patterns can be classified into five forms of phoneme change. 1) Phoneme replacement, 2) Phoneme deletion/elimination, 3) Phoneme addition, 4) Phoneme shift, and 5) Drastic and extreme changes in loanwords that are almost impossible to recognize as loanwords.

Keywords: *loanwords, phoneme changes, Grimm's law.*

Abstrak

Artikel ini merupakan bagian dari studi linguistik historis mengenai penyerapan kata yang disebabkan oleh kontak budaya antara dua bangsa dengan bahasa yang berbeda. Kontak budaya menyebabkan kontak bahasa, kontak bahasa menyebabkan penyerapan kata dari bahasa lain, dan penyerapan kata tersebut mengakibatkan perubahan fonemik. Apa saja perubahan fonem yang terjadi pada kata serapan bahasa Inggris yang berasal dari bahasa Arab? Bagaimana polanya? Peneliti membahas "Perubahan Fonem pada Kata Serapan Bahasa Inggris dari Bahasa Arab Berdasarkan Analog Model Pola Perubahan Fonem Grimm". Artikel ini bertujuan mengidentifikasi keberadaan kata serapan bahasa Inggris yang berasal dari bahasa Arab beserta pola perubahan fonemnya. Metode yang digunakan dalam penelitian ini adalah deskriptif-komparatif. Hasil analisis ini mengungkap 50 pola perubahan fonem pada kata serapan bahasa Inggris yang berasal dari bahasa Arab. Ke-50 pola tersebut diklasifikasikan menjadi 22 kelompok pola perubahan fonem yang dikelompokkan sebagai berikut. 1) Penggantian fonem, 2) Penghilangan/eliminasi fonem, 3) Penambahan fonem, 4) Pergeseran fonem, dan 5) Perubahan drastis dan ekstrem yang membuat kata serapan tersebut hampir tidak dapat dikenali lagi sebagai kata serapan.

Kata kunci: kata serapan, perubahan fonem, hukum Grimm.

A. INTRODUCTION.

Every nation has its own culture, even in its simplest form. Culture is owned by a nation through continuous learning, resulting in a culture that continues to develop towards a perfection. The dynamic nature of humans as cultured beings has encouraged them to constantly study and develop their culture, either by studying on their own or learning from other people or nations.

The cultures of people in the world differ from one another. However, we often find the same culture between one nation and another. The similarity of cultural elements in a nation with one cultural element in another occurs because of cultural contact, which causes the spread of culture (culture diffusion) from one region to another. This spread can occur in various ways, including through wandering, education, or trade.

One of the universal cultural elements in every society is language. Language as a means of communication often spreads from one place to another as humans roamed across the globe. Through this

process, we often find similarities in the language of a society or nation with the language of another society or nation. For example, we can find the word "cable" in English, which means "wire, rope", which has similarities with the Arabic word "حبل" read as "ḥablun /*ḥablun*/" or "ḥabl /*ḥabl*/" which means "cable" in English and "kabel" in Indonesian. There is also the word "canon /*kænən*/" in English, which is similar to the Arabic word "قانون", which reads as "qānūn /", which means "law" in English and "undang-undang" in Indonesian. There is also the word "earth /*ɜːrθ*/" in English, which is similar to the Arabic word "ارض" read as "arḍun /*ʔrdʕ*/" which means "earth" or "land" in English and "bumi" in Indonesian, and there are many other similar words. Some of these words are examples of the similarity of words in English with words in Arabic. The similarity is seen in the pronunciation and even in their meaning. This indicates the borrowing of Arabic words into English. This kind of thing would never have happened if there had been no cultural contact between the two nations, a process of influence, or a process of cultural spread.

Based on the examples above, the author aims to explore and analyze further the loanwords in English deriving from Arabic. What are the patterns and models of phoneme changes or pronunciation? This will be the focus of the discussion in this paper. The discussion and analysis in this paper will be analyzed using the Grimm's Law approach. Grimm's law, which will be used in this discussion, is merely an analogy for identifying and classifying phoneme change patterns in English loanwords from Arabic, not for the purpose of comparing the history of Arabic-English development with Indo-European. Grimm's law is only used as a mechanical classification pattern to observe shifts in articulation points.

There are three steps taken by the author in the discussion and analysis of phoneme changes in loanwords in English that come from Arabic: First, identifying vocabulary in English that may have similarities with Arabic. This is done by looking at and exploring vocabulary in various English dictionaries and comparing it with vocabulary in Arabic dictionaries. Second, the researcher recorded and classified English loanwords from Arabic as a table. Then, vocabulary

that has similarities with Arabic is identified and classified. Third, analyzing the similarity of sound or pronunciation between loanwords in English that come from Arabic based on Grimm's law, which is usually called "Grimm's Law" (Bloomfield 1957, 14). With Grimm's law, a systematic exposition of phonemic correspondence between one nation's language and another's language can be presented. This analytical method is used to support the validity of the similarity of loanwords and their origins between the two languages.

B. LOANWORDS, PHONEME CHANGE, GRIMM'S LAW, AND PHONEME CHANGE PATTERNS

1. Loanwords, Phoneme Change, And Grimm's Law

a. Loanwords or Language Borrowings and Influencing Factors.

The term "loanword" consists of two words, "loan" which means "to borrow" and "word" which means "a single unit of language which means something and can be spoken or written" (Hornby 2005, 901, 1.758). The term "loanword" has several similarities in meaning with the terms "borrowing language", "recipient language", "donor language", "transfer language", "adoption", and "copying" (Darquennes et al. 2019, 13), in English, and "iqtirād", "ad-dakhīl", "mu'arrab", in Arabic (Bensola 2015, 39; Pei 1998, 156). There are several definitions of loanwords that linguists have put forward. Lyle Campbell states that loanwords are lexical items or words "borrowed" from another language. Words that were initially not part of the vocabulary of the recipient language but were adopted from several other languages and became part of the vocabulary of the borrowing language (Campbell 1998, 58). Meanwhile, according to Christine Haunz, loanwords are words from one language, called the source (or donor) language, which enters the borrowing (or recipient) language. This often occurs through the intermediary of bilingual speakers. In the process of entering and becoming the borrowing language, the phonetic, phonemic, phonotactic or prosodic characteristics of these words change in most cases (Haunz 2007, 3). And generally, the "borrowed" items are not returned, nor is there any intention from the

borrowing language to return them at the time of borrowing. In addition, the donor language does not feel the loss of the loanwords (Hock and Joseph 2009, 241).

In linguistics, "borrowing" describes the process by which "one language replicates linguistic features from another, either in whole or in part". Borrowing or adopting words from another language is common in every language. Campbell, Thomason, and Kaufman assume that as far as strict linguistic possibilities go, any linguistic feature can be transferred from any language to any other language. Thus, they assume that borrowing from other languages is something universal. The principle of borrowing like this is a general tendency in every language (Chambers and Schilling 2013, 514).

Historically, all languages borrow words from each other; no nation has never borrowed from other nations, and no words are "pure". Some languages borrow so many words from other languages that little original word material is left. Languages are used together so that they become similar, and some languages are even direct crosses between one language and another (McWhorter 2004, 1). Therefore, it is said that "A pure language is a poor language" (al-Qinai 2001, 235).

Since ancient times, one nation has interacted with another nation. Moreover, nations that are close to each other constantly interact. Interaction between nations, both close and far away, has encouraged the borrowing of words by one nation from another nation. For example, the Romans borrowed their language from the Greeks, and the Greeks borrowed from the Phoenicians. However, where did the Phoenicians borrow their language from? The data found that their language and writing were influenced by previous language and writing systems such as those used by the Cretan, Assyrian, and Egyptian civilizations (Ege 1921, 5–6). Arabic also has many loanwords that come from other languages. This happened because, over time, the Arab tribes – in their social, economic, and political lives – interacted with other nations such as Egypt, Babylon, Persia, Greece, and Rome (Syair 1988, 3). Therefore, Arabic absorbed vocabulary from Hebrew, Aramaic, Qibti, Greek, Persian, Roman, Sanskrit, Latin, and others (Belasi 2001, 67–96).

