Transactions of the Philological Society

PhilSoc The Philological Society

Transactions of the Philological Society Volume 122:1 (2024) 1–20 doi: 10.1111/1467-968X.12287

AFFIX NOT CLITIC-BASED VOWEL SHORTENING IN MODERN ARABIC VARIETIES

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(Submitted: 14 December, 2022; Accepted: 16 January, 2024)

Abstract

Word formation in most languages is inextricably linked to a distinction between clitics and affixes. Although famous for its templatic morphological structure, Arabic also contains concatenative formatives some of whose status as clitics or affixes is controversial. It is well known that Arabic varieties exhibit a range of interacting shortening and lengthening processes. Some of the shortening processes have been linked to the clitic/affix distinction in the Arabic literature. In this paper, I discuss two vowel shortening processes, CSS-Morph and CSS-Phon, that are often conflated as the same Closed Syllable Shortening process. Based on evidence from 16 modern Arabic varieties, I show that these CSS processes are in fact two independent processes. While CSS-Morph is a phonological alternation within a morphophonological context, CSS-Phon is purely phonological. Neither provides evidence to classify any formative as a clitic or indeed differentiate between formatives as suffixes or clitics.

Die Wortbildung ist in den meisten Sprachen untrennbar mit der Unterscheidung zwischen Klitika und Affixen verbunden. Obwohl das Arabische für seine templatische morphologische Struktur bekannt ist, enthält es auch konkatenative Formative, deren Status als Klitika oder Affixe umstritten ist. Es ist bekannt, dass arabische Varietäten eine Reihe von interagierenden Kürzungs- und Dehnungsprozessen aufweisen. Einige der Kürzungen wurden in der arabischen Literatur mit der Klitikon/Affix-Unterscheidung in Verbindung gebracht. In diesem Beitrag diskutiere ich zwei Vokalkürzungen, CSS-MORPH und CSS-PHON, die oft als ein und derselbe Prozess der Kürzung von geschlossenen Silben zusammengefasst werden. Anhand von Belegen aus 16 modernen arabischen Varietäten zeige ich, dass es sich dabei tatsächlich um zwei unabhängige Prozesse handelt. Während CSS-MORPH eine phonologische Alternation in einem morphophonologischen Kontext ist, ist CSS-PHON rein phonologisch. Keiner der beiden Prozesse kann als Evidenz dienen für die Klassifizierung eines Formativs als Klitikon oder in der Tat für ihre Unterscheidung als Suffixe oder Klitika.

[German]

1. INTRODUCTION

Word formation in most languages is inextricably linked to a distinction between clitics and affixes.[1] Phonologically speaking, both are bound formatives[2] that attach to a host, but affixes attach to stems as in (1a), whereas clitics attach to words as in (1b) (Nespor & Vogel 1986; Lahiri & Plank 2022).

(1) Clitic and Suffix Attachment in English

	Stem: <fire>		[fai.ə]	'fire'
a.	Suffix: <fire-y>	→	[fai.ə.**r**i:]	'fiery'
b.	Clitic: <fire = is>	→	[fai.ə.**r**ɪz]	'fire is'

This distinction between affixes and clitics has consequences in both phonological and morphological domains. In phonology, this can lead to differences across the phonological system. In some English dialects, /r/ is deleted word-finally, but resyllabifies across suffix and clitic boundaries, not intonational boundaries, thus the difference in (2) between *beer if* (/r/ deleted) and *beer is* (/r/ present).

(2) English Resyllabification Depending on Phonological Boundaries
Get me a beer, if the beer is cold
gɛʔ mi ə (bɪə) ɪf ə (bɪə **r**ɪz) koʊld

This variation in where /r/ surfaces is not a matter of articulation, but of phonological domains. /r/ syllabification in Standard German is not the same as in English—rather, /r/ syllabification only occurs across suffix boundaries, not clitic boundaries, so resyllabification occurs in (3a) but not (3b) (Wheeldon & Lahiri 1997; Lahiri & Plank 2010).

(3) German Resyllabification with Suffixes
Not Clitics

a.	Suffix:	Bier-e	→ [bɪe.**r**e]
		beer-PL	
		'beers'	
b.	Clitic:	Bier = ist	→ [bɪe**r**. ɪst]
		beer = be.PRES.3SG	
		'beer is'	

The processes in these domains can lead to the formation of new words via encliticisation, such as the German *zur* which has formed from *zu der N* > *zur N* 'to the N' (Lahiri & Plank 2010).

Although famous for its templatic morphological structure, Arabic[3] also contains concatenative formatives some of whose status as clitics or affixes is controversial. Of particular interest to this paper are the subject marker, direct object, indirect object, possessive, dative /-*l*-/ and negation /-*ʃ*/ formatives. In the Cairene example in (4), the direct

[1] It is important to acknowledge that linguistics still lacks universally applicable and uncontroversial definitions of 'words', 'stems', 'affixes' etc (Spencer & Luis 2012). Across different domains, a given part of speech can be categorised in different ways—for example, for Swedish the syntax literature labels the determiners as suffixes whereas the phonological literature argues they are clitics (Lahiri et al. 2005). While 'clitic' can cover a wide range of behaviours and functions, phonological cliticisation is a much more defined process—and this phonological status is the focus of this paper, not the syntactic or morphological status.

[2] Formative is used as a theory-neutral alternative to 'morpheme'.

[3] Arabic is a non–concatenative Central Semitic language with around 371.4 million native speakers (WorldData.Info, n.d.) across North Africa, the Middle East, and expatriate communities around the world from Australia to Venezuela.

object, dative, indirect object[4] and negation have exponents linearly concatenated to the verb. Note here and throughout epenthetic vowels are underlined.[5]

(4) Cairene Formative Concatenation
ma katab-∅-hum-lu-kum-ʃ
NEG write.PFV-SBJ-OBJ.3PL-DAT-OBJ.2PL-NEG
'He didn't write them for you' (Cairene, Broselow 1976: 186)

In both phonological and morphological research, the Arabic subject marker attached to the verb has been classified as an affix, whereas the direct object, indirect object, possessive, dative /*-l-*/ and negation /*-ʃ*/ have been classified as clitics (Kenstowicz & Kisseberth 1979, Abu-Salim 1982, Glover 1988, Al Bekai 2019 *inter alia*). This argument is based on which formatives trigger quantity alternations in the hollow verb class (further discussed in Section 2). For example, the long vowel in (5a) is shortened and raised in the presence of the subject marker /*-na*/ in (5b), but not the homophonous object marker /*-na*/ in (5c).

