Diwan: Jurnal Bahasa dan Sastra Arab [•P-ISSN 1693-4725 • E-ISSN 2442-3823]
Vol. 18, No. 1, January-June 2026, 65-84
https://doi.org/10.15548/diwanjurnalbahasadansastraarab.v18i1.2338

VOWEL LENGTHENING AS THE DEFAULT STRATEGY OF ARABIZATION: PHONOLOGICAL ADAPTATION OF ENGLISH CULINARY LOANWORDS IN ARABIC DIGITAL MEDIA

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HISTORY

Received 4/7/2025

Revised 3/6/2026

Accepted 4/6/2026

Published 5/6/2026

KEYWORDS

Arabization,

Vowel lengthening,

Phonological adaptation,

Culinary loanwords,

Arabic digital media

ABSTRACT

Although the rapid proliferation of Arabic-language digital media platforms has significantly accelerated the process of arabization of English culinary vocabulary, the underlying phonological mechanisms have not been systematically studied in a digital domain-specific context. Addressing this gap, this study identifies and analyzes patterns of vowel change from English to Arabic in the *maṭbakh* section of the sayidaty.net website, using al-Jawaliqi's arabization theory as the primary analytical framework. A qualitative descriptive design was adopted, with data comprising English culinary loanwords sourced from the *maṭbakh* rubric of sayidaty.net. Data were collected through systematic non-participant observation and documented using structured note-taking techniques, then analyzed using distributional methods and translational equivalent methods with the International Phonetic Alphabet transcription system. The results show that the nine English vowel phonemes [i], [ɪ], [e], [ɛ], [æ], [a], [ə], [ʊ], and [ʌ] produce 21 distinct phonological adaptation patterns out of 112 instances found. Three cross-phonemic rules emerged as dominant: systematic vowel lengthening as the default strategy of arabization; lexical stress sensitivity; and segmental conditionality. This research contributes to the development of a domain-specific phonological model of arabization that extends al-Jawaliqi's classical framework with the dimension of contextual conditionality, while establishing a replicable methodology for the study of vowel adaptation on Arabic digital media platforms.

Citation in APA Style: Khatimah, H., Nurain, Mawaddah, A. A., & Syahidin, A. (2026). Vowel lengthening as the default strategy of arabization: Phonological adaptation of English culinary loanwords in Arabic digital media. *Diwan: Jurnal Bahasa dan Sastra Arab*, *18*(1). 65-84. https://doi.org/10.15548/diwanjurnalbahasadansastraarab.v18i1.2338.

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INTRODUCTION

Arabic is one of the most historically resilient languages, yet its lexical system has never been static. Over centuries of cultural contact and trade, Arabic has absorbed foreign vocabulary through a process of *taʿrīb* 'arabization', which adapts non-Arabic terms phonologically, morphologically, and orthographically to conform to Arabic structural norms (Alabdaly & Metwally, 2021; Anam, 2022; Thawabteh, 2024). This process of arabization is not a new phenomenon. It has been ongoing since the eighth century CE and has been a major instrument of lexical enrichment of Arabic throughout its history (al-Shbiel, 2017; Elgobshawi, 2022). In the contemporary era, the acceleration of globalization has intensified pressure on Arabic to expand its lexicon at an unprecedented scale and pace (Abdulvoris & Nugmanovich, 2023; Hamdan & al-Salman, 2021; Muassomah, 2024). Unlike previous historical phases mediated by academic institutions and classical authorities, the current wave of arabization is now driven by informal linguistic actors such as online journalists, content creators, and digital platform editors whose arabization decisions reach millions of readers instantly (al-Athwary, 2016; Fitriyah, 2022; Mivtakh, 2019). This shift makes the study of contemporary arabization practices not merely a descriptive linguistic exercise, but a critical index of how Arabic negotiates its identity and functionality in a globalized world.

Among the various linguistic levels at which arabization operates, the phonological dimension is both the most fundamental and the least systematically studied in a domain-specific context. When English lexical items are integrated into Arabic, their vowel inventory undergoes fundamental restructuring. Pure English vowels such as /ɪ/, /ɛ/, /æ/, /ə/, and /ʊ/, which have no direct equivalents in the Arabic phonological system, are systematically mapped to their closest Arabic equivalents following patterns dictated by Arabic phonotactic rules (al-Athwary, 2017; Abdulrazzaq & al-Ubaidy, 2023; Zibin, 2019). This process of phonological nativization is particularly intense in the culinary domain, where the global circulation of food trends continuously injects new English-based terminology into Arabic digital media (Fitriyah et al., 2023; Shakil & Siddiq, 2023; Vadasz, 2020). Platforms like sayidaty.net, which publish culinary content for millions of Arab readers, serve as sites of spontaneous lexical arabization, integrating English culinary vocabulary far beyond the pace of formal standardization efforts (Khabirova & Oudah, 2020; Altohami, 2025; Rosa & Budiman, 2023). It is precisely at this intersection of phonological adaptation and digitally mediated culinary discourse that this study is positioned.

Research on arabization has grown rapidly, with a dominant focus on technology, science, and mass media. Awang & Salman (2017) and Elgobshawi (2022) documented the arabization strategies of technical and scientific terminology from English into Arabic, and both concluded that this process involves not only phonetic adaptation but also complex morphological negotiations (Awang & Salman, 2017; Elgobshawi, 2022; al-Shbiel, 2017). In the digital media domain, Hamdan and al-Salman (2021) and Mivtakh (2019) identified that Arabic neologisms appearing on social media platforms and online newspapers follow diverse formation patterns, from direct borrowing to lexico-morphological hybridization (Hamdan & al-Salman, 2021; Mivtakh, 2019; Fitriyah, 2022). In the pandemic and digital media era, arabization has been massive, surpassing the capacity of Arabic language normalization institutions to establish consistent standards (Muassomah, 2024; Thawabteh, 2024; al-Athwary, 2016). The proliferation of arabization across domains has created heterogeneous orthographic and phonemic

variations, underscoring the urgency of domain-specific studies (Alabdaly & Metwally, 2021; Hamdan & al-Salman, 2021; Mivtakh, 2019).