The Spanish borrowed many words from Arabic during the period when the Moors dominated Spain (901-1492). Many Arabic loans in Spanish include originally Arabic definite articles such as "al-" but are monomorphemic in Spanish. Some examples are: "*albanil*", which means "stonemason" comes from the Arabic "bannā", "*albaricoque*" which means "apricot" comes from the Arabic "barqūq", "*albondiga*" which means "meatball" comes from Arabic "bundaqa" English "ball", "*alcalde*" which means "mayor" comes from Arabic "qāḍi", English "judge", "*alcoba*" meaning "bedroom", or "small room" comes from Arabic "qobbah", "*alcohol*" meaning "kohl" comes from Arabic "kuḥl", "kohl" (Campbell 1998, 66). English also borrows from other languages, such as "*rouge*" (from French), "*macho*" (from Spanish), "*yen craving*" (from Chinese), or "*schwa*" (from Hebrew via German) (Hock and Joseph 2009, 241). English words from Arabic include: "*saffron, mattress, admiral, hazard, cotton, henna, camphor, alembic, alchemy, and café*" (Hendrickson and Bubenik 2008, 36).

Arabic is an international language that has long been known as the leading supplier of words to Swahili, Romance languages, Persian, Turkish, Indian languages such as Hindi and Urdu, and English. Tabulation of such contact data worldwide has placed Arabic as the leading supplier of words to English, among other languages. The Moors, who ruled the Iberian Peninsula for seven centuries, influenced the Spanish and Portuguese lexicons, comparable to Middle French's influence on English (G. Cannon and van Duinkerken 2008, 36–37). English loanwords from Arabic are entered through Spanish or French (Dorland 2011, 213), according to Mary. S. Serjeantson stated that it was from Arabic that English borrowed the most loanwords from the East (Serjeantson 1936, 213).

Then, what influences and motivates the borrowing of words? The motivation to borrow a language can be defined as factors that encourage speakers to use linguistic material from one language in an interaction setting that is generally associated with another language (Adamou and Matras 2021, 242–43). Among the things that influence and motivate the absorption of words are: 1) Self-identification due to cultural contact with a culture that is considered higher (as-Sibā'i 1999,

86–90). 2) Innovation is created by creating new words by borrowing words from other languages and modifying them (Campbell and Mixco 2007, 107). 3) Power and prestige influence society to follow and use the language of the ruler, who is considered prestigious. 4) The need to designate something new (Grant 2020, 6–7; Perier 1708, 1; Abu Guba 2016, 31).

Borrowing words from other languages is a common phenomenon in almost all languages. Borrowing words occurs because of cultural and language contact between two different cultures and languages, which then influences the occurrence of borrowing words or languages. Borrowed words are sometimes pure without change, but most loanwords experience changes from the original or source language from which they are borrowed.

Humans do have a natural tendency to travel. This has aroused their curiosity and excited them to overcome the most significant difficulties and prepare themselves for all kinds of difficulties and dangers (Perier 1708, 1), including language difficulties. This natural tendency is one of the various factors that influence cultural contact between nations. The factors influencing cultural contact between various nations are: 1) Migration, 2) Trade, 3) Imperialism, Colonialism, and War. 4). Preaching and the spread of religion, 5). Education (Musthofa 2005, 19–25; Chambers and Schilling 2013, 502–3).

b. Phoneme Changes

The most widely studied topic in historical linguistics is sound change. Over time, the sounds of a language tend to change. The study of sound change has produced significant results and important assumptions underlying the historical linguistic method, especially the comparative method. The study of sound change is significant to historical linguistics in general. This study plays a significant role in the comparative method. Therefore, it is also essential in linguistic reconstruction, especially in detecting loanwords, their origins, and their sources, and determining whether languages are related (Campbell 1998, 16; Campbell and Mixco 2007, 109–10). The similarity between a nation's language and another nation's language

indicates interaction between the two, resulting in mutual influence. In turn, this results in the emergence of borrowing words from another nation that influences it.

In linguistic studies, the term "borrow" describes the process in which one language replicates linguistic features from another, either in whole or in part. In other words, perhaps it is more appropriate to say that this is the idea of the influence of one nation on another nation in the form of language borrowing. However, the term "borrowing" a language from another nation's language like this has been deeply rooted in linguistics as a common term to describe this process since the nineteenth century (Durkin 2014, 3). In general, a language borrowed by a nation from another nation's language will experience modifications and changes in phonemes that are adjusted to the sound patterns of the borrowing nation. This change occurs generally and uniformly when the borrowed language's phonetic state changes. This kind of sound change is more of a concern to linguists in historical linguistic studies. Indeed, they consider this very important as a method and theory in studying language change. Historical linguistics' most important basic assumption is that sound change is regular. If a sound can change arbitrarily and unpredictably, then the change will not be regular. However, in many cases, sound change is regular (Campbell 1998, 17).

Sound change is a change in the way speakers produce phonemes. Therefore, this will affect the pronunciation of the phoneme at each occurrence, regardless of the nature of the particular linguistic form in which the phoneme is pronounced. From here, an assumption can be drawn that phonemes can change (Labov 2010, 260). Bloomfield stated that the sound change is in the phoneme, not in the word (Labov 2010, 367–68). Sound changes in loanwords can be influenced by cognitive factors as well as cultural factors. Cognitive factors are related to the action or ability of a person to know, including sensation, perception, conception, and others. In contrast, cultural factors are related to phoneme changes in broader social patterns and systems, independent of face-to-face interaction (Labov 2010, 2–4).

c. Grimm's Law

This article examines loanwords, especially Arabic loanwords in English, which are part of the study of historical linguistics. The most widely studied field of historical linguistics is sound change. An understanding of sound change is essential for historical linguistics in general. An important assumption underlying the study of historical linguistics is that language sounds tend to change over time. (Campbell 1998, 16). One form of language sound change can occur in absorbing words from other languages. One theory that can be used to study sound change is Grimm's law.

Grimm's law is one of the theories that can be used to study the changes in sounds or phonemes from borrowed languages. Grimm's law is a set of laws about sound changes in loanwords between languages of various nations with cultural contact. This is a fundamental law in the study of historical linguistics. This law is closely involved in history as a comparative method and hypothesis of the regularity of phoneme changes in loanwords. Grimm's law includes three interrelated changes in the series of stops from Proto-Indo-European to Proto-Germanic as follows.

- 1) Phonemes pronounced by voiceless stops, namely p, t, k, each change into phonemes pronounced by fricative or sighing (fricative), namely f, ø, h.
- 2) Phonemes pronounced by voiced stops, namely b, d, g, each change into phonemes pronounced by voiceless stops, namely p, t, k.
- 3) Phonemes that are pronounced by stopping voiced aspirated stops, namely: bh, dh, gh, each change into phonemes that are pronounced by stopping plain voiced stops, namely: b, d, g (Campbell 1998, 46).

Jacob Grimm's thoughts on the pattern of phoneme or sound changes in loanwords, later known as Grimm's law, were not the first thoughts. Previously, there was a linguist who tried to formulate and describe the sound shift in loanwords, namely Dane Rasmus Rask, in his essay in 1818 (Hendrickson and Bubenik 2008, 2). However, the famous thought related to phoneme changes in loanwords is Jacob Grimm's thought. This is because Grimm could explain a more comprehensive pattern of phoneme changes compared to what was put

forward by Dane Rasmus Rask. An overview of Grimm's law (Campbell 1998, 47) can be seen in the following table:

Table 1. Phonemic Changes According to Grimm's Law

Phoneme Changes	Spain	France	English
p > f	p ie	p ied (Old French pie)	f oot
	p adre	p ere	f ather
	p or	p er	f or
t > θ	t res	t rois	th ree
	t u	t u	thou
k > h*)	c an	ch ien (<kani-)	h ound (<hūnd)
	c iento	c ien (<kent-)	h undred
	c orazon	c reur	h ear
b > p	[Note: *b was rare in Proto-Indo-European; some say it was missing]		
d > t	d iente	d ent	t ooth (tanø)
	d os	d eux	t wo
g > k*)	-	g enou	k nee
	g rano	g rain	c orn
Phoneme Changes	Sanskrit	Latin	English
bh > b	b hrātar	f rater	b rother
	b hara-	f er- (f<*bh)	b ear
dh > d	d ha-	f acere (f < dh)	d o, d id, d eed
gh > g	h amsa	(h) anser	g oose
	(<* gh)		

The table above illustrates Grimm's Law phoneme changes in English, Spanish, and French. From the table above, it is clear how phoneme changes occur in loanwords. However, the sound changes in the table above are not a pattern of phoneme sound changes that describe sound changes in loanwords in English that come from

Arabic. However, this model will be applied to sound changes in English loanwords that come from Arabic.

