



Inferring the Phonetics of Quranic Arabic from the Quranic Consonantal Text¹

Marijn van Putten
Leiden University – Netherlands
m.van.putten@hum.leidenuniv.nl

ملخص

تتناول هذه المقالة صوتيات لغة القرآن من خلال الرسم العثماني. أولاً، تدرس الصفات الصوتية للحيم وللضاد وللحروف المطبقة. ثانياً، تُبين أن قافية القرآن تُميز الحروف المجهورة عن الحروف المهموسة. وأخيراً، تُقدّم بعض الملاحظات على نطق هاء التانيث وإدغام ال التعريف.

Abstract

This paper examines the phonetics of Quranic Arabic as they can be deduced from the Quranic Consonantal Text. It first examines the phonetic qualities of the interdental, the *ḍād*, the *ḡīm* and the emphatic consonants. Secondly, it is shown that Quranic rhyme makes a distinction between *Maḡhūr* and *Mahmūs* consonants. Finally, some notes on the pronunciation of the feminine ending and the assimilation of the definite article are provided.

Keywords: Jahr and Hams; Quranic Consonantal Text; Phonetic reconstruction; Historical linguistics

¹ I would like to thank Barry Heselwood, Benjamin Suchard and Fokelien Kootstra for commenting on an early draft of this paper. I also thank the two anonymous reviewers for their insightful feedback

1. Introduction

In recent years great progress has been made into the study of Quranic Arabic based on the evidence given in the Quranic Consonantal Text (QCT), separate from its reading traditions and the assumption that it should be close or similar to Classical Arabic. Instead, this research has focused on what the QCT itself tells us. From this examination, it has become clear that Quranic Arabic, far from being evidently Classical Arabic, is different from Classical Arabic. It seems to have lost the hamzah (Van Putten 2018); had a fourth long vowel *ē* (Van Putten 2017a) and perhaps even a fifth *ō* (Al-Jallad 2017c); treated the feminine ending *-at-* as a diptote rather than triptote (Van Putten 2017b); and had a greatly reduced case system (Van Putten & Stokes 2018). These papers have focused on specific features mostly relating to the vowel system of the Quran. This paper aims to look specifically at the possible pronunciation of the consonants of the Quranic Consonantal Text.²

It has generally been assumed that the consonantal system was close to the way the Quran is read today, and by extension close to the way that Sibawayh described it. This, however, has always been an assumption, and no-one has attempted to see what the Quranic Consonantal Text itself can tell us about the phonetics of Quranic Arabic. In recent years, however, massive advances have been made in the study of the realization of the Arabic consonants both in the Pre-Islamic and Early Islamic period (Al-Jallad 2017a,b) and the modern dialects (Heselwood, Watson & Maghrabi 2014; Heselwood & Maghrabi 2015; Watson & Heselwood 2016; Al-Jallad 2015) which have made it clear that the pronunciation of Classical Arabic as it has come down to us cannot without further comment be reconstructed for its realization in Pre-Islamic Arabic, and by extension it is no longer *a priori* likely that the Quranic Arabic realization of the consonants is simply identical to that of Classical Arabic.

Therefore, in this paper we will examine what the Quranic Consonantal Text can tell us about the realization of the consonants in Quranic Arabic, without the *a priori* assumption that this would be close to Classical Arabic. Studying the QCT in this regard, however, is quite difficult. First, the Arabic alphabet in this early period is highly ambiguous. For example, it is not exactly clear that the interdentalals are distinct from the dentalals, as both of them are written with the exact same signs. Because of these reasons, any study of this kind is bound to be incomplete,

² Throughout the text, Quranic words will be cited from the QCT, first with the reading found in the Cairo Edition (i.e. that of Ḥafṣ) in italics, then the QCT followed by the location in brackets and a phonemic reconstruction in between slashes finally followed by a gloss, e.g. *ṣirāṭa* صرط (Q1:7) /ṣirāt/ ‘path’.

and we accept the fact that occasionally we simply cannot know the answer on some topics that are of interest. Nevertheless, as will be shown below, we can make some fairly extensive deductions from a close study of the Quranic rhyme, the Quran's orthographic conventions and its irregularities.

2. The interdentalals

It is difficult to decide whether the interdentalals were phonemically distinct from the dentalals in the language of the QCT, as orthographically both are represented identically, an orthographic practice the QCT inherited from the Nabataeo-Arabic orthography.

<i>t</i>	<i>ṭ</i>	ت
<i>d</i>	<i>ḍ</i>	د
<i>ʔ</i>	<i>ʔ̣</i>	ط

However, for **ṭ* we have evidence in the QCT that these were distinct. Whenever a stem-final *t* is followed by one of the perfective subject endings that start with *t*, the QCT only writes a single denticle for *t*:

ʕanittum عنيتم (Q3:118; Q9:128; Q49:7) /ʕanittum/ 'you are distressed'

muttum مئتم (Q3:157, 158) /muttum/ 'you (m.pl.) died'

mittum مئتم (Q23:35) /mittum/ 'you (m.pl.) died'

mittu مت (Q19:23; Q19:66) /mitt/ 'I died'

mitta مت (Q21:34) /mitt/ 'you (m.) died'

However, if the stem ends in **ṭ* then the ending is written with two denticles, which confirms that it represents a sequence of two different consonants, most probably /ṭt/, e.g:

labittum لبئتم (Q20:103, 104; Q23:112, 114; Q30:56) /labittum/ 'you (m.pl.) remained'

labittu لبئتم (Q26:18) /labitt/ 'you (m.) remained'

There is no way to decide whether the other interdentalals also remained interdental, but it seems reasonable to assume that if one of the interdentalals remained distinct, all of them did. As such, it seems likely that besides a dental series, the language of the QCT retained an interdental series.

