

Dominance in Coronal Nasal Place Assimilation: The Case of Classical Arabic

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Abstract

The aim of this study is to investigate place assimilation processes of coronal nasal in classical Arabic. I hypothesise that coronal nasal behaves differently in different assimilatory situations in classical Arabic. Data of the study were collected from the Holy Quran. It was referred to Quran.com for the pronunciations and translations of the data. Data of the study were analysed from the perspective of Mohanan's dominance in assimilation model. Findings of the study have revealed that coronal nasal shows different assimilatory behaviours when it occurs in different syllable positions. Coronal nasal onset seems to fail to assimilate a whole or a portion of the matrix of a preceding obstruent or sonorant coda within a phonological word. However, coronal nasal in the coda position shows different phonological behaviours.

Keywords: assimilation, dominance, coronal nasal, onset, coda, classical Arabic

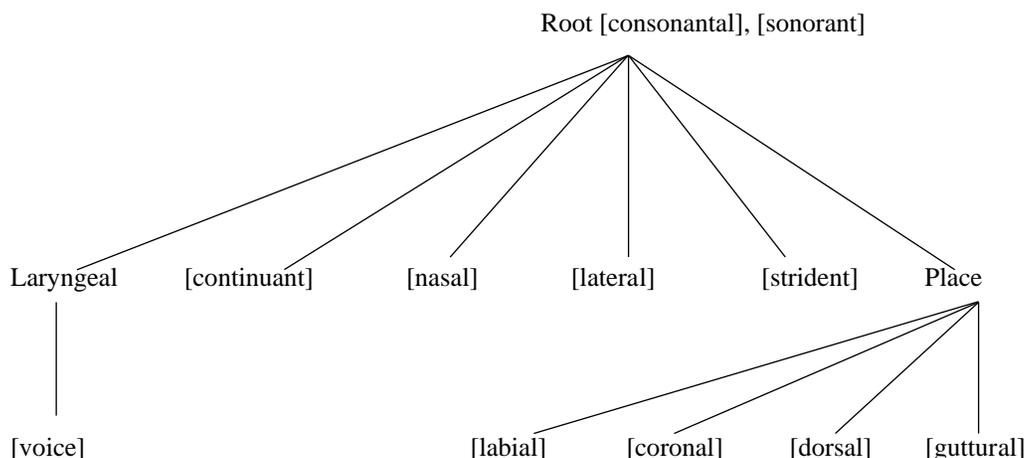
1. Introduction

An assimilatory situation in natural languages has two elements in which one element dominates the other. Nasal place assimilation occurs when a nasal phoneme takes on place features of an adjacent consonant. This study aims at investigating place assimilation processes of coronal nasal in classical Arabic (CA, henceforth). I hypothesise that coronal nasal behaves differently in different assimilatory situations in CA. Data of the study will be collected from the Holy Quran, as it is written in classical Arabic. Quran.com (2016) will be used as a reference for pronunciations and translations of the data. Data of the study will be analysed in the framework of Mohanan's (1993) notion of dominance in assimilation model. In section 2, I outline the phonological features assumed for the underlying specifications of the CA consonants (see appendix A for the phonetic description of CA phonemes). In section 3, I summarise the main aspects of Mohanan's (1993) dominance in assimilation model. I analyse coronal nasal place assimilation processes in CA in section 4. A conclusion is provided in section 5.

2. Phonological features of CA consonantal phonemes

CA has four main groups of features: root features, stricture features, place features, and a laryngeal feature. Proposals by Clements (1985), Sagey (1986), McCarthy (1988), Selkirk (1988, 1993), Shaw (1991), and Halle (1992) have contributed to the feature geometry tree for Arabic in (1).