In linguistic studies, sound or phoneme changes in loanwords can be in the form of merging, separating, and shifting phoneme chains (Labov 2010, 367). Sound changes can be grouped into several categories, including assimilation, vowel modification, neutralization, zeroization, metathesis, diphthongization, monophthongization, and others (Lacy 2007, 19). According to Campbell, these phoneme changes can be: 1) Phoneme replacement, 2) Phoneme deletion, 3) Addition of phonemes, and 4) Phoneme shift (Campbell 1998, 16–56). The discussion of sound or phoneme changes in Arabic loanwords into English in this article will be discussed in the following section.

2. Arabic Loanwords in English

No language is not in contact with other languages. Every language is related to other languages. Moreover, every language absorbs vocabulary from other languages. Arabic absorbs vocabulary from Hebrew, Aramaic, Qibti, Greek, Persian, Romance, Sanskrit, Latin, and others (Belasi 2001, 67–96). English absorbs vocabulary from Latin, Greek, Spanish, and Arabic. English loanwords from Arabic enter through Spanish or French (Dorland 2011, 213).

Experts have many opinions regarding how much Arabic loanword vocabulary is in English. In the dictionary of English words and phrases written by C. A. M. Fennell (1892) entitled *The Stanford Dictionary of Anglicised Words and Phrases*, it is stated in its tabulation that Arabic is the seventh supplier of loanwords to English, with 225 words that can be proven. The highest suppliers of loanwords are Latin with 3,797 items, French with 2,617 words, Italian with 1,199 words, Spanish with 716 words, Greek with 495 words, and Hindu with 336 words (Fennell 1892, xi; G. Cannon and van Duinkerken 2008, 37). Meanwhile, according to Garland H. Cannon and Alan S. Kaye, the total number of Arabic loanwords in English is 2,356, comprising 35.2% in the field of science, 16% in the field of Social Sciences, and 4.7% in the field of Arts. In some fields of science that appear in the most significant categories: Botany 11.4%, Islam 9.9%, Clothing 5.8%,

Chemistry 5.1%, Astronomy 4.5%, Linguistics 4.2%, Geography 4%, politics 3.9%, and military 3.6% (G. H. Cannon and Kaye 1994, 91).

After the author searches for the existence of Arabic loanwords in English in various dictionaries, books, articles, and related data on the internet, the author can find various sources among the loanwords in the following table, along with their respective numbers.

Table 2. Data Sources for English Loanwords from Arabic

No	Book/Dictionary/Article	Author	Total
[1]	Syamsul 'Arab Taṣṭī' 'ala al-Garb: Aṣaru al-Ḥaḍārah al-Islāmiyyah fī Aurūbah (Hunke 1993, 552–59)	Zigrid Hunke (Fārūq Baidūn dan Kamāl Dasuqi (Translators)	255
[2]	Kalimatun Injlīziyyah Ma'khūzatun min al-'Arabiyyah wa al-Mu'arrabah (al-Ḥārisiy 2012, 7–61)	Fahd bin 'Auḍ al-Ḥārisiy	595
[3]	The Facts on File Encyclopedia of Word and Phrase Origins (Hendrickson and Bubenik 2008, 36)	Robert Hendrickson	54
[4]	List of English Words of Arabic Origin (Wikipedia 2022)	Tim Wikipedia Free Encyclopedia	142
[5]	Oriental Gems in the English Crown: English Borrowings from Arabic (al-Johani 1990, 53–90)	Maneh Al-Johani	452
[6]	Dorlands Illustrated Medical Dictionary (Dorland 2011, 240, 382,	Douglas M. Anderson	9

No	Book/Dictionary/Article	Author	Total
	441, 605, 1096, 1229, 1231, 1858)		
[7]	Avicenna's Medicine (Abu-Asab et al. 2013, 435–66)	Mones Abu- Ahsab, Hakima Amri, and Marc S. Micozzi	25
[8]	Arabic Loanwords in English: A Lexicographical Approach (Fournier and Latrache 2022, 343–49)	Pierre Fournier and Rim Latrache	409
[9]	English Words from Arabic (Tim Zompist 2022)	Tim Zompist	204
Total			2.145

From the table above, it is clear that the existence of English loanwords from Arabic varies in number. Based on the author's search for English loanwords from Arabic in various dictionaries, encyclopedias, articles, and books above, more than 2,145 loanwords were obtained, as shown in the table above. This number is still in the form of identification results. It has not been classified based on the similarities or dissimilarities between the words in the various data sources used as references. After verification and classification, around 250 English loanwords from Arabic were found. Then, after the author compared and assessed the loanwords, 50 patterns of phoneme changes in English loanwords from Arabic were found. This can be seen in the following section.

3. Patterns of Change in Arabic Loanwords in English

Loanwords generally experience changes from the source language or original language. Language changes like this occur in all languages. This then affects various forms of language use, both pronunciation and perhaps also its meaning (Hock and Joseph 2009, 4). Two different languages must have different pronunciation patterns. This has become

a natural law, or *sunnatullah*, as also mentioned in the Qur'an وَمِنْ آيَاتِهِ خَلْقُ السَّمَوَاتِ وَالْأَرْضِ وَاخْتِلَافُ أَلْسِنَتِكُمْ وَأَلْوَانِكُمْ إِنَّ فِي ذَلِكَ لَآيَاتٍ لِّلْعَالَمِينَ (الروم، 22)

Language differences are signs of God's power in the universe. Therefore, when a nation absorbs a language from another nation, it will always result in phoneme changes in the borrowed language from its original language. For this reason, changes in the phonemes of borrowed words are always interesting for linguists to research and study.

Rask and Grimm once conducted a study of this kind of language change. Both of them attempted to research and compare the differences in pronunciation between German and Indo-European languages. The purpose of Rask and Grimm's work was to further explain the relationship between the Germanic languages and classical Indo-European languages and to demonstrate that German is part of the Indo-European language family. The results of their research show that German is part of the Indo-European language (Hock and Joseph 2009, 114). If Rask and Grimm attempted to research and compare phoneme changes or differences in pronunciation between German and Indo-European languages, then in this paper, the author seeks to research and compare phoneme changes or differences in pronunciation of Arabic loanwords in English. The analysis in this paper follows the Grimm model of phoneme change patterns. The author did this in order to discover patterns of changes in Arabic loanwords in English.

As mentioned above, based on the identification, verification, classification, and analysis of Arabic loanword data in English, the author found various forms of phoneme changes in Arabic loanwords in English. Phoneme changes can be: 1) Phoneme replacement, 2) Phoneme deletion, 3) Phoneme addition, and 4) Phoneme shift (Campbell 1998, 16–56). An overview of these changes is as follows:

a. Phoneme Replacement

Grimm stated that the phoneme changes he studied about the differences between Germanic and classical languages showed very systematic sound change patterns. Grimm's research then produced a pattern of change in classical Indo-European languages, later known as "Grimm's Law" (Hock and Joseph 2009, 114).