3. The pronunciation of *ḏād*

A typical feature of many of the modern dialects is the merger of the original lateral emphatic *ḏ* and the emphatic interdental *ḏ* to /ḏ/ or, if interdentals are lost, /d/.³ These glyphs are perfectly distinct in the QCT, which suggests that the sounds still remained distinct. However, this could be attributed to a well-trained scribe that learned to distinguish the two orthographically, despite a merger in the language of the QCT. There is, however, internal evidence that shows the *ḏ* was not an interdental.

In the Gt stems (*iftaʕala*), which take a *t* infix after the first root consonant, we find assimilation with the preceding consonant. In the case of *ḏ* the cluster yields a homorganic long consonant, e.g.

**ḏtakara > iḏḏakara* اذكر (Q12:45) /iddákar/ or /iḏḏákar/ ‘he remembered’

Due to the nature of the Arabic script, it is impossible to know whether the resulting assimilated consonant yielded *ḏḏ* or *dd* (both are options in Classical Arabic, Fischer 2002: §46), as both would be written the same. What is important here, though, is that the result is a complete assimilation of the following *t*. This is different from Gt stems with *ḏ* as the first root consonant. In that case, the following **t* only assimilates in emphasis, yielding *t̤*, e.g:

**ʔaḏṭarru-hu > ʔaḏṭarru-hū* اضطره (Q2:126) /aḏṭarru-h/ ‘I will force him’

Whatever the phonetic value of *ḏ* then, it certainly was not a voiced interdental, as then we would have expected a reflex with a long /ḏḏ/. And this is in fact exactly what we find as a variant in Classical Arabic (Fischer 2002: §45), *iḏḏalaʕa*, which presumably reflects a variety that did undergo this merger. Notice that this progressive emphasis assimilation also happens with the emphatic *ṣ*:

**ṣtafaya > iṣṭafā* اصطفى (Q2:132) /iṣṭafē/ ‘he has chosen’

The behaviour of *ḏ*, then, is identical to the emphatic fricative *ṣ*, but different from the behaviour of the interdental fricatives or dental stops. From this we can deduce that the *ḏ* must have been some kind of non-interdental fricative. It therefore seems likely that the *ḏ* was still a lateral

³ See Al-Jallad (2015), on this development and on the rare voiceless reflex /t/

⁴ Technically it also assimilates in turbulent airflow, for a discussion see section 5 below.

fricative ʒ [ʒ^h] (or ʒ [ʒ]), its etymological origin, and also matching Sibawayh's description (see Versteegh 2011 for a discussion).

4. The pronunciation of the *ǧīm*

In some dialects, *ǧīm* is a fricative [ʒ] rather than a stop or affricate. One might wonder if such a development has happened in the language of the QCT. There is some evidence which suggests that it did not, as *ǧīm* cannot assimilate to the **t(a)-* prefix of the tD- and tL-stems, while the *šīm* can.

For roots with initial *š*, there is only one unambiguous example with assimilation *yaššaqqaqu* يَشَقُّ (Q2:74) /yaššaqqaq/ 'it splits', and two ambiguous cases تَشَقُّ 'it splits' (Q25:25; Q50:44) which is variously read as *tašaqqaqu*, with the haplological dropping of the *ta-* prefix or *taššaqqaqu* with assimilation (Al-Dānī 1984: 163f.). The QCT does not allow us to distinguish between these two options. All twelve other cases are unassimilated.⁵

This asymmetrical distribution is different from other fricatives with the same place of articulation. Where the voiceless and voiced consonant can both assimilate, e.g. *yassammaṣūna* يَسْمَعُونَ (Q37:8) /yassammaṣūn/ 'they [do not] listen', *yazzakkā* يَزْكِي (Q80:3) /yazzakkē/ 'he is purified'. This evidence is further complicated because *yassammaṣūna* يَسْمَعُونَ (Q37:8) is not universally read as such by Ḥafṣ following ʕāṣim (but not Šuʕbah!) and the other two Kufans Ḥamzah and al-Kisāʔī. All other readers simply read it as a G stem *yasmaṣūna* (Al-Dānī 1984: 186). This is the only possible example of an assimilated tD stem with *s* as its root initial consonant.

But if we accept that the voiceless and voiced fricative can assimilate with *s* and *z*, we may tentatively conclude that the *ǧ* indeed never assimilated (even though *š* is). This only concerns five examples *mutaǧānifin* مُتَجَانِفٍ (Q5:3) /mut(a)ǧānif/ 'inclining', *yataǧarraṣu-hū* يَتَجَرَّعُهُ (Q14:17) /yat(a)ǧarraṣu-h/ 'he gulps it', *nataǧāwazu* نَتَجَاوَزُ (Q46:16) /nat(a)ǧāwaz/ 'we overlook', *taǧassasū* تَجَسَّسُوا (Q49:12) /taǧassasū/ 'do [not] spy', *yataǧannabu-hā* يَتَجَنَّبُهَا (Q87:11) /yat(a)ǧannabu-hā/ 'he will avoid it'

We can therefore only tentatively suggest that *ǧ* phonetically was probably not [ʒ], and more likely was still a velar stop [g], a palatalized velar stop [gʲ], or a palatal stop [j].

⁵ See Q2:25, 70, 118, 233; Q3:7 (twice); Q6:99, 141 (twice); Q13:16; Q39:23, 29.