- (1) Feature Geometry Tree for Arabic (Watson: 2002, 25)



To begin with, the root features [sonorant] and [consonantal] distinguish between consonants and vowels in CA. The obstruents /t, t̥, k, q, ʔ, b, d, d̥, f, s, ʃ, θ, ð, ʒ, ʒ̥, h, h̥, z, ʒ̥, dʒ, ʋ, ʕ/ are assigned [-sonorant, +consonantal], the nasals /m, n/ and the approximants /l, r/ are [+sonorant, +consonantal] and the vocoid /j, w/ are assigned [+sonorant, -consonantal]. Segments in CA can also be defined in terms of their stricture features – [continuant], [lateral], [nasal] and [strident]. The stop consonants /t, t̥, k, q, ʔ, b, d, d̥/ are assigned [-continuant, -lateral, -nasal, -strident]. Fricatives /f, s, ʃ, θ, ð, ʒ, ʒ̥, h, h̥, z, ʒ̥, dʒ, ʋ, ʕ/ are assigned [+continuant, -lateral, -nasal, -strident] and sibilants are labelled as [+continuant, -lateral, -nasal, +strident]. Nasals /m, n/ are assigned [-continuant, -lateral, +nasal, -strident] and the lateral /l/ is [-continuant, +lateral, -nasal, -strident]. The feature [voice] is the only applicable laryngeal feature in CA. The segments /t, t̥, k, q, ʔ, f, s, ʃ, θ, ð, ʒ, ʒ̥, h, h̥/ are produced with the vocal cords being far apart, and therefore they are assigned [-voice]. In the case of the segments /b, d, d̥, z, ʒ̥, dʒ, ʋ, ʕ, m, n, l, r, j, w/, the vocal cords vibrate and thus those segments are assigned [+voice].

Place features consist of [labial], [coronal], [dorsal] and [guttural] in CA. Selkirk (1993) states that phonetic interpretation of place features is important as it reduces the number of phonological features. A distinction between a primary and a non-primary place feature is considered necessary for a segment which has more than one articulation, even if those articulations have the same degree of constriction (Selkirk, 1993; cited in Watson, 2002: 30). Consonants which are assigned [+labial] in CA are /b, f, m, w/. In accordance with Selkirk's (1993, 54; cited in Watson, 2002: 29) phonetic interpretation of primary [labial] sounds, the primary labial stops in CA are the bilabial consonants /b/ and /m/, the primary labial fricative is the labiodental consonant /f/ and the primary labial vocoid is round /w/. The second group of place features consists of [coronal] consonants. The phonetic interpretation of place features is used to distinguish between coronal sounds in CA. Accordingly, the primary coronal stops in CA are the interdental and dental consonants /θ, ð, t, d, t̥, d̥/. The primary coronal fricatives are the alveolar consonants /s, ʃ, z, ʒ̥, n, l, r/, and the primary coronal affricates are the post-alveolar consonants /ʃ/ and /dʒ/. The third group of place features is called [dorsal] which consists of CA consonants /k, ʒ̥, ʋ, q, j/. The primary dorsal stop is the velar consonant /k/ and the uvular consonant /q/, the primary dorsal fricatives are the uvular consonants /ʒ̥/ and /ʋ/, and the primary dorsal vocoid is the palatal consonant /j/. CA pharyngeal consonants /ʕ/ and /ħ/ and the laryngeal consonants /ʔ/ and /h/ are labelled [+guttural] as a primary feature. CA consonants /ʃ, d̥, ð, t̥/ are pharyngealized and thus are assigned [+guttural] as a non-primary feature. The table in (2) summarises the phonological features that differentiate between consonants in CA.