If we refer to the Grimm model of phoneme change patterns above, the phoneme changes in Arabic loanwords in English were found to be 50 phoneme change patterns (replacements) in loanwords. From the 50 change patterns above, the author examined them again and classified them alphabetically. The results can be grouped into 22 change patterns (replacements) groups. One phoneme can change or be replaced into several different phonemes. The 22 phoneme change patterns of Arabic loanwords in English with meaning in Indonesian, along with examples, are as follows:

Table 3. Phonemic Change Patterns for English Loanwords from Arabic

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
1	b /b/ (ب)	p /p/	شراب	syarāb /fara: <u>b</u> /	syru <u>p</u> /sɪrə <u>p</u> / ^[1, 2, 3, 4, 5, 6, 9]	sirup, minuman
	b /b/ (ب)	v /v/	القبة	al-qu <u>bb</u> ah /ʔlqu <u>bb</u> a/	alcov <u>e</u> /ælkəʊ <u>v</u> / ^[3, 4, 5, 9]	kubah
2	ḍ /ḍ/ (ض)	d /d/	قاضي	qāḍ <u>i</u> y /qa: <u>d</u> ij/	cad <u>i</u> /ka: <u>d</u> i/ ^[1, 5, 8]	Hakim
	ḍ /ḍ/ (ض)	th /θ/	أرض	ar <u>d</u> /ʔr <u>d</u> /	earth /3:r <u>θ</u> / ^[2]	bumi
3	d /d/ (د)	s /s/	فاسد	fāsi <u>d</u> /fa: <u>s</u> i <u>d</u> /	vicious /vɪ/ə <u>s</u> / ^[5]	rusak, jahat
4	f /f/ (ف)	b /b/	الفطرس (طائر بحري)	al-faṭros /ʔlfaṭ ^ɕ ras (t ^ɕ a:ʔir baħrij)/	alb <u>at</u> ross /ælb <u>ə</u> trɒs/ ^[1, 3, 4, 5]	elang laut
	f /f/ (ف)	h /h/	فَرس	fāras /fāras/	h <u>or</u> se /h <u>o</u> :s/ ^[5]	kuda
	f /f/ (ف)	p /p/	طوفان	tūfān /t ^ɕ u: <u>f</u> a:n/	typh <u>o</u> on /tai 'f <u>u</u> :n/ ^[4, 5]	topan
	f /f/ (ف)	ph /ph/, f /f/	صفر	ṣifr /s ^ɕ i <u>f</u> r/	ciph <u>er</u> /saɪ <u>f</u> ə/ ^[2, 3, 4, 5, 9]	nol, kosong

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
5			نفط	naft /naft ^f /	naph ^h tha /næfθə/ ^[5]	minyak
			طوفان	ṭūfān /t ^u :fa:n/	typh ^h oon /tai 'fu:n/ ^[4, 5]	topan
	f /f/ (ف)	v /v/	فاسد	fāsīd /fa:sid/	vicious /vɪ/əs/	rusak, jahat
	g /ɣ/ (غ)	c /c/, k /k/	الغول	al-gaul /ʔlɣawl/	alcohol /ælkəhɒl/ ^[1, 3 4, 5, 9]	alkohol, perusak, memabukkan
	g /ɣ/ (غ)	g /g/	الغرافة	al-garāfah /ʔlɣira:f/	carafe /kə 'ræf/ ^[2, 4, 5, 9]	teko
6			غريل	garbal /ɣarbal/	garble /qa:bə/ ^[2, 4, 5, 9]	menyaring
			غزال	gazāl /ɣaza:l/	gazelle /qə 'zɛl/ ^[1, 2, 3, 4, 5, 9]	kijang
	ḥ /h/ (ح)	c /c/, k /k/	حبل	ḥabl /ḥabl/	cable /keɪbəl/ ^[1, 2, 5]	Tali
	ḥ /h/ (ح)	ch /ch/, ch /tʃ/	بحر	baḥr /baḥr/	beach /bi:tʃ/ ^[1]	Laut
	ḥ /h/ (ح)	g /g/, g /dʒ/	مسح / مسح	mass/mash /mass (masaḥa)/	massage /mæsa:dʒ/ ^[2, 4, 5]	sentuh / hapus
	ḥ /h/ (ح)	h /h/, h /ø/	فلاح	fallāḥ /fala:h/	fellah /fɛlə/ ^[1, 5, 8, 9]	petani
			حريم	ḥarīm /ḥari:m/	harem /hɛərəm/ ^[3, 4, 5, 9]	Perempuan piaraan
			حشيش	ḥasyīsy /ḥaʃi:f/	hashish /hæʃi:f/ ^[1, 3, 4, 5, 8, 9]	ganja

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
7	h /h/ (هـ)	f /f/	حناء	<u>h</u> inna' / <u>h</u> ina:ʔ/	<u>h</u> enna / <u>h</u> ɛnə/ ^[1, 3, 4, 5, 8, 9]	inai, pacar (kuku)
			حورية	<u>h</u> ūriyyah / <u>h</u> u:rijja/	<u>h</u> ouri / <u>h</u> ouri/ ^[3, 5, 9]	Bidadari/peri
			قهوة	<u>q</u> a <u>h</u> wah / <u>q</u> a <u>h</u> wa/	co <u>ff</u> ee /kɒ <u>f</u> i/ ^[1, 2, 3, 4, 5, 6, 8, 9]	kopi
8	j /dʒ/ (ج)	c /c/, k /k/ ck /ck/, k /k/ g /g/, g /dʒ/	جمل	<u>j</u> amal / <u>dʒ</u> amal/	<u>c</u> amel / <u>k</u> æmɐ/ ^[1, 2, 5]	unta
			برج	bu <u>rj</u> /bu <u>r</u> dʒ/	br <u>ic</u> k /br <u>ic</u> k/ ^[5]	benteng, bata
			أجل	a <u>j</u> l /ʔ <u>dʒ</u> l/	a <u>g</u> e /eɪ <u>dʒ</u> / ^[2]	usia, umur, ajal
			الجبر	al- <u>j</u> abar / <u>dʒ</u> abar/	al <u>g</u> e <u>b</u> ra / <u>æ</u> l <u>dʒ</u> əbrə/ ^[1, 2, 3, 4, 5, 9]	aljabar
			الترجمان	at-tu <u>rj</u> umān / <u>ʔ</u> tu <u>r</u> dʒuma:n/	dra <u>g</u> oman / <u>d</u> ræ <u>g</u> əʊmən/ ^[2, 5, 9]	Penerjemah
			جبس	<u>j</u> ibs / <u>dʒ</u> ibs/	<u>g</u> y <u>p</u> sum / <u>dʒ</u> ɪpsəm/ ^[2, 5]	gips
9	k /k/ (ك)	c /c/, k /k/	الباكورة	al-bā <u>k</u> ūrah / <u>ʔ</u> lba: <u>k</u> u:ra/	alba <u>c</u> ore / <u>al</u> ba <u>c</u> ore/ ^[5, 9]	pertama, pagi, lahir, unta muda
			كافور	<u>k</u> āfūr / <u>k</u> a:fu:r/	<u>c</u> am <u>p</u> hor / <u>k</u> æmfə/ ^[1, 2, 3, 4, 5, 9]	kamper
			كراويا	<u>k</u> urawiyyā / <u>k</u> ura:wiyya:/	<u>c</u> ara <u>w</u> ay / <u>k</u> æɾəweɪ/ ^[2, 4, 5, 9]	Jintan
			كمون	<u>k</u> amūn / <u>k</u> amu:n/	<u>c</u> u <u>m</u> in / <u>k</u> ʌ <u>m</u> ɪn/ ^[2, 4, 5]	jinten