At the methodological level, studies of arabization are dominated by two approaches: phonological and morphological. Al-Athwary (2017) presents the most comprehensive analysis of the phonotactic adaptation of English loanwords in Modern Standard Arabic, identifying mechanisms such as consonant cluster simplification, syllabic consonant conversion, and vowel glide insertion as strategies motivated by Arabic's inherent phonological constraints. These findings are reinforced by Zibin (2019), who analyzed the attachment of Arabic morphemes to English loanwords in urban Jordanian speech, and Abdulrazzaq & al-Ubaidy (2023), who mapped the patterns of adaptation of pure English vowels in Iraqi Arabic. From a morphological perspective, Amrulloh & Himmah (2017) and Ibrahim (2022) show that arabization progresses to the formation of derivational patterns that integrate loanwords into the Arabic morphological system, while Bakar et al. (2023) demonstrated that the semantic adaptation of Arabic loanwords further complicates the process (Amrulloh & Himmah, 2017; Ibrahim, 2022; Bakar et al., 2023). Mahfud et al. (2022) and Rosa & Budiman (2023) extended this perspective by demonstrating that loanword formation in the media occurs in a hybrid manner, while al-Jarf's (2025) systematic review confirmed that Arabic morphological innovation continues to expand beyond established patterns (Mahfud et al., 2022; Khabirova & Oudah, 2020; al-Jarf, 2025).

Studies directly addressing the intersection of arabization, the culinary domain, and digital media are still very limited. Fitriyah et al. (2023) analyzed Arabic word formation in Egyptian snack products and found that derivation, affixation, and borrowing occurred simultaneously. Shakil & Siddiq (2023) complemented these findings by demonstrating that digital platforms have become a primary incubator of cross-linguistic culinary neologisms (Fitriyah et al., 2023; Shakil & Siddiq, 2023; Vadasz, 2020). Furthermore, Altohami & Omar (2025) documented how traditional Arabic food terms on digital platforms underwent lexical rebranding through English borrowing, suggesting that culinary arabization is not simply a linguistic adaptation but a sociocultural practice steeped in identity. Amrulloh (2015) previously asserted that arabization in media products always operates in a tension between loyalty to the Arab system and the demands of global communication, while Abdulvoris & Nugmanovich (2023) and Muassomah (2024) underscored how globalization and digital platforms accelerate this dynamic exponentially (Amrulloh, 2015; Abdulvoris & Nugmanovich, 2023; Muassomah, 2024). Fitrisia et al. (2018) and Syaifullah (2020) strengthened this argument by showing that every process of absorption of culinary terms contains a cultural dimension that cannot be separated from its phonological dimension (Fitrisia et al., 2018; Syaifullah, 2020; Anam, 2022).

The foregoing review reveals that research on phonological arabization and culinary arabization has proceeded along two separate tracks without systematic reconciliation. Phonological studies such as al-Athwary (2017), Zibin (2019), and Abdulrazzaq & al-Ubaidy (2023) have detailed the mechanisms of sound adaptation of English loanwords in Arabic. However, all of them rely on general corpora or the technology domain, not on culinary vocabulary sourced from Arabic digital media platforms. On the other hand, studies in the culinary domain, such as Fitriyah et al. (2023), Shakil & Siddiq (2023), and Altohami & Omar (2025), have shown that digital platforms are active and productive sites of arabization. However, their analyses stop at the morphological and sociocultural levels, without specifically examining the patterns of vowel change during adaptation. This gap is further underscored by the observation

that al-Jarf's (2025) and Fitriyah et al. (2023) did not specifically address the phonological dimension of vowels in the digital culinary context, while Abdulrazzaq & al-Ubaidy (2023) limited their corpus to Iraqi Arabic without considering digital media as a data source. Thus, no study has comprehensively mapped the patterns of English vowel changes into Arabic in culinary vocabulary on Arabic digital media platforms.

Based on this gap, this study poses the primary research question: How are English vowel phonemes adapted in Arabic culinary vocabulary within the *maṭbakh* rubric on sayidaty.net? To answer this question, this study applies al-Jawaliqi's (1969) theory of arabization to systematically identify and analyze the phonemic categories of vowels that undergo transformation during the arabization process of English culinary vocabulary on the platform. Theoretically, the findings of this study contribute to the development of a domain-specific phonological analysis model of arabization, extending al-Jawaliqi's (1969) theory to the context of contemporary digital media, which has so far received insufficient academic attention. In practice, this study provides a framework for Arab lexicographers, Arabic-language media editors, and digital dictionary developers to standardize the inconsistent arabization of culinary terminology. Thus, this study not only fills the identified academic gap but also opens a new methodological path for future studies of digital platform-based phonological arabization.

METHOD

This study employs a qualitative descriptive approach as its primary research design to produce a comprehensive and systematic description of a linguistic phenomenon without manipulating the object under study (Creswell & Creswell, 2018; Creswell & Poth, 2018). The research data in the form of Arabic words and phrases containing culinary vocabulary borrowed from English were taken from the *maṭbakh* section on the sayidaty.net website. This website is an Arabic-language digital media platform that actively publishes international culinary content and is a productive lexical arabization site. Data collection was carried out through a non-participant observation method, in which researchers systematically examined all the contents of the *maṭbakh* section to identify culinary lexical items exhibiting phonological adaptation from English, without engaging in the production of the texts under examination (Creswell & Poth, 2018; Denzin & Lincoln, 2018). All identified lexical units were then documented using a structured note-taking technique that included: the original English form, the Arabic realization of each term, the IPA transcriptions of both languages, and the distribution of vowel positions within words (Denzin & Lincoln, 2018; International Phonetic Association, 1999). This process yielded 112 instances of phonological adaptation involving nine English vowel phonemes, forming the final data corpus.

Data analysis was carried out in three sequential stages. The first stage was phonemic identification and classification. Each culinary lexical item collected was transcribed using the International Phonetic Alphabet to map the source English vowel phonemes to their Arabic realizations. The researcher applied a distributional method that uses the distributional patterns of linguistic elements themselves as a determining factor, enabling vowel changes to be described systematically based on the phonological structures of both languages (Harris, 1951; International Phonetic Association, 1999). The second stage was a cross-language comparative analysis, in which the phonological elements of English, the source language, were compared with their realizations in Arabic, the target language, to identify the forms of phonemic change. At this stage, the theoretical framework of arabization by al-Jawaliqi (1969) was operationalized as the

primary analytical tool to describe the mechanisms of vowel substitution, lengthening, and adaptation, while Haugen's (1950) borrowing theory was used to classify borrowing patterns more comprehensively. The third stage involved verifying and interpreting cross-phoneme patterns to identify generally applicable rules in the corpus (Creswell & Creswell, 2018; Creswell & Poth, 2018). The results of the analysis are presented formally and descriptively through two complementary formats: paired tables containing phoneme symbols, IPA transcriptions, positional distributions, and frequency of occurrence; and analytical narratives per sub-section that interpret the patterns of change and relate them to al-Jawaliqi's theoretical principles (Harris, 1951; Haugen, 1950; al-Jawaliqi, 1969).

RESULT

The data analysis identified nine English vowel phonemes that undergo phonological adaptation in English culinary loanwords on the *maṭbakh* rubric of sayidaty.net: [i], [ɪ], [e], [ɛ], [æ], [a], [ə], [ʊ], and [ʌ]. These nine phonemes collectively generate 21 distinct adaptation patterns across 112 instances, with each phoneme yielding between one and six realization patterns depending on the degree of phonetic ambiguity of the source vowel and the nature of its consonantal environment. The distribution of these phonemes, their Arabic realization patterns, and their relative frequencies are presented in Table 1 below.