(2) Phonological features of CA consonants (* = N/A)

	t	ʈ	k	q	ʔ	b	d	ɖ	f	θ	ð	s	ʃ	ç	h	z	ʝ	ʒ	ʁ	ʕ	m	n	l	r	j	w
son	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
cons	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-
cont	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+
lat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
nas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
voi	-	-	-	-	-	+	+	+	-	-	+	-	-	-	-	-	+	+	+	+	+	+	+	+	+	
dist	-	-	*	*	*	*	-	-	*	-	-	-	-	+	*	*	*	-	-	+	*	*	*	-	-	*
c.g.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
str	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	+	-	-	-	-	-	-	-	
dors	-	+	+	+	-	-	-	+	-	-	+	-	+	+	-	-	+	-	+	+	-	-	-	-	+	

3. Dominance in Assimilation

The notion of dominance in assimilation was first introduced to autosegmental phonology by Mohanan in 1993. The view of this model is that in any assimilatory situation there are two units of different conflicting specifications in which the specification of one unit dominates that of the other. The main aspects of this model are summed up as: (1) certain phonological features are more dominant than others and thus they override other features, (2) the position of a trigger and an undergoer in an assimilatory situation plays a key role in dominance; the onset is dominant with respect to the coda and the following element is dominant with respect to the preceding element, (3) assimilation is more likely to occur in smaller prosodic domains, (4) the scale of dominance is as follows: velar > palatal and labial > alveolar.

4. Coronal Nasal Place Assimilation in CA

In this section I analyse coronal nasal place assimilation processes in different assimilatory situations in CA.

4.1 [+nas, +cor] coda + [+c.g.] onset

The coronal nasal /n/ in the coda position does not assimilate to the following onset which has the phonological feature [+constricted glottis] word-internally or across a word boundary in CA, as shown in (3).

- (3) (a) Across syllables within a single word
 - /wajanʔawn/ [wajanʔawn] ‘and they keep away’
 - /ʔanʕamta/ [ʔanʕamta] ‘You have bestowed favour’
- (b) Across a word boundary
 - /kullun + ʔa:mana/ [kullun ʔa:mana] ‘all believed’
 - /man + ʕamila/ [man ʕamila] ‘whoever does’

4.2 [+nas, +cor] coda + [-son, +cont, -ant, -cor] onset

CA coronal nasal does not assimilate to the following obstruent onset which has the phonological features [+continuant, -anterior, -coronal] within a single word or across a word boundary, as shown in (4).

(4) (a) Across syllables within a single word

/janhawn/	[janhawn]	‘forbid’
/wanħar/	[wanħar]	‘and sacrifice’
/fasajunɪðu:n/	[fasajunɪðu:n]	‘they will nod’
/walmunħaniqah/	[walmunħaniqah]	‘and that which is strangled’

(b) Across a word boundary

/qawmin + ha:dd/	[qawmin ha:dd]	‘and for every people is a guide’
/faman + ħa:dʒaka/	[faman ħa:dʒaka]	‘then whoever argues with you’
/rabbun + ɤafu:r/	[rabbun ɤafu:r]	‘and a forgiving lord’
/ʕali:man + ħabi:r/	[ʕali:man ħabi:r]	‘knowing and acquainted’

4.3 [+nas, +cor] coda + [+son] onset

Coronal nasal coda does not assimilate to a following sonorant in the onset position word-internally, see (5 a). When coronal nasal occurs in the coda position of a preceding word and is followed by an onset with the phonological feature [+sonorant] in the following word, the coronal nasal assimilates completely to a sonorant in CA, as shown in (5 b). However, when an obligatory pause occurs between the coronal nasal coda of a preceding word and a sonorant onset of a following word, no assimilation takes place, see (5 c).

(5) (a) Across syllables within a single word

/ʕinwa:n/	[ʕinwa:n]	‘several from a root’
/ʔaddunja/	[ʔaddunja]	‘the world’
/qinwa:nun/	[qinwa:nun]	‘clusters of dates’
/bunja:nun/	[bunja:nun]	‘a structure’