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
10	k /k/ (ك)	ch /ch/, ch /tʃ/, ch /k/	فلَك	ful <u>k</u> /ful <u>k</u> /	feluc <u>ca</u> /fə 'lu:kə/ ^[1, 5, 9]	bahtera, kapal, perahu
			الكيمياء	al- <u>k</u> īmiya' /ʔl <u>ki</u> :mi:a:ʔ/	al <u>ch</u> emy /æ <u>l</u> <u>k</u> imi/ ^[1, 3, 4, 5, 9]	kimia
			كرسي	<u>k</u> ursiy / <u>k</u> ursij/	<u>ch</u> air / <u>tʃ</u> eə/ ^[5]	kursi
			كيمياء	<u>k</u> īmiyā' /k <u>i</u> :mi:ja:ʔ/	<u>ch</u> emistry /k <u>e</u> mistri/ ^[1, 3, 4, 5, 9]	kimia
	k /k/ (ك)	g /g/	سكر	suk <u>a</u> r /suk <u>a</u> r/	sug <u>a</u> r /ʃ <u>u</u> gə/ ^[1, 2, 4, 5, 9]	Gula
	k /k/ (ك)	x /x/, x /ks/	الإكسير	al-i <u>k</u> sīr /ʔlʔi <u>k</u> si:r/	elix <u>i</u> r /ɪ 'l <u>i</u> ksə/ ^[1, 3, 4, 5, 6, 9]	eliksir, bubuk logam/emas
	kh /x/ (خ)	c /c/, k /k/	خليفة	<u>k</u> halīfah /x <u>a</u> li:fa/	<u>ca</u> liph / <u>k</u> erɪf/ ^[2, 5, 9]	khalifah, pemimpin
	kh /x/ (خ)	g /g/	خط	<u>k</u> haṭ /x <u>a</u> t ^ʕ /	<u>code</u> /k <u>ə</u> ʊd/ ^[2]	Garis
			الخوارزمي	al- <u>k</u> hawārizmiy /ʔl <u>x</u> awa:rizmij/	al- <u>Algorithm</u> /æ <u>l</u> g <u>ə</u> rɪð ^m / ^[1, 2, 4, 5, 9]	Alkhawarizmi
			مخازن	ma <u>kh</u> āzin /ma <u>x</u> a:zin/	mag <u>a</u> zine /,mæ <u>g</u> ə'zi:n/ ^[1, 2, 3, 4, 5, 9]	majalah
12	m /m/ (م)	n /n/	شمس	syam <u>s</u> /f <u>a</u> m <u>s</u> /	sun /s <u>ʌ</u> n/ ^[11]	Matahari
13	n /n/ (ن)	m /m/	جبس	jib <u>s</u> un /dʒib <u>s</u> un/	gyps <u>u</u> m /dʒɪps <u>ə</u> m/ ^[2, 5]	gips
14	q /q/ (ق)	c /c/, k /k/	القائد	al- <u>q</u> ā'id /ʔl <u>q</u> a:ʔd/	al <u>ca</u> ide /al <u>ca</u> ide/ ^[5]	Pemimpin
			القاضي	al- <u>q</u> āḍiy /ʔl <u>q</u> a:d ^ʕ ij/	al <u>cal</u> de /al <u>cal</u> de/ ^[5]	hakim

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
			القصر	al- q aṣr /ʔlqasʕr/	al ç azar /al ç azar/[5]	Istana
			القرآن	al- q ur'ān /ʔlqurʔa:n/	al ç oran /,ælkpr'a:n/[3, 5]	Al-Qur'an
			القبة	al- q ubbah /ʔlqubba/	al ç ove /ælkɔv/[3, 4, 5, 9]	kubah
			قاضي	q āḍiy / q a:dʕij/	ç adi / k a:di/[1, 5, 8]	Hakim
			قميص	q amīṣ /qami:sʕ/	ç amise /çamise/[5, 8, 9]	kemeja
			قند	q and / q and/	ç andy /kændi/[1, 2, 3, 4, 5, 9]	permen
			قيراط	q īrāt / q i:ra:tʕ/	ç arat / k æræt/[1, 2, 4, 5, 8, 9]	karat
			قط	q itt / q itʕ/	ç at / k æt/[2]	kucing
			قهوة	q ahwah /qahwa/	ç offee / k ɔfi/[1, 2, 3, 4, 5, 6, 8, 9]	kopi
			قافلة	q āfilah /qɑ:fila/	ç offle /çoffle/[5, 8]	Konvoi, kafilah, kelompok
			قطن	q uṭn / q utʕn/	ç otton /kptʔn/[1, 2, 3, 4, 5, 9]	kapas
			قرمز	q irmiz /qirmiz/	ç rimson /kɾimzʔn/[1, 2, 4, 5, 9]	merah tua
			شرقيين	syar q iyiyīn /ʃarqiyi:n/	sara ç en /særə ç en/[5, 9]	oriental, orang timur
			شروق	syurū q /ʃuru:q/	siro ç co /sɪ'rvkəʊ/[3, 5, 9]	matahari terbit

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
q /q/ (ق)	g /g/	أقر	قبالة	aqarra /ʔqarra/	agree /ə'gri:/ ^[2]	menyetujui
				qabālah /qaba:la/	gabelle /qabelle/ ^[1, 5]	pajak, penerimaan
				qismun /qismun/	gismo /qismo/ ^[3]	macam, bagian, varian
				qītārah /qi:ta:ra/	guitar /qr'tar/ ^[1,2, 5]	gitar
q /q/ (ق)	k /k/	القالی	دمشق	al-qāliy /ʔlqa:lij/	alkali /ælkəlar/ ^[1, 3, 4, 5, 9]	panci
				dimasyqi /dima/qi/	damask /dæməsk/ ^[2, 4, 5]	Damaskus
q /q/ (ق)	x /x/, x /ks/	بورق		būraq /bu:raq/	Borax /bɔ:ræks/ ^[1, 4, 5, 6, 9]	boraks
15	q /q/ (ق)	ck /ck/, ck /k/	عرق التمر (مشروب مكسر)	‘araq /ʕaraq ʔtamr (mafru:bun mukassir)/	arrack /ærək/ ^[1, 4, 5, 8]	Kurma arak (minuman memabukkan)
				dār aṣ-ṣinā‘ah /da:r ʔsʕina:ʕa/	arsenal /a:sʕnəl/ ^[1, 2, 3, 4, 5, 9]	Rumah Industri
				qamīṣ /qami:sʕ/	camise /camise/ ^[5, 8, 9]	kemeja
				ṣandal /sʕandal/	sandal (wood) /sændəl (wod)/ ^[2, 5]	sandal
			صفة	ṣuffah /sʕuffa/	sofa /sɒfə/ ^[2, 3, 4, 5, 9]	sofa, kursi panjang dari batu
	ṣ /sʕ/ (ص)	z /z/	القصر	al-qasr /ʔlqasʕr/	alcazar /alcazar/ ^[2, 5]	Istana

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
16	s /s ^ʕ / (ص) sy /ʃ/ (ش)	c /c/, c /s/	الحصان	al-ḥiṣān /ʔħiṣ ^ʕ a:n/	alezan /alezan/ ^[5]	kuda
			العصارة	al-‘uṣārah /ʔʕiṣ ^ʕ a:ra/	alizarin /ə'liʒərim/ ^[4, 5]	sari buah
			صفر	ṣifr /s ^ʕ ifr/	zero /ʒɪrəʊ/ ^[2, 3, 4, 5, 9]	nol
			صفر	ṣifr /s ^f fr/	cipher /saɪfə/ ^[2, 3, 4, 5, 9]	nol, kosong
			شال	syāl /ʃa:l/	shawl /ʃɔ:l/ ^[2, 5]	selendang
			الطوب	aṭ-ṭūb /ʔl ^ʕ u:b/	adobe /ə'dəʊbi/ ^[2, 4, 5, 9]	batu bata
			خط	khaṭ /xaṭ ^ʕ /	code /kəʊd/ ^[11]	Garis
			الفطرس (طائر بحري)	al-fatros /ʔlfaṭ ^ʕ ras (t ^ʕ a:ʔir bahrij)/	albatross /ælbə'trɒs/ ^[1, 3, 4, 5]	elang laut
			قيراط	qīrāṭ /qi:ra:t ^ʕ /	carat /'kærət/ ^[1, 2, 4, 5, 8, 9]	karat
			قط	qitt /qit ^ʕ /	cat /kæt/ ^[2]	kucing
17	t /t ^ʕ / (ط)	t /t/	قطن	quṭn /quṭ ^ʕ n/	cotton /kɒt ⁿ / ^[1, 2, 3, 4, 5, 9]	kapas
			طوفان	ṭūfān /t ^ʕ u:fa:n/	typhoon /tai'fu:n/ ^[4, 5]	topan
			نفط	naft /naft ^ʕ /	naphtha /næfθə/ ^[5]	minyak