Table 1. Distribution of Phonological Adaptation of English Culinary Loanwords in the Data Source

English Vowel	IPA Symbol	Arabic Adaptation Patterns	Freq.	Percent.
High Front Tense Unrounded Vowel	[i]	[i:]	21	18.8%
Near-Close Front Unrounded Vowel	[ɪ]	[a], [a:], [i], [i:], [u:], [ja:]	16	14.3%
Close-Mid Front Unrounded Vowel	[e]	[i], [i:]	5	4.5%
Open-Mid Front Unrounded Vowel	[ɛ]	[i:], [a:]	3	2.7%
Near-Open Front Unrounded Vowel	[æ]	[a], [a:]	12	10.7%
Open Front Unrounded Vowel	[a]	[a:]	2	1.8%
Central Mid Vowel (Schwa)	[ə]	[i:], [a], [a:], [u:]	43	38.4%
Near-Close Back Rounded Vowel	[ʊ]	[u:]	2	1.8%
Open-Mid Back Unrounded Vowel	[ʌ]	[a], [a:]	8	7.1%
Total	9	21	112	100%

Phonological Adaptation from [i] to [i:]

The English vowel [i] is classified as a high front tense unrounded vowel produced with the tongue positioned high in the front of the mouth. In the Arabic phonological system, this vowel has no short equivalent because Arabic recognizes only three basic vowel qualities realized through the *harakat* system—*fatḥah*, *kasrah*, and *ḍammah*—and a long form through the *madd* letter. The absence of a short equivalent for [i] in the Arabic inventory drives arabization consistently towards lengthening to [i:]. The corpus

data show 21 instances of adaptation of the phoneme [i] distributed in medial and final positions, as shown in Table 2.

Table 2. Phonological Adaptation from [i] to [i:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	paprika	pæprikə	بابريكا	ba:bri:ka	Medial	[i]→[i:]
2	burrito	bəritoʊ	بوريتو	bu:ri:tu:	Medial	[i]→[i:]
3	quiche	kiʃ	كيش	ki:ʃ	Medial	[i]→[i:]
4	brownies	braʊniz	براونيز	bra:uni:z	Medial	[i]→[i:]
5	cookies	kʊkiz	كوكيز	ku:ki:z	Medial	[i]→[i:]
6	roast beef	roʊst bif	الروست بيف	ar-ru:st bi:f	Medial	[i]→[i:]
7	rosemary	roʊzmeri	روزماري	ru:zma:ri:	Final	[i]→[i:]
8	curry	kʌri	الكاري	al-ka:ri:	Final	[i]→[i:]
9	fettuccine	fetətʃi:ni	فوتشيني	fu:tʃi:ni:	Medial/Final	[i]→[i:]
10	puff pastry	pʌf peɪstri	الباف باستري	al-ba:f ba:stri:	Final	[i]→[i:]
11	bounty	baʊnti	الباونتي	al-ba:unti:	Final	[i]→[i:]
12	tandoori	tɑ:ndʊri	تندوري	tandu:ri:	Final	[i]→[i:]
13	smoothie	smu:ði	السموثي	as-smu:θi:	Final	[i]→[i:]
14	mini pecan	mɪni pəkɑn	البيكان ميني	al-bi:ka:n mi:ni:	Medial/Final	[i]→[i:]
15	spaghetti	spəgeti	السباغيتي	as-sba:ɣi:ti:	Medial	[i]→[i:]
16	broccoli	brɑ:kəli	البروكلي	al-bru:ku:li:	Final	[i]→[i:]
17	blueberry	blu:bəri	البلوبيري	al-blu:bi:ri:	Medial/Final	[i]→[i:]
18	lassi	læsi	لاسي	la:si:	Final	[i]→[i:]
19	*smoothie*	smu:ði	سموذي	smu:ði:	Final	[i]→[i:]
20	*puff pastry*	pʌf peɪstri	بف باستري	baf ba:stri:	Final	[i]→[i:]
21	jelly	dʒeli	الجيلي	al-dʒi:li:	Medial/Final	[i]→[i:]

The data in Table 2 reveal the most consistent and predictable pattern of arabization across the corpus: the English phoneme [i] is invariably mapped to Arabic [i:] in all 21 instances found. This absolute consistency is not accidental, but rather a logical consequence of the strict phonetic characterization of the source phoneme, where [i] is an unrounded high front tense vowel occupying an extreme position in the vowel space, thus leaving no room for ambiguity in the mapping to the Arabic system. Since Arabic does not have a short tense equivalent of a high front vowel, lengthening is the only mechanism available to maintain phonemic distinctiveness while meeting the Arabic phonotactic requirements of clarity of vowel quantity opposition. Theoretically significant is the fact that the consistency of this pattern is unaffected by distributional position: the occurrence of [i] to [i:] in both medial and final positions with equal frequency proves that the positional variable has no conditioning power on phonemes with distinct articulatory features, unlike ambiguous phonemes such as [ɪ] and [ə]

discussed next. This finding establishes [i] to [i:] as an important comparative baseline in the hierarchy of vowel arabization consistency in this corpus.

Phonological Adaptation from [ɪ] to [a], [a:], [i], [i:], [u:], and [ja:]

The English vowel [ɪ] is classified as a near-close front unrounded vowel that differs from [i] primarily in its lower tension and slightly more dropped and retracted tongue position. This seemingly subtle phonetic difference has profound arabization consequences: the ambiguity of [ɪ]'s articulatory position between high and mid spaces makes it the phoneme with the most variable realizations in the corpus. The arabization of [ɪ] depends heavily on segmental context and position within the word. The data reveal six distinct realizations for this phoneme out of 16 instances found in the corpus, as shown in Table 3.