5. The Emphatics: Ejectives or Pharyngealized consonants?

In the history of Arabic, the emphatic consonants appear to have shifted from an original Proto-Semitic ejective value (a value still retained in, e.g. the Ethio-Semitic languages and Modern South Arabian languages) towards a pharyngealized value. The fact that we usually find voiceless reflexes of the emphatics in Old Arabic, suggests that they were perhaps still ejectives (Al-Jallad 2017: 128ff.). It is therefore not a given that the language of the QCT would have emphatics with a pharyngealized rather than ejective value.

However, we find several cases of spreading of emphasis to consonants that are not etymological emphatics. Velarization is typically a feature that spreads across consonants, and sometimes can even affect a whole word (Kaye 1997: 195). Ejectives on the other hand are typically non-spreading. Many languages that have ejectives even have rules that prohibit the presence of two ejectives in a single word, e.g. Akkadian's Geers' Law (Geers 1945, see also Huehnergard 1997: 438). The fact that we find that emphasis spreads in the QCT, therefore, strongly suggests that the emphatics were indeed pharyngealized consonants, as they are in Classical Arabic.

The root *bsṭ* shows that emphasis (optionally) spreads in the language of the QCT, clearly displaying the spreading effect of pharyngealized consonants. Two examples are found where words derived from this root are written with a *ص* rather than an *س*:⁶

baṣṭatan بَصْطَه (Q7:69) /baṣṭah/ [baṣʔʔah] 'extensively' (cf. Q2:247 *baṣṭatan* بَصْطَه)
yabsuṭu يَبْصُطُ (Q2:245) /yabsuṭ/ [yabsʔʔuṭ] 'he grants abundance' (cf. Q13:26 *yabsuṭu* يَبْصُطُ)

Also the form *al-muṣayṭirūna* الْمُصَيِّطُونَ (Q52:37) /al-muṣayṭirūn/ [almuṣʔʔayṭʔʔirūn] 'the controllers' and *bi-muṣayṭir* بِمُصَيِّطٍ (Q88:22) /bi-muṣayṭir/ [bi-muṣʔʔayṭʔʔir] 'a controller' should probably be considered part of this development. These verbs are presumably *fayʕila* derivations of the root *sṭr* 'to rule', and in Classical Arabic lexicons this word is also recorded as *musayṭir*.⁷

⁶ To this we might also add *muṣayṭirūna* الْمُصَيِّطُونَ (Q52:37), *muṣayṭir* مُصَيِّطٍ (Q88:22) 'controller(s)' which is derived from the verb which in Classical Arabic is *sayṭara* 'to rule, dominate', but unassimilated forms are unattested in the QCT. This observation was already made by Milo (2009: 494f.).

⁷ One might wonder whether *ṣirāṭ* صِرَاطٍ (Q1:6) 'street' should be included in this group of words as well, as classical Arabic lexicons often cite this noun to be *sirāṭ*, which is also how Qunbul following Ibn Kaṭīr reads it (Al-Dānī 1984 :19). But as the word's first attestation is in the Quran, and the spelling is consistent in the QCT, it is difficult to be certain that the Classical Arabic *sirāṭ* is not rather a hypercorrect dissimilation of *ṣirāṭ*.

Besides this, we find the regular assimilation of the *t*-infix of Gt stems, which becomes *t* if it is preceded by the emphatics *ṣ* or *ḍ*:

iṣṭafā اصطفى (Q2:132) /iṣṭafē/ [isʕtʕáfē] ‘he has chosen’

ʔaḍṭarru-hū اضطره (Q2:126) /ʔaḍṭarru-h/ [ʔaḷtʕárruh] ‘I will force him’

This allows us to establish that **ṣ*, **t* and **ḍ* are all pharyngealized.

There is no direct evidence for the spread of emphasis of **ẓ*, and as such it is unclear whether this consonant was pharyngealized, or still ejective. Original **k* however shows no pharyngeal spreading in the Gt stem:

Iqtatala اقتتل (Q2:254) /ʔvqtátal/

This suggests that **k* was not pharyngealized, but it may still either be an ejective [kʰ] or as in Classical Arabic, a uvular unaspirated stop [q].

The possibility of ejectives besides pharyngealized realisations of emphatics is not unusual. Many Modern South Arabian dialects have exactly that distribution, where most emphatics have both ejective and pharyngealized realisations but **k* is almost always ejective (Watson & Heselwood 2016: 5f.).

6. Maǧhūr & Mahmūs consonants

In the modern Arabic dialects, the plain voiceless stops are normally aspirated, whereas the emphatic voiceless stops are unaspirated. A similar pattern may explain some features of the Quranic rhyme, where the emphatic voiceless stops *q* and *t* cluster with voiced consonants and resonants, while the plain voiceless stops do not. Moreover, the voiceless stops cluster in the rhyme with voiceless fricatives (with the exception of *ṣ*, for which see the discussion below).