(5) Palestinian Vowel Alternation triggered by Subject not Object
(data from Abu-Salim 1982: 150–156)

	a.	b.	c.	
Underlying form	/ʃ**a**:f-∅/	/ʃ**a**:f-na/	/ʃ**a**:f-∅/	
CSS-MORPH		ʃuf-na		
			ʃ**a**:f-∅-na	+DIRECT OBJECT
Surface form	ʃ**a**:f	ʃufna	ʃ**a**:fna	
Meaning	*He saw*	*We saw*	*He saw us*	

That the direct object marker /*-na*/ in (5c) does not trigger this morphophonological alternation is used as evidence that the direct object is a clitic by Kenstowicz & Kisseberth (1979) and Abu-Salim (1982) among others. Although this analysis is very elegant, it overlooks certain factors. A closer investigation of the prosody and phonology of these dialects suggests that the proposed clitic status may not be the right one.

It is well known that Arabic varieties exhibit a range of interacting shortening and lengthening processes. Some of the shortening processes have been linked to the clitic/affix distinction in the Arabic literature. I argue they have been misanalysed, and that they are not conditioned by the clitic/affix distinction. In this paper, I discuss two vowel shortening processes that are often conflated as the same process and show that these are in fact two independent processes, one phonological and one morphological.[6] As a result of this, I posit that the formatives often claimed to be clitics are in fact affixes.

For this paper I draw on data from sixteen modern colloquial Arabic varieties spoken across North Africa and the Middle East. For each of these varieties, I have considered six formatives, encoding subject, direct object, indirect object, possessive, the dative /*-l-*/, and the negation /*-ʃ*/. These formatives have been chosen as they are the only formatives that attach at the word level that interact with these quantity and quality alternations.[7]

Examples of these formatives that condition Closed Syllable Shortening (CSS) are given in Table 1. Note that the subject marker has different exponents from the other pronominal formatives (direct object, indirect object, possessive). Each of these distinguish number

[4] Note that the same set of exponents are used for both direct and indirect object functions.
[5] Some transcriptions are not strict IPA, but broad phonemic.
[6] Note that in this paper I assume a rule rather than constraint-based phonology.
[7] That is, I do not consider proclitics that attach to the start of the word. At most, in some varieties these may affect syncope and epenthesis, but they do not affect the vowel shortening processes discussed here.

TABLE 1. Morphological formatives that condition CSS

Function	Example	Previous analyses
Subject marker	ʤib-**t** bring.PFV-SBJ.1SG 'I brought' (Wadi Ramm, AlMashaqba 2015: 208)	Affix
Direct Object	ʃri-tu-**hum** buy.PFV-SBJ.2PL-OBJ.3PL 'You (pl.) bought them' (Tunisian, Maamouri 1967: 149)	Clitic
Indirect object	ka:tib-l-**i** writing.PTCP-DAT-OBJ.1SG 'his writing to me' (Lebanese, Haddad 1984: 165)	
Possessive	qandi:l-**ak** lantern-POSS.2SG.M 'your (m.s.) lantern' (Muscat, Glover 1988: 60)	
Dative	raħ-Ø-**l**a-na go.PFV-SBJ.3SG.M-DAT-OBJ.3SG.F 'he went to her' (Makkan, Kabrah 2004: 80)	Clitic
Negation	ʤa:b-Ø-**ʃ** bring.PFV-SBJ.3SG.M-NEG 'he didn't bring' (Palestinian, Abu Salim 1982: 149)	Clitic

(singular and plural) and person (first, second, third), with gender (masculine and feminine) distinguished in the second and third person singular forms. In some varieties, gender is distinguished in the third person plural forms as well. The set of subject marker exponents differs between the imperfect and perfect tenses, whereas the other pronominal formatives do not. The dative has the exponent /*-l-*/ across varieties, though in some varieties it can be geminated in some positions, and is often found with an epenthetic vowel. Negation is expressed sometimes by just the negation marker /*-ʃ*/, sometimes just the proclitic /*ma*/, and sometimes both. This paper is only interested in the post-predicate negation marker /*-ʃ*/ as this is the only form that interacts with vowel length. The direct object, indirect object and possessive use the same set of exponents[8] (distinguished by person and number), so could be considered the same formative playing a range of syntactic roles.[9] For clarity, however, in this paper, the formatives will be referred to separately based on their function, rather than subsuming all under the same label.

The structure of this paper is as follows. In Section 2, I distinguish between two vowel shortening processes which have been conflated in the Arabic phonological literature, that I label CSS-MORPH and CSS-PHON. In Section 3, I explore CSS-MORPH, demonstrating that it is a paradigmatic morphophonological alternation found across modern Arabic varieties. In Section 4, I explore CSS-PHON, and argue that it is not conditioned by the morphological status of the formatives that trigger it, but rather by the phonological structures that the concatenation of these formatives create. In Section 5, I conclude the paper, arguing that not only are these processes distinct, but neither can be used as evidence for analysing any of the formatives at hand as clitics rather than affixes.

[8] While for the second and third person, the same exponent is used for all these roles, there is suppletion in the first person singular form. Usually, /*-i*/ is used to mark the possessive and indirect object roles, whereas /*-ni*/ marks the direct object role.

[9] This formative can also attach to prepositions, auxiliaries and complementisers (Broselow 1976: 81). However, these contexts are not discussed here as there is no vowel shortening in these cases.

2. MORPHOPHONOLOGICAL ALTERNATIONS IN HOLLOW VERBS

In this section, I explore the two vowel shortening processes that have been conflated in Arabic phonological literature. I argue that so-called 'Closed Syllable Shortening' is in fact two separate vowel shortening processes. One of these processes has been used as evidence that some formatives are clitics. However, I demonstrate here that in fact neither shortening process provides evidence for clitic status.

The first process, which I will label as CSS-MORPH, affects a particular set of past tense verbs. Regular verbs in Arabic can be analysed as containing three root consonants, so in the verb *katab* ('he wrote') the three root consonants are | *k-t-b* |. There is a set of verbs where the second root consonant is a semivowel, and this surfaces as a long vowel, so in the verb *qa:l* ('he said') the root is | *q-w-l* |. These verbs are known as 'hollow verbs'. In hollow verbs inflected for the first and second person subject, the long vowel is shortened and undergoes (lexically conditioned) vowel raising.[10] A selection of these verbs is included in (6) below, which shows the verb root, the long stem vowel present in a third person form of the verb, and the shortened and raised stem vowel in a non-third person form of the verb that has undergone CSS-MORPH.