Table 3. Phonological Adaptation from [ɪ] to [a], [a:], [i], [i:], [u:], and [ja:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	spinach	spɪnɪtʃ	السبانخ	al-sba:nax	Medial	[ɪ]→[a]
2	spinach	spɪnɪtʃ	السبانخ	al-sba:nax	Medial	[ɪ]→[a:]
3	fries	fraɪz	فرايز	fra:yiz	Medial	[ɪ]→[i]
4	iceberg	aɪsbɜ:g	الآيسبرغ	al-a:isbirɣ	Medial	[ɪ]→[i]
5	ice tea	aɪs ti:	آيس تي	a:is ti:	Medial	[ɪ]→[i]
6	pudding	pʊdɪŋ	بودينغ	bu:diŋɣ	Medial	[ɪ]→[i]
7	spring roll	sprɪŋ roʊl	سبرنج رول	sbrindʒ ru:l	Medial	[ɪ]→[i]
8	biscuit	bɪskɪt	بسكويت	biskuwi:t	Medial	[ɪ]→[i]
9	sandwich	sænwɪtʃ	ساندوتش	sa:nwitʃ	Medial	[ɪ]→[i]
10	ice cream	aɪs kri:m	آيس كريم	a:is kri:m	Medial	[ɪ]→[i]
11	sandwich	sændwɪtʃ	سَانْدْوِيتْش	sa:ndwi:tʃ	Medial	[ɪ]→[i:]
12	vanilla	vənɪlə	الفانيليا	al-fa:ni:liya:	Medial	[ɪ]→[i:]
13	quinoa	kɪnwɑ:	الكينوا	al-ki:nwa:	Medial	[ɪ]→[i:]
14	mini pecan	mɪni pəkɑn	البيكان ميني	al-bi:ka:n mi:ni:	Medial	[ɪ]→[i:]
15	risotto	rɪzɒtəʊ	روزيتو	ru:zi:tu:	Medial	[ɪ]→[u:]
16	soy	sɔɪ	الصويا	as-sˁu:ja:	Final	[ɪ]→[ja:]

The data in Table 3 reveal that [ɪ] is the phoneme with the most complex arabization pattern in the entire corpus, yielding six distinct Arabic realizations out of 16 instances. This complexity is not an anomaly, but rather a direct reflection of [ɪ]'s ambiguous articulatory position. As an unrounded, near-close front vowel, [ɪ] occupies an intermediate region between high and low vowels and thus lacks a distinct and single Arabic counterpart. The realization [i:] dominates when [ɪ] is adjacent to a sonorant or occurs in stressed syllables (*sandwich, vanilla, quinoa*), indicating that the sonority of the consonantal environment drives the mapping to the Arabic high vowel region. Conversely, the realization [a] appears in unstressed syllables adjacent to obstruent consonants (*spinach*), demonstrating that lexical stress and the character of the

surrounding consonants operate as mutually reinforcing conditioning factors. Furthermore, the realization of [u:] in *risotto* attests to the operation of rounded regressive assimilation: the [+round] feature of the following vowel [ɒ] absorbs and redefines the mapping of [ɪ] to the Arabic rounded region. The most unique case is [ja:] in *soy* (arabization of the diphthong /ɔɪ/), where the diphthongic glide segment is reanalyzed as a palatal approximant [j] followed by a long vowel [a:], a diphthong resolution strategy not found in other phonemes in this corpus.

Phonological Adaptation from [e] to [i] and [i:]

The vowel [e] in English is classified as a close-mid front unrounded vowel. In culinary loanwords, [e] frequently occurs both as a pure vowel and as the first part of the diphthong /eɪ/ in American English. The absence of a short [e] equivalent in the Arabic system drives a shift toward Arabic high front vowels, both in the short [i] and long [i:] versions. This pattern fulfills the principle of phonetic proximity, whereby [e] phonetically closer to the high-front region will be absorbed into the closest Arabic equivalents in the same region, namely *kasrah* (short [i]) and *madd* (long [i:]). Data showing this shift are presented in Table 4.

Table 4. Phonological Adaptation from [e] to [i] and [i:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	nesquik	neskuɪk	النسكويك	an-niskuwi:k	Medial	[e]→[i]
2	wafer	weɪfɚ	ويفر	wi:fir	Medial	[e]→[i:]
3	cheddar	tʃedɚ	الشيدر	aʃ-ʃi:dr	Medial	[e]→[i:]
4	jelly	dʒeli	الجيلي	al-dʒi:li:	Medial	[e]→[i:]
5	szechuan	setʃwɑ:n	سيشوان	si:ʃwa:n	Medial	[e]→[i:]

The data in Table 4 reveal a pattern of arabization of [e], with two Arabic realizations, [i:] and [i], in the five instances, with [i:] dominating in four cases. This pattern can be explained by two mechanisms operating in layers. First, the mechanism of phonetic proximity, where [e] as a close-mid unrounded front vowel has no direct counterpart in the Arabic inventory, so that the Arabic phonological system consistently maps it to the high front vowel region. Second, the mechanism of stress sensitivity, where the choice between the short [i] and long [i:] realizations is not determined by the phonetic quality of [e] alone, but is critically conditioned by the position of lexical stress in the source word. The only case of [e] becoming [i] in *nesquik* occurs precisely in the unstressed syllable, while all cases of [e] becoming [i:] occur in syllables bearing primary or secondary stress. These findings empirically demonstrate that vowel arabization in sayidaty.net does not operate solely at the level of phonemic quality, but is also responsive to the prosodic structure of the source word.

Phonological Adaptation from [ɛ] to [i:] and [a:]

The English vowel [ɛ] is classified as an open-mid front unrounded vowel and occupies a lower position than [e] in the vowel space. Its ambiguous articulatory position between high and low regions makes [ɛ] mappable in two different directions in the Arabic system: upwards to [i:] or downwards to [a:]. The determining factor in the

direction of this mapping, based on corpus data, is the consonantal environment surrounding the phoneme. The data show three instances of adaptation in two realization paths, as shown in Table 5.

Table 5. Phonological Adaptation from [ɛ] to [i:] and [a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	lemon	lɛmən	الليمون	al-li:mu:n	Medial	[ɛ]→[i:]
2	nutella	nətɛlə	النوتيلا	an-nu:ti:la:	Medial	[ɛ]→[i:]
3	ketchup	kɛtʃəp	الكاتشاب	al-ka:tʃa:b	Medial	[ɛ]→[a:]

The data in Table 5 reveal the theoretically most significant realization bifurcation phenomenon in the entire corpus. The phonetically identical phoneme [ɛ] in the source words produces two Arabic realizations in opposite directions. The vowel [i:] in *lemon* and *nutella*, and [a:] in *ketchup*, depend solely on the consonantal character of their surrounding environment. This bifurcation proves that vowel arabization is not a process determined exclusively by the intrinsic properties of the source phonemes, but is rather actively influenced by segmental interactions in the broader phonological context. The mechanism operating behind this pattern can be identified as sonority-based conditionality: the lateral consonants [l] and nasal [m] flanking [ɛ] in *lemon* and *nutella* have high sonority values that are articulatorily proximate to vowels, thus driving the mapping of [ɛ] to the Arabic high vowel region [i:] through the effect of progressive sonority-based assimilation. In contrast, the affricate [tʃ] in ketchup, which is an obstruent consonant with a low sonorant value, creates an environment that encourages mapping to the Arabic low vowel [a:].