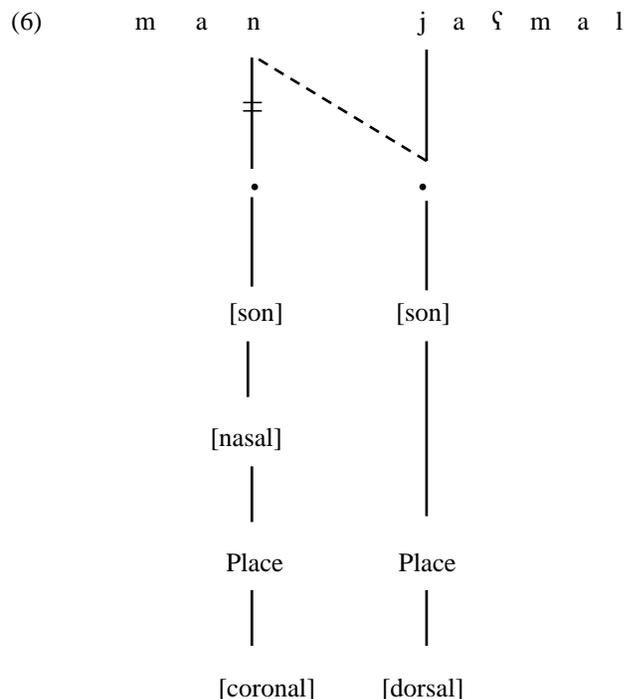
(b) Across a word boundary

/man + jaʕmal/	[maj jaʕmal]	‘whoever does’
/min + ma:l/	[mim ma:l]	‘of wealth’
/min + walijj/	[miw walijj]	‘any protector’
/min + niʕmatin/	[min niʕmatin]	‘of favour’
/qajjiman + lijunðira/	[qajjimal lijunðira]	‘straight to warn’
/min + rabbihim/	[mir rabbihim]	‘from their lord’

(c) Across a word boundary (coronal nasal followed by an obligatory pause)

/ja:si:n + walqurʔa:n/	[ja:si:n walqurʔa:n]	‘Yaseen, by the wise of Quran’
/nu:n + walqalimi/	[nu:n walqalimi]	‘noon (a letter in Arabic), by the pen’

The representation of the coronal nasal place assimilation in the underlying CA phrase /man + jaʕmal/ ‘whoever does’ is shown in (6).



As represented in (6), assimilation is motivated by the dominance of the trigger vis-à-vis the undergoer (cf. Mohanan, 1993). Apart from being an alveolar – the least dominant in Mohanan’s scale of dominance, coronal nasal occurs in a coda position, and this in turn makes it a weak element in this assimilatory situation. Accordingly, the place feature [dorsal] of the following palatal /j/ – the onset of the following syllable, is more dominant and thus it overrides the [coronal] feature of the nasal consonant. Since the coronal nasal assimilates a whole of the matrix of the following dorsal consonant, the [nasal] feature is delinked, as well.

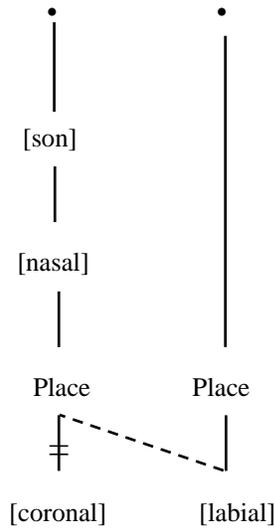
4.4 [+nas, +cor] coda + [-son, +voi, +lab] onset

Coronal nasal assimilation is obligatory within the phonological word and across a word boundary in CA when [+cor] nasal in the coda position is followed immediately by [-son, +voi, +lab] onset in the following word. In this case, the nasal assimilates a portion of the matrix of the following onset, as shown in (7).