Pattern	Change		Example of Phoneme Change			Indonesian
	from	to	Arabic	AO/PT*	EO/PT**	
18	t /t/ (ت)	d /d/	الترجمان	at- <u>t</u> urjumān /ʔl <u>t</u> urdʒuma:n/	<u>d</u> ragoman /d <u>r</u> æɡəʊmən/ ^[2, 5, 9]	Penerjemah
19	w /w/ (و)	f /f/	قهوة	qah <u>w</u> ah /qah <u>w</u> a/	coffee /k <u>ʌ</u> f <u>f</u> i/ ^[1, 2, 3, 4, 5, 6, 8, 9]	kopi
	w /w/ (و)	h /h/	الغول	al-gau <u>l</u> /ʔl <u>y</u> aw <u>l</u> /	alco <u>h</u> ol /ælkə <u>h</u> ɒl/ ^[1, 3, 4, 5, 9]	alkohol, perusak, memabukkan
	w /w/ (و)	v /v/	ديوان (للجلوس)	dī <u>w</u> ān /di: <u>w</u> a:n (lildʒulu:s)/	di <u>y</u> an /dɪ 'y <u>æ</u> n/ ^[1, 2]	Diwan (duduk)
			وزير	<u>w</u> azīr / <u>w</u> zjɾ/	<u>y</u> izier / <u>y</u> i 'ziɪ/ ^[2, 5, 9]	menteri
20	y /j/ (ي)	j /j/, j /dʒ/	ياسمين	<u>y</u> asmīn /j <u>a</u> :smi:n/	<u>j</u> asmine /dʒ <u>æ</u> zmɪn/ ^[1, 2, 4, 5, 9]	yasmine, melati
21	z /ð/ (ذ)	d /d/	ذنب	<u>z</u> anab / <u>ð</u> anab/	<u>d</u> eneb /d <u>æ</u> neb/ ^[1, 2, 5, 8, 9]	dosa
22	z /z/ (ز)	g /g/, g /dʒ/	زرافة	<u>z</u> irāfah /z <u>i</u> ra:fə/	<u>g</u> iraffe /dʒ <u>i</u> 'ra:f/ ^[1, 2, 3, 4, 5, 8, 9]	jerapah
	z /z/ (ز)	s /s/, s /z/	قرمز	qirmiz /q <u>i</u> rmiz/	crim <u>s</u> on /krɪm <u>z</u> ən/ ^[1, 2, 4, 5, 9]	merah tua
	z /z/ (ز)	th /th/, th /ð/	الخوارزمي	al- khawāri <u>z</u> miy /ʔlxawa:r <u>i</u> zmij/	algori <u>th</u> m /ælgəri <u>ð</u> əm/ ^[1, 2, 4, 5, 9]	Alkhawarizmi

* Arabic orthography/phonemic transcription (AO /PT/).

** English orthography/phonemic transcription (EO /PT/). Phonemic transcription in the table above is marked with the symbol "/.../".

The table above clearly shows the replacement of phonemes in various patterns. The letters in bold and underlined in the “example of phoneme changes” column, especially in the “AO/PT” and “EO/PT” columns, are a description of the changes or replacement of phonemes orthographically or phonemically in Arabic loanwords in English.

b. Phoneme Deletion

This pattern is commonly called **reduction**. Reduction is a language change that reduces the size or intensity of a linguistic element or results in the loss of that element. Usually, this change is associated with a change in sound, loss of phonological material, or erosion of phonetic material (Campbell and Mixco 2007, 167). There are several types of this pattern, as follows:

- 1) Deletion of phonemes in the middle or at the end of a word (hamzah or "i"). Examples are as follows:

Table 4. Example of Phoneme Deletion			
Arabic	AO /PT/	EO /PT/	Indonesian
كيمياء	kīmiyā' /ki:mi:ja:ʔ/	Al-Chemy /ælkɪmi/ ^[1, 3, 4, 5, 9]	kimia
الإكسير	al-iksīr /ʔlʔiksɪ:r/	Elixir /ɪ 'lɪksə/ ^[1, 3, 4, 5, 6, 9]	eliksir, bubuk logam/emas
أجل	ajl /ʔadʒl/	age /eɪdʒ/ ^[2]	usia, umur, ajal

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then it appears that there are phonemes that are removed, namely the Removal of "hamza" at the end of the word in the word "kīmiyā' /ki:mi:ja:ʔ/" and the removal of "s" in the middle of the word in the word "al-iksīr /ʔlʔiksɪ:r/", and the removal of "l" at the end of the word in the word "ajl /ʔadʒl/". These phonemes do not exist or are removed from the loanwords in the "English" column above. For the word "al-iksīr /ʔlʔiksɪ:r/", the phoneme "s" is removed and reduced to the phoneme "x" orthographically or /ks/ phonemically in English. English's phoneme "x" contains the sound "s".

- 2) Remove the phoneme or syllable "ah" at the end of the word. For example, as follows:

Table 5. Example of Syllable			
Arabic	AO /PT/	EO /PT/	Indonesian
زرافة	zirāf ah /zira:fa/	giraffe /dʒɪˈra:f/[^{1, 2, 3, 4, 5, 8, 9]}	jerapah
خليفة	khalīf ah /xali:f <u>a</u> /	caliph /keɪlɪf/[^{2, 5, 9]}	khalifah, pemimpin
قيتارة	qītār ah /qi:ta:r <u>a</u> /	guitar /ɡɪˈtar/[^{1, 2, 5]}	gitar

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then it appears that there are phonemes that are removed, namely the removal of the phoneme or syllable "ah /a/" at the end of the word in the words "zirāfah /zira:fa/", "khalīfah /xali:fa", and "qītārah /qi:ta:ra". All phonemes or syllables "ah" at the end of the word in these words are removed in Arabic loanwords in English so that they become "giraffe /dʒɪˈra:f/", "caliph /keɪlɪf/", and "guitar /ɡɪˈtar/".

- 3) The Removal of "tanwin" or "n" at the end of a word is called erosion.

Erosion (sometimes also called phonetic attrition) is the progressive reduction or removal of linguistic material, especially phonetic word forms (or morphemes), by sound changes (Campbell and Mixco 2007, 54–55). For example, as follows:

Table 6. Example of Erosion			
Arabic	AO /PT/	EO /PT/	Indonesian
قسم	qismun <u>n</u> /qismun/	gismo /gismo/[^{3]}	macam, bagian, varian

Pay attention to the loanwords whose letters are bold and underlined in the column above; it appears that there is a "tanwin" or phoneme "n" that is removed, namely in the word "qismun /qismun**n**",

which becomes "gismo /gismo/", which does not have the phoneme "h".

4) Removal of double vowels is called **monophthongization**

Monophthongization is a sound change in which two members of a diphthong or members of a vowel cluster are reduced to a simple single vowel, to only one vowel articulation movement (monophthong), either in the fusion of its members or by the loss of one member of the diphthong (Campbell and Mixco 2007, 127), such as (“aa” or “ā”, “ii” or “ī”). For example, as follows:

Table 7. Example of Monophthongization			
Arabic	AO /PT/	EO /PT/	Indonesian
زرافة	zirāfah /zir <u>a</u> :fa/	giraffe /dʒɪ 'r <u>a</u> f/[^{1, 2, 3, 4, 5, 8, 9]}	jerapah
خليفة	khalīfah /xali: <u>i</u> :fa/	caliph /keɪ <u>l</u> ɪf/[^{2, 5, 9]}	khalifah, pemimpin
قيتارة	qītārah /qi: <u>t</u> a:ra/	guitar /gɪ 'tɑ:/[^{1, 2, 5]}	gitar

Pay attention to the loanwords whose letters are bold and underlined, which is in the column above; it appears that there are phonemes that are removed, namely the removal of the vowel "aa" (long/two vowels) in the word "zirāfah /zira:fa/" to only one vowel "a" (short/one vowel) in the word "giraffe /dʒɪ 'raf/". Likewise, the removal of the vowel "ii" (long/two vowels) in the word "khalīfah /xali:i:fa/" to only one vowel "i" (short/one vowel) in the word "caliph". In addition, there is also the removal of the vowels "ii" and "aa" (long/two vowels) in the word "qītārah /qi:ta:ra/" to only one vowel "i" and "a" (short/one vowel) in the loan word "guitar /gɪ 'tɑ:/".