Phonological Adaptation from [æ] to [a] and [a:]

The English vowel [æ] is classified as an unrounded, nearly open front vowel known as the ash vowel. This vowel is one of the most striking differences from the Arabic system, as Arabic lacks a low front vowel. Therefore, [æ] consistently maps to either the low Arabic vowel [a] or its long version [a:], with lexical stress determining the choice between the two. This mechanism is a phoneme substitution based on the proximity of articulation: the low-front [æ] maps to the low Arabic [a], with compensatory lengthening when the source vowel is in a stressed syllable. The data show 12 instances of adaptation across the two realizations, as shown in Table 6.

Table 6. Phonological Adaptation from [æ] to [a] and [a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	balsamic	bɔ:lsæmɪk	البلسمك	al-balsamik	Medial	[æ]→[a]
2	salmon	sæmən	سلمون	sa:lmu:n	Medial	[æ]→[a:]
3	sandwich	sændwɪtʃ	سَانْدْوِيتْش	sa:ndwi:tʃ	Medial	[æ]→[a:]
4	ranch	ræntʃ	الرانش	ar-ra:nʃ	Medial	[æ]→[a:]
5	paprika	pæprikə	بابريكا	ba:bri:ka:	Medial	[æ]→[a:]
6	passion fruit	pæʃən fru:t	باشن فروت	ba:ʃin fru:t	Medial	[æ]→[a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
7	mango (var. 1)	mæŋgoʊ	مانجو	ma:ndʒu:	Medial	[æ]→[a:]
8	mango (var. 2)	mæŋgoʊ	مانغو	ma:nɣu:	Medial	[æ]→[a:]
9	anise	ænəs	اليانسون	al-ya:nsu:n	Medial	[æ]→[a:]
10	cappuccino	kæpətʃi:noʊ	الكابوتشينو	al-ka:bu:tʃi:nu:	Medial	[æ]→[a:]
11	nescafe	neskæfeɪ	النسكافيه	an-niska:fijah	Medial	[æ]→[a:]
12	lassi	læsi	لاسي	la:si:	Medial	[æ]→[a:]

The data in Table 6 reveal that the phoneme [æ], a nearly open front unrounded vowel known as the ash vowel and having no direct equivalent in the Arabic vowel inventory, exhibits a highly regular pattern of arabization. The dominance of the realization [a:] in 10 of the 12 instances makes [æ] the phoneme with the second-highest predictability after [i] in the corpus. The principle of minimizing phonetic distance can explain this predictability. The low, front articulatory position of [æ] has only one compatible landing zone in the Arabic system, namely the low vowel [a], so the mapping direction leaves no room for significant realization competition. Lengthening to [a:] becomes the dominant choice because this phoneme commonly occurs in syllables bearing lexical stress in English culinary words. As is evident from the previous phonemes, lexical stress consistently triggers lengthening in arabization on sayidaty.net. The only deviation of [æ] to short [a] in *balsamic* and *salmon* occurs precisely in unstressed medial syllables, which precisely confirms the stress-lengthening rule as a systematic cross-phonemic mechanism, rather than as an optional or random tendency in the arabization process of this platform.

Phonological Adaptation from [a] to [a:]

The English vowel [a] is classified as an open front unrounded vowel and is the vowel phonetically closest to the Arabic vowel inventory among all the phonemes studied. However, arabization on sayidaty.net still results in a change from short [a] to long [a:], reflecting the platform's systematic tendency to lengthen source vowels as a default nativization strategy. This lengthening is a mechanism for asserting distinctiveness; in the context of culinary terminology, a loanword, vowel lengthening serves as a phonological marker that makes it easier for Arabic speakers to identify and pronounce the nativized foreign term. The data show two instances of adaptation, both of which result in the realization of long [a:], as shown in Table 7 below.

Table 7. Phonological Adaptation from [a] to [a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	sodium bicarbonate	soʊdiəm baɪkɑ:rbənət	بيكربونات الصوديوم	bi:ka:rbu:na:t al-sˁu:diyu:m	Medial	[a]→[a:]
2	*mini pecan*	mɪni pəkɑn	البيكان ميني	al-bi:ka:n mi:ni:	Medial	[a]→[a:]

The data in Table 7 present the most theoretically paradoxical case in the entire corpus. The phoneme [a], phonetically the closest to the Arabic inventory among all the

phonemes studied, even having a nearly identical qualitative equivalent to the Arabic fathah, was nevertheless lengthened to [a:] without a single exception in both instances. This paradox reveals a mechanism of arabization that goes beyond phonemic substitution based on qualitative proximity. The lengthening in sayidaty.net is not a response to the lack of an Arabic equivalent, but rather an active nativization strategy that operates systematically regardless of how close the source vowel is to the existing Arabic inventory. This indicates that the arabization of culinary vowels on this digital platform is driven by the logic of lexical distinctiveness. The lengthening functions as a phonological marker that marks the word's status as a nativized foreign word, not as compensation for the lack of an equivalent. The limited number of instances for this phoneme reflects the rarity of the pure vowel [a] in English culinary vocabulary, which generally contains [a] as a diphthong component, rather than as an independent monophthongic vowel. It does not, in any way, reduce the validity of the conclusions that can be drawn from the patterns found.

Phonological Adaptation from [ə] to [i:], [a], [a:], and [u:]

The English vowel [ə], or schwa, is classified as a central unrounded vowel and is the most frequent vowel in English due to its almost exclusive occurrence in unstressed syllables. [ə]'s neutral articulatory position in the center of the vowel space (neither high, nor low, nor front, nor back) makes it the most difficult to map to a specific Arabic equivalent. The arabization of [ə] in sayidaty.net yields four distinct realizations whose occurrence patterns are largely determined by position in the word and segmental context. These forms of change are shown in Table 8 below.