This categorization of the rhyming consonants basically corresponds to Sibawayh’s distinction between the *maǧhūr* (‘shouted’) consonants, and the *mahmūs* (‘whispered’) consonants. The categorization can be summarized as follows (Danecki 2011):

Maǧhūr: ʔ, ʕ, ġ, q, ģ, y, ḍ, l, n, r, t, d, z, ẓ, b, m, w

Mahmūs: h, ḥ, x, k, š, s, t, ṣ, ṭ, f

This classification has often been considered surprising in modern Arabist literature. By and large, the distinction between the two categories seems to correspond to *voiced* and *unvoiced*

consonants. This, however, leaves the *mağhūr* consonants ʔ, q, and t to be explained, as they are typically considered voiceless. This has led some authors to suggest that q and t were actually voiced in the variety that Sibawayh described, which still left ʔ unexplained, as it is physiologically impossible to voice a glottal stop. An in-depth discussion is presented by Heselwood & Maghrabi (2015) and also Watson & Heselwood (2016), who argue that the q and t should not be considered to represent voiced articulations [g] and [dʳ]. Rather, it is the audible turbulent airflow typical of aspirated and voiceless fricative consonants that defines these as *mahmūs*, whereas the absence of the turbulent airflow defines the other consonants as *mağhūr*. As such, the authors conclude, there is no reason to assume exotic realizations of the phonemes q, t, and ʔ to understand why they were classified by Sibawayh among the *mağhūr* consonants.

That this classification is significant, on a phonetic level, and not just a theoretical construct developed by Sibawayh becomes clear from the Quranic rhyme. Regardless of the preceding vowel or consonant, *mağhūr* consonants rhyme with other *mağhūr* consonants, whereas *mahmūs* rhyme with other *mahmūs* consonants. The only striking exception to this is that, whenever š occurs in a rhyme position, it rhymes exclusively with *mağhūr* consonants, and not with *mahmūs* consonants; thus effectively disagreeing with Sibawayh's classification of this consonant as *mahmūs*. This problem will be discussed in more detail below, but for now, suffice it to say that in the following overview of rhymes in the Quran, we will consider the š to be *mağhūr*.

6.1 Rhyme

In this section, several examples of rhyme will be discussed, showing that *mağhūr* and *mahmūs* do not overlap in rhyme. For this discussion a schematic description of rhyme will be used. The signs for this schematic description are given in the table below.

C	Any consonant	
Ğ	<i>mağhūr</i>	ʔ, ğ, q, ğ, y, d, l, n, r, t, d, z, z, d, b, m, w, š
R	Resonant consonant	Subclass of <i>mağhūr</i> : l, n, r, m; very common rhyme
H	<i>mahmūs</i>	h, ħ, x, k, š, s, t, t, f
V	High long vowel	ī, ū
A	Low long vowel	ā

v	High short vowel	<i>i, u</i>
a	Low short vowel	<i>a</i>

Sometimes rhymes only concern part of Suras rather than complete Suras. A new rhyme is considered to start when the preceding and following verses of a certain section have different rhyming vowels, or different rhyming vowels and consonants.

There are a few cases where the rhyme vowel might be the same, and the only difference is the rhyming consonant shifting from Ğ to H or *vice versa*. It still seems justified to also consider this a shift of rhyme, as the rhymes are always sequential and never overlapping and whenever the rhyme shifts from Ğ to H or *vice versa*, the newly introduced rhyming consonant will have at least two verses of the same type. When such sequences occur they have been underlined.

The vast majority of the rhymes use Ğ (or its subset R) as its rhyming consonant. When H consonants are used as the rhyming consonant, they usually constitutes a monorhyme, most commonly either in *-at* or *-ah*.

6.1.1 VC Rhymes

VR rhymes predominate in the vast majority of the rhymes in the Quranic text. VĞ, however, is not at all uncommon, and freely rhymes with VR when it occurs. Q11, for example, has a large number of non-R Ğ consonants, and so do Q14, Q22 and especially Q50. But even Suras which are predominantly VR, such as Q2, Q3 and Q5 occasionally have VĞ rhymes interspersed, e.g. Q2: 176 *īd*; Q3:120 *īṭ*; Q5:109 *ūb*. While it does not seem fruitful to give every single example of these rhymes as they are so numerous, below we give an overview of the rhymes of Q11, which show the clear VĞ rhyme, and complete absence of the use of H consonants. All Ğ consonants that do not also belong to R have been marked in bold.

Q11: 1-4 *īr*, 5 *ūr*, 6-7 *īn*, 8-10 *ūr*, 11 *īr*, 12 *īl*, 13 *īn*, 14-17 *ūn*, 18 *īn*, 19 *ūn*, 20-24 *ūn*, 25 *īn*, 26 *īm*, 27 *īn*, 28-30 *ūn*, 31-33 *īn*, 34-38 *ūn*, 39 *īm*, 40 *īl*, 41 *īm*, 42-47 *īn*, 48 *īm*, 49 *īn*, 50-51 *ūn*, 52-53 *īn*, 54-55 *ūn*, 56 *īm*, **57-58 *īz***, **59-60 *ūd***, **61-62 *īb***, 63 *īr*, **64 *īb***, **65 *ūb***, **66 *īz***, 67 *īn*, **68 *ūd***, **69 *īd***, **70 *ūt***, **71 *ūb***, **72 *īb***, **73 *īd***, **74 *ūt***, **75 *īb***, **76 *ūd***, **77 *īb***, **78-80 *īd***, **81 *īb***, **82 *ūd***, **83 *īd***, **84 *īt***, 85 *īn*, **86 *īz***, **87 *īd***, **88 *īb***, **89 *īd***, **90 *ūd***, **91 *īz***, **92 *īt***, **93 *īb***, 94 *īn*, **95 *ūd***, 96 *īn*, **97 *īd***, **98-99 *ūd***, **100 *īd***, **101 *īb***, **102 *īd***, **103-104 *ūd***, **105 *īd***, **106 *īq***, **107 *īd***, **108 *ūd***, **109 *ūs***, **110 *īb***, 111-112 *īr*, 113 *ūn*, 114-116 *īn*, 117 *ūn*, 118-120 *īn*, 121-123 *ūn*.