(6) Morphophonological Alternations in Cairene Arabic Hollow Verbs (data from Watson 2002)

Root	| ʃ-**w**-f |	| ʔ-**w**-l |	| ʃ-**y**-l |
3rd person: no shortening	ʃ**a**:f-it	ʔ**a:**l-u	ʃ**a**:l-∅
Meaning	*She saw*	*They said*	*He carried*
Non-3rd person: CSS-MORPH	ʃ**u**f-t	ʔ**u**l-na	ʃ**i**l-t
Meaning	*I saw*	*We said*	*I/you (m.s) carried*

The examples in (6) demonstrate that in the third person past tense forms of this verb class, the middle radical surfaces as a long /*a*/. However, in the first and second person, the shortened vowel is raised; which vowel it raises to is lexically conditioned. The raising can partially be predicted on the basis of the root consonant, so we see with | *ʃ-w-f* | the *w* raises to [*u*], and with | *z-j-d* | the *j* raises to [*i*]. However, some verbs display more idiosyncratic behaviour, such as | *n-w-m* | where *w* raises to [*i*] not the expected [*u*].

This description assumes that there is a single underlying stem form for the past tense hollow verbs and that this underlying form is identical with the third singular masculine form, that is, the form with a long /*a:*/ vowel (e.g. *qa:l*). There is no reason to assume that this is the case over the alternative—that the underlying form has a short, raised vowel (e.g. *qul*-) which is replaced with /*a:*/ if followed by a non-consonant-initial subject inflection. Exactly how this alternation in the stem form of past tense hollow verbs is analysed is not important for the argument being made here. What matters is that this particular alternation is distinct from the phonological shortening process labelled CSS-PHON here.

Across all sixteen varieties of Arabic examined here, CSS-MORPH with vowel raising is triggered by the subject marker but not the other formatives (direct object, indirect object, possessive, dative or negation). Similar to the Palestinian example shown in (5), we see in (7a) that in Rufaidah the third person masculine form of the verb has a long vowel. This long

[10] Note that in derived verb forms, there is shortening but no vowel raising: cf. Cairene *itfa:l* 'he was carried', *itfal-t* 'I was/you (m.s.) were carried'; Sˤanʕa:ni: *istaʕa:r* 'he borrowed', *istaʕar-t* 'I/you (m.s.) borrowed' (data from Watson 2002: 151).

vowel undergoes CSS-MORPH with raising in (7b) in the presence of the first person singular subject marker, but CSS-MORPH is not triggered by the first person plural direct object marker in (7c).

(7) Rufaidah Vowel Alternation triggered by Subject not Object (data from Prochazka Jr 1988: 78, 164)

	a.	b.	c.	
Underlying Form	l**a**:m-∅	/l**a**:m-t/	l**a**:m-∅	
CSS-MORPH		l**u**m-t		
			l**a**:m-∅-na	+ DIRECT OBJECT
Surface Form	l**a**:m	l**u**mt	l**a**:mna	
Meaning	*He blamed*	*I blamed*	*He blamed us*	

This shortening process has been referred to as Closed Syllable Shortening (CSS). It has been used as evidence that the subject marker is an affix (/-∅/ in 7a and 7c, /-*t*/ in 6b) and the object (/-*na*/ in 7c), dative, and post-predicate negation are clitics since they do not trigger this process (Kenstowicz & Kisseberth 1979; Abu-Salim 1982; Glover 1988; Al-Bekai 2019 *inter alia*). However, a closer look at this process shows that this analysis does not hold and is insufficient evidence to classify these formatives (direct object, indirect object, possessive, dative or negation) as clitics.

As stated above, Closed Syllable Shortening in the literature refers to both the morphophonological subject vowel length alternation in hollow verbs shown in (5–7) above *as well as* a phonological shortening process that occurs when a CV:C syllable that is not permitted by the variety's syllable structure restrictions is created through morphological means, and undergoes shortening to CVC but without any vowel quality alternations (Abu-Salim 1982; Abu-Mansour 1992; Younes 1995). This second phonological shortening process, which I will label CSS-PHON, can be seen in (8) below, where the long vowel in *be:t* 'house' is shortened when followed by the possessive suffix in (8b).

(8) Cairene Negation CSS-PHON (data from Broselow 1976: 68)

	a.	b.	
Underlying Form	/b**e**:t ħala/	/b**e**:t/	
		b**e**:t-ha	+POSSESSIVE
CSS-PHON		b**e**t-ha	
Surface Form	b**e**:t ħala	b**e**t-ha	
Meaning	*Hala's house*	*Her house*	

Both CSS-MORPH and CSS-PHON shorten long vowels in the presence of certain formatives. In the literature, the context of these rules is referred to as affix based versus clitic based.

For Abu-Mansour (1992) and Kabrah (2004), the two types are the same shortening process, with morpholexical vowel quality alternations, Broselow (2001) however, recognised the oddness of closed syllable shortening in hollow verbs occurring in varieties that permit other word-medial CV:C syllables—but did not reanalyse it to solve this peculiarity. In this paper, I argue that these are indeed distinct processes with different conditioning factors, neither of which suggest that these formatives are clitics.

CSS-MORPH is a paradigmatic morphophonological alternation with lexically conditioned vowel quality changes. It is not triggered by the non-subject formatives in question—but

failure to undergo an alternation only found in the subject paradigm is insufficient evidence for clitic status. CSS-PHON is a phonological process where long vowels are shortened in closed syllables where they are not permitted by the phonology. Here it would be reasonable to expect that the different domains of affixes and clitics would be reflected in whether the formative triggers this process—however, all the formatives in question can trigger the shortening if they fit the syllabic conditions. Therefore, CSS-PHON also does not suggest that they are clitics.

That CSS-PHON and CSS-MORPH are distinct processes is illustrated in the following set of examples in (9). These show the same verb in Palestinian and Cairene Arabic. In the third person masculine singular form of the verb ***ʃa:f*** 'see' shown in (9a) and (9d), there is a long vowel. This is raised and shortened in the first person plural in both varieties, following CSS-MORPH, as shown in (9b) and (9e). When the third person masculine singular form is followed by the first person plural direct object marker as in (9c) and (9f), shortening only occurs in Cairene, as this variety does not permit word internal CV:C syllables. Therefore, only (9f) has a short vowel, whereas (9c) retains the long vowel. The cells where a difference can be observed have been highlighted in grey. Notably, the short vowel in Cairene is not raised. This reflects the fact that (9f) is CSS-PHON, a separate process from CSS-MORPH, that only occurs if the *phonological* conditions are met.

(9) Morphophonological Alternations and Phonological Shortening in Palestinian and Cairene Arabic (data from Watson 2002: 149)

	a.	b.	c.	d.	e.	f.	
	Palestinian			Cairene			
Underlying Form	/ʃa:f-∅/	/ʃa:f-na/	/ʃa:f-∅/	/ʃa:f-∅/	/ʃa:f-na/	/ʃa:f-∅/	
CSS-MORPH		ʃuf-na			ʃuf-na		
			ʃa:f-na			ʃa:f-na	+DIRECT OBJECT
CSS-PHON						ʃaf-na	
Surface Form	ʃa:f	ʃufna	ʃa:fna	ʃa:f	ʃufna	ʃafna	
Meaning	*He saw*	*We saw*	*He saw us*	*He saw*	*We saw*	*He saw us*	

In the following, I will further demonstrate that CSS-MORPH and CSS-PHON are different processes on the basis of evidence from 16 modern Arabic varieties spoken across North Africa and the Middle East. In Section 3, I will explore CSS-MORPH, then in Section 4 I will demonstrate the distribution of CSS-PHON in the environment of different suffixes.