Table 8. Phonological Adaptation from [ə] to [i:], [a], [a:], and [u:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	tomato	təmeɪtoʊ	طماطم	tˤama:tˤim	Medial	[ə]→[a]
2	sesame	sɛsəmi	السمسم	as-samsam	Medial	[ə]→[a]
3	mustard	mʌstərd	الماسترد	al-ma:stard	Medial	[ə]→[a]
4	potato	pəteɪtoʊ	البطاطا	al-batˤatˤa:	Medial	[ə]→[a]
5	custard	kʌstəd	كاسترد	ka:stard	Medial	[ə]→[a]
6	*cocoa powder*	koʊkoʊ paʊdər	بودرة الكاكاو	bu:drah al-ka:ka:u	Medial	[ə]→[a]
7	fillet	fəleɪ	فيليه	fi:li:h	Medial	[ə]→[i:]
8	potato chips	pəteɪtoʊ tʃɪps	شيبس البطاطس	ʃi:bs al-batˤa:tˤis	Medial	[ə]→[i:]
9	*mini pecan*	mɪni pəkɑn	البيكان ميني	al-bi:ka:n mi:ni:	Medial	[ə]→[i:]
10	blueberry	blu:bəri	البلوبيري	al-blu:bi:ri:	Medial	[ə]→[i:]
11	profiterole	prəfɪtəroʊl	بروفيترول	bru:fi:tru:l	Medial	[ə]→[i:]
12	ciabatta	tʃəbɑ:tə	شيباتا	ʃi:ba:ta:	Medial	[ə]→[i:]
13	chocolate	tʃɔ:klət	الشوكولاتة	al-ʃu:ku:la:tah	Medial	[ə]→[a:]
14	vanilla	vənɪlə	الفانيليا	al-fa:ni:liya:	Medial	[ə]→[a:]
15	ketchup	kɛtʃəp	الكاتشاب	al-ka:tʃa:b	Medial	[ə]→[a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
16	mozzarella	mɑːtsərelə	موزاريلا	muːzaːriːlaː	Final	[ə]→[aː]
17	oregano	ɔːregənoʊ	أوريغانو	ʔuːriːɣaːnuː	Medial	[ə]→[aː]
18	béchamel	beɪʃəmel	بشاميل	baʃaːmiːl	Medial	[ə]→[aː]
19	garam masala	gɑːrəm məsɑːlə	جرام ماسالا	dʒaraːm maːsaːlaː	Medial	[ə]→[aː]
20	*Sodium bicarbonate*	soʊdiəm baɪkɑrbənət	بيكربونات الصوديوم	biːkaːrbuːnaːt asˤ-sˤaːdiyuːm	Medial	[ə]→[aː]
21	*spaghetti*	spəgeţi	السباغيتي	as-sbaːɣiːtiː	Medial	[ə]→[aː]
22	*lasagna*	ləzɑːnjə	لازانيا	laːzaːnjaː	Medial	[ə]→[aː]
23	*light vanilla*	laɪt vənɪlə	فانيليا لايت	faːniːliyaː laːit	Medial	[ə]→[aː]
24	baking soda	beɪkɪŋ soʊdə	بيكنج صودا	biːkinj sˤuːdaː	Final	[ə]→[aː]
25	*paprika*	pæprikə	بابريكا	baːbriːkaː	Final	[ə]→[aː]
26	pasta	pɑːstə	الباستا	al-baːstaː	Final	[ə]→[aː]
27	mocha	moʊkə	موكا	muːkaː	Final	[ə]→[aː]
28	*vanilla*	vənɪlə	الفانيليا	al-faːniːliyaː	Final	[ə]→[aː]
29	*gouda*	guːdə	الجودا	al-dʒaudaː	Final	[ə]→[aː]
30	pizza	piːtsə	بيتزا	biːtzaː	Final	[ə]→[aː]
31	matcha	mɑːtʃə	ماتشا	maːtʃaː	Final	[ə]→[aː]
32	*ciabatta*	tʃəbɑːtə	شيباتا	ʃiːbaːtaː	Final	[ə]→[aː]
33	*tortilla*	tɔːrtiːlə	التورتيلا	at-tuːrtiːlaː	Final	[ə]→[aː]
34	lemon	lɛmən	الليمون	al-liːmuːn	Medial	[ə]→[uː]
35	salmon	sæmən	سلمون	salmuːn	Medial	[ə]→[uː]
36	avocado	ɑːvəkɑːdoʊ	الأفوكادو	al-ʔafuːkaːduː	Medial	[ə]→[uː]
37	nutella	nətɛlə	النوتيلا	an-nuːtiːlaː	Medial	[ə]→[uː]
38	anise	ænəs	اليانسون	al-yaːnsuːn	Medial	[ə]→[uː]
39	*sodium bicarbonate*	soʊdiəm baɪkɑrbənət	بيكربونات الصوديوم	biːkaːrbuːnaːt asˤ-sˤaːdiyuːm	Medial	[ə]→[uː]
40	*bolognese*	boʊləniːz	بولونيز	buːluːniːz	Medial	[ə]→[uː]
41	*broccoli*	brɑːkəli	البروكلي	al-bruːkuːliː	Medial	[ə]→[uː]
42	*profiterole*	prəfɪţəroʊl	بروفيترول	bruːfiːtruːl	Medial	[ə]→[uː]
43	*cappuccino*	kæpətʃiːnoʊ	الكابوتشينو	al-kaːbuːtʃiːnuː	Medial	[ə]→[uː]

The data in Table 8 show that [ə] is the phoneme with the widest distribution of realizations in the corpus. The realization [aː] dominates with 21 cases, especially in word-final positions as in *pasta*, *mocha*, *pizza*, and *matcha*, reflecting the Arabic tendency to stabilize word endings with more sonorant long vowels. The realization [iː] in six cases occurs when [ə] is positioned before a lateral or nasal consonant (*fillet*, *profiterole*, *blueberry*), indicating a progressive assimilation effect of sonority. The

realization of short [a] in six cases occurs in medial positions in unstressed syllables adjacent to fricative consonants (*tomato, sesame, mustard*). The realization [u:] in ten cases shows a consistent pattern of regressive assimilation of roundness: the schwa adjacent to the round vowel in the source word undergoes roundness absorption and is mapped to [u:] (*lemon, salmon, avocado*). This diversity of [ə] realizations suggests that schwa requires more detailed contextual rules to accurately describe its adaptation patterns in the context of digital culinary arabization.

Phonological Adaptation from [ʊ] to [u:]

The English vowel [ʊ] is classified as a back rounded vowel that differs from the long [u:] in its shorter duration and lower tenseness. In the Arabic system, the back rounded vowel is known only in the long form [u:], and there is no corresponding short equivalent. Therefore, the arabization of [ʊ] logically results in lengthening to [u:] as the only Arabic equivalent available in the back rounded vowel category. This is a case of obligatory phonemic convergence: when a foreign phoneme has only one possible Arabic equivalent, arabization proceeds without variation. The data show two instances of adaptation that both result in the realization of [u:], as listed in Table 9.

Table 9. Phonological Adaptation from [ʊ] to [u:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	pudding	pʊdɪŋ	بودينغ	bu:diny	Medial	[ʊ]→[u:]
2	tandoori	tɑ:ndʊri	تندوري	tandu:ri:	Medial	[ʊ]→[u:]

The data in Table 9 reveal the most deterministic pattern of arabization in the entire corpus. The phoneme [ʊ] is invariably mapped to [u:] in both instances, making it the only phoneme other than [i] to yield absolute realization convergence without variation. However, unlike [i], whose consistency is driven by the rigidity of phonetic features, the consistency of [ʊ] is driven by a fundamentally different mechanism: the structural scarcity of rounded vowel slots in the Arabic system. Arabic recognizes only one category of back rounded vowels, long [u:], with no tense-equivalent short equivalent. This lack of alternative slots makes the mapping [ʊ]→[u:] obligatory and uncontested by other realizations. This is a case of phonemic convergence motivated not by a resolved ambiguity, but by the absence of structural options in the host language system. The fact that only two instances of [ʊ] are found in the entire culinary corpus is also no coincidence. The phoneme [ʊ] appears relatively rarely as a core vowel in English culinary terminology absorbed into the maṭbakh rubric. This fact reflects the inherent phonemic distribution of the English-based global culinary lexicon that serves as the source of arabization on this platform.