There are only a few examples of VH rhymes most of which are monorhymes of the shape Vh. But Q101 rhymes two different items of H with each other.

Q69: 30-32 *ūh* (preceding: *ah*; following *VR*)

Q70: 11-14 *īh* (preceding *VR(ā)*; following *ē*)

Q80: 34-37 *īh* (preceding: *ah*; following *ah*)

Q101: 4-5 *ūṭ*, *ūš* (preceding: *ah*; following: *uh*)

6.1.2 VCA Rhymes

In the vast majority of VCA rhymes, the rhyme consonant in the C position belongs to the *mağhūr* category, but there are 16 cases out of 513 where the rhyming consonant is a *mahmūs* consonant, and in those cases, they simply stand in the middle of *mağhūr* rhyme. While this shows that in this type of rhyme, mixing of *mağhūr* and *mahmūs* was apparently allowed, there still is an overwhelming preference in favour of using *mağhūr* consonants. The 16 exceptions are: Q4:5, 8 *maṣrūfā*; Q4:28, 76 *ḍaṣīfā*; Q4:42, 78, 87 *ḥadīṭā*; Q4:66 *taṭbītā*; Q4:85 *muqītā*; Q4:103 *mawqūtā*; Q17:38 *makrūhā*; Q17:59 *taxwīfā*; Q17:83 *yaʔūsā*; Q17:104 *lafīfā*; Q33:32 *maṣrūfā*; Q33:69 *wağīhā*

6.1.3 AC Rhymes

AĞ is the second most common rhyme in the Quran. There is only one case of a AH rhyme, which moreover is a monorhyme, namely Q114: 1-6 which is *annās*.

It suffices to show the overview of one particularly clear example of a AĞ Rhyme, namely Q38: 2-66, which contains many of the *mağhūr* consonants (*q, ṣ, b, d, t, r, ġ*), cf. also Q13, Q14 and Q40.

2 *āq*, 3 *āṣ*, 4-5 *āb*, 6 *ād*, 7 *āq*, 8-11 *āb*, 12 *ād*, 13-14 *āb*, 15 *āq*, 16-17 *āb*, 18 *āq*, 19-21 *āb*, 22 *āt*, 23-26 *āb*, 27-28 *ār*, 29-30 *āb*, 31 *ād*, 32 *āb*, 33 *āq*, 34-36 *āb*, 37 *āṣ*, 38 *ād*, 39-44 *āb*, 45-48 *ār*, 49-53 *āb*, 54 *ād*, 55 *āb*, 56 *ād*, 57 *āq*, 58 *āğ*, 59-66 *ār*

6.1.4 aC rhymes

This rhyme type is fairly uncommon and tends to form monorhymes rather than rhymes that vary between the different consonants of their respective classes. The monorhymes have been excluded in the overview below.

-aĠ

Q96: 1-2 *aq* 3-5 *am* (following: *ē*)

Q111: 1-4 *ab*, 5 *ad*

Q113: 1-2 *aq* 3 *ab* 4-5 *ad*

-aH

Q69: 1-29 *ah* (following: *ūh*)

Q81: 1-14 *at* 15-18 *as* (following: VR)

Q88: 7-16 *ah*, 17-20 *at* (preceding: VĠ; following vR)

6.1.5 vC rhymes

Also for the majority of vC rhymes, which is not a very numerous category to begin with, most form monorhymes, but both for the vĠ as the vH type, we find variation between rhyming consonants.

-vĠ:

Q37: 4 *id* 5 *iq* 6 *ib*; 7 *id*; 8-11 *ib* (preceding: CCā; following VR)

Q51: 5 *iq* 6 *iġ* (preceding: CCā; following 7-9 vH)

Q70: 1-2 *iġ* 3 *iġ* (following *ah*)

Q86: 1-2 *iq* 3 *ib* 4 *iṛ* 5-6 *iq* 7 *ib* 8-10 *ir* (following: aCC)

-vH

Q51: 7 *uk* 8 *if* 9 *ik* (Preceding 5-6 vĠ; following VR)

6.2 Why is Ṣād a Maġhūr consonant?

In a study on the development of the emphatics in Modern South Arabian and Ṣanṣānī Arabic, Watson & Heselwood (2016) show that in these languages, the *maġhūr* and *mahmūs* consonants are distinct phonetic categories that trigger certain phonetic and morphological features. From this study it becomes clear that the *maġhūr* and *mahmūs* categories therefore make up clearly perceptively different categories, although they are categories not particularly recognized among categorizations normally made by phoneticians. However, Watson & Heselwood (2016) follow the framework of Mielke (2008) who argues that relevant phonetic categories should not be imposed upon the system from what phoneticians have decided are relevant categories, but rather that linguistic data should inform how categorizations are

constructed in a language. Their article is a resounding success in showing that such an approach can lead to very fruitful results. The way that the phonetic categories of *mağhūr* and *mahmūs* should be understood is seeing *mahmūs* as having an open glottis allowing for voiceless turbulent airflow, whereas *mağhūr* consonants have more glottal adductive tension severely restricting such airflow.