3. CSS-MORPH

CSS-MORPH is the morphophonological alternation in vowel length and vowel quality in hollow verbs. In all sixteen Arabic dialects of this survey, this verb class displays long vowels in the third person forms and raised short vowels in the first and second person forms. The quantity alternation occurs regardless of the presence or absence of restrictions on word-medial CV:C syllables in each variety and is only found in the paradigm with subject markers.

CSS-MORPH occurs in all varieties explored here regardless of any syllable structure restrictions, as illustrated by the following example from Wadi Ramm where the third person

form of the verb has a long vowel in (10a), but the vowel length and quality alternation occurs with the first person subject in (10b), although CV:CC syllables are permitted elsewhere as shown in (10c).

(10) Wadi Ramm CSS-Morph Occurs Although CV:CC Syllables Permitted (data from Al Mashaqba 2015: 208, 119)

	a.	b.	c.	
Underlying Form	/ʤa:b-∅/	/ʤa:b-t/	/ʤa:b-∅/	
CSS-Morph		ʤib-t		
			ʤa:b-∅-l	+Dative
			ʤa:b-∅-l-.hum	+Indirect Object
Surface Form	ʤ**a**:b	ʤ**i**bt	ʤ**a**:blhum	
Meaning	*He brought*	*I brought*	*He brought to them*	

Since medial CV:CC syllables are permitted in Wadi Ramm, the shortening in the first and second person forms of hollow verbs cannot be caused by phonological restrictions on syllable structure. Rather, it is due to the morphological paradigm.

A similar set is found in Tunisian, where the long vowel in (11a) is shortened and raised with the first person plural subject marker (11b); however, a long version of this raised vowel can exist with the homophonous possessive marker in (11c).

(11) Tunisian CSS-Morph Occurs Despite CV:C Syllables Permitted (data from Maamouri 1967: 51, 5)

	a.	b.	c.	
Underlying Form	/ra:ħ-∅/	/ra:ħ-na/	/ru:ħ/ ru:ħ-na	+ Possessive
CSS-Morph		ruħ-na		
Surface Form	r**a**:ħ	r**u**ħna	r**u**:ħna	
Meaning	*He went*	*We went*	*Our soul*	

As such, CSS-Morph does not seem to be a phonologically driven process—rather, it is a *morphophonological* one. That is, this is a morphologically conditioned process that triggers a phonological alternation. CSS-Morph is only triggered by subject markers in this verb class. As such, we find minimal pairs as in (12a) versus (12b) (repeating example 5 above).

(12) Palestinian Vowel Alternation triggered by Subject not Object (data from Abu-Salim 1982: 150–156)

	a.	b.	
Underlying Form	/ʃ**a**:f-∅/	/ʃ**a**:f-na/	
CSS-Morph		ʃuf-na	
	ʃ**a**:f-∅-na		+Direct Object
Surface Form	ʃ**a**:fna	ʃ**u**fna	
Meaning	*He saw us*	*We saw*	

The fact that non-subject markers do not trigger the vowel length alternation is not because of a difference in clitic status. Rather, here vowel length is marking differences within a morphological paradigm. Morphological vowel length is not an uncommon phenomenon and can be seen for example in the traditional Germanic Ablaut classes in verbs, best exemplified

in the older Germanic languages. Germanic distinguished four inflectional categories in their verbs (see 13). Each of the seven verb classes was distinguished by vowel quantity and syllable weight in Gothic, Old English and Old High German. In each class, the INFINITIVE, PAST SINGULAR, PAST PLURAL and PAST PARTICIPLE are distinguished by a combination of vowel quality and vowel length. Disregarding the actual vowel, the length of the markers is shown in (13).

(13) Abstract Vowel length differences in Ablaut Classes in Gothic Old English and Old High German (adapted from Lahiri 2003: 93)

	PAST PLURAL	PAST PARTICIPLE	INFINITIVE	PAST SINGULAR
Class I	SHORT	LONG	SHORT	LONG
Class II	SHORT	LONG	SHORT	LONG
Class III	SHORT	SHORT	SHORT	SHORT
Class IV	LONG	LONG	LONG	SHORT
Class V	LONG	SHORT	SHORT	SHORT
Class VI	LONG	SHORT	SHORT	LONG

These paradigmatic differences are illustrated in (14) and (15) which exemplify verbs in Class IV and Class VI, respectively.

(14) Verb 'bear' in Ablaut Class IV in Gothic, Old English and Old High German (adapted from Lahiri 2003: 93)

	INFINITIVE	PAST SINGULAR	PAST PLURAL	PAST PARTICIPLE
Vowel Length	V:	V	V:	V:
Gothic	baíran	bar	bērun	baúrans
OE	beran	bær	bǣron	boren
OHG	bëran	bar	bārun	giboran

(15) Verb 'go' in Ablaut Class VI in Gothic, Old English and Old High German (adapted from Lahiri 2003: 93)

	INFINITIVE	PAST SINGULAR	PAST PLURAL	PAST PARTICIPLE
Vowel Length	V	V:	V:	V
Gothic	faran	fōr	fōrun	farans
OE	faran	fōr	fōron	færen
OHG	faran	fuor	fuorun	gifaran

Similarly in Nuer (Western Nilotic), noun classes are characterised by vowel length alternations in different parts of the paradigm, in combination with vowel quality and tone in some cases. In the following, the nominative singular in (16a) and nominative plural in (16b) are only distinguished by vowel length; similarly, the nominate singular (16c) and genitive singular in (16d) are only distinguished by vowel length. Note that the transcription here is the phonetic script from Monich (2017) rather than strict IPA, and that Nuer is argued to have three degrees of vowel length as shown in (16b–c).

(16) Nuer Morphological Vowel Length (data from Monich 2017: 4)

	Surface form	Meaning	Case	Vowel Length
a.	cʌ̰̀l	Nile Perch	nominative singular	Short
b.	cʌ̰̀:l	Nile Perch	nominative plural	Overlong
c.	lîɛ::r	pitcher	nominative singular	Overlong
d.	lîɛr	pitcher	genitive singular	Short

CSS-Morph produces paradigmatic vowel alternations in Arabic hollow verbs. Morphological vowel alternation is not unprecedented cross-linguistically.

In the next section, I will demonstrate that CSS-Phon is a phonological process, sensitive to the presence or absence of restrictions on CV:C syllables, and as such is distinct from CSS-Morph.