Phonological Adaptation from [ʌ] to [a] and [a:]

The English vowel [ʌ] is classified as an open-mid back unrounded vowel, often called a strut vowel. Articulatorily speaking, [ʌ] occupies a low-mid position in the vowel space without rounding features, making it close to the Arabic low vowel [a], though not identical. The arabization of [ʌ] is a case of substitution based on proximity of articulation with compensatory lengthening: the open-mid position [ʌ] maps to the Arabic open position [a], with lengthening to [a:] when the source vowel is in a stressed

syllable. The data show eight instances of adaptation in two realizations, as shown in Table 10.

Table 10. Phonological Adaptation from [ʌ] to [a] and [a:]

No.	English term	IPA (English)	Arabic term	IPA (Arabic)	Position	Adaptation Pattern
1	donuts	doʊnʌts	دونَاتس	du:na:ts	Medial	[ʌ]→[a:]
2	mustard	mʌstərd	الماسترد	al-ma:stard	Medial	[ʌ]→[a:]
3	curry	kʌri	الكاري	al-ka:ri:	Medial	[ʌ]→[a:]
4	custard	kʌstəd	كاسترد	ka:stard	Medial	[ʌ]→[a:]
5	puff pastry	pʌf peɪstri	الباف باستري	al-ba:f ba:stri:	Medial	[ʌ]→[a:]
6	custard (var.)	kʌstəːd	الكاسترد	al-ka:stard	Medial	[ʌ]→[a:]
7	cupcake	kʌpkeɪk	كب كيك	kab ki:k	Medial	[ʌ]→[a]
8	dumpling	dʌmplɪŋ	الدمبلينغ	ad-dambli:nɣ	Medial	[ʌ]→[a]

The data in Table 10 reveal the most structurally informative pattern of arabization of [ʌ] in this corpus due to its position as the final cross-phonemic confirmation of the stress-lengthening rule that has been repeatedly attested in the preceding phonemes. The dominance of [a:] in six of the eight instances reflects a familiar mechanism: [ʌ] as an open-mid back unrounded vowel maps to the Arabic low vowel [a] as its closest phonetic equivalent, with lengthening in response to the lexical stress borne by the source syllable. The two cases of [ʌ] becoming short [a] in cupcake and dumpling occurring in unstressed syllables are not mere exceptions that need to be explained, but rather positive evidence strengthening the validity of the rule. Precisely because stress is absent, lengthening is not triggered, and short realization becomes the predicted outcome. The significance of the findings in Table 10 lies in their cumulative effect: being consistent across [e], [æ], and now [ʌ], the stress-lengthening rule can no longer be treated as a phoneme-specific tendency but must be recognized as a universal prosodic rule governing the arabization of culinary vowels in sayidaty.net across phonemes and across vowel categories.

DISCUSSION

The findings of this study collectively confirm that al-Jawaliqi's (1969) theory of arabization, formulated in the context of classical linguistics, remains valid and operationally productive in contemporary Arabic digital media platforms. Of the 112 instances of phonological adaptation analyzed, all demonstrate mechanisms that can be explained by two of al-Jawaliqi's (1969) primary principles: phoneme substitution based on proximity to the point of articulation, and suprasegmental compensatory lengthening when a short equivalent is unavailable in the Arabic inventory. The fact that these principles remain valid even when the object of arabization is culinary terminology sourced from digital platforms demonstrates the generalizability of al-Jawaliqi's (1969) framework beyond the historical context in which it was formulated. In other words, vowel arabization on sayidaty.net is not a random process driven solely by editorial preferences, but rather one that unconsciously adheres to phonological rules that have been in effect since classical arabization. This cross-contextual validation also

strengthens al-Jawaliqi's theory's status as a relevant and productive analytical framework for the study of arabization in the 21st century.

Among all the patterns found, two rules operate across phonemes and are the most consistent in this corpus: the systematic vowel lengthening rule and the lexical stress sensitivity rule. The lengthening rule confirms that arabization in sayidaty.net results in long vowel realizations by default: of the 21 identified change patterns, 14 result in long Arabic realizations ([i:], [a:], [u:]), while only 6 result in short realizations ([ɪ]→[a], [ɪ]→[i], [e]→[i], [æ]→[a], [ə]→[a], [ʌ]→[a]). In contrast, one pattern ([ɪ]→[ja:]) constitutes a diphthong resolution strategy. The stress-sensitivity rule operates as the primary conditioning factor, determining the choice between short and long realizations: English vowel phonemes in primary-stressed syllables consistently map to long Arabic forms. In contrast, the same phonemes in unstressed syllables tend to map to short forms—a pattern evident in [æ]→[a:]/[a], [ʌ]→[a:]/[a], and [e]→[i:]/[i]. These two rules, which are universal in the corpus and transcend the boundaries of individual phoneme categories, are the most theoretically significant cross-phoneme findings.

Although al-Jawaliqi's (1969) framework is generally confirmed, this study's findings also reveal one dimension not anticipated by his classical rules: contextual conditionality, namely the influence of the surrounding segmental environment on the direction of vowel mapping. Al-Jawaliqi (1969) formulated vowel arabization as a binary process, in which foreign phonemes are mapped to their phonetically closest Arabic equivalents without making explicit the consonantal environmental conditions that could alter the direction of this mapping (al-Jawaliqi, 1969). However, the data in this study indicate that for ambiguous phonemes such as [ɪ] and [ɛ], the surrounding consonantal environment is a strong conditioning factor: sonorant consonants (laterals, nasals) favor the realization of the high vowel [i:], while obstruent consonants (affricates, fricatives) favor the realization of the low vowel [a:]. Furthermore, the findings of rounded regressive assimilation in [ɪ]→[u:] in *risotto* and [ə]→[u:] in *lemon*, *salmon*, and *avocado* indicate that the Arabic vowel chosen is not only determined by the source phoneme, but also by the phonetic features of the surrounding vowels in the same word. As an important finding, this dimension of contextual conditionality does not refute al-Jawaliqi's (1969) framework but rather complements it with a layer of contextual rules necessary to accurately describe vowel arabization in the digital age.