The Modern South Arabian languages treat the emphatic sibilant *ṣ* as a *Mağhūr* consonant, rather than a *Mahmūs* consonant, where Sibawayh categorises it. Ṣanṣānī Arabic, on the other hand, appears to agree with Sibawayh's description of Arabic in that it does treat *ṣ* as a *Mahmūs* consonant (Watson & Heselwood 2016: 32). In this aspect, Quranic Arabic is in agreement with the Modern South Arabian Languages, and should be seen as representing a stage that precedes its true development towards a true voiceless consonant, although it is no longer ejective at the time of Quranic Arabic as shown in section 4. The form(s) of Arabic that Sibawayh describes represents a more developed stage, which, similar to Ṣanṣānī, has fully devoiced the *ṣ*. There is no clear way in the International Phonetic Alphabet to transcribe a pharyngealized *s* without voiceless turbulent airflow due to adductive glottal tension, but the closest approximation of this sound in Quranic Arabic is probably [s^h] where the 'unaspirated' diacritic should be understood as no turbulent airflow rather than Sibawayh's [s^h] or [ts^h], which do have turbulent airflow.⁸ Following Watson & Heselwood (2016), we can classify the consonantal system of Quranic Arabic along the presence or absence of two features, which make up three categories.

The first feature is the presence of pharyngealization (*muṭbaq*), or its absence (*munfatih*); The second feature is the presence of voiceless turbulence (*mahmūs*) or its absence (*mağhūr*). In Sibawayh's definition, *ṣ* is the only consonant that is both *muṭbaq* and *mahmūs*, but the Quranic rhyme shows that in the language of the QCT, *ṣ* is not *mahmūs* but *mağhūr*. The three categories can therefore be defined schematically as:

- Voiceless: [+open glottis]
- Unemphatic: [-open glottis] [-pharyngealized]
- Emphatic: [-open glottis] [+pharyngealized]

⁸ On the possibility that Sibawayh describes an affricate *ṣ*, see Al-Jallad (2015).

7. The pronunciation of *tā' marbūṭah*

In the modern pronunciation of Classical Arabic, it is common to pronounce the *tā' marbūṭah* in pause simply as *-a*. This might suggest to a reader that the *hā'* can be used as a *mater lectionis* to write a short vowel /a/. It is, however, common in reading traditions of the Quran, even today, to pronounce this *hā'* consonantly, and Quranic rhyme confirms that it must be pronounced as such. This much is clear from the fact that it can rhyme with the third person pronominal suffix **-hu*, e.g.

Q74:	50: مستنفره	/mustanfīrah/	<i>mustanfīratun</i>
	51: قسوره	/qaswarah/	<i>qaswaratin</i>
	52: منشره	/munaššarah/	<i>munaššarah</i>
	53: الاخره	/al-āxirah/	<i>al-ʔāxirata</i>
	54: تذكره	/taḍkirah/	<i>taḍkiratun</i>
	55: ذكره	/ḍakara-h/	<i>ḍakara-hū</i>
	56: المغفره	/al-maḡfirah/	<i>al-maḡfirati</i>
Q75:	1: القيمه	/al-qiyāmah/	<i>al-qiyāmati</i>
	2: اللوامه	/al-lawāmah/	<i>al-lawāmati</i>
	3: عظامه	/ʕizāma-h/	<i>ʕizāma-hū</i>
	4: بنانه	/banāna-h/	<i>banāna-hū</i>
	5: امامه	/amāma-h/	<i>ʔamāma-hū</i>
	6: القيمه	/al-qiyāmah/	<i>al-qiyāmati</i>
	14: بصيره	/baṣīrah/	<i>baṣīratun</i>
	15: معاذيره	/maʕāḍīra-h/	<i>maʕāḍīra-hū</i>
	[16: لتعجل به]	/li-taʕḡala bi-h/	
	17: وقرانه	/wa-qurāna-h/	<i>wa-qurʔāna-hū</i>
	18: قرانه	/qurāna-h/	<i>qurʔāna-hū</i>
	19: بيانہ	/bayāna-h/	<i>bayāna-hū</i>
Q80:	11: تذكره	/taḍkirah/	<i>taḍkiratun</i>
	12: ذكره	/ḍakara-h/	<i>ḍakara-hū</i>
	13: مكرمه	/mukarramah/	<i>mukarramatun</i>
	14: مطهره	/muṭahharah/	<i>muṭahharatin</i>
	15: سفره	/safarah/	<i>saḡaratin</i>

	16: برره	/bararah/	<i>bararatin</i>
	17: اكفره	/akfara-h/	<i>ʔakfara-hū</i>
	18: خلقه	/xalaqa-h/	<i>xalaqa-hū</i>
	19: فقدره	/fa-qaddara-h/	<i>fa-qaddara-hū</i>
	20: يسره	/yassara-h/	<i>yassara-hū</i>
	21: فاقبره	/fa-aqbara-h/	<i>fa-ʔaqbara-hū</i>
	22: انشره	/anšara-h/	<i>fa-ʔanšara-hū</i>
	23: امره	/amara-h/	<i>ʔamara-hū</i>
Q96:	15: بالناصيه	/bi-n-nāṣiyah/	<i>bi-n-nāṣiyati</i>
	16: خاطيه	/xāṭiyah/	<i>xāṭiʔatin</i>
	17: ناديمه	/nādiya-h/	<i>nādiya-hū</i>
	18: الزبانيه	/az-zabāniyah/	<i>az-zabāniyata</i>
Q104:	1: لمزه	/lumazah/	<i>lumazatin</i>
	2: وعدده	/wa-ʕaddada-h/	<i>wa-ʕaddada-hū</i>
	3: اخلده	/wa-axlada-h/	<i>wa-ʔaxlada-hū</i>
	4: الحطمه	/al-ḥuṭamah/	<i>al-ḥuṭamati</i>
	5: الحطمه	/al-ḥuṭamah/	<i>al-ḥuṭamatu</i>
	6: الموقده	/al-mūqadah/	<i>al-mūqadatu</i>
	7: الافده	/al-afidah/	<i>al-ʔafʔidati</i>
	8: موصده	/mūṣadah/	<i>muʔṣadatun</i>
	9: ممدده	/mumaddadah/	<i>mumaddadatin</i>