4. CSS-PHON

CSS-Phon is a phonological process where morphologically derived CV:C syllables that are not permitted by the phonology undergo shortening. Note that in many Arabic varieties, CV:C syllables are only permitted word-finally. If, following morphological operations, such a syllable is word-medial, it is repaired either by shortening or vowel epenthesis.

The phonological nature of CSS-Phon can be seen in (17) below in Makkan, where the long vowel in *maktu:b* 'destined' in (17a) is shortened when followed by the dative in (17b), but not the feminine marker in (17c). However, it is not that the particular formatives do or do not trigger this process—rather, it is the syllable structures that affixation creates. Underlyingly, *maktu:b* has a final CV:C syllable. This is permissible word-finally in Makkan. When a vowel-initial suffix is attached as in (17c), the CV:C is resyllabified, with its coda becoming the onset of the next syllable. This is permitted, so no shortening is required. However, when a consonant initial suffix is added as in (17b), the word-final CV:C syllable becomes word-*medial*. Word-medial CV:C syllables are not permitted by Makkan phonology, so CSS-Phon applies in order to repair the illicit structure.

(17) Makkan Long Vowel Shortening (data from Kabrah 2004: 80)

	a.	b.	c.	
Underlying Form	/maktu:b/	/maktu:b/	/maktu:b/	
			maktu:bat	+Feminine
		maktu:b-l	maktu:bat-l	+Dative
CSS-Phon		maktubl		
		maktubl-u	maktu:batl-u	+Indirect Object
Surface Form	makt**u**:b	makt**u**blu	makt**u**:batlu	
Meaning	*It was destined*	*It was destined for him*	*She was destined for him*	

CSS-Phon can be triggered by any of the formatives in question *if* the underlying syllable structure violates a variety-specific restriction on CV:C syllables. Notably, it is *not* accompanied by the lexically determined vowel raising that is found in CSS-Morph. Table 2 summarises the morphological context of CSS-Phon across Modern Arabic varieties.

TABLE 2. CSS-PHON across Arabic varieties and concatenative formatives.

Variety	Direct object	Dative + Indirect object	Negation	Possessive
Baghdad Iraqi	N	N	n/a	N
Cairene	Y	Y	Y	Y
Ha:yil Saudi Arabia	N	N	–	N
Lebanese		–	–	
Libyan Tripoli		N	N	
Makkan Saudi Arabia		Y	n/a	
Moroccan Casablanca		–	–	
Muscat Omani		N	n/a	
Nabeul Tunisian	R	R	–	R
Oran Algerian	N	–	Y	N
Palestinian		Y	O	
Qatari		N	n/a	
Rufaidah Saudi Arabia			–	
Rwaili Saudi Arabia		N	–	
Sˤanʕa:ni:		Y	O	
Wadi Ramm Jordanian		N	n/a	

Key: Y = Yes, N = No, R = Restricted Contexts, O = Optional, – = No Data Available, n/a = Prefixal Negation Only.

However, as I shall demonstrate below, these particular formatives do not trigger CSS-PHON as a *morphophonological* process. Rather, the concatenation of the formatives creates syllable structures which may or may not be tolerated by the *phonological* grammar. Because the varieties differ in the well-documented tolerance of the phonological grammar for particular syllabic environments, we observe different surface patterns.

In Table 2, 'Y' indicates that CSS-PHON does occur in conjunction with this formative; 'N' indicates that it does not; 'O' indicates the application of CSS-PHON is optional in this context and 'R' indicates that CSS-PHON does occur in conjunction with this formative but that other conditions exist on its application. To aid the reader, the 'Y', 'R', and 'O' cells have been highlighted in grey. For some of the varieties explored here, there was no data available to indicate whether or not CSS-PHON occurs with certain formatives, thus these cases are marked '–', and for some varieties negation is marked prefixally rather than suffixally so would not trigger CSS-PHON in any case.[11]

The patterns in Table 2 show that CSS-PHON occurs in many morphological contexts, but there is also dialectal variation in where exactly it is found. Notably, only in Cairene Arabic do all these formatives trigger CSS-PHON; in the rest it varies across the formatives. The reader should note that while these varieties differ in which formatives CSS-PHON appears with, all undergo CSS-MORPH in the subject paradigm of hollow verbs without exception (see start of Section 2 above).

The differences in application of CSS-PHON across varieties do not reflect differences in the morphological status of these formatives. Rather, they reflect the different tolerances of particular syllable shapes word-medially versus word-finally. It is well known that Arabic varieties differ in terms of whether they permit word-medial CV:C syllables or word-final

[11] Data Sources: Baghdad Iraqi—Majdi 1988; Cairene—Watson 2002, Broselow 1976; Ha:yil Saudi Arabia—Prochazka Jr 1988; Lebanese—Haddad 1984; Libyan Tripoli—Yoda 2005; Makkan Saudi Arabia—Kabrah 2004; Moroccan Casablanca—Boudlal 2001; Muscat Omani—Glover 1988; Nabeul Tunisian—Maamouri 1967; Oran Algerian—Bouhadiba 1988; Palestinian—Abu-Salim 1982; Qatari—Al-Sulaiti 1993; Rufaidah Saudi Arabia—Prochazka Jr 1988; Rwaili Saudi Arabia—Prochazka Jr 1988; Sˤanʕa:ni:—Watson 2002; Wadi Ramm Jordanian—Mashaqba & Mohammad 2015.

TABLE 3. Permitted syllables medially and finally across modern Arabic varieties.

Variety	Word-medial syllable permitted				Word-final syllable permitted		
	CVCC	CV:C	CV:CC	CVC:	CVCC	CV:C	CVC:
Baghdad Iraqi	N	Y	N		Y	Y	Y
Cairene	N	N	N	N	Y	Y	Y
Ha:yil Saudi Arabia	Y	Y	N	Y	Y	Y	Y
Lebanese	S	Y	N	Y	S	Y	Y
Libyan Tripoli	Y	–	N	Y	Y	Y	Y
Makkan Saudi Arabia	N	S	N	N	Y	Y	Y
Moroccan Casablanca	S	–	N	Y	S	Y	Y
Muscat Omani	S	Y	Y	Y	S	Y	Y
Nabeul Tunisian	Y	Y	N	Y	Y	Y	Y
Oran Algerian	S	Y	N	Y	Y	Y	Y
Palestinian	S	Y	N	Y	S	Y	Y
Qatari	N	Y	N	N	Y	Y	Y
Rufaidah Saudi Arabia	Y	Y	N	Y	Y	Y	Y
Rwaili Saudi Arabia	Y	Y	N	Y	Y	Y	Y
Sˤanʕa:ni:	S	Y	N	Y	Y	Y	Y
Wadi Ramm Jordanian	Y	Y	Y	Y	S	Y	Y

Key: Y = Permitted, N = Not Permitted, S = Permitted Sometimes.