The findings of this study align with previous studies. The identification of mechanisms for vocalic glide insertion and consonant lengthening strengthens the argument that modern standard Arabic phonotactic patterns are stable across domains and platforms (al-Athwary, 2017). This study also strengthens Abdulrazzaq & al-Ubaidy's (2023) findings, which mapped the adaptation of pure English vowels in Iraqi Arabic. Referring to the phonemes [i], [æ], and [ʌ], convergent patterns were identified, indicating that the rules of English-Arabic vowel adaptation are consistent across Arabic varieties (Abdulrazzaq & al-Ubaidy, 2023; al-Athwary, 2017). In contrast, this study shows a sharp difference from that of Fitriyah et al. (2023), which analyzed culinary arabization from a purely morphological perspective. The findings of this study prove that the phonological-vocalic dimension produces a distinct analytical pattern that cannot be reduced to morphological analysis (Fitriyah et al., 2023; Altohami, 2025). This difference in orientation actually strengthens the argument that culinary arabization is a multilevel phenomenon that requires complementary phonological and morphological approaches.

One of the most notable structural findings of this study is the discovery of a consistency hierarchy that directly correlates with the level of phonetic ambiguity of the

source phonemes. Phonemes with salient and unambiguous phonetic features—the high-front tense [i] and the round back [ʊ]—each yield only one Arabic realization without variation. This finding reflects obligatory phonemic convergence when the Arabic inventory provides only one compatible slot (Haugen, 1950; al-Athwary, 2017). In contrast, phonemes with ambiguous or neutral phonetic features—[ɪ] yield six realizations and [ə] yield four realizations. This finding indicates the greatest variation because the articulatory ambiguity of the source phonemes creates space for multiple competing Arabic equivalents (al-Athwary, 2017; al-Jarf, 2025). Between the two, phonemes with a moderate degree of ambiguity ([e], [ɛ], [æ], [a], [ʌ]) yield two realizations and form the middle layer in this hierarchy. This hierarchy has important practical implications. Culinary vocabulary containing ambiguous phonemes such as [ɪ] and [ə] requires explicit standardization by Arabic-language institutions or media editorial guidelines, because without such standards, variations in arabization will continue to proliferate on digital platforms, creating orthographic inconsistencies that could hinder communication.

The finding of inconsistent arabization in the corpus, where mango is arabized into two forms and smoothie in two different orthographic versions, is not simply an editorial anomaly. This finding reflects the fundamental nature of arabization on digital platforms, which occurs without a centralized normalization authority and moves faster than the standardization capacity of official language institutions (Hamdan & al-Salman, 2021; al-Shbiel, 2017). Unlike classical arabization mediated by *Majma' al-Lughah al-'Arabiyyah* in Cairo, Damascus, or Amman, arabization on sayidaty.net is decided by content editors working under the pressure of publication deadlines and reader accessibility demands, not by linguists concerned with system consistency (Muassomah, 2024; Hamdan & al-Salman, 2021). Consequently, platforms like sayidaty.net *de facto* function as decentralized language academies. The arabization decisions made by the editors become models adopted by millions of readers and are then difficult to change even if official language institutions issue different standards (Nasser, 2025; Muassomah, 2024; al-Shbiel, 2017). This finding underscores the urgency of digital platform-based arabization research as a distinct field of study that cannot be treated as a subdomain of traditional arabization studies.

At a broader typological level, the findings of this study offer an illuminating typological perspective on how languages with limited vowel inventories respond systematically and predictably to intensive contact with vowel-rich languages. Arabic, with only six vowel phonemes (/a/, /i/, /u/ in their short and long versions, respectively), is contrasted with English, which has 15–20 vowel phonemes depending on dialect, including tense, lax, central vowels, and various diphthongs (International Phonetic Association, 1999). This inventory imbalance, paradoxically, results in a more regular and predictable vowel arabization than would otherwise occur with only six available vowel slots. Arabic forces each English phoneme to be mapped to one of these slots, resulting in a modelable phonemic convergence (Haugen, 1950; al-Athwary, 2017). This explains the dominance of the vowel-lengthening rule, as it is the only mechanism Arabic has for distinguishing qualitatively different English phonemes (Zibin, 2019; International Phonetic Association, 1999; al-Athwary, 2017). Thus, the arabization of culinary vowels in sayidaty.net is not merely a lexicographic phenomenon confined to the culinary domain, but rather a microcosm of the universal principle of phonological adaptation that applies whenever a language with a limited vowel inventory comes into contact with a language with a rich vowel inventory under conditions of intense and asymmetrical contact.

CONCLUSION

This study confirms that the arabization of English culinary vocabulary in the *maṭbakh* section of sayidaty.net website results in 21 phonological adaptation patterns out of 112 instances involving nine English vowel phonemes: [i], [ɪ], [e], [ɛ], [æ], [a], [ə], [ʊ], and [ʌ]. Three findings merit particular attention. First, the systematic vowel lengthening rule is evident across phonemes, with 14 out of 21 patterns resulting in long Arabic realizations, making lengthening the default strategy of arabization on this platform. Second is the lexical stress-sensitivity rule, which determines whether to use a short or a long realization. Third is segmental conditionality in the adaptation of phonetically ambiguous phonemes such as [ɪ] and [ɛ], whereby the surrounding consonantal environment determines the direction of vowel mapping. Quantitatively, the phoneme [ə] is the most productive with 43 instances and four Arabic realizations, the phoneme [i] is the most consistent with a single pattern, and [ɪ] is the most variable with six different realizations. These findings show that the arabization of culinary vowels on sayidaty.net is not a random process but a regular phonological adaptation system that can be modeled based on al-Jawaliqi's principles, enriched by the dimension of contextual conditionality.

However, three limitations need to be acknowledged. First, the corpus is limited to a single section from a single platform, so generalizing the discovered rules to other Arabic digital platforms requires separate empirical verification. Second, the analysis focused solely on the vocalic dimension, while consonantal changes that also occur in arabization have not been studied. This makes the resulting phonemic arabization map not yet comprehensive. Third, the document observation method cannot capture the sociolinguistic dimension of production, namely, who makes arabization decisions on sayidaty.net and on what grounds. These limitations notwithstanding, further research is projected in four directions. First, replicate this study on other Arabic digital platforms, such as Al-Arabiya, Al-Jazeera, and various Arabic social media platforms, to test the generalizability of the discovered rules. Second, a longitudinal study to explore whether arabization patterns on sayidaty.net have shifted over time. Third, an extension of the analysis to the consonantal dimension to produce a comprehensive picture of phonemic arabization. Fourth, a comparative study of culinary arabization in modern standard Arabic and regional Arabic dialects to determine whether the rules of lengthening and stress sensitivity also apply across Arabic varieties.

AUTHORS' CONTRIBUTIONS

The first author designed the study, collected and analyzed the data, drafted the manuscript, and translated it. The second author provided guidance and direction throughout the research process and provided critical input on the study. The third and fourth authors contributed to linguistic verification, translation review, and the examination of Arabic lexical adaptation in the collected data, and also provided scholarly feedback on the interpretation of Arabic linguistic forms and terminology.

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