8. The assimilation of the definite article *al-*

In the Pre-Islamic Arabic found in the Nabataean corpus, we find that its definite article ٱل is never spelled assimilated, except when the noun that follows starts with an /l/. In such cases only a single ٱ is written, hence ٱله /allāh/ and ٱلت /allāt/ (Diem 1983: §229-231). This gives us reason to suppose that the definite article was simply an unassimilated /al-/ in all environments. This seems to be confirmed by the pre-Islamic Graeco-Arabic material studied by Al-Jallad (2017: 167f.). He shows that the definite article, as a rule, remains complete unassimilated to the following coronal consonant.

Varieties of Arabic that continued to have an unassimilated definite article continue into the Islamic period. In the Damascus Psalm Fragment, an Arabic psalm text written in a Greek orthography, the definite article is consistently written without assimilation (Al-Jallad *forthcoming*).

With an unassimilated definite article both before and after Islam, this places the orthography of Quranic Arabic in new light. Was the ال a purely morpho-phonological spelling which does not write the assimilation before the sun letters, as in Classical Arabic today, or was the definite article, in fact, unassimilated as it was in Nabataean Arabic and the Arabic of the Psalm fragment?

Here it is worth noting that the Quranic Arabic spelling is not quite identical to the Nabatean spelling. In the QCT we find several cases where the /l/ of the definite article followed by a stem-initial /l/ is written with only a single ل, most prominently in the relative pronouns.⁹ Besides this, *al-layl* ‘the night’ is always spelled as الليل and never in its classical spelling *الليل. While such spellings, similar to Nabataean Arabic, are not uncommon, the majority of the nouns in fact spell the definite article as ال even before a following /l/, e.g. the ubiquitous الله /allāh/, and اللعنه /al-laṣnah/ ‘the curse’ (Q13:25; Q15:35; Q40:52), اللاعبين /al-lāʿibīna/ ‘the players’ (Q21:55), اللغو /al-laḡw/ ‘foolish talk’ (Q23:3; Q25:72; Q28:55), اللمم /al-lamam/ ‘the faults’ (Q53:32), اللطيف /al-laṭīf/ ‘the gentle one’ (Q67:14); اللوامه /al-lawwāmah/ ‘the accusing one’ (Q75:2) and اللت /al-lāt/ ‘al-Lāt’ (Q53:19).¹⁰

The fact that these words are spelled morpho-phonologically in a context where the phonological spelling would have required just a single ل suggests more broadly that the spelling of the definite article cannot be taken as an indication of its pronunciation in all contexts. Moreover, a motivation for such a morpho-phonological spelling in front of ل can only be understood if the definite article was, in fact, in some cases *not* pronounced identically to its shape. The Quranic rhyme gives us a very marginal hint that this line of reasoning is correct. In the final Surah of the Quran, *Sūrat al-Nās* (Q 114), the rhyme in all verses but verse 4 is الناس ‘mankind’, but Q114:4 has الخناس ‘the withdrawing one’. If we take the first word to have been pronounced /an-nās/ then it rhymes perfectly over two syllables with /al-xannās/. This would then

⁹ Note that the single *lām* in the relative pronouns is not just attested in the singular الذي or التي and plural الذين but also in the dual الذان/الذین and feminine plural forms الى، التي، contrary to the Classical Arabic orthographic norms.

¹⁰ اللولو /al-lūlū/ ‘the pearl’ (Q55:22; 56:23) is somewhat problematic, as several early Quranic manuscripts either only have a single *lām*, or seem to have been corrected. The archetype therefore may have had a single *lām* for this noun.

be a better rhyme than assuming the former was pronounced /al-nās/ and the latter /al-xannās/. Therefore, there is some reason to believe that the Classical Arabic pattern of assimilation of the definite article, also found in many modern dialects, was also the assimilation pattern that we find in Quranic Arabic.

9. Conclusion

Using the rhyme and spelling of the QCT, this paper has tried to determine the likely value of the consonants in the language of the QCT. Through careful examination of the way the QCT behaves, we can make several important deductions about the phonetics of Quranic Arabic. It is clear that the dentals and interdental were still distinct. There is clear evidence that (part of) the emphatic consonants were pharyngealized. Not much can be said about the phonetics of the *ḡīm*. There is nothing to indicate where it was pronounced as a [g] or rather as the palatalized [gʲ] or even [d͡ʒ]. Its assimilatory behaviour does exclude the possibility that it was pronounced as [ʒ]. There is evidence that the *ḍād* was not an interdental and hence, likely, was still a lateral fricative.

Besides these examinations derived from the QCT, an examination of the rhyme gives us further insight into the phonetics of Quranic Arabic. The Quranic Arabic consonants can be categorised into three categories, which here have been called Voiceless, Unemphatic and Emphatic and we find that in Quranic Arabic *ṣ* belongs to the emphatic category, where in Sibawayh's description it is in a transitional phase where it is both voiceless and emphatic. An overview of the consonantal system is given in the table below.

Subsequently, it was shown that the feminine ending is clearly pronounced with a consonantal [h] in the rhyme, and not as *-a*, the way it is often found in modern dialects and how it is often transcribed for Classical Arabic.

Finally, this paper has examined whether the coda of the definite article /al-/ was assimilated to the following coronal letters. While the evidence is sparse, the orthographic behavior and a single piece of evidence for the rhyme make it most likely that the definite article was assimilated before coronals.