CVCC syllables (Kiparsky 2003; Watson 2007). There is in fact wide variation in the types of syllables permitted across Arabic varieties. Table 3 summarises whether particular syllable shapes are permitted word-medially or word-finally. To aid the reader, the 'N' (No) and 'S' (sometimes) cells have been highlighted in grey. This table is based on earlier research summarised in Lindsay-Smith (2021). Some of the cases where a syllable shape is not permitted word-medially are exemplified in the discussion of the application of CSS-PHON below. However, for more detailed evidence of which syllable types are permitted including the extra phonological conditions for some types, the reader is directed to Lindsay-Smith (2021: Chapter 2).[12]

Table 3 shows that modern Arabic varieties have a much greater tolerance for larger syllables word-finally rather than word-medially. When affixation pushes a large word-final syllable into the word-medial position, assorted repair mechanisms including CSS-PHON apply. It is the differences in tolerance of these syllables and choice of repair mechanism that creates the surface variation.

Shortening in certain morphological contexts has been used as evidence that these formatives are clitics, and that the clitic status is triggering CSS-PHON. In what follows, I demonstrate that this shortening is phonologically conditioned *solely on the basis of syllable structure requirements*, independent of any question of clitic or suffix status. To do so, I take each formative in turn below, consider the varieties in which CSS-PHON is found in conjunction with that formative, and demonstrate that the conditioning factor is the syllable structure. This phonological conditioning explains why CSS-PHON does not occur with every formative—because they do not all create the phonological context required—and why

[12] Data Sources: Baghdad Iraqi—Majdi 1988; Cairene—Watson 2002, Broselow 1976; Ha:yil Saudi Arabia—Prochazka Jr 1988; Lebanese—Haddad 1984; Libyan Tripoli—Yoda 2005; Makkan Saudi Arabia—Kabrah 2004; Moroccan Casablanca—Boudlal 2001; Muscat Omani—Glover 1988; Nabeul Tunisian—Maamouri 1967; Oran Algerian—Bouhadiba 1988; Palestinian—Abu-Salim 1982; Qatari—Al-Sulaiti 1993; Rufaidah Saudi Arabia—Prochazka Jr 1988; Rwaili Saudi Arabia—Prochazka Jr 1988; Sˤanʕa:ni:—Watson 2002; Wadi Ramm Jordanian—Mashaqba & Mohammad 2015.

varieties differ in their application of shortening—because they differ in the types of syllable structures they permit.

4.1. Direct object

First, we explore the cases where CSS-PHON occurs in the morphological context of the direct object formative. In each case, CSS-PHON occurs because an illicit syllable has been created through suffixation—thus it is a matter of syllables tolerated by the phonology, not the morphological status of a particular formative, that conditions this process.

CSS-PHON only occurs after the direct object in Cairene, and in Nabeul Tunisian if it would shorten an unstressed long vowel. Cairene does not permit any word-medial CV:C syllables. When the subject marker is added in (18b), it undergoes CSS-MORPH with vowel raising. When the object marker is added in (18c), the CV:C syllable is word medial so not permitted. Therefore, it undergoes CSS-PHON.

(18) Cairene CSS-PHON vs CSS-MORPH (data from Watson 2002: 149)

	a.	b.	c.	
Underlying Form	/ʃ**a**:f-∅/	/ʃ**a**:f-na/	/ʃ**a**:f-∅/	
CSS-MORPH		ʃuf-na		
			ʃ**a**:f-∅-na	+DIRECT OBJECT
CSS-PHON			ʃ**a**f-∅-na	
Surface Form	ʃ**a**:f	ʃufna	ʃ**a**fna	
Meaning	*He saw*	*We saw*	*He saw us*	

Nabeul Tunisian does not permit unstressed long vowels, so long vowels can persist after adding the possessive as in (19a–b), but if the addition leaves the long vowel unstressed this shortens as in (19d) compared to (19c)—though notably (as we would expect for CSS-PHON) without any vowel raising. Note that the verb in (19c–d) is not a hollow verb like those discussed above, but a 'weak' verb where the third radical is a semivowel—and in which long vowels do surface in the non-third person forms.

(19) Tunisian Unstressed Long Vowel Shortening (data from Maamouri 1967: 159)

	a.	b.	c.	d.	
Underlying Form	/x**a**:l/	/x**a**:l/ x**a**:l-ik	/ʃ**ri**:-tu/	/ʃ**ri**:-tu/ ʃ**ri**:-tu-hum	+POSSESSIVE +DIRECT OBJECT
Stress Assignment	ˈx**a**:l	ˈx**a**:l-ik	ˈʃ**ri**:-tu	ʃ**ri**:-ˈtu:-hum	
Unstressed Long Vowel Shortening				ʃ**ri**-ˈtu:-hum	
Surface Form	ˈx**a**:l	ˈx**a**:lik	ˈʃ**ri**:tu	ʃ**ri**ˈtuhum	
Meaning	*Uncle*	*Your (sg) uncle*	*You (pl) bought*	*You (pl) bought them*	

In sum, shortening occurs with the object marker only under certain conditions in Tunisian, due to the restriction on unstressed long vowels. What conditions this shortening is not what type of formative is added, but the requirement to avoid unstressed long vowels. Thus, this particular vowel shortening process is distinct from the motivations of CSS-MORPH.

4.2. Dative

We next turn to the cases where the shortening occurs in the morphological context of the dative formative. In all varieties, the dative is a consonant initial suffix /-*l*-/. If this dative suffix attaches to a stem that ends in CV:C, this superheavy syllable will become word-medial. If the variety in question does not permit CV:CC word-medially, either CSS-PHON will shorten the long vowel, or epenthesis will break up the syllable to repair it. Thus, the application of CSS-PHON is *phonologically* not morphologically conditioned.

Shortening occurs with the dative plus indirect object in five of the varieties explored here: Cairene, Sˤanʕa:ni:, Makkan, Tunisian and Palestinian.

Cairene does not permit any word internal CV:C syllables, so the shortening with the dative is a logical consequence of this restriction, as shown in (20).[13]

(20) Cairene Dative Long Vowel Shortening (data from Watson 2002: 183)

Underlying Form	/ram-e:t/	
	ram-e:t-l	+DATIVE
CSS-PHON	ram-it-l	
	ram-it-l-ha	+INDIRECT OBJECT
Epenthesis	ram-it-la-ha	
Surface Form	ram**i**tlaha	
Meaning	*'I/you (m.s.) threw to her'*	

Sˤanʕa:ni: shortens long vowels with the dative, as shown in (21). While CV:C syllables are permitted word-medially, CV:CC are not, and therefore, shortening of the long vowel is required. Thus this is a phonological conditioned process.