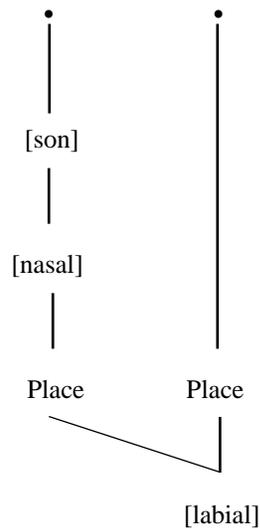
- (7) (a) Across syllables within a single word
- | | | |
|-------------|-------------|---------------|
| /ʔanbiʔhum/ | [ʔambiʔhum] | ‘inform them’ |
| /ʔanba:ʔ/ | [ʔamba:ʔ] | ‘the news’ |
| /ʔanbatat/ | [ʔambatat] | ‘grows’ |
- (b) Across a word boundary
- | | | |
|---------------------|-------------------|----------------------|
| /min + baʃdi/ | [mim baʃdi] | ‘after’ |
| /zawdʒin + bahi:dʒ/ | [zawdʒim bahi:dʒ] | ‘beautiful kind’ |
| /sami:ʃun + baʃi:r/ | [sami:ʃum baʃi:r] | ‘hearing and seeing’ |
| /ʃali:mum + biða:t/ | [ʃali:mum biða:t] | ‘knowing of that’ |

The following is the representation of the coronal nasal place assimilation in the underlying CA word /ʔanba:ʔ/ ‘the news’.

(8) (a) ? a n b a: ?



(b) ? a n b a: ?



In (8) coronal nasal in the coda position takes on the feature [+labial] from the labial onset of the following syllable. This occurs by spreading of the feature [+labial] from right to left and the [+coronal] feature is delinked.

4.5 [+nas, +cor] coda + [-son, -lab] onset

Coronal nasal in the coda position assimilates a portion of the matrix of a following onset which has the features [-son, -lab] in CA. This occurs across syllables within a single word or across a word boundary, as shown in (9).

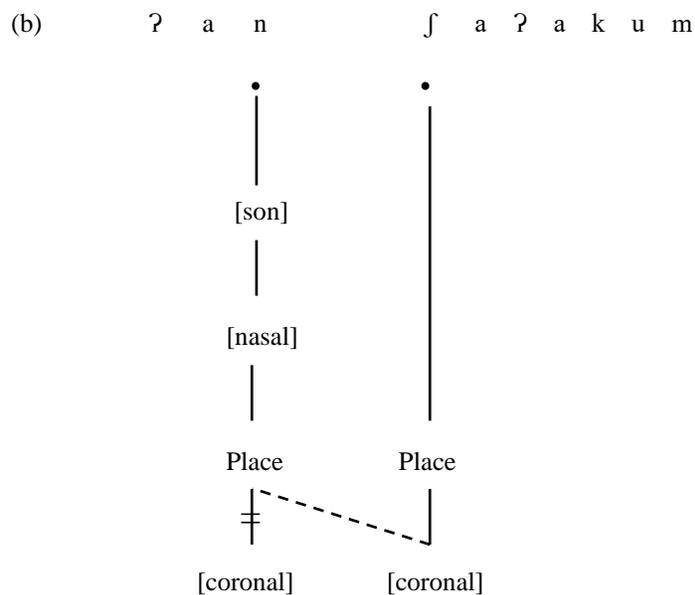
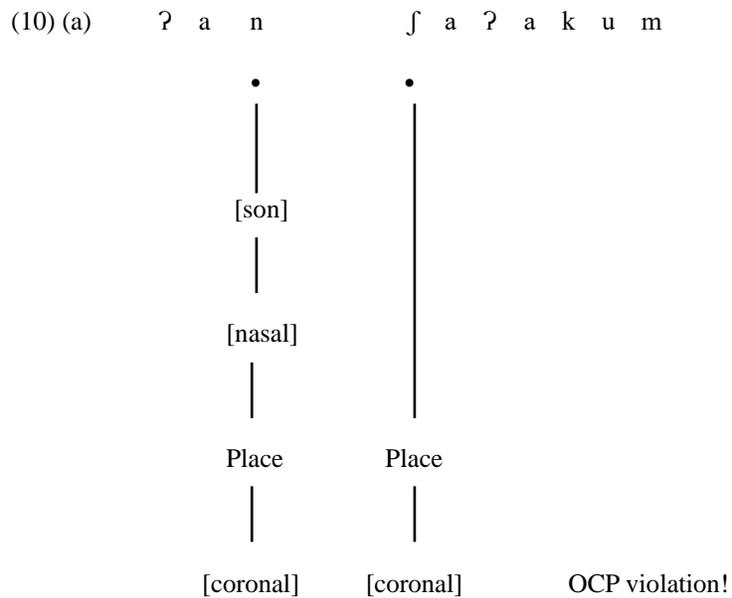
(9) (a) Across syllables within a single word