	Labial	Dental	Lateral	Palatal	Velar	Pharyngeal	Glottal
Voiceless							
Stop		t [t ^h]			k [k ^h]		
Fricative	f [p ^h ~f] ¹¹	θ [θ]			x [χ]	ħ [ħ]	h
Sibilant		s		š [ʃ~ɕ]			
Unemphatic							
Stop	b	d			g [g~g ⁱ]		(?)
Fricative		ð [ð]			ġ [ɣ]	ʕ	
Sibilant		z					
Nasal	m	n					
Approximant		r	l	y [j]	w		
Emphatic							
Stop		ṭ [t ^ʕ]			q [k'~q ^ʕ]		
Fricative		ẓ [ð ^ʕ]	Ḍ [ɣ ^ʕ]				
Sibilant		ṣ [s ^ʕ]					

¹¹ There is no direct evidence that the *f* was a fricative and it may have still been an aspirated stop. Al-Jallad (2017: 125f.) argues that in Pre-Islamic Arabic, based on transcriptions in Greek, the case can be made that it was still an aspirated stop.

Bibliography

- Al-Dānī, 'Abū 'Amr (1984). *Al-Taysīr fī al-Qirā'āt al-Sab'*. (Ed.) Otto Pretzl. Beirut: Dār al-Kitāb al-'Arabī.F
- Al-Jallad, Ahmad (2015). On the Voiceless Reflex of *š and *ṭ in pre-Hilalian Maghrebian Arabic. *Zeitschrift für Arabische Linguistik* 62. 88–95.
- Al-Jallad, Ahmad (2017a). Graeco-Arabica I: The Southern Levant. In Ahmad Al-Jallad (ed.), *Arabic in Context*, 99–186. Leiden & Boston: Brill.
- Al-Jallad, Ahmad (2017b). The Arabic of the Islamic conquests: notes on phonology and morphology based on the Greek transcriptions from the first Islamic century. *Bulletin of the School of Oriental and African Studies* 80(3). 419–439.
- Al-Jallad, Ahmad (2017c). Was it sūrat al-baqārah? Evidence for Antepenultimate Stress in the Quranic Consonantal Text and its Relevance for صلوه Type Nouns. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 167(1). 81–90.
- Danecki, Janusz (2011). Majhūra/Mahmūsa. In Lutz Edzard & Rudolf de Jong (eds.), *Encyclopedia of Arabic Language and Linguistics* (online edition). Leiden & Boston: Brill.
- Diem, Werner (1983). Untersuchungen zur frühen Geschichte der arabischen Orthographie IV. Die Schreibung der zusammenhängenden Rede. Zusammenfassung. *Orientalia* 52. 357–404.
- Fischer, Wolfdietrich (2002). *A Grammar of Classical Arabic, third revised edition*. (Trans.) Jonathan Rogers. New Haven & London: Yale University Press.
- Geers, Frederick W. (1945). The Treatment of Emphatics in Akkadian. *Journal of Near Eastern Studies* 4(2). 65–67.
- Heselwood, Barry, Janet C. E. Watson & Reem Maghrabi (2014). The Ancient Greek *psilá-daséa* distinction as a possible source for *majhūr-mahmūs* distinction in Sībawayhi's Kitāb. *Histriographica Linguistica* 41. 193–207.
- Heselwood, Barry & Reem Maghrabi (2015). An Instrumental-Phonetic Justification for Sībawayhi's Classification of ṭā', qāf and hamza as majhūr Consonants. *Journal of Semitic Studies* 60. 131–175.
- Huehnergard, John (1997). Akkadian Grammar. *Orientalia* 66. 434–444.

- Kaye, Alan S. (1997). Arabic Phonology. In Peter T. Daniels & Alan S. Kaye (eds.), *Phonologies of Asia and Africa*, vol. 1, 187–204. Winona Lake, Ind.: Eisenbrauns.
- Mielke, J. (2008). *The emergence of distinctive features*. Cambridge: Cambridge University Press.
- Milo, Thomas (2009). Arabic Amphibious Characters. Phonetics, Phonology, Orthography, Calligraphy and Typography. In Markos Groß & Karl-Heinz Ohlig (eds.), *Schlaglichter. Die beiden ersten islamischen Jahrhunderte*. Berlin: Hans Schiler.
- Putten, Marijn van (2017a). The development of the triphthongs in Quranic and Classical Arabic. *Arabian Epigraphic Notes* 3. 47–74.
- Putten, Marijn van (2017b). The Feminine Ending *-at* as a Diptote in the Qur'ānic Consonantal Text and Its Implications for Proto-Arabic and Proto-Semitic. *Arabica* 64(5–6). 695–705.
- Putten, Marijn van & Phillip W. Stokes (2018). Case in the Qur'ānic Consonantal Text. *Wiener Zeitschrift für die Kunde des Morgenlandes* 108. 143–179.
- Versteegh, Kees (2011). Dād. In Lutz Edzard & Rudolf de Jong (eds.), *Encyclopedia of Arabic Language and Linguistics* (online version). Leiden & Boston: Brill.
- Watson, Janet C. E. & Barry Heselwood (2016). Phonation and glottal states in Modern South Arabian and San'ani Arabic. In Youssef A. Haddad & Eric Potsdam (eds.), *Perspective on Arabic Linguistics XXVIII: Papers from the Annual Symposium on Arabic Linguistics, Gainesville Florida, 2014*, 3–36. Amsterdam: John Benjamins. (19 September, 2018).