(21) Sˤanʕa:ni: Dative Long Vowel Shortening (data from Watson 2002: 67)

	a.	b.	
Underlying Form	/ji-bi:ʕ/	/ji-bi:ʕ/	
		ji-bi:ʕ-l	+DATIVE
CSS-PHON		ji-biʕ-l	
		ji-biʕ-l-k	+INDIRECT OBJECT
Epenthesis		ji-biʕ-l-ak	
Surface Form	jib**i**:ʕ	jib**i**ʕlak	
Meaning	*He sells*	*He sells to you (m.s.)*	

Makkan does not permit word-medial CV:C syllables.[14] Therefore, it does shorten long vowels with the dative, whether in verbs or participles, as shown in (22a) and (22b), respectively.

[13] There is a shift in vowel quality between *rame:t* 'I threw' and *ramitlaha* 'I/you (m.s.) threw to her'. This is not linked to any of the processes discussed in this article; rather the mid vowel *e* only exists as a long vowel in modern Cairene Arabic, so surfaces as an *i* when shortened. For more information, see Watson (2002: 23).

[14] Makkan only permits word-medial CV:C if they are created through syncopation of a short vowel (Kabrah 2004: 123).

(22) Makkan Dative Long Vowel Shortening in Verbs and Participles (data from Kabrah 2004: 80)

	a.	b.	c.	d.	
Underlying Form	/ra:ħ-∅/	/ra:ħ-∅/	/magsu:m/	/magsu:m/	
		ra:ħ-l		magsu:m-l	+Dative
CSS-Phon		raħ-l		magsum-l	
		raħ-l-ha		magsum-l-na	+Indirect Object
Epenthesis		raħ-la-ha		magsum-la-na	
Surface Form	r**a**:ħ	ra**ħ**laha	mags**u**:m	mags**u**mlana	
Meaning	*He went*	*He went to her*	*It was destined*	*It was destined for us*	

Shortening occurs only in some phonological contexts with the dative for Tunisian because of the aforementioned restriction on unstressed long vowels, as shown in (23). The shortening of unstressed long vowels is not optional—further suggesting that the conditioning factor here is syllabic phonology, not the clitic versus affix status of particular formatives.

(23) Tunisian Unstressed Long Vowels Shortened (data from Maamouri 1967: 160–6)

	a.	b.	
Underlying Form	/ʤi:b/	/ʤi:b/	
	ʤi:b-ha	ʤi:b-ha	+Direct Object
		ʤi:b-ha-l	+Dative
		ʤi:b-ha-l-i	+Indirect Object
Pre-Suffix Lengthening		ʤi:b-ha:-l-i	
Stress Assignment	ˈʤi:b-ha	ʤi:b-ˈha:-l-i	
Unstressed Long Vowel Shortening		ʤib-ˈha:-l-i	
Surface Form	ˈʤ**i**:bha	ʤ**i**bˈha:li	
Meaning	*Bring it*	*Bring it to me*	

In Palestinian, the dative and indirect object can trigger shortening. However, the direct object does not. This has been a matter of confusion in the literature. Pairs with the same underlying syllable structure exist, but only shorten if the dative is included. In the following example, we only find shortening in (24a) not (24b), despite both having the shape /CV:CCV/ before the application of CSS-Phon.

(24) Palestinian Shortening with Dative not Direct Object (data from Abu-Salim 1982: 149)

	a.	b.	
Underlying Form	/ʤa:b/	/ʤa:b/	
	ʤa:b-ha		+Direct Object
		ʤa:b-l	+Dative
CSS-Phon		ʤab-l	
		ʤab-l-i	+Indirect Object
Surface Form	ˈʤ**a**:bha	ʤ**a**bli	
Meaning	*He brought her*	*He brought to me*	

The analyses here assume that CSS-PHON occurs after attachment of the /-*l*-/ dative formative but before the attachment of the indirect object. Such a rule ordering allows CSS-PHON to be phonologically conditioned by an impermissible CV:CC syllable, just as in the other morphological environments discussed in this paper. The alternative is that CSS-PHON is a phonological rule conditioned by the morphological environment of the dative, and could be ordered later in the derivation after other formatives have been attached. However, this is a much less elegant solution, as it entails the existence of two rules, one that applies in a phonological environment to shorten overlong syllables, and a second that has the same impact but only applies in the morphological context of the dative. The fact that CSS-PHON only seems to apply in this morphological context in Makkan might suggest it is a morphological rule.

(25) Makkan CSS-PHON with the dative
a. /makt**u:**b-l-u/ → makt**u**blu 'it was destined/written for him'
b. /s**a**:b-l-ha/ → s**a**blaha 'he left for her'
c. /s**a**:b-l-u/ → s**a**blu 'he left for him/her'

However, this is simply because the dative is the only case where the phonological conditions for the rule are met. Makkan rarely permits CV:C syllables, and outside of the dative context, epenthesis occurs to bleed application of this rule, as shown in (26).

(26) Makkan Epenthesis not CSS-PHON
a. /ba:b-ha/ → ba:baha 'her door'
b. /ʃa:l-ha/ → ʃa:l*a*ha 'he carried her'

Therefore, just because the phonological conditions only occur in the morphological context of the dative does not mean it is morphologically conditioned. Given that elsewhere there is a clear phonological conditioning, there is insufficient evidence to decide that this case requires an additional *morphological* rule.

4.3. Negation

Now, let us explore the cases where the shortening occurs in the morphological context of the negation formative.

CSS-PHON is rarer with negation, occurring obligatorily in Cairene, and optionally in Palestinian and Sˤanʕa:ni:. In Palestinian, it follows from a restriction on final CV:CC syllables. After shortening occurs, an epenthetic vowel is (optionally)[15] inserted due to the restrictions on word-final consonantal clusters, as shown in (27).

(27) Palestinian Negation Long Vowel Shortening (data from Abu-Salim 1982:150)

	a.	b.	
Underlying Form	/ʃa:f-∅/	/ʃa:f-∅/ ʃa:f-∅-ʃ	+ NEGATION
CSS-PHON		ʃaf-∅-ʃ	
Epenthesis		ʃaf-∅-iʃ	
Surface Form	ʃ**a**:f	ʃ**a**fiʃ	
Meaning	*He saw*	*He didn't see*	

[15] Abu-Salim (1982): 206–7 notes variation in whether epenthesis occurs in some final clusters, for example *ʔakalt* ~ *ʔakal̲it* 'I/you ate', *maʔakalʃ* ~ *maʔakal̲iʃ* 'he didn't eat'.

In Cairene, the shortening with the negation follows from the restriction on word-final CV:CC syllables, as shown in (28). Note epenthesis does not occur in (28b) as it did in (27b) for Palestinian as final consonantal clusters are permitted in Cairene unlike in Palestinian.