/ʔanʃaʔakum/	[ʔanʃaʔakum]	‘He (Allah) produced you’
/ʔanðir/	[ʔanðir]	‘warn’
/ʔanʃa:r/	[ʔanʃa:r]	‘helpers’
/ʔalʔunθa/	[ʔalʔunθa]	‘the female’
/zandʒabi:la/	[zandʒabi:la]	‘ginger’
/wajanqalibu/	[wajanqalibu]	‘and return’
/jansilu:n/	[jansilu:n]	‘descend’
/ʔanda:da/	[ʔanda:da]	‘equals’
/ʔinʔaliqu/	[ʔinʔaliqu]	‘proceed’
/ʔanzalna/	[ʔanzalna]	‘had revealed [scriptures]’
/ʔanðirni/	[ʔanðirni]	‘warn me’
/ʔantum/	[ʔantum]	‘you’
/manðu:d/	[manðu:d]	‘layered’
/tankihũ/	[tankihũ]	‘marry’

(b) Across a word boundary

/silʃilatun + ðarʃuha/	[silʃilatun ðarʃuha]	‘a chain whose length’
/ʃan + ʃala:tihim/	[ʃan ʃala:tihim]	‘of their prayer’
/min + θamaratin/	[min θamaratin]	‘of fruit’
/ʔin + dʒa:ʔakum/	[ʔin dʒa:ʔakum]	‘it had come to you’
/min + ʃarri/	[min ʃarri]	‘from the evil’
/min + qabl/	[min qabl]	‘before’
/walaʔin + saʔaltahum/	[walaʔin saʔaltahum]	‘and if you should ask them’
/kaʔsan + diha:qa/	[kaʔsan diha:qa]	‘a full cup’
/min + ʔajjibati/	[min ʔajjibati]	‘from the good things;
/min + zaqqu:m/	[min zaqqu:m]	‘of zaqqum’
/ðillan + ðali:la/	[ðillan ðali:la]	‘deepening shade’
/lan + tana:lu/	[lan tana:lu]	‘never will you attain’
/qawman + ɖa:li:n/	[qawman ɖa:li:n]	‘people astray’
/takun + kaʃa:hib/	[takun kaʃa:hib]	‘be like the companion’

The representation of the coronal nasal place assimilation in the underlying CA phrase /ʔanʃaʔakum/ ‘He (Allah) produced you’ is shown in (10).



The violation of the obligatory contour principle on the place tier in (10) is resolved by deletion of the coda's [coronal] feature on the leftmost matrix and by spread of the onset's [coronal] feature from right to left. This occurs to fill up the empty place left by deletion of the [coronal] place feature.

4.6 [+son]_{coda} + [+nas, +cor]_{onset}

Coronal nasal in the onset position does not assimilate to a preceding [+son] coda within a phonological word in CA, as shown in (11).

(11) Across syllables within a single word

/qulna:/	[qulna:]	‘We (Allah) said’
/qarnan/	[qarnan]	‘a generation’
/ʃajnan/	[ʃajnan]	‘a fountain’
/hawnan/	[hawnan]	‘humbleness’

4.7 [-son]_{coda} + [+nas, +cor]_{onset}

When coronal nasal onset is preceded by [-son] coda within a single word, coronal nasal seems to fail to assimilate a whole or a portion of the matrix of a preceding coda even in the case when the coda is labial, which is more dominant than alveolar in Mohanan’s scale of dominance, as shown in (12).