5) Removal of vowels, called **syncope**

Syncope, derived from the Greek word "sunkopé" meaning "cutting", derived from the word "sun", meaning "sun", and "kopé" meaning "cutting, hitting", is a sound change in which a vowel is lost (deleted) from the inside of a word (not at the beginning or end), such as, for example, in English "family" becomes "fam'ly", and "memory"

becomes "mem'ry" (Campbell and Mixco 2007, 198). Example: the removal of the vowel "i". An example is as follows:

Table 8. Example of Syncope

Arabic	AO /PT/	EO /PT/	Indonesian
قافلة	qāfīlah <i>/qa:fīla/</i>	coffle <i>/ko:fe/</i> ^[5, 8]	Konvoi, kafilah, kelompok

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then it appears that there is a phoneme that is removed, namely the Removal of the vowel "i" in the word "qāfīlah */qa:fīla/*", whose vowel "i" is lost in the loan word "coffle */ko:fe/*".

6) Weakening of phonemes (sounds) is called **lenition**
Lenition, also commonly called **weakening**, is a sound change in which the sound produced experiences a weakening in its articulation from the original sound before the change. Lenition usually includes changes from stops or affricates to fricatives, from two consonants to one (Campbell and Mixco 2007, 100). For example, as follows:

Table 9. Example of Lenition

Arabic	AO /PT/	EO /PT/	Indonesian
السيد	as-sīd <i>/ʔl̪si:d/</i>	a <u>c</u> id <i>/æ<u>s</u>ɪd/</i> ^[1, 2, 4]	asam
القائد	al-qā'id <i>/ʔlqa:ʔ<u>i</u>d/</i>	alca <u>i</u> de <i>/alca<u>i</u>de/</i> ^[5]	Pemimpin

Pay attention to the loanwords whose letters are bold and underlined in the column above. It appears that there is a phoneme that is removed, namely the Removal of "ss" (double consonant) in the word "as-sīd */ʔl̪si:d/*" (which has a stronger pronunciation and sound because of the double consonant) to only one consonant "c" (instead of "s") in the word "acid */æsɪd/*" (which has a weaker pronunciation and sound because of only one consonant). Likewise, there is a weakening of the vowel sound "i" in the word "al-qā'id */ʔlqa:ʔid/*" (which has a more substantial reading and sound of the "i" vowel) to become the

vowel "i" in the loan word "alcaide /*alcaide*/" (which has a weaker reading and "i" sound).

c. **Addition/Insertion of Phonemes (Insertion)**

Addition/insertion is one of several changes that insert some linguistic materials or elements that were previously absent. Usually, this is said to be a sound change that produces sounds previously not found at the place of insertion, such as in analysis, epenthesis, excrescence, paragoge, prothesis, etc. (Campbell and Mixco 2007, 85).

- 1) Strengthening of phonemes, called **Fortition**, is the opposite of lenition (Campbell 1998, 41; Campbell and Mixco 2007, 193). For example, as follows:

Table 10. Example of Fortition			
Arabic	AO /PT/	EO /PT/	Indonesian
الطوب	a <u>t</u> -tūb /ʔ <u>t</u> ^ʕ u:b/	a <u>d</u> obe /ə 'd <u>ə</u> ʊbi/ ^[2, 4, 5, 9]	batu bata
الجبر	al- <u>j</u> abar /ʔ <u>dʒ</u> abr/	al <u>g</u> ebra /æ <u>l</u> <u>dʒ</u> əbrə/ ^[1, 2, 3, 4, 5, 9]	aljabar
الخوارزمي	al- <u>kh</u> awārizmiy /ʔ <u>x</u> awa:rizmij/	Al <u>g</u> orithm /æ <u>l</u> <u>g</u> ərið ^ə m/ ^[1, 2, 4, 5, 9]	Alkhawarizmi

Pay attention to the loanwords whose letters are bold and underlined in the column above. There appears to be a strengthening of the phoneme sound, namely from the phoneme "t /t^ʕ/" in the word "at-tūb /ʔt^ʕu:b/", which has a weaker pronunciation and sound than the phoneme "d /d/" in the word "adobe /ə 'dəʊbi/", which has a stronger pronunciation and sound. In addition, in the column above, there is also a strengthening of the phoneme sound "j /dʒ/" in the word "al-jabar /ʔdʒabr/", whose pronunciation and sound of the phoneme are weaker compared to the pronunciation and sound of the phoneme "g" in the loan word "algebra /ældʒəbrə/ ". Likewise, with the strengthening of the phoneme sound "kh /x/" in the word "al-khawārizmiy /ʔxawa:rizmij/", the pronunciation and sound of the phoneme become

more assertive in the form of the phoneme "g /g/" in the loan word "Algorithm /ælgərɪðəm/".

- 2) Addition or insertion of phonemes into a word is called **Epenthesis** (Campbell 1998, 33; Campbell and Mixco 2007, 54). For example, as follows:

Table 11. Example of Epenthesis

Arabic	AO /PT/	EO /PT/	Indonesian
كافور	kāfūr /ka:fu:r/	cam <u>ph</u> or /kæ <u>m</u> fə/ ^[1, 2, 3, 4, 5, 9]	kamper
فلك	fulk /fulk/	fel <u>u</u> cca /fə 'l <u>u</u> :kə/ ^[1, 5, 9]	bahtera, kapal, perahu
أمير	amīr /ʔami:r/	a <u>d</u> miral /æ <u>d</u> mɪrəl/ ^[2, 3, 4, 5, 9]	Laksamana, pangeran

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then it appears that there is an addition of sounds or phonemes, namely from the phoneme "ø}" in the word "kāfūr /ka:fu:r/" which is added to the phoneme "m" in the word "camphor /kæmfə/", and from the phoneme "ø}" in the word "fulk /fulk/" which is added to the phoneme "e" in the word "felucca /fə 'lu:kə/" by shifting the phoneme "u" after "l", and also the addition of the phoneme "d" in the word "admiral /ædmɪrəl/", which comes from the Arabic "ami>r /ʔami:r/".

- 3) The addition or insertion of phonemes at the beginning of a word is called **prothesis** (Campbell 1998, 33; Campbell and Mixco 2007, 158). For example, as follows:

Table 12. Example of Prothesis

Arabic	AO /PT/	EO /PT/	Indonesian
ترصيع	tarṣīʿ /trɪsʕi/	<u>in</u> tarsia / <u>in</u> tarsēə / ^[1, 5]	tatahan

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then it appears that there is an addition of sounds or phonemes, namely from the phoneme "ø}" in the

word "tarṣī ' /trɪsʕi/'' which is added to the phoneme "in" in the word "intarsia /intarsēə /".

- 4) The addition of vowels at the end of a word, for example, after "d" or "l", is called **paragoge**.

Paragoge (from the Greek "paragogé" meaning "prominent past") is a sound change by adding a sound (usually a vowel) at the end of a word. For example, in Spanish dialects, the ending “-e” is sometimes added (sporadically) to some words ending in “d”, such as the word "rede" from "red", meaning "net" (Campbell 1998, 35; Campbell and Mixco 2007, 149–50). For example, as follows:

Table 13. Example of Paragoge

Arabic	AO /PT/	EO /PT/	Indonesian
القائد	al-qā'i <u>d</u> /ʔlqa:ʔi <u>d</u> /	alcaide <u>e</u> /alcaide <u>e</u> / ^[5]	pemimpin, panglima
فلك	ful <u>k</u> /ful <u>k</u> /	felucca <u>a</u> /fə 'lu:k <u>a</u> / ^[1, 5, 9]	bahtera, kapal, perahu

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then there is an additional phoneme, namely the addition of the vowel "e /e/" at the end of the word in the loanwords "alcaide /alcaidee", and the vowel "a /ə/" at the end of the word in the loanwords "felucca /fə 'lu:ka", in which the vowel does not exist in the words " al-qā'id /ʔlqa:ʔid", and " fulk /fulk" in Arabic as the original language.

d. Phoneme shift/Transposition (Metathesis).