(28) Cairene Negation Long Vowel Shortening (data from Younes 1995: 158)

	a.	b.	
Underlying Form	/ʃa:f-∅/	/ʃa:f-∅/ ʃa:f-∅-ʃ	+ NEGATION
CSS-PHON		ʃaf-∅-ʃ	
Surface Form	ʃa:f	ʃafʃ	
Meaning	*He saw*	*He didn't see*	

In this example, we see CSS-PHON applying to a third person form of a hollow verb. This is the morphological context in which CSS-MORPH does not apply. We can distinguish between these processes here because CSS-PHON does not include the vowel raising characteristic of CSS-MORPH.

In Sˁanʕa:ni:, negation is marked with the suffixal /*-ʃ*/ as well as an optional prefix /*ma*/. The shortening with the negation marker is optional, as shown in (29) where the optional long vowel is marked with brackets. This suggests that the negation marker is not fully subject to the syllable restriction of this variety. However, this does not entail clitic status. Final coronal sibilants often escape syllable restrictions, as seen in English, but yet can still be considered to be incorporated into the phonological word.

(29) Sˁanʕa:ni: Optional Negation Long Vowel Shortening (data from Watson 2002: 67)

Underlying Form	ka(:)n -∅ (ma:) ka:n-∅-ʃ	+ NEGATION
CSS-PHON	(ma:) kan-∅-ʃ	
Surface Form	(ma:) **ka**:nʃ OR (ma:) k**a**nʃ	
Meaning	*He was not*	

4.4. Possessive

Finally, we turn to the possessive formative. This has the same set of exponents as the direct and indirect object formatives, but attaches to nouns. CSS-PHON occurs in Cairene due to the restriction on non-final CV:C syllables and Tunisian if the vowel is unstressed after the possessive. This is shown in (30) and (31), respectively.

(30) Cairene Possessive CSS-PHON (data from Broselow 1976: 68)
a. b**e**:t hala 'Hala's house'
b. /b**e**:t-ha/ → b**e**t-ha 'her house'

(31) Tunisian Possessive Unstressed Long Vowel Shortening (data from Maamouri 1967: 159, 161)
a. ˈms**a**:mir 'nails'
b. ms**a**ˈmir-kum 'your nails'
c. ˈx**a**:l 'uncle'
d. ˈx**a**:l-ik 'your uncle'

Once more, the conditioning for this process is phonological—it is to repair word-medial syllables that are not permitted by the phonology. This shortening does not occur in other varieties with the possessive because word-medial CV:C are permitted in other varieties as shown in Table 3. The only other variety that sometimes does not permit word-medial CV:C syllables is Makkan, but as shown in (26) above Makkan uses epenthesis as the preferred repair strategy with formatives other than the dative.

4.5. Summary

Although CSS-PHON does occur in a range of morphological contexts, it is clear that the conditioning factor is indeed phonological—it is a repair mechanism for illicit overlong medial syllables. The variation in application is not due to differences in affix versus clitic status for particular formatives, but rather differences in the tolerance of the phonological grammar for particular syllables.

5. CONCLUSION

In this paper I have explored two cases of (morpho)phonological alternations believed to be triggered by affixes and clitics, respectively. However, as the paper has shown, it emerges that neither clitic nor affix status is the defining feature. Closed Syllable Shortening in Arabic ought to be distinguished as two separate processes: CSS-MORPH and CSS-PHON. CSS-MORPH is a morphophonological process that only occurs within the subject paradigm of hollow verbs, and the fact that non-subject-marker formatives do not trigger it has no bearing on the clitic-affix debate. CSS-PHON is a phonological process which resolves word-medial overlong syllables according to variety-specific requirements. As a true phonological process, CSS-PHON interacts with other phonological processes, whereas CSS-MORPH does not as it occurs solely within the paradigm.

These processes are exemplified in (32), which contrasts Palestinian and Cairene Arabic forms of the same verb. The underlying CV:C stem surfaces for the third person forms in (32a) and (32d). It undergoes CSS-MORPH in (32b) and (32e) as part of the paradigm for non-third person forms, thus we see raising and shortening. If a direct object suffix is attached to a CV:C stem as in (32c) and (32f), this creates a word-medial CV:C syllable. Such an overlong syllable is permitted in Palestinian Arabic, so it surfaces. However, in Cairene this is not permissible, thus CSS-PHON applies to repair this illicit structure, shortening the vowel.

(32) Application of CSS-MORPH and CSS-PHON in Palestinian and Cairene Arabic (data from Watson 2002: 149)

	a.	b.	c.	d.	e.	f.	
	Palestinian			Cairene			
Underlying Form	/ʃ**a**:f-∅/	/ʃ**a**:f-na/	/ʃ**a**:f-∅/	/ʃ**a**:f-∅/	/ʃ**a**:f-na/	/ʃ**a**:f-∅/	
CSS-MORPH		ʃuf-na			ʃuf-na		
			ʃ**a**:f-na			ʃ**a**:f-na	+DIRECT OBJECT
CSS-PHON						ʃ**a**f-na	
Surface Form	ʃ**a**:f	ʃufna	ʃ**a**:fna	ʃ**a**:f	ʃuf	ʃafna	
Meaning	*He saw*	*We saw*	*He saw us*	*He saw*	*We saw*	*He saw us*	

Whilst CSS-MORPH, the subject-triggered morphophonological alternation, may have been motivated by syllable restrictions in earlier forms of Arabic, it is not currently—so occurs regardless of whether syllable restrictions occur synchronically. That it is only triggered by the subject markers does not entail that this is a clitic vs affix distinction. Failure to undergo an alternation only found in the subject paradigm is insufficient evidence for clitic status. CSS-PHON is not conditioned by the morphological status of a particular formative, but rather is a repair mechanism for illicit CV:C syllables. Therefore, not only have these processes been inaccurately conflated in the literature, but neither evidences a clitic status for any of these formatives. Such arguments have been made in other spheres—Pierrehumbert (1980) and Nevis (1986) claimed Finnish possessives are clitics, as they fail to trigger consonant gradation. However, Kanerva (1987) argues that the possessive triggers different allomorphic alternations, just not consonant gradation.

Recall that while the output of both processes can be identical (in terms of the quantity of the vowel), they do have different statuses within the system as a whole. I have demonstrated that while CSS-PHON might appear to occur in morphological contexts, this is epiphenomenal, and the core context that triggers it is solely phonological. Furthermore, it is fed by and feeds other phonological rules. CSS-MORPH has a clearly defined morphological context, and phonological alternation it produces does not reflect phonological restrictions in the broader systems. While CSS-MORPH is a phonological alternation restricted to specific morphological paradigms, CSS-PHON is purely phonological. Neither provides evidence to classify any formative as a clitic or indeed differentiate between formatives as suffixes or clitics.

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