(12) Across syllables within a single word

/ʔabna:ʔ/	[ʔabna:ʔ]	‘sons’
/mitna:/	[mitna:]	‘we died’
/jaʔni/	[jaʔni]	‘come’
/judni:na/	[judni:na]	‘to bring down’
/ʔafna:nin/	[ʔafna:nin]	‘branches’
/ʔiθnajni/	[ʔiθnaini]	‘two’
/ʔaʃna:min/	[ʔaʃna:min]	‘idols’
/jaznu:na/	[jaznu:n]	‘commit adultery’

5. Conclusion

In this article I studied the phonological behaviour of coronal nasal in different assimilatory situations in CA. The plan of the study was to investigate place assimilation processes of coronal nasal in CA. I hypothesised that coronal nasal behaves differently in different assimilatory situations in CA. Data of the study were collected from the Holy Quran. It was referred to Quran.com (2016) for the pronunciations and translations of the data. Data of the study were analysed from the perspective of Mohanan’s (1993) dominance in assimilation model. Findings of the study revealed that coronal nasal shows different assimilatory behaviours when it occurs in different syllable positions.

Findings showed that the coronal nasal /n/ in the coda position does not assimilate to the [+c.g.] onset nor to the [+cont, -ant, -cor] obstruent onset of the following syllable word-internally or across a word boundary in CA. It was also found that coronal nasal in the coda position does not assimilate to a following [+son] onset word-internally. When coronal nasal occurs in the coda position of a preceding word and is followed by [+son] onset in the following word, the nasal assimilates a whole of the matrix of a sonorant in CA. However, when coronal nasal in the same position is followed by an obligatory pause which in turn is followed by [+son] onset in a following word, no assimilation takes place. When coronal nasal coda is followed by [-son, +voi, +lab] onset in the following word, the nasal assimilates a portion of the matrix of the following onset within the phonological word and across a word boundary. Coronal nasal in the coda position assimilates a portion of the matrix of a following [-son, -lab] onset within a single word or across a word boundary in CA. However, findings revealed that coronal nasal in the onset position does not assimilate a whole or a portion of the matrix of a preceding [+son] coda or [-son] coda within a phonological word, even in the case of [+labial] coda which dominates alveolar in Mohanan’s scale of dominance.

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Appendix A

List of classical Arabic consonantal and vocalic phonemes (adapted from Sa'aida, 2015, xiv – xv; cf. Sa'aida, 2016, 2017)

1. /t/: voiceless plain dental plosive.
2. /t̤/: voiceless emphatic dental plosive.
3. /k/: voiceless velar plosive.
4. /q/: voiceless uvular plosive.
5. /ʔ/: voiceless glottal plosive.
6. /b/: voiced bilabial plosive.
7. /d/: voiced plain dental plosive.
8. /d̤/: voiced emphatic dental plosive.
9. /f/: voiceless labiodental fricative.
10. /θ/: voiceless inter-dental fricative.
11. /ð/: voiced inter-dental fricative.
12. /s/: voiceless plain alveolar fricative.
13. /s̤/: voiceless emphatic alveolar fricative.
14. /ʃ/: voiceless post-alveolar fricative.
15. /χ/: voiceless uvular fricative.
16. /ħ/: voiceless pharyngeal fricative.
17. /h/: voiceless glottal fricative.
18. /z/: voiced plain alveolar fricative.
19. /ð̤/: voiced emphatic alveolar fricative.
20. /dʒ/: voiced post-alveolar fricative.
21. /ʁ/: voiced uvular fricative.
22. /ʕ/: voiced pharyngeal varies between fricative and approximant.
23. /m/: bilabial nasal.
24. /n/: alveolar nasal.
25. /l/: alveolar lateral.
26. /r/: alveolar trill.
27. /w/: labial-velar glide.
28. /j/: palatal glide.
29. /i/: high front short vowel.
30. /u/: high back rounded short vowel.
31. /a/: low short vowel.
32. /i:/: high front long vowel.
33. /u:/: high back rounded long vowel.
34. /a:/: low long vowel.

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