Metathesis (metathesis), derived from the Greek word "metathesis", which means "transposition, change of side", is a sound change involving sound transposition, a sound change in which sounds exchange positions with each other in a word. For example, the Old English word "brid" becomes the Modern English "bird", and the Old English word "hros" becomes "horse" (Campbell 1998, 37; Campbell and Mixco 2007, 122). For example, as follows:

Table 14. Example of Phoneme Shift/Transposition

Arabic	AO /PT/	EO /PT/	Indonesian
قرمز	qirmiz / qirmiz /	crimson / krimzən / ^[1, 2, 4, 5, 9]	merah tua
الجبر	al-jab ar / ʔldʒabar /	alge bra / ældʒəbrə / ^[1, 2, 3, 4, 5, 9]	aljabar
الترجمان	at- tur jumān / ʔltur dʒuma:n/	dragoman / dræ gəʊmən/ ^[2, 5, 9]	penerjemah

Pay attention to the loanwords whose letters are bold and underlined in the column above. Then, there appears to be a shift in phonemes or syllables, namely the shift in the phoneme or syllable "qir" in the word "qirmiz /**qirmiz**/" to the phoneme or syllable "cri" in the word "crimson /**krimzən**". In addition, in the example in the column above, there is also a shift in the phoneme "bar" to "bra" in the word "al-jabar /**ʔldʒabar**/" to "algebra /**ældʒəbrə**/" and "tur" to "dra" in the word "at-turjumān /**ʔltur**dʒuma:n/" to "dragoman /**dræ**gəʊmən/".

e. Extreme changes (metatypy)

Metatypy is an extreme change in loanwords due to language contact in which the language structure is completely changed to be more similar to another language (Campbell and Mixco 2007, 122). For example, as follows:

Table 15. Example of Metatypy

Arabic	AO /PT/	EO /PT/	Indonesian
البرقوق	al-barqūq / ʔlbarqu :q/	apricot / eiprikət / ^[2, 3, 4, 5, 9]	prem
دار الصناعة	dār aš-šinā‘ah / da :r / ʔls ‘ina:ʕa/	arsenal / a :sənəl/ ^[1, 2, 3, 4, 5, 9]	Rumah industri
سمت (الرأس)	samtu (ar-ra's) / samtu (ʔlra ʔas)/	zenith / zen ɪθ/ ^[1, 3, 4, 5, 9]	Zenit, puncak, di atas kepala

The English loanwords in the above table show drastic or extreme changes from the Arabic language, so it is not easy to recognize that the loanwords come from Arabic. The English loan word "apricot /eɪprɪkɒt/", which comes from the Arabic word "al-barqūq /ʔlbarqu:q/" , has undergone drastic and extreme changes. This is a kind of mishearing of the original language, Arabic, which is then pronounced in a different phoneme form, although some of the sounds are similar. If traced, the change process may be by removing the phoneme "l" in the word "al-barqūq /ʔlbarqu:q/" (Arabic) so that it changes to "abarqūq /ʔbarqu:q/". Then, if the syllable "bar" in the word "abarqūq /ʔbarqu:q/" is shifted to "bra", and the last phoneme "q" is replaced with the phoneme "t", it will become "abraquṭ /ʔbraqu:t/". Then, if the phoneme of the word "abraquṭ /ʔbraqu:t/" is adjusted to the English pronunciation by replacing the phoneme "b" with "p", and the vowel sound "a" is adjusted to the vowel "i" (the vowel "a" is usually read as "ai" in English), and the vowel "u" becomes "o /ʊ/", then it will change to "apricot /eɪprɪkɒt/". This change is long, so it is not easy to recognize and understand that this loan word comes from Arabic.

Extreme changes also occur in the loan word "arsenal /ɑ:sənəl/", which comes from the Arabic "dār aṣ-ṣinā'ah /da:r ʔlɪsɪna:ʕa/". These two words are different, and it is almost unrecognizable that they have a borrowing or absorption relationship. However, if we observe by trying to analyze the two words, it will be apparent that they are closely related in borrowing and absorption. If we try to remove the phoneme "d" (which is at the front of the word) and the double "s" and "a" (which are in the middle and end of the word) are removed by one phoneme, then it will become "arasinah /ɑ:rasinah/". Then, if the phoneme "a" (in the middle) is removed and the phoneme "h" is replaced with the phoneme "l", the pronunciation will change to "arsenal /ɑ:sənəl/". This change is also quite lengthy and complicated so that it is almost impossible to recognize that the English loanword "arsenal /ɑ:sənəl/" comes from the Arabic "dār aṣ-ṣinā'ah /da:r ʔlɪsɪna:ʕa/". However, many English language experts admit that these two words have a borrowing or absorption relationship. Likewise, the English loanwords "zenith /zɛnɪθ/" and "hazard /hɑ-zərd/" both experienced drastic and

extreme changes from the Arabic "samtu /*samtu*/" and "al-zarr /*ʔl-zarr*/".

Such is the description of the phoneme changes of Arabic loanwords in English and the various patterns of change based on the analysis conducted by the author.

C. CONCLUSION

Based on the identification, verification, classification, and analysis of data on Arabic loanwords from various sources in English, more than 250 loanwords originate from Arabic in English. Loanwords from other languages like this are common in all languages. Loanwords, in general, experience changes from their original language—changes in loanwords in English from Arabic form specific patterns.

The pattern of changes in Arabic loanwords in English forms 50 patterns of change. Of the 50 patterns of change, they can be classified into 22. The forms of these change patterns are: 1) Phoneme replacement, 2) Phoneme removal/deletion, 3) Phoneme addition, 4) Phoneme shift, and 5) Drastic and extreme changes in loanwords that are almost impossible to recognize as loanwords.

There are various forms of phoneme changes, namely reduction, erosion, monophthongization, syncope, lenition (phoneme removal), strengthening or fortition, paragoge, and phoneme shifts such as metathesis, as well as drastic or extreme changes called metatypy.

There are several Grimm's laws that are relevant to phoneme changes that occur in Arabic loanwords in English orthographically or phonemically, such as "b /b/" to "p /p/" and "t /t/" (ta' marbutoh) to "ø" (lost). However, there are also phoneme changes that occur in Arabic loanwords in English that are the opposite of Grimm's laws. Among these changes are the changes from "p /p/" to "f /f/" (in Grimm's law) to "f /f/" to "p /p/" (in Arabic loanwords to English), and "d /d/" to "t /t/" (in Grimm's law) to "ṭ /ṭ/" to "d /d/" (in Arabic loanwords to English). The rest of the sound or phoneme changes form a pattern different from Grimm's laws. For example, changing the phoneme "b /b/" to "v /v/", "f /f/" to "b /b/", "f /f/" to "v /v/", "g /g/" to "c /c/, k /k/", "ḥ /ḥ/" to "c /c/, k /k/", "ḥ /ḥ/" to "g /g/, g /dʒ/", "ḥ /ḥ/" to "ch /ch/, ch

/tʃ/, "h /h/" to "h /h/, h /ø/", "j /dʒ/" to "c /c/, k /k/", "j /dʒ/" to ck /ck/, k /k/, "j /dʒ/" to "g /g/, g /dʒ/", "k /k/" to "c /c/, k /k/", "ch /ch/, ch /tʃ/, ch /k/", "g /g/", or "x /x/, x /ks/", "kh /x/" to "c /c/, k /k/", or "g /g/", "q /q/" to "c /c/, k /k/, g /g/, x /x/, x /ks/, ck /ck/, ck /k/" (the most common), "m /m/" to "n /n/", "n /n/" to "m /m/", "ş /sʃ/" to "s /s/, s /sʃ/, z /z/, or "c /c/, c /s/", "sy /ʃ/" to "sh /ʃ/", "w /w/" to "f /f/, h /h/, or "v /v/", "z /ð/" to "d /d/", and "z /z/" to "g /g/, g /dʒ/", "s /s/, s /z/", or "th /th/, th /ð/". These change patterns can be seen in the phoneme replacement table in section D.

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